**Final Report**

# "Impact Assessment and Evaluation of Ration Balancing Program in Vidarbha and Marathawada Dairy Development Project in Maharashtra State"



## Funded by Vidarbha Marathawada Dairy Development Project, Nagpur, Maharashtra


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# Foreword

India stands at first position in terms of cattle and buffalo population in the World. The population of cattle and buffalo in India was 192.49 million and 109.85 million in 2019 which accounts for around 19.5 per cent and 54.6 per cent share respectively of World cattle and buffalo population. However, the productivity of dairy animals in India is very low as compared to other countries. The reason cited for this is inappropriate feeding as well as inadequate supplies of quality feeds and fodder in addition to the low genetic profile of the Indigenous breeds. It will not be possible to achieve higher productivity in a milch animal by merely increasing its genetic potential, due attention needs to be given on proper feeding of milch animal. There is evidence to show that when a milch animal is fed with balanced diet, it receives the required nutrients to produce milk commensurate with its genetic potential. Research and field trials indicate that this approach to feeding has the potential to increase milk yield, reduce cost of milk production, and contribute to reducing methane emissions. Milch animals in India are usually fed one or two locally available concentrate feed ingredients, locally available grasses and crop residues. This often leads to an imbalanced ration–resulting in proteins, energy, minerals and vitamins being either in excess or deficient. Imbalanced feeding adversely impacts not only on the health and productivity of animals but also affects income from milk production since an estimated 70 per cent of the total cost of milk production is contributed by feed and fodder alone. Therefore, there is a need to educate milk producers on feeding balanced ration to their animals so that the nutrients required by their individual milch animals is fulfilled in an optimum manner, thereby improving milk production efficiency and the economic return.

With an aim to increase productivity of milch animals and thereby increase milk production to meet the rapidly growing demand for milk as well as to provide rural milk producers with greater access to the organized milk-processing sector, Government of India had approved the scientifically planned multi-state initiative, i.e. National Dairy Plan Phase I (NDP I) as a Central Sector Scheme for a period of six years from 2011-12 to 2016-17, which is extended up to 2018-19. This plan is implemented wholly by National Dairy Development Board, Anand (Gujarat) through milk co-operatives and state agencies. The project includes a number of programs, of which Ration Balancing Program (RBP) was designed with an aim to improve milk yield of milch animals, reduce the feeding costs/kg of milk produced and reduction in methane release per kg of milk produced by animals.

Under the productivity enhancement program of NDP-I, among various other components, implementation of 'Ration Balancing Program' of dairy animals was also implemented in selected Dairy Unions of Maharashtra. The Kolhapur, Solapur and Pune milk unions has implemented NDDB's ration balancing programme covering around 600 villages with an aim to cover about 56000 milch animals in these milk sheds. The positive impacts of Ration Balancing Programme under

NDP-I in selected district/milk unions of Maharashtra has been inspirational and therefore it was decided to take forward this project in Vidarbha and Marathawada regions through Vidarbha Marathawada Dairy Development Board (VMDDP) in 2019 under Rashtriya Krishi Vikas Yojana. RBP under VMDDP plans to cover 10 districts. Through Tri Party MOU, this RBP is being implemented in three districts, viz. Nagpur, Wardha and Amravati districts by MoooFarm Private Limited Gurgaon, Haryana on pilot basis in October 2019. Six months was the duration agreed for this project which ended on April 22, 2020. Due to unprecedented situation of COVID19 Pandemic, the operational; period has been extended till October 22, 2020. NDDB is involved in this pilot project as a technical monitoring and advisory agency. Under this RBP programme, it was reported that total 400 villages are covered with 13600 animals of 6800 farmers and it is estimated reduction of cost of feeding by 7 percent. As the project period got completed and for future plan of action, it was felt necessary by VMDDP, Nagpur to have impact evaluation of this program before proceeding further. Therefore, present study was undertaken by our Centre in the selected three districts of Vidarbha region of Maharashtra state.

The study has been completed within a very short span of two-month period under the shadow of COVID19 pandemic and came out with the suitable policy implications. I would like to congratulate the entire project team for collecting quality data and preparing this excellent research report. I hope findings of the study would be useful for policy makers, funding agency and administrators of this programme.

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We are grateful to the **Shri Ravindra Thakare, District Collector, Nagpur district, Maharashtra** and Project Director Vidarbha Marathawada Dairy Development Project (VMDDP), Nagpur, Maharashtra for approaching us for this research study work and guiding us during the entire study period.

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Thanks to **Madam Manju Singh**, MoooFarm Pvt. Limited, Gurgaon, Haryana and team of Mooofarm on field (includes Cluster Coordinators and Local Resource Persons) of all three districts under study for their support and cooperation during the field survey work.

The study would not have reached to this stage without the active co-operation of the Local Resource Persons and sample households (beneficiaries, non beneficiaries), who provided all the required data for the study without any hesitation and expectation. We thank each one of them for their invaluable support.

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February 2021

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# List of Abbreviations

| | | |
|---|---|---|
| A.I. | - | Artificial Insemination |
| A.I.C. | - | Artificial Insemination Centre |
| AERC | - | Agro-Economic Research Centre |
| AERC | - | Agro-Economic Research Centre |
| ASMM | - | Area Specific Mineral Mixture |
| Av. | - | Average |
| BEN | - | Beneficiary |
| BRGF | - | Backward Regions Grant Fund Programme |
| CB | - | Crossbred |
| CC | - | Cluster Coordinators |
| DADF | - | Department of Animal Husbandry, Dairying and Fisheries |
| DCP | - | Digestible Crude Protein |
| DCS | - | Dairy Cooperative Society |
| DM | - | Dry Matter |
| DPAP | - | Drought Prone Area Programme |
| EIA | - | End Implementing Agency |
| FDG | - | Focus Group Discussion |
| GCA | - | Gross Cropped Area |
| GIA | - | Gross Irrigated Area |
| GOI | - | Government of India |
| GOM | - | Government of Maharashtra |
| ha | - | Hectare |
| HH/hh | - | Household |
| IDA | - | International Development Association |
| INAPH | - | Information Network for Animal Productivity and Health |
| kg | - | kilograms |
| LRP | - | Local Resource person |
| LTPD | - | Litres per day |
| mha | - | Million hectares |
| MOA | - | Ministry of Agriculture |
| mt | - | Metric Tonnes |

| | | |
|---|---|---|
| NA | - | Not Available |
| NBEN | - | Non-Beneficiary |
| NDDB | - | National Dairy Development Board |
| NDP | - | National Dairy Plan |
| Nos | - | Numbers |
| NRBP | - | Not covered under RBP |
| OF | - | Operation Flood |
| PCs | - | Producers Company |
| PDO | - | Project Development Objective |
| PMC | - | Project Management Cell |
| PMU | - | Project Management Unit |
| Prodvty. | - | Productivity |
| RBP | - | Ration Balancing Programme |
| SC | - | Scheduled Caste |
| SNF | - | Solid Not Fat |
| SPU | - | Sardar Patel University |
| ST | - | Scheduled Tribe |
| SWOT | - | Strength, Weakness, Opportunity and Threat |
| TDN | - | Total Digestible Nutrients |
| TO | - | Technical Officer |
| VAP | - | Village Awareness Programme |
| VMDDP | - | Vidarbha Marathawada Dairy Development Project |
| Y | - | Yield |

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## Executive Summary

## "Impact Assessment and Evaluation of Ration Balancing Program in Vidarbha and Marathawada Dairy Development Project in Maharashtra State"

### 1. Backdrop

Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Most of the milk is produced by animals reared by small, marginal farmers and landless labourers. It has been witnessed over the years that the stability in dairy income is far stronger than the income realised from agricultural activities. Though India stands at first position in terms of cattle and buffalo population in the world, the productivity of dairy animals in India is very low as compared to other countries. The reason cited for this is inappropriate feeding as well as inadequate supplies of quality feeds and fodder in addition to the low genetic profile of the Indigenous breeds. It is not possible to achieve higher productivity in a milch animal by merely increasing its genetic potential, due attention needs to be given on proper feeding of milch animal. There is evidence to show that when a milch animal is fed a balanced diet, it receives the required nutrients to produce milk commensurate with its genetic potential. Research and field trials indicate that this approach to feeding has the potential to increase milk yield, reduce cost of milk production, and contribute to reducing methane emissions. Milch animals are usually fed one or two locally available concentrate feed ingredients, grasses and crop residues. This often leads to an imbalanced ration– resulting in proteins, energy, minerals and vitamins being either in excess or deficient. Imbalanced feeding adversely impacts not only the health and productivity of animals but also affects income from milk production since an estimated 70 percent of the total cost of milk production is contributed by feed. Therefore, there is a need to educate milk producers on feeding balanced ration to their animals so that the nutrients required by their individual milch animals is fulfilled in an optimum manner, thereby improving milk production efficiency and the economic return.

With an aim to increase productivity of milch animals and thereby increase milk production to meet the rapidly growing demand for milk as well as to provide rural milk producers with greater access to the organised milk-processing sector, Government of India had approved the scientifically planned multi-state initiative, i.e. National Dairy Plan-I (NDP I) as a Central Sector Scheme for a period of for a period of eight years from 2011-12 to 2018-19 in 18 major milk producing states. This plan is implemented wholly by National Dairy Development Board, Anand (Gujarat) through milk co-operatives and state agencies. The project includes a number of programs, of which Ration Balancing Program (RBP) was one among them which is designed with an aim to provide advisory on balance ration in order to improve milk yield of milch animals, reduce the feeding costs/kg of milk produced and reduction in methane release per kg of milk produced by animals. The post-project evaluation report by Sirohi, et al. (2017) indicate that ration balancing intervention enhanced the productivity of cows by around 13 per cent and of buffaloes by nearly 5.5 per cent in Gujarat while in case of Punjab, the estimates of productivity gain for cows was close to 13 per cent based. Ration balancing has found to be cost effective in terms of percentage reduction in feed cost and feed cost/litre.

Though Maharashtra State has the distinction of being the pioneer state in the field of dairy development in the country, dairy development in the state has inter-regional variations. Particularly, dairy development in Vidarbha and Marathawada regions is comparatively lower than other parts of the state. Vidarbha and Marathawada regions are

less developed in the area of infrastructure development as well as the overall State development indicators. The less development in these regions is due to its disadvantageous geographical location, frequent droughts, scarcity of water, cracked soils and poor socio-economic condition compared to other regions of the state. Under the productivity enhancement program, among various other components, implementation of 'Ration Balancing Program' of dairy animals was also implemented in selected Unions of Maharashtra. The Kolhapur, Solapur and Pune milk unions has implemented NDDB's ration balancing programme covering around 600 villages to cover about 56000 milch animals in these milk sheds. In order to enhance the milk production in Vidarbha and Marathawada region of Maharashtra, under Rashtriya Krishi Vikas Yojana (RKVY), with the support of National Dairy Development board, Anand, Government of Maharashtra had approved a Special Project for supply of quality cattle feed and supplements, fodder development programme and Veterinary Services at Village level.

The positive impacts of Ration Balancing Programme under NDP I in selected district/milk unions of Maharashtra has been inspirational and therefore it was decided to take forward this project in Vidarbha and Marathawada regions through Vidarbha Marathawada Dairy Development Board (VMDDP) in 2019 under Rashtriya Krishi Vikas Yojana. RBP under VMDDP plans to cover 10 districts. Through Tri Party MOU, this RBP is being implemented in three districts, viz. Nagpur, Wardha and Amravati districts by Mooofarm Private Limited Gurgaon, Haryana on pilot basis in October 2019. Six months was the duration agreed for this project which ended on April 22, 2020. Due to unprecedented situation of COVID19 Pandemic, the operational; period has been extended to October 22, 2020 and then further to February 2021. NDDB is involved in this pilot project as a technical monitoring and advisory agency. Under RBP programme, total 400 villages are covered with 13600 animals of 6800 farmers and it is estimated reduction of cost of feeding by 7 percent. As the project period got completed and for future plan of action, it was felt necessary to have impact evaluation of this program before proceeding further. Therefore, present study was undertaken in the selected three districts of Vidarbha region of Maharashtra state.

## 2. Data and Methodology:

The study is based on both, the secondary and primary level data. The secondary data were compiled from the published sources, Office of NDDB/Mother dairy and VMDDP, Nagpur and their websites. The primary data were collected from the sample cattle owners. The programme has been implemented by Vidarbha and Marathawada Dairy Development Project, Nagpur in three districts (Nagpur, Wardha and Amravati) of Vidarbha region of Maharashtra through Mooofarm Private Limited, Gurgaon, Haryana. The data were collected from the total sample of 300 beneficiaries, 300 non-beneficiaries and 60 LRPs from 60 selected villages from three districts. Six types of survey schedules were canvassed in the study area.

## 3. Need of Ration Balancing:

Farmers feed their animals based on their traditional knowledge and information passed through generations with crop residues, locally available one or two feed ingredients like brans, oil-cakes, chunnies, grains etc. and seasonally available green fodders. They rarely offer mineral mixture to their animals or in a very less quantity of 25 gm to 50 gm per day per animal. In most of the cases, the quantity of feed/fodder offered to animals is either more or less than the requirements. This leads to an imbalance of protein, energy and minerals in their ration. Animals on such imbalanced ration produce milk sub-optimally,

cost of milk production is higher and it affects the health and fertility of animals. Besides, it also reduces the net daily income to milk producers from dairying because the potential of milk production of animals is not fully exploited. Therefore, milk producers need to understand the implications of imbalanced feeding and recognise the importance of giving their animals balanced ration. Thus, it was felt necessary to educate the farmers on feeding of balanced ration. Ration Balancing Program is one of such programmes adopted under NDP-I to provide advices to farmers at their door step.

## 4. NDDB's Ration Balancing Programme (RBP) and its achievement:

The estimation of nutrient requirement of an animal depends on factors like animal type, class, age, pregnancy status, body weight, milk yield, milk fat, months of calving etc. Information on nutrients availability from the feeds and fodder being fed is required to assess the nutrients supply. Based on nutrient requirement and availability of feed resources, a least cost animal ration shall be formulated. This formulation is a complex exercise and is very difficult to work out manually. Therefore, National Dairy Development Board (NDDB) has developed the software, Information Network for Animal Productivity and Health (INAPH), which formulate least cost balanced ration. The objective of NDDB's RBP is to produce an optimum quantity of milk at the least cost from milch animals by readjusting, wherever required, the proportion of locally available dietary feed ingredients, so as to provide them adequate amounts of proteins, minerals, vitamins as well as energy. NDDB developed user-friendly software for ration balancing is used by dedicated local resource persons (LRPs). The LRP is trained by the implementing agency to effectively use the software in the local language and involves the following steps: (a) assessing nutrient status of animals; (b) assessing chemical composition of locally available feed resources; (c) assessing nutrient requirement of animals; (d) formulating least cost balanced ration using locally available resources.

The programme was implemented in 33,374 villages covering 28.65 lakhs dairy animals of 21.57 lakhs farmers across 18 major dairying states of India. Implementation of the programme has resulted in increase in milk yield and fat content along with reduction in feeding cost. On an average there was increase in net daily income of the farmers by Rs 25.5 per animal due to reduction in feed cost (Rs 16.3) and additional milk yield and increased fat content (Rs. 9.2). RBP also resulted in increased lactation period (milk days) by average 26 days for cows and 50 days for buffaloes. Besides this feeding balanced rations to dairy cows and buffaloes resulted in average 13.7% reduction in enteric methane emission per kg of milk.

## 5. About Study Area and VMDDP:

Occurrence of frequent drought and inadequate irrigation facilities in Vidarbha and Marathawada regions is leading to frequent crop failure and rising debt burdens on farmers, which leads to the high incidence of farmers' suicide in these regions. This region holds promise for stimulating growth, given the resources available for dairying. Dairy can play a pivotal role in providing sustainable livelihood in these regions. States like Rajasthan and Gujarat which are second and fourth largest milk producing States, having dry climate with frequent occurrence of droughts, are well developed in dairying. Now dairying has become a source of livelihood for rural household in these states. Vidarbha and Marathawada could achieve this sustainable growth only through implementation of integrated Dairy Development intervention in mission mode. With an objective to make dairying as a source of sustainable livelihood and poverty alleviation for milk producers in Vidarbha and Marathawada region of the Maharashtra, Government of Maharashtra has approved the 'Vidarbha and Marathawada Dairy Development Project (VMDDP).

## 6. Implementation and Monitoring of RBP by EIA:

The Triparty Memorandum of Understanding is signed on September 7, 2019 between three parties, viz. Department of Animal Husbandry, Dairying and Fisheries, State Government of Maharashtra; National Dairy Development Board, Nagpur and MoooFarm Private Limited, Gurgaon (Haryana) for implementation of Ration Balancing Advisory Servicing using NDDB's INAPH software and extension services using MoooFarm's White Tech ICT application in Nagpur, Amaravati and Wardha district of Maharashtra under Vidarbha Marathawada Dairy Development Project for the project duration from September 2019 to March 2020.

MoooFarm Pvt. Limited, Gurgaon, Haryana is private firm registered on July 19, 2019 in Haryana state mostly engaged in the activities in Punjab and Haryana for sustainable development of farmers. The EIA has no past experience of RBP implementation before implementing in Vidarbha region of Maharashtra. The date of official inception of RBP in Vidarbha region of Maharashtra is November 2019. At the time of the implementation of programme, target was set to cover 13600 animals and 6800 farmers /cattle owners from 400 villages of 3 districts. To achieve the said target, it was planned to appoint 200 local resource persons and 10 cluster coordinators in these districts. As per the data submitted by EIA, all the set targets are achieved. Though 209 LRPs were appointed and trained, but due to high rate of attrition, only 110 LRPs and 9 CCs are working at present which is short of target of 200 and 10 respectively. All the LRPs appointed are male and none of the female staff as LRP and or Cluster Coordinator was found working which. Total 395 village awareness programme were organized. While neither poster and banners were displayed in the villages nor pamphlets were distributed among the villagers. No one has reported about the wall painting in villagers regarding this programme.

The staff of the EIA including project manager, project coordinator, cluster coordinators and technical officers along with 23 LRPS have attended the training programme at National Dairy Development board, Anand. The senior officials of NDDB, Nagpur and Project Coordinators of Mooofarm who got training at NDDB Anand have trained the LRPs appointed in each district by conducting six days training programme having theory and practical content.

The number of VAPs conducted were significant during the first month of inception of programme (November 2019) and later on number of VAPs have drastically declined which may be due to Corona Pandemic. Total 395 VAPs are conducted of which maximum were organized in Amravati district followed by Wardha and lowest were in Nagpur District.

The application of INAPH used is android based for LRP which is offline while same was web based online for Cluster Coordinators working on the field which is in English language. The issues related to software in notebook/android phone of LRP are majorly resolved by CCs, TOs & PC, and if issue remain unresolved, then same is reported to NDDB. As the software is provided by NDDB and troubleshooting is done by NDDB's team, no local IT expert has been appointed by EIA. Whatever the data is uploaded by LRP is being checked, cross verified, and assessed regularly based on which suitable recommendations are given to the LRPs for better implementation of program.

The whole project is managed by Project Manager at Head Office level and project Co-ordinator appointed at the local EIA level along with project team.

All LRP were male and each of the LRP had covered around 3-4 villages at overall level. Every LRP covered around 37-51 cattle owners and 79-90 animals. On an average, every LRP has given 5 advisories. Despite of SOP, data shows that significant number of LRPs have covered more than five villages which is not practical to cover and attend each household. The LRP is being paid remuneration on the basis of total number of animals covered having maximum limit of Rs. 9500/- per month. No other allowances were paid to LRP and CC. While inquiry with LRP during visit revealed that Rs. 70/- per animal remuneration was fixed and maximum three animals per households were enrolled under RBP. Besides remuneration, LRP should have been provided with petrol allowance, internet charges and accidental life insurance facility.

As Mooofarm is engaged in advisory services only and unlike the Milk Unions on Gujarat and Punjab states, no procurement of milk, sale of mineral mixture and cattle feed was undertaken, thus impact cannot be assessed at EIA level.

No incentives are provided to local resource person at present which is of major concern to retain the LRPs. LRPs are provided with NDDB EVM booklet which specify the traditional practices to control various diseases of milch animals. LRPs are using same for additional advisory to cattle owners.

As per EIA response, Field and online Monitoring of LRPs is regularly done by CCs & TOs and data filled by LRPs in INAPH is checked regularly by project coordinator and project manager, then based on data analysis, instructions are given to team for better implementation. Besides, it was reported that monthly review meetings of LRPs & CCs are taken alongside surprise visits by team from Head Office

So far EIA has not so far put suitable mechanism in place to ensure sustainability of the programme either through commission on sale of mineral mixture, concentrates, etc. or by capacity building of LRP for paid advisory to farmers on veterinary and related issues. EIA has willingness to continue the programme after completion of its period by providing the commission to LRP on the sale of mineral mixture, concentrates, etc.

In response to issue of sustainability of program, EIA has opined that at the moment handholding of the program is required as farmers are still developing the habit of implementing RBP. It is only with time that impact will start showing for each farmer, impact will be essential for farmers to understand the RBP practices. As of now, farmers follow the advice suggested by LRP as LRPs suggest that program is beneficial as well as farmers don't have to pay anything. It is only after a long run once impact shows, that project can be taken into transition phase and farmers can be convinced towards making marginal payment for each transaction to LRP which will lead the project towards a sustainable model. EIA reported reduction if cost of milk production by 8.55 per cent without citing the exact cost incurred per liter production if milk before and after program implementation.

Mooofarm Pvt. Limited reported that grazing is a common practice in Vidarbha Region and it was slightly difficult in the beginning to convince farmers for RBP but when results start showing in fellow farmer's farm, few get encouraged to implement the RBP. Regular supply of Mineral Mixture, Cattle Feed, etc. is definitely required to ensure continuous implementation of ration balancing. Constant care of cattle with regards to change in Ration as per age and stage are some actions recommended to follow up or reinforce initial benefits from the program.

## 7. Progress of RBP and its Impact (Secondary data):

Total 272 villages were functional under RBP at the time of receipt of data of which 89 villages each were in Wardha and Amravati district and 86 villages were covered in Nagpur district. On an average, 23-28 households and 47-49 animals are covered in each village and around 5 advisories are provided to each animal. The impact of RBP can be seen in terms of increase in number of pourer members, mineral mixture sale and fat % in milk (except in case of Wardha). Decline in milk procurement and SNF (%) is estimated in Nagpur district, while decline in FAT and SNF (%) is estimated in Wardha district. While cattle feed sale increased in Nagpur while same declined in other two districts. No sale of Vitamins and Bypass fat was reported in these districts. De-wormer sale was started in the beginning which seems to be discontinues later time period. Same trend was observed in the selected 20 villages each in three selected districts as seen earlier. Decline in milk Fat in villages of Wardha district is the major concern. No veterinary visits were arranged by the Mother dairy or any stakeholder in this programme

The major achievement of the RBP programme is observed in terms of increase in fat content of milk, while milk productivity is estimated declined which need to be investigated in detail to know the reasons for same. The milk yield increased by 2 per cent and fat by 3.61 percent over base period at overall level. The average cost of feeds and fodder declined by 6.59 per cent.

## 8. About Selected District and Villages

Vidarbha is the north-eastern region of Maharashtra state, comprising of Nagpur Division and Amravati Division. Traditional crops such as cotton, jowar, bajra, tur and rice are grown. The main cash crops of the region are cotton, oranges and soybean. The living conditions of farmers in this region is poor compared to India as a whole. Between 2001 and 2018, a total of 6,154 farmers from Marathawada died by suicide, while the number for Vidarbha is 17,547. In 2006, the Ministry of Panchayati Raj named Amravati one of the country's 250 most backward districts (out of a total of 640). Amravati is one of the twelve districts in Maharashtra currently receiving funds from the Backward Regions Grant Fund Programme (BRGF). The livestock population in selected three districts indicate that the cattle dominates in the total livestock population in each district by accounting more than half of total livestock population. Goat accounts for more than one fourth of total livestock population of the selected district while buffalo accounts for around 10 per cent of total livestock population of each district.

The selected villages were of medium size in terms of population having average size of 2000-2800 population with average number of household ranges from 415 to 673. The villages in Amravati district are more populated and large in size as compared to other two districts. Villages in Nagpur and Wardha are around 22 kms away from nearest town while villages in Amravati are found much closer to town (12 kms around). Out of the total geographical area of the village, net sown area accounts for around 76 per cent in Wardha, 72 per cent for Amravati and 69 per cent for Nagpur district. The highest area under irrigation is reported in Wardha followed by Nagpur and then Amravati. Despite of very poor irrigation coverage in Amravati division, selected villages accounted significant sown area under irrigation which indicates the selection of villages on the basis of irrigation availability which is must for fodder production and livestock rearing purpose. The villagewise livestock population again depict the dominance of cattle in the total livestock population. Goat accounts for more than one fourth of total livestock population of the selected district while buffalo accounts for around one tenth of total livestock population of each village.

## 9. About Sample Households and LRPs

The average size of household is estimated to be six persons, while across groups, size of beneficiary households found to be higher than non-beneficiary household in all three districts. While across districts, large size of households is reported in Wardha (more than persons) followed by Nagpur and Amravati. The share of adult family members working in dairy is estimated the highest in Amravati district (42-42%) followed by in Nagpur (37-40%) and the lowest in Wardha district (33-37%). The average age of the respondent was between 40-45 years having education up to 9$^{th}$ standard only.

Around 88 per cent of selected beneficiary households owned agriculture land having more than 17 years of experience in dairy and 12 years of farming experience. Majority of them maintain the dairy records. While very few households in Wardha and Amravati district have biogas facility at home and none in Nagpur district has this facility. Almost more than 95 per cent of selected households have toilet facility at home. Thus, beneficiary household is large in size, more members works in dairy, younger and more experienced than non-beneficiary household.

The socio-economic characteristics of selected households shows that around 98 per cent households belong to Hindu religion while remaining are from Islam, Christian and Sikh religion. Almost 78 per cent of total households belong to other backward class social category followed by around 13 per cent belongs SC ST category and rest were from general category. In all the districts and both cases, agriculture was the main occupation and animal husbandry and dairying reported as subsidiary occupation. Majority of the beneficiary households in all three selected districts are from APL category, highest number of households were found in Wardha followed by Nagpur and the lowest are in Amravati district. At overall level, the beneficiary farmers had little bit more exposure and received support as compared to non-beneficiary farmers, due to implementation of programme having support of local resource person. Chaff cutter was the most common productive asset with some of the households while very few has milk machine and fodder harvester. The cropping pattern of selected households indicate that sample households had highest area under cotton crop followed by area under soybean crop and fodder crop. The beneficiary households had put relatively more area under fodder crops than non-beneficiary households.

All LRPs were male and no female LRP was found working in any selected districts of Vidarbha region. The average age of LRP is estimated to be 27 years. Out of total LRPs, hardly 27 per cent are married, thus majority of them are bachelor. It may be due the fact that most of LRPs are undergraduate or diploma holder having average education of 14 years. At overall level, about 85 per cent of LRPs reported having agricultural land with household with average size of holdings of 3.53 acre. The average number of milch animals owned by selected LRP is estimated to 2.8 animals, having highest in Nagpur district (3.6 animals) and the lowest one in Amravati district (1.6 animals). Three LRPs each in Nagpur and Amravati while on LRP in Wardha do not own any livestock animal. Same trend was observed in case of experience in dairy wherein LRPs in Nagpur are experienced than Wardha and Amravati district. The association of these selected LRPs with cooperative societies is estimated to be around two years only

Almost two third of total LRPs belongs to Other Backward Class social category followed by ST and General. As some part of each district fall in hilly area and categorized as tribal area, 10 per cent of sample LRPs belong to this category. Crop cultivation is the main occupation and animal husbandry and dairy is the subsidiary one. Annual household income is estimated to be around Rs.1.24 lakh per household, having highest in Nagpur

and lowest in Wardha district. Though the selected LRP receive fixed salary as per number of animals covered with is estimated around Rs. 7363 per month, none of them have earned incentives on sale of other product as well as through other assignments. Most of the LRPs have puccka house with electric facility. All the LRPs have toilet facility at home.

## 10. Findings from Field Survey

### 10.1 Livestock holdings/Herd Strength

- Altogether, number of cattle covered under RBP were higher than buffalos in selected areas all three districts. However, among the cattle, crossbreed cattle dominated the numbers. Among district, selected households in Wardha district has the highest herd strength followed by Nagpur and Amravati district.

- At overall level, beneficiary households have larger herd strength than non-beneficiary households in all three districts. The number of animals reared are very high in Wardha district, having dominance of crossbred cows followed by local cows and then buffaloes. While in case of Nagpur and Amravati districts, highest number is of crossbred cows followed by buffaloes and then local cows. Total 996 crossbred cows, 236 local cows and 282 buffaloes of selected households of all three districts were covered under RBP.

### 10.2 Breedable Animals

- On an average, in both beneficiary and non-beneficiary group, the age at first calving of local cattle was found higher than crossbred cows. The average age of first calving ranges from 28-30 months in case of cows and 41-44 months in case of buffalos. Milch animals in beneficiary households has lower age of first calving than non-beneficiary households. The average age at the time of last calving month is estimated to be between 70-80 months in both the cases.

- The average order of lactation is estimated to be between 3-4 in both the group across all breeds. The average number of dry period is estimated to be around 70 days for crossbred cows and 75 days for local cows and buffaloes in beneficiary households which was relatively higher in case of non-beneficiary households. The lactation period is estimated to be around 287-300 days in both the groups.

- The level of peak yield recorded during the present lactation was found higher than earlier lactation in the both groups. The peak yield level of milk of local and crossbred cows covered under RBP was found higher than animals not covered under RBP as well as the yield level recorded of animals with non-beneficiary households. The average milk recorded was higher in crossbred cows than local cows as well as buffaloes. Thus, the positive impact of programme on ration balancing could be broadly seen from the high level of peak yield figures of crossbred cows. The milk yield is reported the highest in crossbred cows followed by in buffalo and the lowest was in local cows.

### 10.3 Details on Feed and Fodder

- The animals selected under RBP were fed not only at the stall but also taken out for grazing. The stall feeding is the mandatory requirement to balance the diet of particular animal. On an average, five to six hours of grazing out was reported by

the selected households. Thus grazing out practice of milch animals covered under RBP defiantly unbalance the nutrition of animals covered under RBP and thus affect the outcome of advisory given by the LRP. Therefore, selected cattle owners are required to be educated and convinced about the only stall feeding practice for better result of RBP which covers health, milk yield as well as pregnancy issues of milch animals.

## 10.4 Details on Prices of Feed and Fodder, Wages & Value of Animals

- The average fodder consumption for animals covered under RBP is estimated to be lower than animals of non-beneficiary in case of local and crossbred cows but no difference is observed in case of buffaloes. The significant difference is observed in case of dry fodder fed to animals covered under RBP after RBP as compared to fodder fed before RBP. Reduction in green fodder feeding is also observed in case of local cows, crossbred cows and buffaloes. The animals were also fed with concentrates which were mostly purchased from the market.

## 10.5 Details on Prices of Feed and Fodder, Wages and Value of Animals

- There was not much difference between the rate paid for fodder and concentrates paid by the beneficiary and non-beneficiary households in both districts. On an average, rate of dry fodder is estimated to be between Rs. 5-6 per kg, Rs. 1.3-3 per kg for green fodder. The rate for concentrates ranges from Rs. 15-30 per kg depending upon the type concentrates. As mentioned earlier, use of mineral mixture is increased in study area and the rate of same ranges between Rs. 90-250 per kg. The rate for per day use of human labour for male ranges between 180-380, while same for female workers is estimated to be between Rs. 150-230/- per day.
- The cost of feeds and fodder is declined after RBP by 7.3 per cent at overall level over the before RBP period

## 10.6 Details on Veterinary and Breeding Services and Expenditures

- The selected households had incurred expenditure on medicine and doctor as and when some of animals fell sick. On an average beneficiary household had incurred medicine plus doctor fee cost ranging between Rs. 45-800/- per animal during the year, while corresponding figure for non-beneficiary was which ranges between Rs. 400-750/animal. The amount spent towards cost of medicine and doctor on animals not covered RBP by beneficiary households was relatively lower than animals covered under RBP. During the visit to the field and discussion with the selected household, it was observed that despite of various efforts made by the government; availability of veterinary doctor is one of the bottlenecks in dairy development. On an average, every year total number of visit of veterinary doctor (includes mostly private agency doctors) ranges between 6-9 only that to after repeated follow-up. Thus, most of the households had either depend on the alternative source of advisory and medical support for their animals.
- As like in the state of Gujarat where cooperative milk sector has developed and though under cooperative dairy sector, member of dairy can register a complaint at diary society and doctor visit the animals, which assure on time visit of doctor with charges to be deducted through milk poured in dairy cooperative society,

such system does not prevail in any place in study area. Beside natural service, artificial insemination facility was availed by the selected households for their animals and on an average, rate of conception of AI was less than 2.

## 10.7 Labour Use Pattern:

- As dairy activities are carried out as complimentary activity to agriculture activities, the labour use pattern by the selected sample households indicate the dominance of use family labour who were engaged in both the activities and out of total time worked in a day, about half of the time was spent on dairy and household activities while remaining time was spent on field. Though some of the household had hired casual labour, which were mainly used for agriculture activities, while tendency of having permanent labour was very rare and found with few households only. Thus, activities of dairy were carried out mostly by the household members

## 10.8 Handling of Feeding and Income from Dairying

- As dairy activities are carried out mostly at household level and it has been observed that most of labour engaged in dairy activities were family labour, it is expected the dominance of female member in feeding the animals as well as handling the income of dairy. In majority of the cases, feeding of animals is done by the family members, while among family members, same was done by male member of family. Across district, male and female do the animal feeding in Nagpur district, while same is done by male member in Wardha and Amravati district. The income from dairy was handled by the male member in all three districts. The male member generally pour milk in society and thus collect the payment.

## 10.9 Production of milk

- The fat and SNF level was found higher in milk drawn from animal covered under RBP than other uncovered animals with beneficiary households in all three districts.
- The milk yield per animal realised by the beneficiary households was higher than milk yield per animal realised by non-beneficiary except in case of buffalo.
- The average milk yield is increased by 9.6 per cent, and fat% is increased by the 8.6 per cent.
- The variability in the milk yield across the sample beneficiary households is estimated lower than the milk yield level realised by the non-beneficiary households

## 10.10 Disposal of Milk and Dung

- Milk was sold to different agencies and even after getting open Mother dairy unit at village level, beneficiary households are selling milk to vendors, sweet shop owners as well as to private milk dairy/plant.
- Dung is used for dung cake and manure purpose while cattle urine is used as insecticide for the spraying on orange and banana crop.

## 10.11 Awareness about RBP among Adopters:

- About 92 percent of beneficiaries have heard about the programme, while corresponding figure for the non-beneficiary household was about 44 percent. Those who are aware, the major source of information about the programme for more than 81 percent of beneficiary household was LRP itself, followed by the dairy society and other sources such as friends, progressive farmer in village and relatives.
- Only one fourth of beneficiary households have seen any documentary on RBP. Thus about three fourth of total beneficiary households did not seen documentary on RBP while more than half of the beneficiary households mentioned that they have not seen poster/banner on RBP, while corresponding figure was 85 per cent in case non-beneficiary households. Hardly one third of beneficiary households have received pamphlets or any document on RBP. Thus, around two third of beneficiary did not received pamphlets or any document on RBP.
- The village awareness programme was attended by 58 percent of beneficiary and 31 per cent of non-beneficiary households. The pattern was different in all the three selected districts. Majority of the beneficiary households in Nagpur and Amravati districts did not attend any VAP, which is a matter of concern. EIA must have to look into the same and investigate what went wrong about the same.

## 10.12 Outreach of RBP among Adopters and its Benefits:

- Around 86 per cent of total beneficiary households were not aware about ration balancing before adopting it.
- More than 91 percent of beneficiary households have opined that benefits of RBP has increased their interest in dairy and would like increase the herd strength in coming days.
- Around 89 per cent of beneficiary households mentioned that they feel involved in programme which is important point for future progress of the programme.
- The success of RBP can be seen from the fact that about 98 percent of farmers were following the recommended ration advisory given by LRP.
- Though most of beneficiary households followed the advice given by the LRP, some of them had faced the constraints in regular feeding to animals as shortage of recommended ration (such as mineral mixture), frequent change in feed items, LRP do not visit timely and not convinced about the recommendations.
- More than 94 per cent of beneficiary households opined that milk production has increased. Not only milk production was increased, the composition of milk was also improved.
- Most of the households have also reported that health of animals is also improved after adoption of RBP. Decrease in digestive disorders of animals after adoption of RBP was experienced by majority of the selected sample households.
- By following the recommended ration given by the LRP under programme, more than two third of the selected households have realized reduction in feed cost, while feed cost was increased in case of more than one fourth households and same was unchanged in case of remaining households.

- Though one third of households mentioned that additional expenditure (money/labour) is involved in adopting RBP while more than 85 per cent of selected households mentioned that employment opportunity has increased after RBP.
- More than 92 per cent of households realized that monthly income from dairy has increased after adoption of RBP, while about 85 percent households mentioned that their savings from dairy have increased which was utilized for nutrition and health, for expanding the dairy business as well as for children's education. Despite of all benefits discussed above, actual consumption of milk in household did not increase significantly as it was expected. Besides improvement in the health and digestive system of animals, the respondents have mentioned the other benefits as well.
- Though majority of the selected beneficiary households have reported that after adoption of RBP, rate of conception has increased, reduction in service period was noted, observed improvement in lactation length, experienced reduction in inter-calving period and repeat breeding and also helped in controlling the diseases such as prolapsed of uterus as well as anestros, but none of them were able to specify the extent of impact in such a short period covered.
- On an average, selected beneficiary households rank RBP as successful programme by marking programme with 9.1 Points on ten-point scale.
- Though majority of the households in Amravati and Nagpur felt that RBP program is beneficial, few suggestions were given by the selected households for the improvement of RBP and its benefits such as Mineral Mixture should be available adequate quantity and at cheaper rate under RBP program; Cattle feed & fodder supply through RBP program; AI and vaccination should be involved in RBP program; Increase the awareness about animal rearing and guidance for selection of animals; provision of subsidised loan for animal purchase should be made provided through RBP program and Training and seminars should be provided through RBP program at intervals.

### 10.13 Performance of LRPs:

- More than 97 per cent of households had received brief on RBP from selected LRP, while all the households have received RB advice slip from LRP of which almost 98 per cent have kept advice slip and was displayed properly.
- About 70 per cent of selected households mentioned that LRP is visiting/contacting them always while 29.7 per cent informed that LRP is contacting them sometime over phone to follow up the advisory given by him, while most of households themselves contacted the LRP for ration re-formulation when there was a change in feed items. Most of the selected households have used same advisory to feed the animals which are not covered under RBP.
- Around 66 per cent of selected households have reported that they get additional services from LRP while almost 29 percent of households received LRP additional services sometime, thus all together almost 95 per cent of total households receive additional services of LRP which is positive point of programme towards its sustainability.
- All the selected households reported that they were explained the benefits of feeding mineral mixtures and all animals bears a valid tag. Almost 99 per cent of households reported that measurement of heart girth was taken by the LRP and

animal weight is mentioned in the advice sheet. Also more 99 per cent of households reported that LRP has taken milk sample at cattle owners' place after milking on the day of visit.

- LRP has advised the quantity of feed ingredients in terms of measures (bowls/vessels) used by cattle farmers.
- Almost 99 per cent of households have reported that LRP has visited the animals covered under RBP every month and also provided them advise on regular vaccinations of the animals. Almost all the selected households are aware about the importance of chaffing of fodder.
- Around 94 per cent of selected households have been briefed by LRP about importance of drinking water while almost 93 per cent of households were advised on quantity of drinking water need for animal. All the selected households have informed that LRP has advised them about feeding trough/manger.
- More than 90 per cent of respondents had mentioned that they would recommend the other dairy farmers also to join the RBP. Across the districts, the highest intensity for recommendation to other cattle owners is found in Amravati and the lowest was in Nagpur.
- On an average, out of 10 points, 9.1 performance points were given to LRP by the selected respondents indicating better working of LRP in selected areas of Vidarbha regions of Maharashtra. Across the districts, performance of LRP was the best in Amravati and very good in Nagpur district.
- Around 84 per cent of respondents mentioned their willingness to pay/like to adopt RB advisory on payment basis after the end of programme, while 16 per cent of households refused to pay or mentioned unwillingness to adopt the RBP after the end of the programme on payment basis and rest of them could not say anything on this point. Across the districts, 92 per cent of selected households in Wardha and 82 per cent in Amravati opined their willingness to pay for advisory while 70 per cent households in Nagpur refused for any such support.

## 10.14 Opinion of LRPs:

- On an average 12-month period have passed since these selected LRPs are working in this project. It seems that there is high turnout ratio in Nagpur district as lowest joining months are estimated despite being close to Mother Dairy head office. Every day on an around 4-5 hours are spent by each LRP for visit, advisory and follow up purpose. The seriousness of LRP can be seen from the fact each one is working almost 28 days in a month. Around 60 farmers are covered by each LRP having coverage of 125 animals.
- The RBP software was required to be operated on android mobile for advisory services. Most of the LRPs have reported satisfaction on handling of software on android mobile. While doing RBP advisory, LRP have contacted the both person who feed animals and house owner. Advisory slips were provided to cattle owners during every advisory visit by LRP wherein recommendations on feed items was noted in both ways, i.e. converted to Vassels/bundles and kgs. LRP ensure that farmers are following RBP by interacting with farmer during next visit, follow up visit before due date of RB as well as verifying over phone. Besides providing advisory services, LRP also provides advice on animal healthcare and management of fodder and water.

- On an average, 6-7 village awareness programs were conducted by each LRP, while same was the highest in Wardha and lowest were in Amravati district. Majority of the LRPs have shown documentary on RBP during village awareness programme, while one fourth of total selected LRPs in Nagpur and Amravati districts did not shown documentary. It was very strange to note that two third of total LRPs did not distributed any literature on LRP to farmers /cattle owners. At the same time, more than half of the total LRPs did not displayed RBP poster/banners in village or at Mother dairy units. Despite of same, LRPs have reported that awareness of Farmers on RBP in village is very good and excellent. About 11 visits have been reported by the each LRP to selected farmers /cattle owner household.
- The selection of cattle owners in Nagpur district was on more cooperative farmers having wiliness and high yielding animals and suggested by dairy officials, while in case of Wardha and Amravati, personal preference was the determinant in selection of cattle owner. Thus, at overall level, LRP's preference followed by more cooperative farmers was main criteria for the inclusion of cattle owner under RBP.
- The benefits of RBP understand by the LRP are decreasing cost of feed, reduced repeating problem in cow, improved digestive system and increasing fat & SNF while some of them also believe that RBP would help in increase in milk production, getting timely pregnancy, better fodder management as well as reduction in health relate problems of milch animals.
- Except LRPs from Nagpur district, some of the LRPs from Wardha and Amravati faced problem in software and the last problem faced with during last one-month period from survey visit. such problems were sorted by self or something help of other LRP was taken. As software was operated on android mobile and none of the LRP was given notebook, thus no such hardware problem was reported. Internet was the biggest problem for more than half of LRPs in Wardha and Amravati district while one fourth of LRPs in Nagpur district have faced internet problem. While all the selected cattle owners have cooperated and non-beneficiary have not created any hurdles in programme. Mineral mixture availability reported to be inadequate. Majority of LRPs have reported dissatisfactions over financial incentive received by them.
- On an average, 85 per cent of total LRPs have opined that they have seen notable impact of RBP in their village. The notable changes are in terms of increase in fat percentage as well as milk yield of animal, reduction in feed and fodder cost. Some have reported that number of animal have increased. The impact of RBP was reported relatively poor in Amravati district.
- The main reason behind working as a LRP is to help the farmers and earn some income through this advisory services. Some of the LRPs have interest in dairy thus joined the same.
- Due to working as a LRP, social status has been changed. Villagers have started believing in LRP and contacting him for any work.
- While half of the LRPs were not either sure or not feel that programme would be sustainable after withdrawal of government support.

## 11. Conclusions:

### 11.1. Impact of RBP

- The implementation of the programme has resulted in increase in milk yield, SNF and fat content along with reduction in feeding cost.
- As per INAPH dataset, the major achievement of the RBP programme is observed (for 180 days interval period) in terms of increase in fat content of milk. The milk yield increased by 2.0 per cent and fat% by 3.6 per cent over base period at overall level. The average cost of feeds and fodder declined by 6.6 per cent.
- The field survey data also indicate that average milk yield is increased by 9.6 per cent, fat% is increased by the 8.6 per cent and cost of feeds and fodder declined by 7.3 per cent. The variability in the milk yield across the sample beneficiary households is estimated lower than the milk yield level realised by the non-beneficiary households.
- The milk yield per animal realised by the beneficiary households was higher than milk yield per animal realised by non-beneficiary except in case of buffalo.
- The fat and SNF level was found higher in milk drawn from animal covered under RBP than other uncovered animals with beneficiary households in all three districts.
- On an average, 85 per cent of total LRPs have opined that they have seen notable impact of RBP in their village. The remarkable changes are in terms of increase in fat percentage as well as milk yield of animal, reduction in feed and fodder cost. Some have reported that number of animal have increased.
- Cattle owners have started using the Mineral Mixture and Cattle feed.

*Outreach of RBP among Adopters and its Benefits:*

- More than 91 per cent of beneficiary households have opined that benefits of RBP has increased their interest in dairy and would like increase the herd strength in coming days.
- Around 89 per cent of beneficiary households mentioned that they feel involved in programme which is important point for future progress of the programme.
- The success of RBP can be seen from the fact that about 98 per cent of farmers were following the recommended ration advisory given by LRP.
- More than 94 per cent of beneficiary households opined that milk production as well as composition of milk has increased.
- Most of the households have also reported that health of animals is also improved after adoption of RBP. Decrease in digestive disorders of animals after adoption of RBP was experienced by majority of the selected sample households.
- On an average, selected beneficiary households rank RBP as successful programme by marking programme with 9.1 points on ten-point scale.

## 11.2. Implementation and Monitoring of RBP by EIA:

- As per the data submitted by EIA, almost all set targets are achieved, viz. covered more than 13600 animals of 6800 farmers /cattle owners from 400 villages of 3 districts. As against target to appoint 200 local resource persons and 10 cluster coordinators for execution, 110 LRPs and 9 CC are reported working. Though 209 LRPs and 11 CCs were appointed and trained, but due to high rate of attrition, only 110 LRPs and 9 CCs are working at present which is short of target.
- Total 395 village awareness programme were organized. The number of VAPs conducted were significant during the first month of inception of programme (November 2019) and later on number of VAPs have drastically declined which may be due to Corona Pandemic.
- While display of poster and banners as well as distribution of pamphlets was not executed.
- The staff of the EIA including project manager, project coordinator, cluster coordinators and technical officers along with LRPs have attended the training programme at National Dairy Development board, Anand.
- The project coordinators, cluster coordinators and technical officers of Mooofarm who got training at NDDB Anand have trained the LRPs appointed in each district by conducting six days training programme having theory and practical content.
- The application of INAPH used is android based for LRP which is offline while same was web based online for Cluster Coordinators working on the field which is in English language. The issues related to software in notebook/android phone of LRP are majorly resolved by CCs, TOs & PC, and if issue remain unresolved, then same is reported to NDDB.
- Whatever the data is uploaded by LRP is being checked, cross verified, and assessed regularly based on which suitable recommendations are given to the LRPs for better implementation of program.
- Majority of LRPs have reported dissatisfactions over financial incentive received by them.

## 11.3. Reporting and Monitoring System:

- The whole project is managed by Project Manager at Head Office level and cluster co-ordinator appointed at the local level along with LRPs.
- Each of the LRP covered around 3-4 villages at overall level. Every LRP covered around 37-51 cattle owners and 79-90 animals. On an average, every LRP has given 5 advisories. While some of the LRPs have covered more than five villages which is not practical to cover and attend each household.
- The LRP is paid remuneration on the basis of total number of animals covered having maximum limit of Rs. 9500/- per month. No other allowances are paid to LRP and CC. While inquiry with LRP during visit revealed that Rs. 70/- per animal remuneration is fixed and maximum three animals per households can be enrolled under RBP.
- No incentives are provided to local resource person at present which is of major concern to retain the LRPs. LRPs are provided with NDDB EVM booklet which

specifies the traditional practices to control various diseases of milch animals. LRPs are using same while giving additional advisory to cattle owners.

- Field and online Monitoring of LRPs is regularly done by CCs & TOs and data filled by LRPs in INAPH is checked regularly by project coordinator and project manager, then based on data analysis, instructions are given to team for better implementation.
- Besides, it was reported that monthly review meetings of LRPs & CCs are taken alongside surprise visits by team from Head Office.

### 11.4. Sustainability of Program.

- So far EIA has not put suitable mechanism in place to ensure sustainability of the programme either through commission on sale of mineral mixture, concentrates, etc. or by capacity building of LRP for paid advisory to farmers on veterinary and related issues.
- Mooofarm has no plan or any source of funds to continue. EIA has also opined that monetary benefit to LRPs is most important factor for success of program and therefore without the program, currently the LRPs cannot remain financially viable.
- In response to issue of sustainability of program, EIA opined that at the moment handholding of the government supported program is required as farmers are still developing the habit of implementing RBP. It is only with time that impact will start showing for each farmer.
- Around 84 per cent of respondents mentioned their willingness to pay/like to adopt RB advisory on payment basis after the end of programme, while 16 per cent of households refused to pay or mentioned unwillingness to adopt the RBP after the end of the programme on payment basis and rest of them could not say anything on this point.

### 11.5. Bottlenecks in Implementation of Programme

- Grazing is a common practice in Vidarbha Region and it is slightly difficult in the beginning to convince farmers for RBP but when results start showing in fellow farmer's farm, few get encouraged to implement the RBP.
- EIA reported that due to less stipend to LRP, proper selection of LRP is a tedious task as well as continuation of same person is also overwhelming. High attrition of LRPs, shortage of tag and delayed in procurement of projectors were major problems faced by EIA.
- Most of the selected households have adopted the advisory but kept grazing out the animals indicate the partial adoption of the same.

## 12. Policy Implications:

- In view of positive impacts of Ration Balancing Programme in selected three districts of Vidarbha regions of Maharashtra, programme need to be continued. The project needs to be also implemented in the areas with less sizeable population of cattle and buffaloes having stall feeding practices.
- Government should make necessary arrangement to have in time availability of adequate supply of concentrates and supplements (mineral mixtures) for milch animal in deficient area. It can be supplied through milk procurement unit of Mother dairy in each village.
- The regular health check-up of animal health, regular visit and availability of veterinary doctor at village level need to be arranged and monitored by both State Government and VMDDP.
- As no selected dairy farmer had insured their livestock. Therefore, link should be established between RB program and animal insurance scheme.
- RB programme is designed for the stall feeding (zero grazing) animals wherein one can check and control the diet. However, grazing animal's diet cannot be control and thus have limitation on impact of RBP in short run. Therefore, cattle owner need to be educated and convinced about importance of stall feeding so that in the long run, impact of RBP can be realised and dairy sector can be flourished.
- The remuneration of LRP should be lucrative so as to encourage the local youth to get involved in this program. LRPs should be provided with petrol allowance, Identity Card and Accidental Insurance which make them more confident and serious about performing their job and duties.
- In view of deficiency of veterinary services, LRP should be trained with a certificate programme on Artificial insemination and Livestock Management so that gap can be filled up and LRP can earn more income and thus program can become sustainable in future.
- EIA (Mooofarm) must have at least one district office at every district where once in fortnight meeting should be held to discuss the issues and possible options to solve the same.
- Many milk pourers have reported that fat and SNF testing machine at Mother diary collection unit remains in not working mode frequently which takes three-four weeks' time to bring back it to working condition. During the period of absence of testing machine, milk pourer is given average milk fat and SNF % which demoralise the beneficiary as well as progressive dairy owners.
- At most of the places, condition of cattle shed is found very bad. Most of them mentioned that they have difficulty in getting Cattle shed loan from the bank. Therefore, State Government must put in place the linking of beneficiary farmers and banks.
- Most of the farmers have shown interest in Chaff cutter but State Department is not in position to meet the demand of Chaff cutter. Therefore, State Government should provide the chaff cutter to the beneficiary households.
- Active involvement of State Government of Animal Husbandry and Dairy Development in this programme would help to accelerate the vaccination and AI of the animals. Therefore, there is a need to get services of Veterinary doctor till LRPs are provided with Certificate Course on Livestock Management.

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Chapter I

# Introduction

## 1.1 Introduction

Animal husbandry in India is closely interwoven with agriculture and obviously plays an important role in the national economy and also in the socio-economic development of millions rural households (Vaidyanathan, 1989; Mishra, 1995; Chawla, *et al,* 2004; Sharma, 2004; and Birthal, 2016). Livestock rearing is one of the most important economic activities in the rural areas of the country providing supplementary income for most of the families' dependent on agriculture. In many cases, livestock is also a central component of small holder risk management strategies (Randolph et al., 2007). This sector has created a significant impact on equity in terms of employment and poverty alleviation as well. In fact, level of rural poverty is significantly higher in states where livestock sector is underdeveloped (Singh and Meena, 2012). It serves as a substitute of insurance. It has been witnessed over the years that the stability in dairy income is far stronger than the income realised from agricultural activities (Kumar and Shah, 2016). Livestock is a natural asset for poor that can be liquidated when required or during times of crisis (Singh and Meena, 2012). It also helps in controlling migration as well as suicides. This is the sector where the poor contribute to growth directly instead of getting benefit from growth generated elsewhere. Apart from providing a subsidiary income to the families, rearing of livestock such as cattle, buffaloes, sheep, goats, pigs, poultry etc. is a source of protein supplement to the family members of the household in the form of milk, eggs and meat.

Importance of livestock in general and dairying in particular hardly needs emphasis in a country like India. It is one of the important sub-sectors of agriculture, next only to field crops (Saxena, et al., 2002). The dairy subsector occupies an important place in the agricultural economy of India as milk is the second largest agricultural commodity in contributing to Gross National Product (GNP), next only to rice. Dairy development in India has been acclaimed as one of the most successful development programmes under the world's largest

integrated dairy development programme 'Operation Flood' (Shiyani, 1996; and NAAS, 2003). India ranks first in the World in milk production (accounts for around 22.30 per cent of world milk production[1]), which is increased to 198.4 million tonnes in 2019-20 from 17 million tonnes in 1950-51. Nearly 49 per cent of milk production is contributed by buffalo followed by cow (48%) and goats (3%)[2]. The per capita availability of the milk in the country has also increased significantly from 130 grams/day in 1950-51 to 407 grams per day in 2019-20 as against the world average of 294 grams per day during 2013. This represents sustained growth in the availability of milk and milk products for our growing population. However, there are large inter-regional and inter-state variations in milk production as well as in per capita milk availability in India. The largest producer of milk is Uttar Pradesh which produces 16.3 per cent of the total milk production in the country (2018-19) followed by Rajasthan (12.6%), Madhya Pradesh (8.5%), Andhra Pradesh (8.0 %), Gujarat (7.7%), Punjab (6.7%) and Maharashtra (6.2%). About two third of total national milk production comes from the above mentioned seven milk producing states (Fig. 1.1). However, only 9 States (viz. Punjab, Haryana, Rajasthan, Gujarat, Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Uttarakhand, and Jammu & Kashmir) has per-capita availability more than the national average of 394 gm/day in the year 2018-19 (see, Fig. 1.2). The highest per capita availability of milk was estimated in Punjab state (1181 gm/day). Thus, despite of having significant share in total milk production of the country, Uttar Pradesh (371 gm/day) and Maharashtra (266 gm /day) has lower per capita milk availability than national average. The major milk-producing states in the country have good resource endowment and infrastructure, while eastern states are lagging behind in terms of dairy development.

Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Most of the milk is produced by animals reared by small, marginal farmers and landless labourers. However, unlike the larger herd sizes of leading milk producing countries in the World, some 95 per cent of milk producers in India

[1] https://www.nddb.coop/information/stats/across, 2018
[2] https://apps.fas.usda.gov

hold just 1 to 5 milch animals[3] (the animals that are farmed for the production of milk) per household, which makes this little more than a subsistence-level farming system. While around 80 million households[4] in India are engaged in dairy farming, about 16.93 million farmers have been brought under the ambit of 190516 village level dairy corporative societies up to March 2019[5]. It has been witnessed over the years that the stability in dairy income is far stronger than the income realised from agricultural activities (Kumar and Shah, 2016).

Fig. 1.1: Statewise share in total Milk Production in India (2018-19)

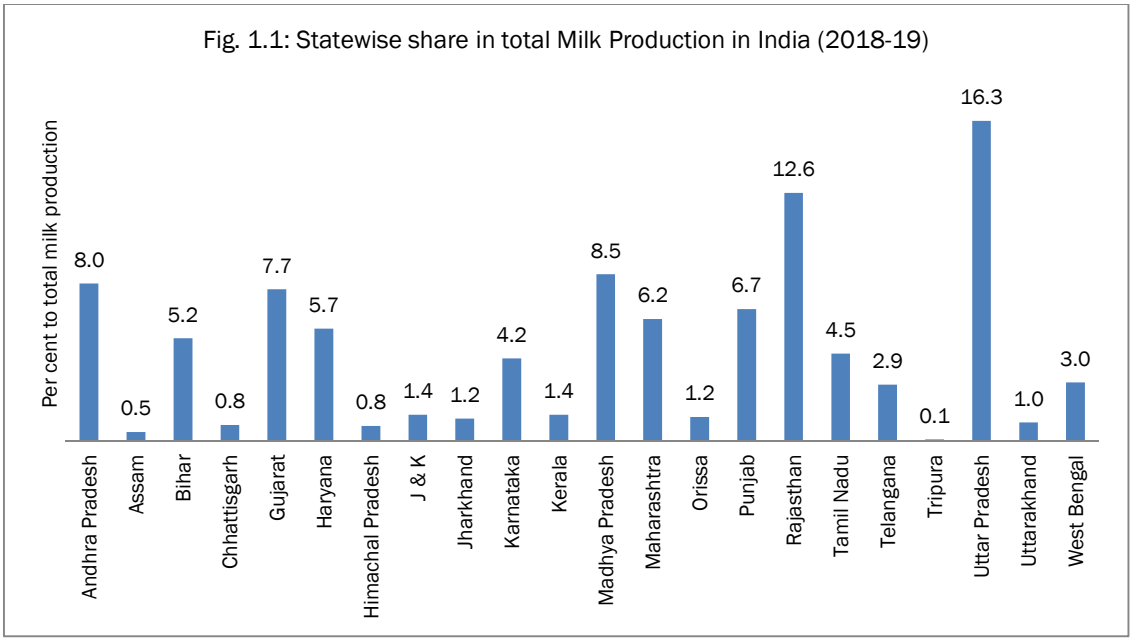
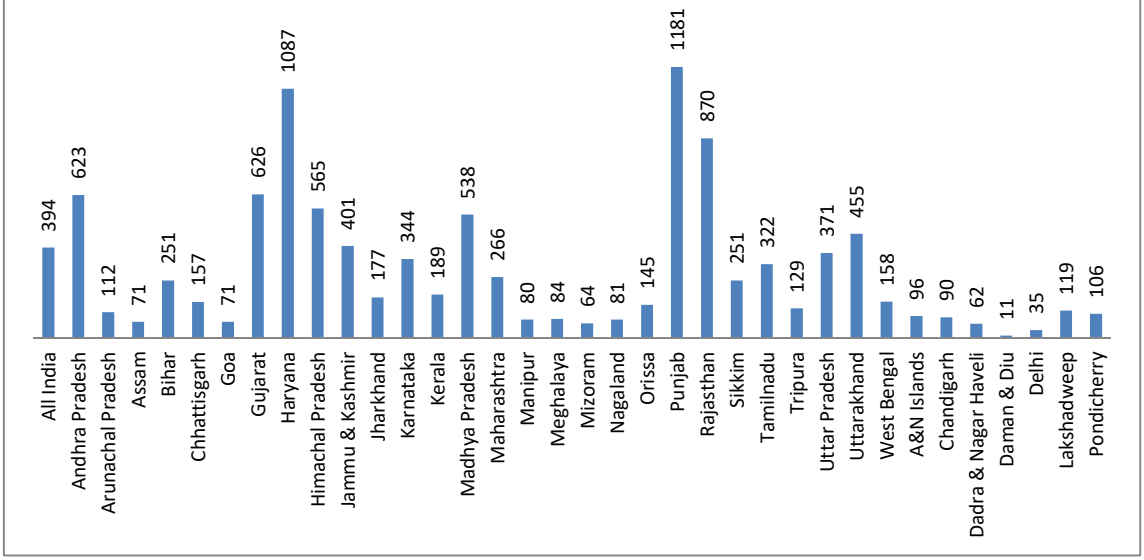



Fig. 1.2: State-wise Per Capita Milk Availability in India (2018-19)




[3] http://www.businessworld.in/article/Milk-Production-Expected-to-Increase-This-Year/27-02-2020-185089/
[4] https://apps.fas.usda.gov
[5] NDDB, 2019, Annual Report 2018-19

India plans to take its milk production to 240 million metric tonnes (MMT) by 2025[6]. The demand for milk and milk products in India is increasing very rapidly because of urbanisation, convenience demanded by consumers and shifting of consumers from loose to packaged dairy products. The per capita consumption of liquid milk in India was only 56.26 kg in 2018 as compared to the highest per capita consumption of fluid milk was in Belarus (111.09 kg)[7].The dairy sector is currently growing at around 10-12 per cent annually. Based on estimates of population growth and increase in urbanisation for the next four decades, it is anticipated that India needs around 600 million tonnes of milk per year to fulfil the demand for milk and milk products[8]. This means that India's milk production needs to grow at around 3.2 per cent compound annual growth rate for the next 40 years. It is therefore, imperative to increase productivity of milch animals. According to NITI Aayog's (2017) working paper on demand and supply projections towards 2033, the positive growth in bovine population has contributed towards the significant increase in milk production in the country. The livestock sector is exposed to a number of constraints such as low productivity, chronic shortages of feed and fodder, large population of unproductive cattle, absence of effective extension system, low health care, immunization and hygienic programme, lack of cold chain logistics, unorganised marketing, etc.[9].

India stands at first position in terms of cattle and buffalo population in the world. The population of cattle and buffalo in India was 192.49 million and 109.85 million in 2019 which accounts for around 19.5 per cent and 54.6 per cent share respectively of World cattle and buffalo population. However, the productivity[10] of dairy animals in India is very low (Cow- 1196 kg/animal and Buffalo 1710 kg/animal) as compared to world average (Cow- 2319 kg/animal and Buffalo 1612 kg/animal) in 2012. Hence, the challenge is to increase production, through increase in yield, while reducing the cost of production. Several measures have been initiated by the government to increase the productivity of livestock, yet the productivity is low as compared to many other countries and the world average

[6] https://www.downtoearth.org.in
[7] https://www.statista.com/statistics/535806/consumption-of-fluid-milk-per-capita-worldwide-country/
[8] Ramsinbhai P Parmar, Chairman, GCMMF at 45th Annual General Body Meeting, 29th May, 2019.
[9] NITI Ayog (2017).
[10] may be due to large population of unproductive cattle.

(Saxena et al., 2019). The reason cited for this is inappropriate feeding as well as inadequate supplies of quality feeds and fodder in addition to the low genetic profile of the Indigenous breeds. It is not possible to achieve higher productivity in a milch animal by merely increasing its genetic potential, due attention needs to be given on proper feeding of milch animal. There is evidence to show that when a milch animal is fed a balanced diet, it receives the required nutrients to produce milk commensurate with its genetic potential. Research and field trials indicates that this approach of feeding has the potential to increase milk yield, reduce cost of milk production, and contribute to reducing methane emissions. Milch animals are usually fed one or two locally available concentrate feed ingredients, grasses and crop residues. This often leads to an imbalanced ration–resulting in proteins, energy, minerals and vitamins being either in excess or deficient. Imbalanced feeding adversely impacts not only the health and productivity of animals but also affects income from milk production since an estimated 70 per cent of the total cost of milk production is contributed by fodder and feed. Therefore, there is a need to educate milk producers on feeding balanced ration to their animals so that the nutrients required by their individual milch animal is fulfilled in an optimum manner, thereby improving milk production efficiency and the economic return.

With an aim to increase productivity of milch animals and thereby increase milk production to meet the rapidly growing demand for milk as well as to provide rural milk producers with greater access to the organised milk-processing sector, Government of India had approved the scientifically planned multi-state initiative, i.e. National Dairy Plan-I (NDP-I) as a Central Sector Scheme for a period of six years from 2011-12 to 2016-17[11]. This plan was launched initially to cover 14 major milk producing States viz. Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal which account for over 90 per cent of the country's milk production, having 87 per cent of breedable cattle and buffalo population and 98 per cent of the fodder resources. In June/August 2015, the Union Government has included three more states viz. Uttarakhand, Jharkhand

[11] Department of Animal Husbandry, Dairying and Fisheries, GOI issued administrative approval of central sector scheme NDP I vide office memorandum F.No. 22-23/2011-DP dated 16 March 2012.

and Chhattisgarh and it had been extended up to 2018-19[12]. Thus, NDP-I[13] was being implemented in 18 major milk producing states. This plan is implemented wholly by National Dairy Development Board (NDDB), Anand (Gujarat) through milk co-operatives and State agencies. The project includes a number of programs, of which Ration Balancing Program (RBP) is one among them which is designed with an aim to provide advisory on balance ration in order to improve milk yield of milch animals, reduce the feeding costs/kg of milk produced and reduction in methane release per kg of milk produced by animals. The post-project evaluation report by Sirohi, et al. (2017) indicated that ration balancing intervention enhanced the productivity of cows by around 13 per cent and of buffaloes by nearly 5.5 per cent in Gujarat while in case of Punjab, the estimates of productivity gain for cows was close to 13 per cent. Ration balancing has found to be cost effective in terms of percentage reduction in feed cost and feed cost/litre.

Maharashtra State has the distinction of being the pioneer state in the field of dairy development in the country. The state currently represents the largest dairy market in India. Maharashtra is the seventh largest producer of milk in the country, accounting for 6.21 per cent share in national milk production during 2018-19. However, per capita milk availability is the lowest in the state in comparison to other major milk producing states in India, which was 266 grams per person per day in 2018-19[14]. In fact, per capita availability of milk in Punjab is 4.4 times higher than State average. The dairy development in the state has inter-regional variations. Particularly, dairy development in Vidarbha and Marathawada regions is comparatively lower than other parts of the State. Vidarbha and Marathawada regions are less developed in the area of infrastructure development as well as the overall State development indicators. The less development in these regions is due to its disadvantageous geographical location, frequent droughts, scarcity of water, cracked soils and poor socio-economic condition compared to other regions of the State. In order to enhance the milk

[12] Department of Animal Husbandry, Dairying and Fisheries, Government of India's addendum dated August 3, 2015 (F.No. 22-23/2011-DP).

[13] NDP-I and RBP is discussed in detail in Chapter II.

[14] Hon Chief Secretary of AHD of Government of Maharashtra has raised some concern about the estimation of per capita availability of milk on February 12, 2021, which need a further detailed investigation.

production in Vidarbha and Marathawada regions of Maharashtra, under Rashtriya Krishi Vikas Yojana (RKVY), with the support of National Dairy Development Board, Anand, Government of Maharashtra had approved a Special Project with financial support of Rs. 128.29 crores in 2017[15], for supply of quality cattle feed and supplements, fodder development programme and Veterinary Services at Village level.

Under the productivity enhancement program under NDP-I, among various other components, implementation of 'Ration Balancing Program' of dairy animals was also implemented in selected Dairy Unions of Maharashtra. The Kolhapur, Solapur and Pune milk unions has implemented NDDB's ration balancing programme covering around 600 villages with an aim to cover about 56000 milch animals in these milk sheds[16]. The positive impacts of Ration Balancing Programme under NDP I in selected district/milk unions of Maharashtra[17] has been inspirational and therefore it was decided to take forward this project in Vidarbha and Marathawada regions through Vidarbha Marathawada Dairy Development Board (VMDDP) in 2019 under Rashtriya Krishi Vikas Yojana (RKVY). Government of Maharashtra vide its notification dated December 28, 2018 has approved the implementation of Ration Balancing Programme and Animal Induction in Vidarbha and Marathawada region of Maharashtra with total approved budget of Rs. 17.56 Crore for RBP implementation and 27.88 Crore for Animal Induction Programme.

RBP under VMDDP plans to cover 10 districts. Through Tri Party MOU, this RBP is being implemented in three districts, viz. Nagpur, Wardha and Amravati districts by 'MoooFarm Private Limited Gurgaon, Haryana' on pilot basis in October 2019. Six months was the duration agreed for this project which ended on April 22, 2020. Due to unprecedented situation of COVID19 Pandemic, the operational; period has been extended to October 22, 2020 and then to February 2021. NDDB is involved in this pilot project as a technical monitoring and advisory agency.

[15] Department of Agriculture, Animal Husbandry, Dairy Development and Fisheries, Government of Maharashtra resolution dated July 21, 2017. The guidelines towards implementation of 'Special Project -Mahadudh' were issued by Government of Maharashtra on August 9, 2017.

[16] https://www.thecattlesite.com/news/46315/maharashtra-to-have-livestock-breeding-dairy-coops-strenghtened/

[17] Kolhapur, Solapur, Pune, Jalgaon, Rajarambabu, Sangamner, Aurangabad and Bhandara milk unions.

Under RBP programme, it was reported that total 400 villages are covered with 13600 animals of 6800 farmers and estimated reduction of cost of feeding by 7 percent.

As the project period got completed and for future plan of action, it was felt necessary by VMDDP, Nagpur to have impact evaluation of this program before proceeding further. Therefore, present study was undertaken in the selected three districts of Vidarbha region of Maharashtra state with following specific objectives.

## 1.2 Objectives of the study:

(a) To evaluate the efficacy of RBP in increasing milk yield and/or reducing feed cost

(b) To examine the quality of service delivery by End Implementing Agencies (EIAs) and implementation of record keeping through use of the information technology (INAPH/MIS)

(c) To assess the reporting and monitoring systems and institutional capacity building at various levels in the context of the RBP for ascertaining the provisioning of these services on a sustainable basis to the milk producers

(d) To document the innovative practices followed by EIAs to implement and make the RBP sustainable.

(e) To identify the bottlenecks, if any, in the implementation of this on-going program and take the remedial measures accordingly, for a successful completion by the end of project period.

## 1.3 Database:

The study is based on both primary and secondary level statistics. The secondary data on livestock population, village details, dairy development parameters were compiled from the published sources and related Office websites, viz. Department of Animal Husbandry, Government of Maharashtra, Mumbai; Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi; National Dairy Development Board, Anand; Office of the NDDB and Mother Dairy, Nagpur; and

Office of VMDDP, Nagpur; Census of India and other published reports. The studies conducted on ration balancing programme on other states of India are also reviewed and presented in the report.

The primary data were collected from the selected sample cattle owners/dairy households on the basis of the sampling design described further (Fig. 1.1).

## 1.4 Survey Design

### 1.4.1 Sampling Framework

Vidarbha and Marathawada Dairy Development Project, Nagpur is implementing the Ration Balancing Programme in three districts of Vidarbha region of Maharashtra. Under RBP programme, three districts and total 400 villages are covered with 13600 animals of 6800 farmers and it is estimated reduction of cost of feeding by 7 percent. Thus, Vidarbha region of Maharashtra State was selected for the study.

*Selection of End Implementing Agency (EIAs):*

The programme has been implemented by **Mooofarm Private Limited, Gurgaon, Haryana**. The said EIA has been contacted and requested for their response in structured questionnaire to estimate the target achievement at End Implementing Agency.

*Selection of Districts*:

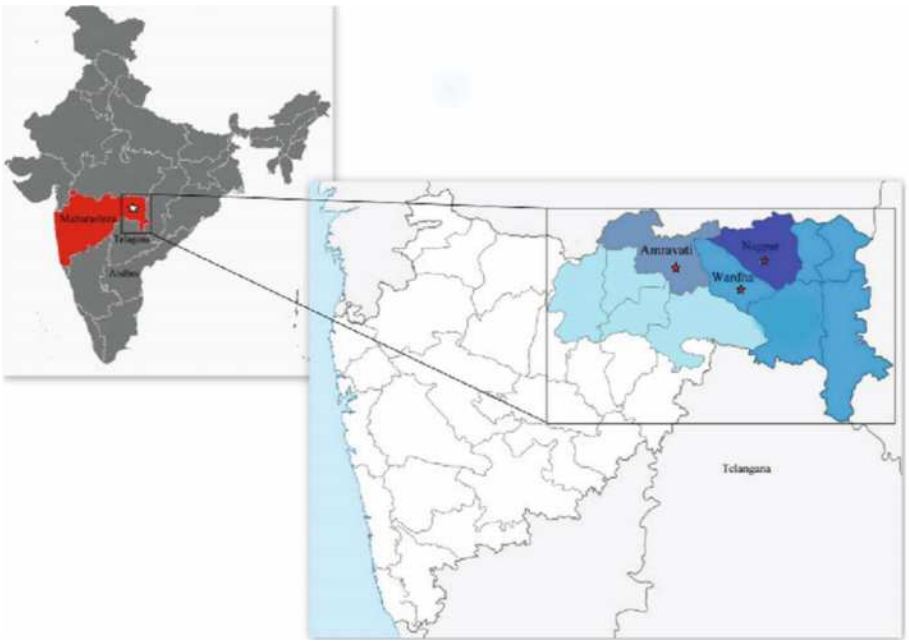
RBP is being implemented in three districts of Vidarbha region of Maharashtra, viz. Nagpur, Wardha and Amravati district. All three districts are covered under study (Map 1.1).

*Selection of Villages (random*):

The list of villages covered under RBP with number of beneficiary households covered were received from the VMDDP, Nagpur. In order to analyse the target achievement at village level, out of the total villages where RBP is being implemented, 20 random villages from each district were selected. Considering that there were very few/less number of milk producers covered under RBP in one

village than required number of sample households (i.e. 5 sample households), villages having 10 and more than 10 sample households were shortlisted and as per the proportion of total number of villages in each tehsil in total number of villages covered in that district, proportionate number of sample villages were selected in each taluka. Thus, total 60 villages were selected for the study from selected three districts of Vidarbha region (Tables 1.1 to 1.3).

Map 1.1: Location Map of Study Area in Maharashtra, India



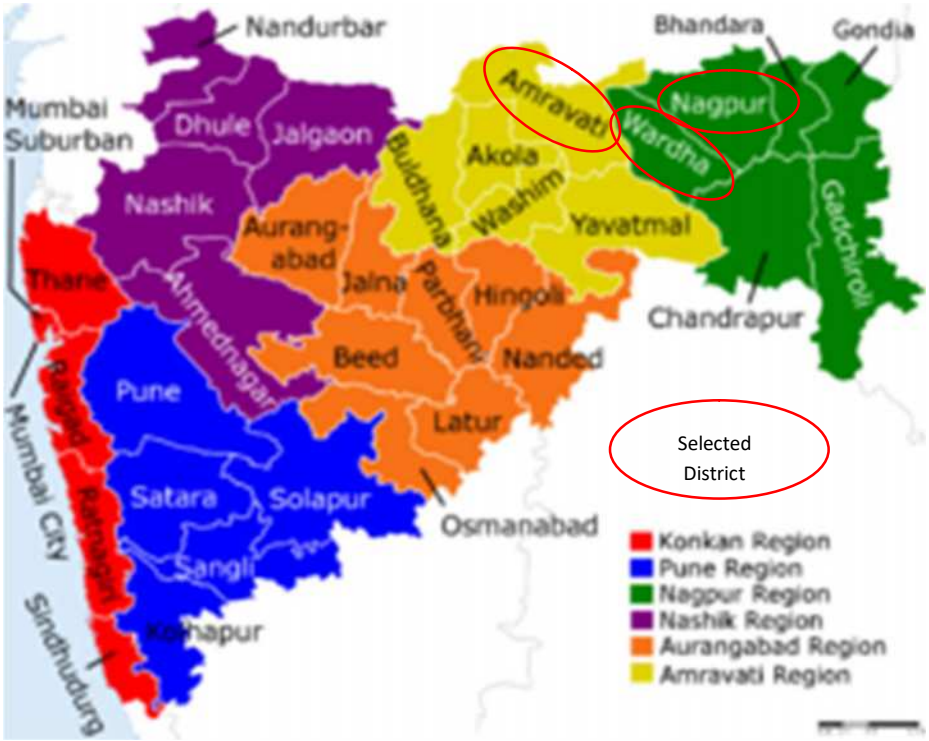



Fig. 1.3: Sampling Framework- Maharashtra

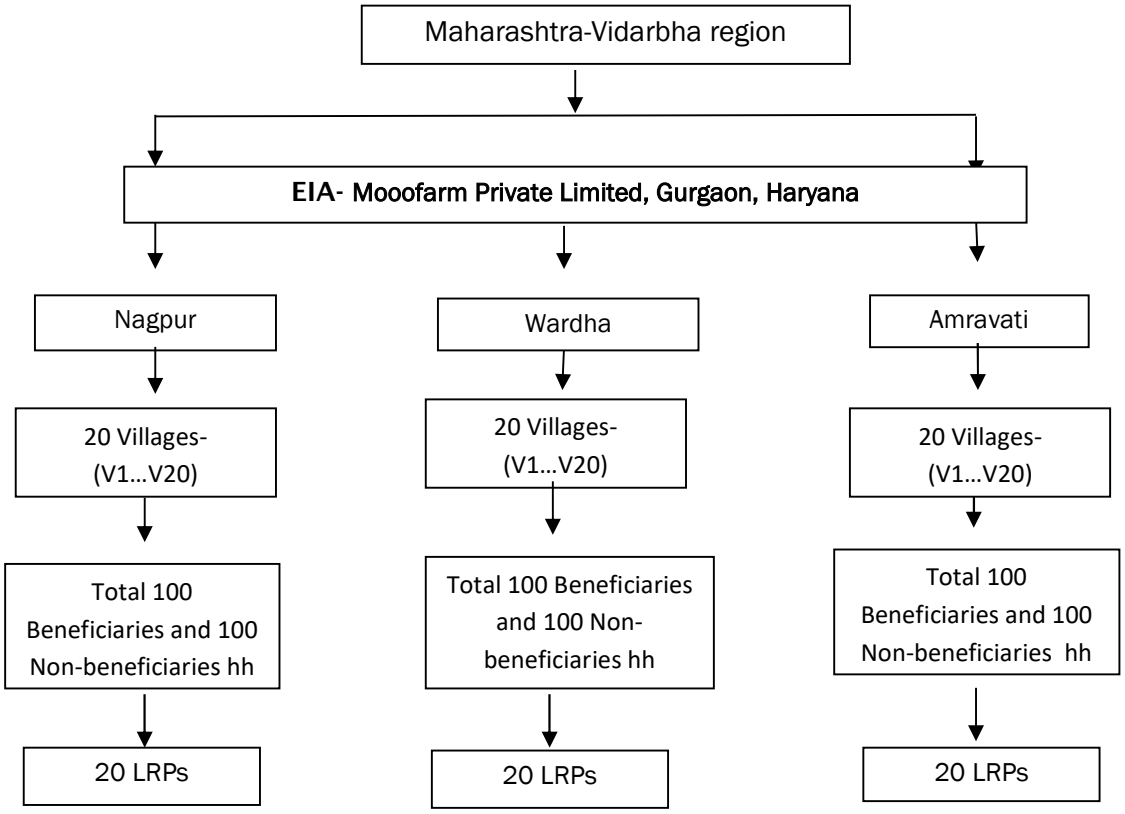



Table 1.1: List of the Selected Villages in Nagpur district

| Nagpur District, Maharashtra | | | |
|---|---|---|---|
| Sr. No. | Name of Village | Tehsil | District |
| 1 | Degma kh (2748404033536060) | Hingna | Nagpur |
| 2 | Junewani(536061) (2748404033536061) | Hingna | Nagpur |
| 3 | Kanholibara (2748404033536013) | Hingna | Nagpur |
| 4 | Kavdas (2748404033535990) | Hingna | Nagpur |
| 5 | Digras (Bk) (2748404024534938) | Katol | Nagpur |
| 6 | Dorli (Bk) (2748404024534966) | Katol | Nagpur |
| 7 | Kalambha (2748404024534932) | Katol | Nagpur |
| 8 | Murti (2748404024535048) | Katol | Nagpur |
| 9 | Raulgaon (2748404024534977) | Katol | Nagpur |
| 10 | Sonoli(534915) (2748404024534915) | Katol | Nagpur |
| 11 | Yenwa (2748404024534934) | Katol | Nagpur |
| 12 | Yerla (Dhote) (2748404024534935) | Katol | Nagpur |
| 13 | Indora(535659) (2748404029535659) | Mauda | Nagpur |
| 14 | Wirshi (2748404029535642) | Mauda | Nagpur |
| 15 | Ashta (2748404031535964) | Nagpur (Rural) | Nagpur |
| 16 | Dhamana (2748404031535874) | Nagpur (Rural) | Nagpur |
| 17 | Satnavari (2748404031535825) | Nagpur (Rural) | Nagpur |
| 18 | Bhidhnur (2748404023534878) | Narkhed | Nagpur |
| 19 | Sawanga (Lohari) (2748404023534904) | Narkhed | Nagpur |
| 20 | Nilaj (2748404027535448) | Parseoni | Nagpur |

Table 1.2: List of the Selected Villages in Wardha district

| Wardha District, Maharashtra | | | |
|---|---|---|---|
| **Sr. No** | **Name of Village** | **Tehsil** | **District** |
| 1 | Bedhona (2749804017533702) | Arvi | Wardha |
| 2 | Jalgaon (2749804017533657) | Arvi | Wardha |
| 3 | Morangana(533796) (2749804017533796) | Arvi | Wardha |
| 4 | Virul (2749804017533852) | Arvi | Wardha |
| 5 | Wadhona(533703) (2750404017533703) | Arvi | Wardha |
| 6 | Chamala (2749804015533453) | Ashti | Wardha |
| 7 | Pulgaon (M Cl) (2750404020802697) | Deoli | Wardha |
| 8 | Danapur (2749804016533643) | Karanja | Wardha |
| 9 | Bangadapur (2749804016533627) | Karanja | Wardha |
| 10 | Bhiwapur(533625) (2749804016533625) | Karanja | Wardha |
| 11 | Borgaon (Dhole) (2749804016533549) | Karanja | Wardha |
| 12 | Malegaon Kali (2749804016533558) | Karanja | Wardha |
| 13 | Met Hiraji (2749804016533632) | Karanja | Wardha |
| 14 | Antargaon(533954) (2749804018533954) | Seloo | Wardha |
| 15 | Hingni (2749804018533889) | Seloo | Wardha |
| 16 | Zadshi (2749804018533931) | Seloo | Wardha |
| 17 | Ghorad (2749804018533909) | Seloo | Wardha |
| 18 | Kamthi(534046) (2749804019534046) | Wardha | Wardha |
| 19 | Rotha (2749804019534179) | Wardha | Wardha |
| 20 | Thanegaon (2749804016533583) | Karanja | Wardha |

Table 1.3: List of the Selected Villages in Amravati district

| Amravati District, Maharashtra | | | |
|---|---|---|---|
| Sr.No | Name of Village | Tehsil | District |
| 1 | Parasapur (2746804004531949) | Achalpur | Amravati |
| 2 | Upatkheda (2746804004531944) | Achalpur | Amravati |
| 3 | Digargavhan (2746804009532628) | Amravati | Amravati |
| 4 | Kapustalani (2746804009532629) | Amravati | Amravati |
| 5 | Khanampur (2746804003531768) | Anjangaon Surji | Amravati |
| 6 | Chandur Railway (M Cl) (2750304013802692) | Chandur Railway | Amravati |
| 7 | Dahigaon(533200) (2746804013533200) | Chandur Railway | Amravati |
| 8 | Jalka Jagtap (2746804013533178) | Chandur Railway | Amravati |
| 9 | Karala (2746804013533173) | Chandur Railway | Amravati |
| 10 | Manjarkhed(533199) (2746804013533199) | Chandur Railway | Amravati |
| 11 | Belora(532186) (2746804005532186) | Chandurbazar | Amravati |
| 12 | Sarfapur (2746804005532036) | Chandurbazar | Amravati |
| 13 | Vastapur (2746804002531698) | Chikhaldara | Amravati |
| 14 | Ashok Nagar (2746804014533269) | Dhamangaon Railway | Amravati |
| 15 | Deogaon(533364) (2746804014533364) | Dhamangaon Railway | Amravati |
| 16 | Juna Dhamangaon (2746804014533312) | Dhamangaon Railway | Amravati |
| 17 | Kawali (2746804014533272) | Dhamangaon Railway | Amravati |
| 18 | Mund Nilkanth Sakharam (2746804014533291) | Dhamangaon Railway | Amravati |
| 19 | Dhawalsari (2746804012533026) | Nandgaon-Khandeshwar | Amravati |
| 20 | Kurha (2746804008532583) | Teosa | Amravati |

*Selection of beneficiary households (random):*

List of sample beneficiary cattle owners (those who have received advisory services under RBP) is obtained from the Local Resource Person of selected village. A sample of 5 beneficiary cattle owners from each village were selected randomly. Thus, total 300 RBP farmers/dairy owners were contacted and interviewed from selected three districts.

*Selection of non-beneficiary households (random):*

A sample of 5 non-beneficiary dairy farmers (not included under RBP advisory services) from each village were selected randomly as the control group for analysis. Total 300 RBP non-implementing farmers/dairy owners were contacted and interviewed.

*Selection of milch animals*:

Minimum 300 milch animals (in milk and dry) covered under RBP were covered for impact assessment.

*Selection of LRP:*

LRP operating in each of the selected village was also interviewed for fulfilling the objectives of the study. From each district, total 20 LRPs were interviewed, thus total 60 LRPs were contacted and interviewed from three districts.

*Total Sample Size of the study:*

- Selected districts: 03
- Selected Villages: 60
- Selected LRPs: 60
- Selected RBP Beneficiary cattle owners/dairy household: 300
- Selected Non RBP Beneficiary cattle owners/dairy household: 300

### 1.4.2 Quality of data

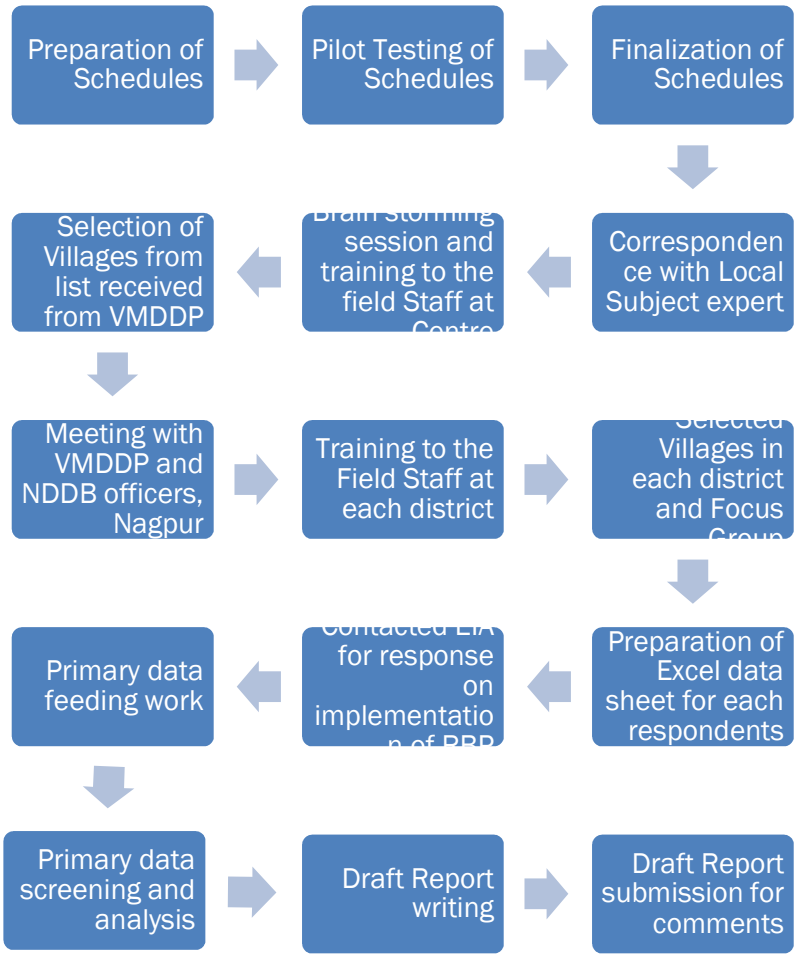
- Trained field staff are deputed for data collection
- Data reported is solely based on the information provided by sample households

- Few cross checks are executed in terms of information recorded through direct observations during field visit to few households in selected villages as well as data collected through Focus Group Discussions

**Focus Group Discussion**

- Before starting primary data collection work, FGDs were conducted in few selected villages of each district covering following aspects:
    - Lactation length in months
    - Age at first calving (in months)
    - Average Inter-calving period (in months)
    - Average consumption of fodder (Green and Dry)
    - Milk price offered by different agencies
    - Labour cost

### 1.4.3 PERT Chart of Work done



### 1.4.4 Development of Survey schedule:

The survey schedule for the collection of primary data has been developed. Six types of survey schedules are canvassed in the study area and copy of same is enclosed as Annexures III-VIII:

- **Village Schedule 1.0:** information pertaining to village and dairy cooperative in selected village, if available.
- **Beneficiary Household 2.0:** for collecting detailed information about adoption and impact of ration balancing programme by the sample dairy household (household covered under RBP advisory services).
- **Non Beneficiary Household 3.0:** for collecting detailed information about rearing of milch animals by the sample dairy household not covered under RBP advisory services.
- **LRP Schedule 4.0:** semi-structured schedule to discuss the overall implementation of the Ration Balancing Programme at local level and opinion about the programme
- **EIA Schedule 5.0:** semi-structured schedule to record the implementation of RBP with the officials of EIA (Mooofarm Pvt. Ltd.).
- **FGD 6.0:** for collecting detailed information about various parameters and aspect of livestock rearing, fodder consumption and milk production and related parameters.

*Nature of Data collected:*

Information was collected from the beneficiary and non-beneficiary households on structured interview schedules as mentioned above. The major aspects on which data were collected, viz. quantity of different types of feed and fodder fed to animals, milk yield, milk fat, household and village characteristics, prices of feed inputs and milk output. General information on animal health, milk consumption, employment opportunities, awareness on ration balancing, capacity of households to scaled up dairy activities, coverage and quality of services under RBP, their timeliness and mode of implementation, etc. In addition to the information collected from the farm households, the interaction and interviews with the various functionaries such as Officers of VMDDP, NDDB, TO/CC, LRPs and

other stakeholders in the project boundary has been carried out to examine these aspects. Based on the Focus Group Discussions (FGDs) involving the cattle owners/dairy households, LRPs and EIA, and in-depth observations of the mechanism that has been put in place under the RBP, the sustainability of the RBP is evaluated.

## 1.5 Analytical Framework:

The analytical framework used in the study has been discussed under different sub-heads covering various aspects of RBP programme:

### 1.5.1 Effects and Outcomes:

*Quantitative assessment:* I

In accordance with the first objective of the study, a quantitative assessment of impact of RBP is carried out by using two outcome variables: i) Milk productivity (ii) feed quantity/cost. This exercise was carried out using both, the approaches of impact assessment, viz. (a) before and after (b) with and without

a) **Before and After Approach**: The animal wise data collected by the LRP under the programme is utilized. The information of the animal collected before extending RBP advisory to them is treated as base data (t=1) and the information on the animal collected after 180 days is treated as t=2 (after).
b) **With and Without Approach:** Data were collected from the beneficiary and the non-beneficiary households in order to work out the average treatment effect on the treated households.

*Qualitative assessment:*

In addition to the quantitative assessment of the two outcome variables, the effect on following are evaluated on the basis of the primary data collected from the beneficiary households: i) milk fat (ii) animal health (iii) milk consumption (iv) employment opportunities (v) awareness on ration balancing (vi) livelihood of the women and vulnerable group beneficiaries (vii) capacity of households to scaled up dairy activities, (viii) willingness of households to support LRP through paid advisory services in future.

### 1.5.2 Effectiveness

Commensurate with the second objective of the study, the effectiveness of the programme is evaluated in terms of the program status with respect to its coverage, quality of services, their timeliness, mode of implementation, etc. In addition to the information collected from the farm households, the interaction and interviews with the various functionaries of EIA, LRPs and other stakeholders in the project boundary is carried out to examine these aspects.

### 1.5.3 Sustainability

Based on the Focus Group Discussions (FGDs) involving the farmers, LRPs and CC of EIA, and in-depth observations of the mechanism that has been put in place under the RBP, the following questions were addressed:

- What mechanisms have been put in place to ensure sustainability of program results, for instance, Has the capacity of EIA improved for delivering better goods and services to dairy farmers?; What is the extent of institutional capacity building a various level in the context of the RBP for ascertaining the provisioning of these services on a sustainable basis to the milk producers?
- Have any innovative practices been adopted by the EIA in implementing the programme?
- What kind of reporting and monitoring system has been put into place?
- Do the stakeholders have a sense of ownership of the program? Are beneficiary households likely to continue receiving RBP advisory services after the program ends as a paid service?
- Are LRPs likely to continue operating and remain financially viable after the program ends?

### 1.5.4 Lessons learned

The delineation of constraints faced in each stage of the RBP has formed the basis of highlighting the lessons learned for its further improvement. The outcome of the study based on the impact evaluation, process mapping and delivery chain assessment provided answer on how effective has the RBP been in

achieving its goals and objectives and drawing from the experiences recommendations for its success towards fulfilling its mandate is made.

## 1.6 Limitations of the Study

The study is based on both primary and secondary level of data and hence the accuracy of results depends on the accuracy with which the data were generated. Most of the villages have very few number of cattle owners covered under RBP (less than 5 households). The households selected under RBP were not adhering to condition of stall feeding practices. As in some cases, the number of animals covered mismatch with the actual number of animals covered in record. Some LRPs were not satisfied with remuneration they get, thus did not show much interest in providing data and support. These posed the major constraints to assess the impact of RBP.

## 1.7 Organization of Report

The present study report is divided into five chapters including this introductory chapter. The need of Ration Balancing Programme (RBP), RBP of National Dairy Plan Phase I (NDP I) and its achievements are presented in Chapter II. Chapter III presents the information on study area and VMDDP. The implementation and monitoring of RBP by EIA is presented in Chapter IV. The findings from secondary data are presented in Chapter V. The information about selected districts and villages, socio-economic status of sample households and LRP is discussed in Chapter VI. Chapter VII presents the details about the herd strength, labour use, fodder consumption and milk production of selected households. The outreach, perceptions and constraints in implementation of programme are also presented and discussed in this chapter. Chapter VIII presents the opinion of LRP and their suggestions. The last chapter presents the conclusions of findings of the study and some policy implications.

The next chapter presents the need of RBP, information on RBP and its achievements under NDP I along with literature review.

Chapter II

# Need of RBP and Achievements of RBP under NDP-I

## 2.1 Introduction:

Before we discuss about the adoption and effect of advisory given to cattle owner/dairy farmer by Local Resource Person under RBP, it is important to discuss in brief about need of Ration Balancing Programme (RBP), RBP of National Dairy Plan I (NDP I) and its achievements which is major focus of this study.

## 2.2 National Dairy Plan I (NDP I):

As mentioned in earlier chapter, National Dairy Plan I (NDP I) is a Central Sector Scheme implemented for a period of 2012-13 to 2018-19 envisaging a scientifically planned multi-state initiatives with the Project Development Objectives (PDO), viz. (a) to help increase productivity of milch animals and there by milk production to meet the rapidly growing demand for milk; (b) to help provide rural milk producers with greater access to the organized milk-processing sector. These objectives are being pursued through adoption of focused scientific and systematic processes in provision of technical inputs supported by appropriate policy and regulatory measures. NDP-I is implemented in 18 major milk producing states. Coverage of NDP-I is spread across the country in terms of benefits accruing from the scheme to cattle owners.

NDP-I is implemented with a total investment of about Rs. 2242 crore comprising Rs. 1584 crore as International Development Association (IDA) credit, Rs. 176 crore as Government of India share, Rs. 282 crore as share of End Implementing Agencies (EIAs) that carry out the projects in participating states and Rs 200 crore by NDDB and its subsidiaries for providing technical and implementation support to the project. NDP I is implemented by NDDB, Anand through End Implementing Agencies. A Project Management Unit (PMU) located in NDDB, headed by a Mission Director, managed implementation of the project and monitor day-to-day project activities. In case of RBP, listed EIA includes Milk Unions/ Federations/ Producer Companies. The project financed the training costs, necessary equipments, and a modest monthly stipend for the LRPs on a

tapering basis for about two years. It was also targeted that the LRPs would earn a self-sustaining income from the commission through sale of area specific mineral mixture (ASMM[1]) and other nutraceutical products.

## 2.3 Need of Ration Balancing:

Farmers feed their animals based on their traditional knowledge and information passed through generations with crop residues, locally available one or two feed ingredients like brans, oil-cakes, chunnies, grains etc. and seasonally available green fodders. They rarely offer mineral mixture to their animals or in a very less quantity of 25 gm to 50 gm per day per animal. In most of the cases, the quantity of feed/fodder offered to animals is either more or less than the requirement. This leads to an imbalance of protein, energy and minerals in their ration. Animals on such imbalanced ration produce milk sub-optimally, cost of milk production is higher and it affects the health and fertility of animals. Besides, it also reduces the net daily income to milk producers from dairying because the potential of milk production of animals is not fully exploited. The disadvantages of imbalanced feedings are as below:

- Low milk production, poor growth and failure in reproduction
- Milk production of animals lower than their genetic potential
- Shorter lactation length and increased inter-calving period
- Animals more prone to metabolic disease such as milk fever and ketosis
- Slow /stunted growth of young animals delaying the age of first calving
- Low productivity and shorter duration of productive life
- More methane production per kg of milk yield

Therefore, milk producers need to understand the implications of imbalanced feeding and recognise the importance of giving their animals balanced ration. Thus, it was felt necessary to educate the farmers on feeding of balanced ration. Ration Balancing Program is one of such programmes adopted under NDP-I to provide advices to farmers at their door step.

[1] NDDB has completed mineral mapping for various states/ region and accordingly area specific mineral mixture formulations have been developed. ASMM has to be fed @ 100-200 g daily, depending upon level of milk production in lactating animals, 50 g daily for growing and non-producing animals and 25 g daily for calves (http://www.nddb.org).

*What is Ration balancing?*

All species required balanced ration for optimal growth and production. Ration balancing is the process to balance the level of various nutrients of animals, from the available feed resources, to meet its nutrient requirements for maintenance and production. It is the ration that provides all the essential nutrients to the animal in such a proportion and amount that is required for the proper nourishment of animal in 24 hours. A balanced ration[2] would provide protein, energy, minerals and vitamins from dry fodders, green fodders, concentrates, mineral supplements, etc. in appropriate quantities to keep the animal in vigorous condition to perform best in respect of production and health. The different types of dietary feed ingredients are as below:

- *Compound cattle feed:* This is considered to be a balanced source of nutrients for growth and milk production. However, only 10 to 12 per cent of the total feed ingredients are used to produce compound cattle feed. Compound cattle feed does not always complement the feed ingredients used by milk producers.
- *Other feeds:* Feed ingredients like rapeseed cake/meal, groundnut cake/meal, sunflower meal, cotton seed cake/meal, soya bean meal, guar meal, maize gluten, sesame cake, coconut cake, linseed cake, safflower meal, de-oiled rice bran, rice polish, wheat bran, maize bran, sorghum grain, wheat, broken rice, millets and channels are fed as such, depending on availability and cost.
- *Crops residues and grasses:* Wheat straw, paddy straw, sorghum straw, maize stovers, straw of bajra and locally available grasses are fed as basal feed.
- *Green Fodder:* Maize, sorghum, oats, hybrid napier, bajra, lucerne, cowpea and berseem are available seasonally and fed in a limited quantity.
- *Mineral mixture:* This is a source of macro and micro minerals, usually lacking in the animals' ration.

## 2.4 NDDB's Ration Balancing Program Software INAPH:

The estimation of nutrient requirement of an animal depends on factors like animal type, class, age, pregnancy status, body weight, milk yield, milk fat, months of calving etc. Information on nutrients availability from the feeds and fodder being

[2] http://www.nddb.org/sites/default/files/pdfs/guidelines/PIP-Vol-V-Guidelines-on-RBP-FD.pdf

fed is required to assess the nutrients supply. Based on nutrient requirement and availability of feed resources, a least cost animal ration is formulated. This formulation is a complex exercise and is very difficult to work out manually. Therefore, National Dairy Development Board (NDDB) has developed the software, **Information Network for Animal Productivity and Health (INAPH),** which formulate least-cost balanced ration. With the help of this software, balanced ration is formulated considering the animal's profile, i.e. cattle or buffalo, age, milk production, milk fat, and feeding regime etc. and milk producers are advised to adjust the quantity of locally available feed ingredients offered to their animals along with supplementation of area specific mineral mixture.

The objective of NDDB's RBP is to produce an optimum quantity of milk at the least-cost from milch animals by readjusting, wherever required, the proportion of locally available dietary feed ingredients, so as to provide them adequate amounts of proteins, minerals, vitamins as well as energy. NDDB developed user-friendly software for ration balancing which is used by dedicated local resource persons (LRPs). The LRP is trained by the implementing agency to effectively use the software in the local language and involves the following steps:

1. *Assessing nutrient status of animals:* This is assessed on the basis of prevalent feeding practises as well as factors such as level of milk production, SNF, milk fat per cent, body weight, lactation stage and pregnancy status.
2. *Assessing chemical composition of locally available feed resources*: The software contains a data base of the analyses of the chemical composition of feeds and fodders available in various parts of the country. The chemical composition of different grains, oil cakes/meals, brans, chunnies, agro-industrial by-products, cultivated green fodders, grasses, crop residues, tree leaves and mineral supplements can be known through this software.
3. *Assessing nutrient requirement of animals*: The software has a database of the nutrient requirements of the various types of animals based on the feeding standards commonly followed in India. The total nutrient of an animal is assessed for dry matter, digestible crude protein (DCP), total digestible nutrients (TDN), calcium and phosphorus.

4. *Formulating least cost balanced ration by using locally available resources*: Based on chemical composition of available feed resources and in accordance with the nutrient requirement of the animal/s, the software compute the least cost ration within the given nutritional and available resource constraints. Accordingly, LRP provide advisory note to the milk producer to prepare the least cost ration using feed ingredients in the proportion as indicated by the software. In case there is a change in feed resources, accordingly the LRP reformulates the least cost ration through the software.

The LRP revisits the milk producer according to his/her requirements and keeps the up-to-date record of the various observations related to the quality and quantity of milk, including the cost of milk production before and after implementation of the RBP and increase in the net daily income per animal. For this purpose, implementing agencies provide the necessary facilities such as a personal digital assistant/ netbook loaded with NDDB's RBP software, a weighing balance, measuring tape and ear tags with applicators, to the LRP. The LRP performed his/her duties in a dedicated manner to effective implement the RBP in a village and provides services to the farmers. Various agencies such as dairy cooperatives, service providing organisations and NGOs can implement the RBP.
The benefits of RBP are as follows:

- Proper use of locally available feed resources to balance the ration of animals at least cost
- Increases milk production with more fat and solids-not-fat (SNF)
- Helps increasing the net daily income
- Improves the productive and reproductive efficiency
- Helps reducing inter-calving period, thereby improve increasing the productive life of the animals
- Improves the general health status of animals
- Improves the growth rate in growing calves, leading to early maturity and overcome he problem of repeat breeding

Thus, RBP (NDP-I) aims to create awareness amongst the milk producers on optimization of animal feeding by efficient utilization of locally available feed and

fodder resources available at the possible least cost. RBP has been designed to deliver the following benefits, (a) increased milk productivity, (b) reduced cost of milk production, and (c) reduced methane emission. It is primarily an extension program wherein advisory support is provided to dairy farmers at their doorstep, through trained Local Resource Persons (LRPs). LRP ear tag the animals, record animal profile as well as present feeding practices and then give a least cost balanced ration advice to the farmer with the help of ration balancing application of INAPH software. NDDB developed software can be used on desktops, laptops, net-books, tablets as well as android phones.

The project aimed to demonstrate a new approach to extension by underlining the importance of unique identification of animals, their performance measurement and advisory support at farmer's doorstep. It is envisaged under the project that each animal covered under RBP can be uniquely identified with an ear tag so as to enable monitoring of its productivity as well as efficiency of RBP through data to be fed into a performance recording system. The technical officers, animal nutritionists and trainers of end implementing agencies (EIAs) are trained at NDDB who in turn impart training to local resource persons (LRPs) at EIA level.

Besides, providing advisory services to dairy farmers on feeding balanced ration to their animals, trained LRPs also educate the milk producers on the latest feeding and management technologies such as feeding milch animals with bypass protein, bypass fat, ASMM, treated or enriched crop residues etc. Besides, milk producers are educated on importance provision of drinking water, proper mangers for feeding the animals, significance of colostrum feeding to newly born calves, chaffing of fodder, de-worming, vaccination, timely insemination etc.

### 2.5 Achievements[3] of RBP under NDP I:

The programme was implemented in 33,374 villages covering 28.65 lakhs dairy animals of 21.57 lakhs farmers across 18 major dairying states of India. Implementation of the programme has resulted in increase in milk yield, SNF and fat content along with reduction in feeding cost. On an average there was increase in net daily income of the farmers by Rs 25.5 per animal due to reduction in feed

[3] https://www.nddb.coop/services/animalnutrition/programmes/ration-balancing-programme

cost (Rs 16.3) and additional milk yield and increased fat content. RBP also resulted in increased lactation period (milk days) by average 26 days for cows and 50 days for buffaloes. Besides this feeding balanced rationn to dairy cows and buffaloes resulted in average 13.7 per cent reduction in enteric methane emission per kg of milk (Table 2.1).

Table 2.1: RBP Impact on Milk Yield, Fat percent and Feed Cost

| Parameter | Before RBP | After RBP | Change |
|---|---|---|---|
| Average milk production (kg/ animal/day) | 7.08 | 7.35 | +0.27 |
| Average fat % in milk | 4.70 | 4.78 | +0.08 |
| Average cost of feeding (Rs./ kg milk) | 19.49 | 17.19 | -2.30 |
| Average cost of feeding (Rs./ animal/ day) | 135.42 | 119.09 | -16.33 |
| Increase in net daily income (Rs./animal) | | | +25.52 |
| Per cent feed cost reduction per kg of milk | | | 11.80 % |
| Increase in net income per lactation if followed for full lactation (305 * 25.5) = Rs 7,783.6 | | | |

Source: NDDB, Anand.

There are very few past studies available on the impact of RBP on selected parameters. Garg et al., (2012) conducted field trial on twenty-six lactating buffaloes to study the effect of ration balancing on milk production, microbial protein synthesis and methane emission. The results revealed that ration balancing has the potential for improving milk production, milk fat and microbial nitrogen supply along with reducing methane emission in lactating buffaloes under field conditions.

Kalamkar et al. (2018) evaluated the efficacy of Ration Balancing Program (under National Dairy Plan I) in increasing milk yield and/or reducing feed cost in Gujarat. The study is based on primary data collected from sample of 200 beneficiaries, 200 non-beneficiaries and 20 LRPs from 20 selected villages of two districts unions (Banaskantha and Surat) of Gujarat. It was observed that more than 92 per cent of beneficiaries were aware about RBP. The success of RBP can be seen from the fact that more than 88 percent of farmers were following the recommended ration advisory given by LRP, while more than 80 percent households felt that they are in programme. Around 78 per cent beneficiary households opined that milk production has increased (by 15%) i.e. 1.5 litre/day. More than 79 per cent households realized that milk fat and SNF level has also increased. The health of animals is also reported improved after adoption of RBP.

Decrease in digestive disorders of animals after adoption of RBP was also experienced. More than half of the selected households have agreed on reduction in feed cost.

Sirohi, et al. (2017) examined the extent of productivity increase and cost reduction on adoption of balanced animal ration. The study is based on the database extracted from Information Network for Animal Productivity and Health (INAPH) pertaining to the milk yield and feeding records of about 15000 cattle and buffaloes that were covered under Ration Balancing Program (RBP) of the National Dairy Plan I implemented in the states of Gujarat and Punjab. In Gujarat, the analysis has shown that the ration balancing intervention enhanced the productivity of cows by around 13 per cent and of buffaloes by nearly 5.5 per cent. The quantum of increase discernible from the with-without approach after controlling for the confounding factors was higher, 19.5 per cent for cows and 18 per cent for buffaloes. In Punjab, the estimates of productivity gain for cows was close to 13 per cent based on either approach. Ration balancing has been cost effective in terms of percentage reduction in feed cost and feed cost/litre. The field level data have also indicated a clear impact in reducing the feed cost per litre of milk by about 18- 19 per cent in case of cows in both the states and about 2.6 per cent in buffaloes in Gujarat.

## 2.6 Chapter Summary:

This chapter presented the details on need of RBP, RBP implemented under NDP-I through NDDBP, Anand and its achievement. In view of the disadvantages of imbalanced feedings, milk producers need to understand the implications of imbalanced feeding and recognise the importance of giving their animals balanced ration. Therefore, Ration Balancing Program was adopted under NDP-I to educate farmers on feeding of balanced ration through door step advisory. The implementation of the programme has resulted in increase in milk yield and fat content along with reduction in feeding cost. Also the increase in net daily income of the farmers has been reported.

The next chapter presents the information on study area and VMDDP.

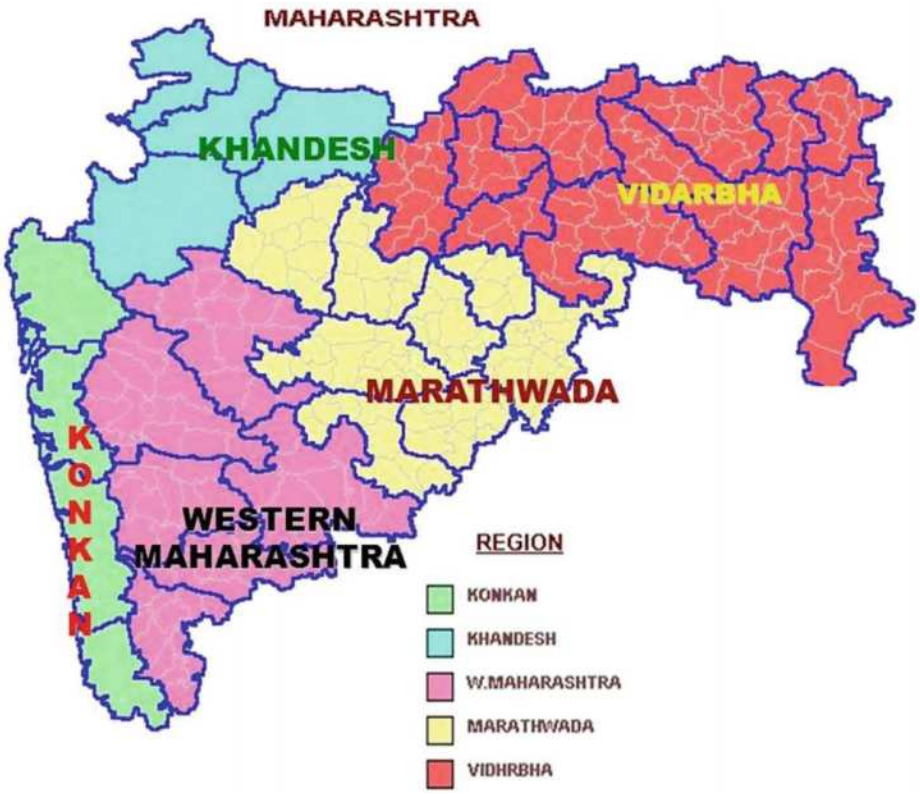
Chapter III

# About Study Area and VMDDP

## 3.1 Introduction:

Maharashtra State ranks second in terms of population (11.24 crore in 2011) and third in terms of area (3.08 lakh sq. km) in India. The State is sub-divided into five divisions, each having their own unique cultural identity (Map 3.1). State has 36 districts, six revenue divisions having 355 talukas (Map 3.2). The State is highly urbanised with 45.2 per cent population living in towns. Maharashtra is the state with the largest economy in India. It had the highest GSDP among 33 Indian States and Union Territories, and contributed 13.88 per cent to India's total GDP (at current prices) in 2018-19. It is leading industrial state contributing 13 per cent to the national industrial output. It also one of the top economic performers with respect to per capita income (Per capita Nominal NSDP Rs. 1,76,102 during 2017-18) which is 1.54 times higher that of India average (Rs. 1,14,598/-) (GOM, 2019). The relatively high per capita income in the state, however, conceals the enormous urban-rural contrast and the regional disparities in per capita income. This gets reflected from the fact that in 2017-18, the per capita nominal gross district value added (at current prices) for Mumbai was estimated to Rs. 2,94,764 which was exactly 1.67 times the state average. Around 21 percent of the districts only had per capita income above state average. Thus, even though Maharashtra is among the richest states in India, yet incidence of poverty in the state remains close to the national average. About 59 percent of the districts had around 70 percent of their workforce in the agricultural sector while 85 percent of the districts had more than 60 percent of the workforce in agriculture. These percentages are more than the national average. Though State is a highly industrialized state of India, agriculture continues to be the main occupation in the state. This explains the importance of agricultural sector in the economic and social fabric of Maharashtra as majority of the labour force still depends on agriculture as their primary source of livelihood. Further, in nearly half the districts, share of agricultural labourers is more than that of cultivators.

Map 3.1: Regional Divisions of Maharashtra




Map 3.2: Administrative Divisions of Maharashtra

## 3.2 Role of Dairy Sector in State Economy of Maharashtra:

Animal husbandry is a subsidiary occupation which not only supplements farm income but also generates gainful employment throughout the year. It provides essential nutrients at low cost to the livestock rearing families. Accordingly, the Government of Maharashtra is framing and implementing policies for genetic up-gradation of livestock for sustainable production to enhance livestock sector. The State currently represents the largest dairy market in India. As mentioned earlier, Maharashtra State has the distinction of being the pioneer state in the field of dairy development in the country. Maharashtra is the seventh largest producer of milk in the country, accounting for 6.21 percent share in 2018-19. However, per capita milk availability was lowest in the state at 266 grams per day in 2018-19 which was less by 4.44 times and 1.48 times respectively of Punjab and all India figures. The livestock population and milk production increased significantly over the years in the state due to the implementation of various dairy development programmes.

For designing appropriate policies of dairy development and thereby giving further boost, it is extremely essential to focus on the nature and significance of changes taking place in dairy sector in different regions of Maharashtra State over the period. Though the contribution of agriculture and allied sectors to the state gross domestic product declined during the last four decades (from 34.4 percent in 1960-61 to 11.9 percent in 2018-19), livestock sector has been among the few high-growth sectors in rural Maharashtra. Dairy and poultry are high growth sectors which is reflected in the growing importance of the contribution of these sub-sectors in the livestock economy. The contribution to GSVA of livestock sector to agriculture and allied sector combined increased from 19.03 per cent in 2011-12 to 23.62 per cent in 2017-18 at current prices. Milk contribution to livestock GSVO was 67.41 percent at current prices 2018-19 (GOM, 2020-ISS). The results indicated the dominance of milk group in total livestock output.

## 3.3 Composition of Livestock in the State

As per the 20$^{th}$ Livestock Census 2019, with total livestock of about 3.3 crore, the State ranked seventh at national level, accounting for 6.30 per cent of national livestock population (Table 3.1). There is an overall increase of 3.94 per

cent over the previous census 2012. The total bovine (Cattle and Buffalo) population was 195.96 Lakh which accounts to 58.03 percent of total livestock. Maharashtra State ranked at fifth position in terms of total cattle at the national level. The state accounts for 7.22 per cent share in total cattle population, 5.10 percent in buffalo population, 3.64 per cent in sheep population and 7.12 per cent in goat population of the country (Table 3.2). Significant share of donkeys and horse and ponies in national stock has also been recorded. Among species, cattle contributed highest share (41.16 per cent) in total livestock population followed by goats (31.39 percent), buffaloes (16.58 per cent) and sheep (8.00 per cent).

Table 3.1: Growth of the Livestock in Maharashtra and India

| Sr. No. | Livestock Census Year | Total Livestock (million) | | Per cent Share of MS to All India | Per cent Growth between two Census |
|---|---|---|---|---|---|
| | | All India | Maharashtra | | |
| 1 | 1961 | 336.43 | 26.05 | 7.74 | -- |
| 2 | 1966 | 344.11 | 25.45 | 7.4 | -4.49 |
| 3 | 1972 | 353.34 | 26.36 | 7.46 | 0.89 |
| 4 | 1978 | 369.53 | 29.64 | 8.02 | 7.52 |
| 5 | 1982 | 419.59 | 30.92 | 7.37 | -8.14 |
| 6 | 1987 | 445.29 | 34.24 | 7.69 | 4.35 |
| 7 | 1992 | 470.83 | 36.39 | 7.73 | 0.52 |
| 8 | 1997 | 485.39 | 39.63 | 8.16 | 5.63 |
| 9 | 2003 | 485.00 | 37.06 | 7.64 | -6.42 |
| 10 | 2007 | 529.70 | 35.95 | 6.79 | -11.17 |
| 11 | 2012 | 512.06 | 32.49 | 6.34 | -6.53 |
| 12 | 2019 | 535.78 | 33.77 | 6.30 | 3.94 |

Note: Figures without Dog & Rabbit
Sources: GOI (2019), GOM (2019) and https://vikaspedia.in.

Table 3.2: Species-wise Livestock population and its Share in total livestock

| Sr. No. | Particulars | Maharashtra -2019 | | | | India 2019 | |
|---|---|---|---|---|---|---|---|
| | | Livestock-2019 (million) | % share in India | % share in total | Rank in All India | Livestock-2019 (million) | percent share in Total Livestock |
| 1 | Cattle | 13.9 | 7.22 | 41.16 | 5th | 192.49 | 35.93 |
| 2 | Buffalo | 5.6 | 5.10 | 16.58 | 7th | 109.85 | 20.50 |
| 3 | Sheep | 2.7 | 3.64 | 8.00 | 7th | 74.26 | 13.86 |
| 4 | Goat | 10.6 | 7.12 | 31.39 | 6th | 148.88 | 27.79 |
| 5 | Others | 0.20 | 2.21 | 2.87 | - | 9.06 | 1.69 |
| 6 | Total Livestock | 33.77 | 6.30 | 100.00 | 7th | 535.78 | 100.00 |

Note: Figures without Dog & Rabbit
Source: GOI (2020), 20th Livestock Census.

After having decline in livestock population in consecutively last three livestock census, a merger increase of 1.57 per cent over last population census was registered in 2019 (Table 3.3). While despite of a ban on cow slaughter and laws to protect them introduced four years ago, the state has lost 10.23 per cent of cattle (cows, bullocks, and calves) over last census figure. However, the highest increase in population in 2019 over 2012 was recorded in goats (25.62 per cent) followed by sheep (4.65 per cent). The share of cattle population in total livestock population declined from 58.8 per cent in 1951 to 42.12 per cent in 2019, while

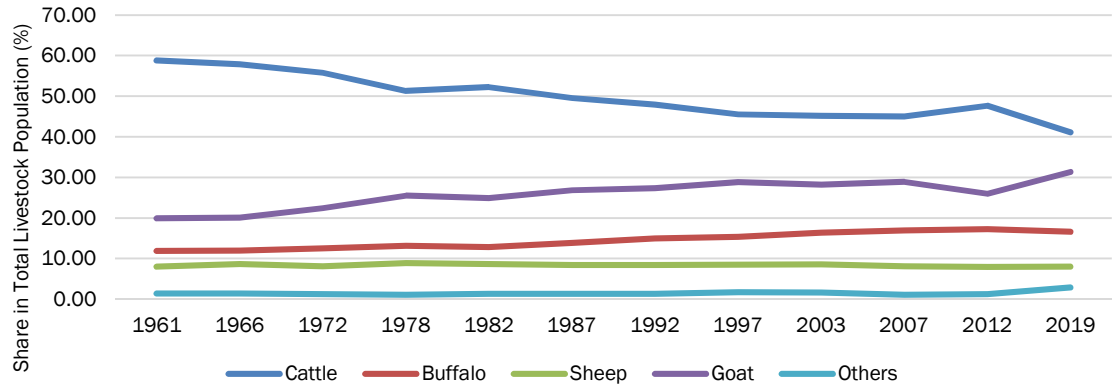
share of buffalo population increased considerably (12% to 16.97%) (Fig. 3.1). Cows are still a dominant milch animal in the state. Total livestock population in State increased by 26.68 per cent during a period of last six decades (Table 3.3).

Table 3.3: Growth in Livestock Population in Maharashtra - 1951 to 2019

| Sr. No. | Year | Cattle | | Buffalo | | Sheep | | Goat | | Total Livestock | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nos. | GR (%) | Nos. | GR (%) | Nos. | GR (%) | Nos. | GR (%) | Nos. | GR (%) |
| 1 | 1961 | 15.33 | -- | 3.09 | -- | 2.09 | -- | 5.18 | -- | 26.05 | -- |
| 2 | 1966 | 14.73 | -3.91 | 3.04 | -1.46 | 2.21 | 5.35 | 5.12 | -1.16 | 25.45 | -2.3 |
| 3 | 1972 | 14.71 | -0.16 | 3.30 | 8.51 | 2.13 | -3.49 | 5.91 | 15.43 | 26.36 | 3.58 |
| 4 | 1978 | 15.22 | 3.49 | 3.90 | 18.12 | 2.64 | 23.87 | 7.56 | 27.95 | 29.64 | 12.45 |
| 5 | 1982 | 16.16 | 6.2 | 3.97 | 1.87 | 2.67 | 1.33 | 7.71 | 1.88 | 30.92 | 4.31 |
| 6 | 1987 | 16.98 | 5.08 | 4.76 | 19.71 | 2.87 | 7.56 | 9.20 | 19.34 | 34.26 | 10.79 |
| 7 | 1992 | 17.44 | 2.7 | 5.45 | 14.55 | 3.07 | 7 | 9.94 | 8.11 | 36.39 | 6.24 |
| 8 | 1997 | 18.07 | 3.61 | 6.07 | 11.49 | 3.37 | 9.56 | 11.43 | 15.02 | 39.64 | 8.92 |
| 9 | 2003 | 16.74 | -7.38 | 6.08 | 0.18 | 3.18 | -5.73 | 10.45 | -8.61 | 37.06 | -6.51 |
| 10 | 2007 | 16.18 | -3.31 | 6.07 | -0.18 | 2.91 | -8.38 | 10.39 | -0.56 | 35.95 | -2.98 |
| 11 | 2012 | 15.48 | -4.33 | 5.59 | -7.89 | 2.58 | -11.31 | 8.44 | -18.82 | 32.49 | -9.64 |
| 12 | 2019 | 13.90 | -10.23 | 5.60 | 0.11 | 2.7 | 4.65 | 10.6 | 25.67 | 33.00 | 3.94 |

Notes: Numbers in million, GR- Growth rate in per cent over previous year.
Source: GOM (2019).

Fig 3.1: Species-wise Share in Total livestock Population in Maharashtra (1961-2019)




Among the five main regions, Marathawada and Vidarbha regions are characterised by frequent droughts, cracked soils, parched wells, dry hand pumps, low yielding livestock and accordingly, dairying is relegated to Western parts of the State. The perpendicular strip of land in Western part comprising of Ahmednagar, Nasik, Pune, Satara, Sangli, Kolhapur and Solapur districts comprises of more than 39 per cent of total bovine population of the State, mainly crossbred cows and buffaloes (Fig. 3.2). Vidarbha region account for about 24.92 per cent of total livestock population of the State (Fig. 3.3). The district-wise share in total state livestock and bovine population presented in Tables 3.4-3.5 & Figures 3.4-3.5 indicates that Ahmednagar (8.7 per cent) has the highest livestock population followed by Nashik (7.0 per cent), Solapur (6.4 percent) and Pune (5.5 per cent).

Fig. 3.2: Districtwise share in Total Bovine Population in Maharashra 2019

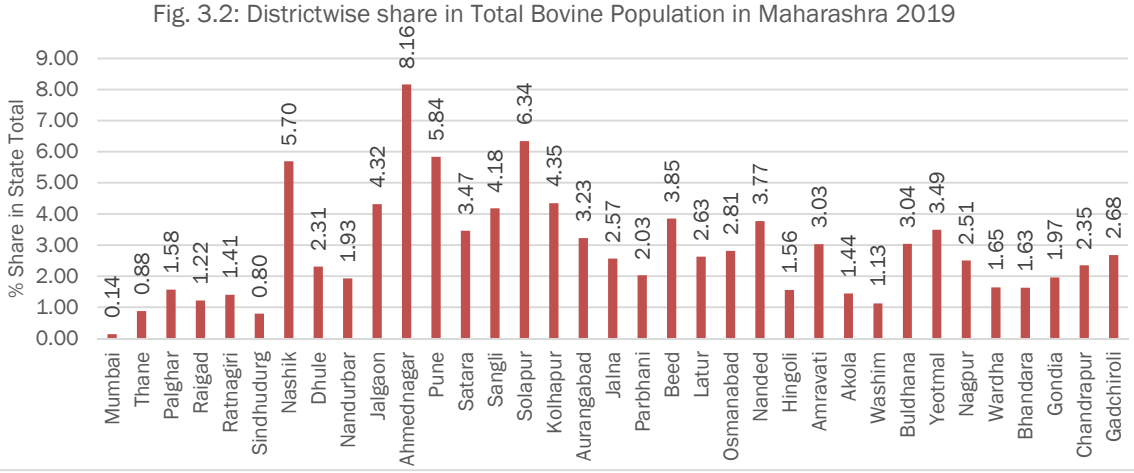



Fig. 3.3: Regionwise share in Total Bovine Population in Maharashra 2019

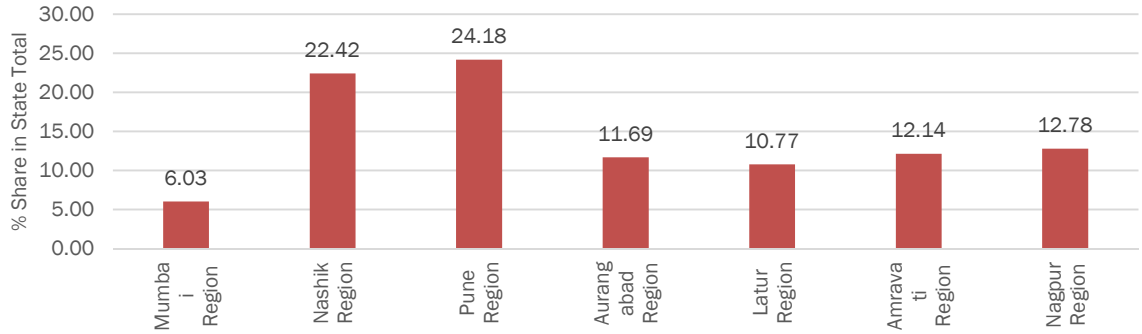



Fig 3.4: District wise Percentage share in Total livestock population Maharashtra in -2019

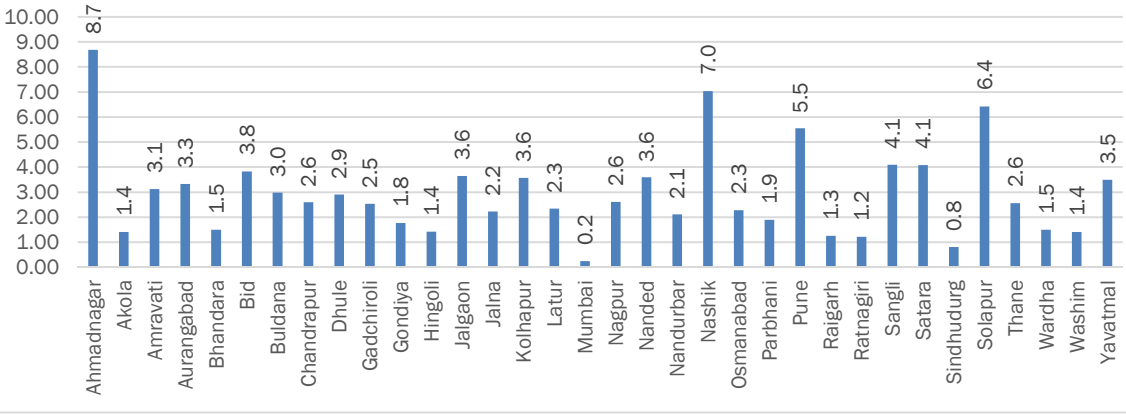



Fig 3.5: Divisionwise Percentage share in Total livestock population Maharashtra in -2019

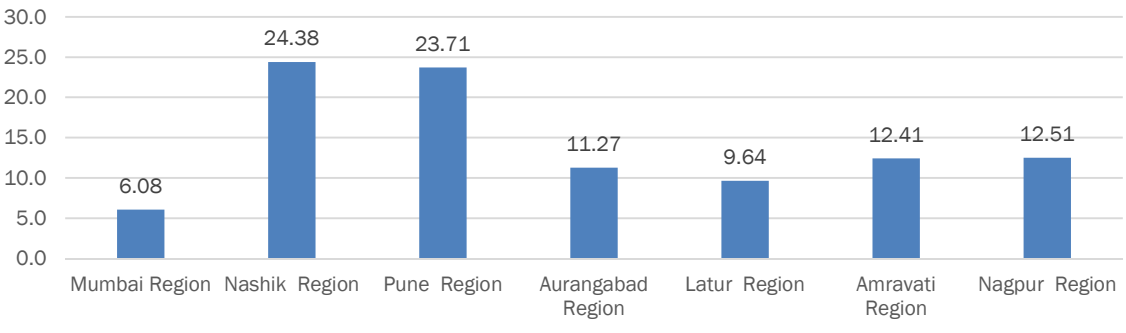


Table: 3.4: Districtwise Share in Total Population of Cow, Buffalo, Sheep and Goat

| Sr. No. | District | District-wise Share in Total Population (%) 2019 | | | |
|---|---|---|---|---|---|
| | | Cattle | Buffaloes | Goat | Sheep |
| 1 | Mumbai | 0.0 | 0.5 | 0.1 | 0.0 |
| 2 | Thane | 2.7 | 3.3 | 2.4 | 0.1 |
| 3 | Palghar | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | Raigad | 1.4 | 1.2 | 1.0 | 0.0 |
| 5 | Ratnagiri | 2.1 | 0.8 | 0.4 | 0.0 |
| 6 | Sindhudurg | 1.0 | 1.2 | 0.3 | 0.0 |
| | Mumbai Region | 7.1 | 7.1 | 4.3 | 0.1 |
| 7 | Nashik | 6.6 | 4.2 | 7.1 | 13.8 |
| 8 | Dhule | 2.3 | 1.8 | 3.3 | 8.0 |
| 9 | Nandurbar | 2.2 | 1.3 | 3.2 | 0.6 |
| 10 | Jalgaon | 3.6 | 4.6 | 4.1 | 1.5 |
| 11 | Ahmednagar | 9.2 | 4.0 | 9.4 | 14.0 |
| | Nashik Region | 23.8 | 15.9 | 27.1 | 37.9 |
| 12 | Pune | 4.9 | 5.3 | 4.7 | 11.8 |
| 13 | Satara | 2.4 | 6.3 | 3.7 | 10.2 |
| 14 | Sangli | 2.2 | 8.8 | 3.8 | 6.1 |
| 15 | Solapur | 4.7 | 8.0 | 8.4 | 7.2 |
| 16 | Kolhapur | 1.8 | 11.0 | 1.9 | 4.0 |
| | Pune Region | 16.1 | 39.4 | 22.5 | 39.4 |
| 17 | Aurangabad | 3.8 | 1.7 | 3.6 | 3.4 |
| 18 | Jalna | 2.7 | 1.4 | 2.2 | 1.0 |
| 19 | Parbhani | 2.3 | 1.7 | 1.6 | 1.0 |
| 20 | Beed | 3.8 | 4.3 | 4.0 | 2.6 |
| | Aurangabad Region | 12.5 | 9.1 | 11.3 | 8.0 |
| 21 | Latur | 2.3 | 4.2 | 1.5 | 1.4 |
| 22 | Osmanabad | 2.3 | 3.1 | 2.1 | 1.2 |
| 23 | Nanded | 4.2 | 3.8 | 3.0 | 1.6 |
| 24 | Hingoli | 1.8 | 1.2 | 1.3 | 0.3 |
| | Latur Region | 10.6 | 12.2 | 7.9 | 4.5 |
| 25 | Amravati | 3.5 | 2.2 | 3.5 | 2.7 |
| 26 | Akola | 1.7 | 0.9 | 1.6 | 0.2 |
| 27 | Washim | 1.6 | 1.1 | 1.6 | 0.4 |
| 28 | Buldhana | 3.1 | 2.1 | 3.1 | 4.1 |
| 29 | Yeotmal | 4.7 | 1.7 | 3.5 | 1.0 |
| | Amravati Region | 14.5 | 8.1 | 13.3 | 8.4 |
| 30 | Nagpur | 3.0 | 1.5 | 3.1 | 0.3 |
| 31 | Wardha | 2.0 | 0.9 | 1.5 | 0.1 |
| 32 | Bhandara | 1.5 | 1.6 | 1.9 | 0.1 |
| 33 | Gondia | 2.2 | 1.6 | 1.8 | 0.1 |
| 34 | Chandrapur | 3.3 | 1.3 | 2.7 | 0.9 |
| 35 | Gadchiroli | 3.3 | 1.4 | 2.4 | 0.3 |
| | Nagpur Region | 15.3 | 8.2 | 13.5 | 1.8 |
| | | | | | |
| **A** | **Konkan region** | **7.1** | **7.1** | **4.3** | **0.1** |
| **B** | **Khandesh** | **14.7** | **11.9** | **17.7** | **23.9** |
| **C** | **Western Maharashtra** | **25.3** | **43.4** | **31.9** | **53.4** |
| **D** | **Marathawada region** | **23.1** | **21.3** | **19.2** | **12.5** |
| **E** | **Vidarbha Region** | **29.8** | **16.3** | **26.8** | **10.2** |
| Total State | | 100.0 | 100.0 | 100.0 | 100.0 |

Source: https://farmer.gov.in/livestockcensus.aspx

Table 3.5: District-wise share in Total Population of Cattle and Buffalo (Bovine) 2019

| Sr. No. | District | Percentage to Total Bovine (Cattle+ Buffalo) population 2019 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Exotic/Crossbred cattle | | | Indigenous Cattle | | | Total Cattle | | | Buffaloes | | |
| | | In Milk | Milch | Breedable | In Milk | Milch | Breedable | In Milk | Milch | Breedable | In Milk | Milch | Breedable |
| 1 | Mumbai | 2.92 | 3.40 | 3.46 | 3.91 | 4.41 | 4.69 | 6.82 | 7.82 | 8.15 | 93.18 | 92.18 | 91.85 |
| 2 | Thane | 3.31 | 3.25 | 3.25 | 26.41 | 29.81 | 30.27 | 29.72 | 33.05 | 33.53 | 70.28 | 66.95 | 66.47 |
| 3 | Palghar | 4.42 | 3.94 | 4.00 | 38.67 | 51.02 | 51.39 | 43.09 | 54.96 | 55.39 | 56.91 | 45.04 | 44.61 |
| 4 | Raigad | 9.64 | 9.71 | 9.68 | 52.11 | 52.45 | 52.55 | 61.75 | 62.16 | 62.24 | 38.25 | 37.84 | 37.76 |
| 5 | Ratnagiri | 15.72 | 14.00 | 13.98 | 56.90 | 60.19 | 60.29 | 72.62 | 74.19 | 74.28 | 27.38 | 25.81 | 25.72 |
| 6 | Sindhudurg | 12.75 | 11.53 | 11.51 | 41.87 | 42.91 | 42.29 | 54.62 | 54.44 | 53.81 | 45.38 | 45.56 | 46.19 |
| Mumbai Region | | 8.05 | 7.82 | 7.86 | 40.09 | 45.50 | 45.75 | 48.14 | 53.32 | 53.61 | 51.86 | 46.68 | 46.39 |
| 7 | Nashik | 45.29 | 41.73 | 41.54 | 30.16 | 34.72 | 34.79 | 75.45 | 76.45 | 76.33 | 24.55 | 23.55 | 23.67 |
| 8 | Dhule | 23.46 | 21.61 | 21.78 | 40.99 | 43.62 | 43.67 | 64.45 | 65.23 | 65.44 | 35.55 | 34.77 | 34.56 |
| 9 | Nandurbar | 8.82 | 7.95 | 7.89 | 53.58 | 57.34 | 57.21 | 62.40 | 65.29 | 65.10 | 37.60 | 34.71 | 34.90 |
| 10 | Jalgaon | 23.98 | 23.13 | 23.02 | 30.48 | 31.81 | 31.82 | 54.47 | 54.94 | 54.84 | 45.53 | 45.06 | 45.16 |
| 11 | Ahmednagar | 71.67 | 68.00 | 68.03 | 14.79 | 17.20 | 17.19 | 86.46 | 85.20 | 85.21 | 13.54 | 14.80 | 14.79 |
| Nashik Region | | 50.03 | 47.15 | 46.86 | 25.18 | 28.11 | 28.26 | 75.21 | 75.26 | 75.12 | 24.79 | 24.74 | 24.88 |
| 12 | Pune | 61.14 | 60.51 | 60.47 | 10.51 | 11.29 | 11.34 | 71.65 | 71.80 | 71.82 | 28.35 | 28.20 | 28.18 |
| 13 | Satara | 41.99 | 39.69 | 39.84 | 9.37 | 10.36 | 10.31 | 51.37 | 50.05 | 50.16 | 48.63 | 49.95 | 49.84 |
| 14 | Sangli | 31.50 | 30.76 | 30.65 | 8.26 | 9.06 | 9.07 | 39.76 | 39.82 | 39.73 | 60.24 | 60.18 | 60.27 |
| 15 | Solapur | 46.45 | 45.37 | 45.49 | 13.76 | 14.45 | 14.38 | 60.21 | 59.82 | 59.87 | 39.79 | 40.18 | 40.13 |
| 16 | Kolhapur | 26.84 | 26.53 | 26.46 | 4.34 | 4.41 | 4.41 | 31.18 | 30.93 | 30.87 | 68.82 | 69.07 | 69.13 |
| Pune Region | | 42.68 | 42.04 | 42.11 | 9.49 | 10.23 | 10.24 | 52.17 | 52.28 | 52.35 | 47.83 | 47.72 | 47.65 |
| 17 | Aurangabad | 44.35 | 42.56 | 42.68 | 33.03 | 34.82 | 34.71 | 77.39 | 77.38 | 77.39 | 22.61 | 22.62 | 22.61 |
| 18 | Jalna | 18.90 | 18.24 | 18.10 | 53.70 | 53.89 | 54.00 | 72.60 | 72.13 | 72.10 | 27.40 | 27.87 | 27.90 |
| 19 | Parbhani | 3.69 | 3.45 | 3.42 | 53.68 | 54.58 | 54.73 | 57.37 | 58.03 | 58.16 | 42.63 | 41.97 | 41.84 |
| 20 | Beed | 26.58 | 25.41 | 25.69 | 26.44 | 27.13 | 27.07 | 53.02 | 52.54 | 52.76 | 46.98 | 47.46 | 47.24 |
| Aurangabad Reg. | | 26.54 | 25.60 | 25.72 | 38.31 | 38.91 | 38.87 | 64.85 | 64.51 | 64.59 | 35.15 | 35.49 | 35.41 |
| 21 | Latur | 6.50 | 6.34 | 6.31 | 30.46 | 31.45 | 31.55 | 36.96 | 37.79 | 37.86 | 63.04 | 62.21 | 62.14 |
| 22 | Osmanabad | 47.69 | 47.15 | 47.07 | 13.36 | 13.36 | 13.44 | 61.05 | 60.52 | 60.51 | 38.95 | 39.48 | 39.49 |
| 23 | Nanded | 3.39 | 3.06 | 2.98 | 49.50 | 53.12 | 53.45 | 52.89 | 56.17 | 56.44 | 47.11 | 43.83 | 43.56 |
| 24 | Hingoli | 6.53 | 6.26 | 6.22 | 53.45 | 53.58 | 53.63 | 59.98 | 59.84 | 59.85 | 40.02 | 40.16 | 40.15 |
| Latur Region | | 18.63 | 17.56 | 17.49 | 33.70 | 35.61 | 35.84 | 52.33 | 53.17 | 53.34 | 47.67 | 46.83 | 46.66 |
| Vidarbha | | | | | | | | | | | | | |
| 25 | Amravati | 8.34 | 7.79 | 7.81 | 59.95 | 62.08 | 62.08 | 68.29 | 69.87 | 69.88 | 31.71 | 30.13 | 30.12 |
| 26 | Akola | 5.06 | 5.09 | 5.14 | 63.27 | 67.00 | 67.00 | 68.33 | 72.09 | 72.14 | 31.67 | 27.91 | 27.86 |
| 27 | Washim | 2.60 | 2.27 | 2.28 | 57.40 | 62.21 | 62.28 | 60.00 | 64.47 | 64.56 | 40.00 | 35.53 | 35.44 |
| 28 | Buldhana | 13.51 | 12.26 | 12.14 | 49.28 | 52.96 | 53.30 | 62.79 | 65.22 | 65.44 | 37.21 | 34.78 | 34.56 |
| 29 | Yeotmal | 4.47 | 3.85 | 3.85 | 73.94 | 76.40 | 76.24 | 78.41 | 80.25 | 80.09 | 21.59 | 19.75 | 19.91 |
| Amravati Region | | 7.75 | 6.95 | 6.94 | 60.66 | 64.19 | 64.26 | 68.41 | 71.14 | 71.20 | 31.59 | 28.86 | 28.80 |
| 30 | Nagpur | 34.07 | 32.69 | 32.80 | 44.27 | 47.02 | 46.82 | 78.34 | 79.71 | 79.63 | 21.66 | 20.29 | 20.37 |
| 31 | Wardha | 23.00 | 20.50 | 20.75 | 54.20 | 58.48 | 58.23 | 77.20 | 78.98 | 78.98 | 22.80 | 21.02 | 21.02 |
| 32 | Bhandara | 43.58 | 44.06 | 43.90 | 16.46 | 18.46 | 18.48 | 60.04 | 62.52 | 62.38 | 39.96 | 37.48 | 37.62 |
| 33 | Gondia | 14.60 | 13.39 | 13.61 | 51.03 | 55.48 | 55.36 | 65.64 | 68.87 | 68.98 | 34.36 | 31.13 | 31.02 |
| 34 | Chandrapur | 11.69 | 11.06 | 11.18 | 62.04 | 64.66 | 64.56 | 73.73 | 75.72 | 75.74 | 26.27 | 24.28 | 24.26 |
| 35 | Gadchiroli | 3.55 | 2.94 | 3.00 | 78.40 | 82.11 | 82.02 | 81.95 | 85.05 | 85.02 | 18.05 | 14.95 | 14.98 |
| Nagpur Region | | 23.49 | 21.66 | 21.74 | 49.50 | 53.84 | 53.72 | 73.00 | 75.49 | 75.46 | 27.00 | 24.51 | 24.54 |
| Total state | | 33.97 | 31.88 | 31.80 | 27.61 | 31.20 | 31.35 | 61.58 | 63.08 | 63.14 | 38.42 | 36.92 | 36.86 |

Source: https://ahd.maharashtra.gov.in/livestock-census

## 3.4 Growth in Milk Production and Productivity (Regional trend)

As mentioned earlier, Maharashtra is the seventh largest milk producer in the country. There is a consistent increase in the production of milk over the years, from 1.06 million tonnes in 1970-71, to 4.01 million tonnes in 1992-93 to 11.695 million tonnes in 2018-19 (Table 3.6). Except for the period of drought during 1986-87, milk production in the state has been increasing continuously. The rate of increase in milk production was faster than rate of increase in state's human population. As a result, the per capita availability of milk in the state increased from 172 gms/day in 2001-02 to 266 gm/day in 2018-19. During 2017-18, sixty milk processing plants were functioning in the state. Nashik and Pune division together accounts for 68.6 per cent of milk production of the State, while Vidarbha region accounts for hardly 10.63 per cent. During 2018-19, the average daily collection of milk by the government and co-operative dairies was 45.40 lakh litres (GOM, 2019 & 2019a) which was 41 percent of total milk produced in ghe State (Table 3.7). The share was lowest in Amravati region where hardly 4.8 per cent of total milk was procured.

As per the 48$^{th}$ Report of Integrated Sample Survey Scheme 2017-18 (GOM, 2018), out of total milk production during 2017-18, about 47.23 percent of the milk production was contributed by crossbreed cattle followed by 37.51 percent by buffaloes. The contribution from local cows was 13.06 percent to the total milk production in the State whereas contribution from goats was 2.15 percent (Table 3.6). On an average 22.95 per cent of cow milk, 15.99 per cent buffalo milk & 100 per cent goat milk was utilized at home while 74.93 per cent of cow milk and 80.90 percent buffalo milk was sold out. About 4.12 percent of cow milk and 3.11 percent buffalo milk converted to milk products (GOM, 2019a-ISS).

Number of initiatives were taken by the State government to facilitate improvement in the milk productivity over the last five decades or so. The productivity of cows and buffaloes as well as bovine animals in terms of daily milk yield is increasing continuously (Fig 3.6). The highest milk yield is reported in exotic cows (10.3 kg/day) followed by crossbred cows (9.2 kg/day), Indian buffalo (6.4 kg/day) and the lowest was in case of non-discrete cows (1.97 kg/day (Table 3.7). Despite of increase in milk yield, there is still a wide scope for improving milk yield of milch animals, as there is inter-region and inter-district variation in milk

productivity. The milk productivity of all milch animals was found higher in Pune and Nashik region as compared to Amravati and Nagpur regions of Vidarbha area as well as Aurangabad and Latur regions of Marathawada area (Table 3.8).

Table 3.6: Estimated Milk Production in Maharashtra:1992-93 to 2017-18

| Sr. No. | Year | Milk Production in ("000 MT) | | | | | | Growth of Milk Prod (%) over base | Per Capita availability (gms/day) |
|---|---|---|---|---|---|---|---|---|---|
| | | In milk Cow | | In Milk Buffalo | In milk Bovine | In Milk Goat | Total | | |
| | | Indigenous | C.B. | | | | | | |
| 1 | 1992-93 | 996.5 | 1040.3 | 1869.1 | 3906.0 | 196.2 | 4102.2 | -- | 140 |
| 2 | 1997-98 | 1016.1 | 1467.1 | 2471.7 | 4954.8 | 237.9 | 5192.7 | 26.58 | 160 |
| 3 | 2003-04 | 1206.5 | 1954.9 | 2914.9 | 6076.3 | 300.8 | 6377.1 | 22.81 | 175 |
| 4 | 2007-08 | 1033.8 | 2763.2 | 3147.4 | 6944.4 | 265.3 | 7209.7 | 13.06 | 187 |
| 5 | 2008-09 | 1066.2 | 2817.2 | 3294.5 | 7177.7 | 277.2 | 7454.9 | 3.40 | 190 |
| 6 | 2009-10 | 1154.4 | 2886.8 | 3355.1 | 7396.3 | 281.9 | 7678.2 | 3.00 | 193 |
| 7 | 2010-11 | 1229.4 | 3067.9 | 3473.7 | 7711.0 | 273.0 | 7984.0 | 3.98 | 199 |
| 8 | 2011-12 | 1277.1 | 3328.0 | 3571.0 | 8176.1 | 292.9 | 8469.0 | 6.07 | 206 |
| 9 | 2012-13 | 1312.9 | 3415.7 | 3702.1 | 8430.7 | 303.7 | 8734.4 | 3.13 | 210 |
| 10 | 2013-14 | 1295.1 | 3721.1 | 3822.4 | 8838.6 | 250.4 | 9089.0 | 4.06 | 215 |
| 11 | 2016-17 | 1432.3 | 4734.2 | 4015.39 | 10182.0 | 220.3 | 10402.0 | 14.45 | 243 |
| 12 | 2017-18 | 1450.0 | 5248.9 | 4164.50 | 10862.4 | 238.9 | 11102.3 | 6.73 | 256 |

Source: GOM (2019a-ISS).

Table 3.7: Details on Milk Procurement by Government and Cooperative

| Sr. No. | Region | Milk Production ('000'M.T.) | % to Total Milk prod | Milk Procurement ('000'M.T.) | % to Total Milk Procurement |
|---|---|---|---|---|---|
| 1 | Mumbai | 537.678 | 4.8 | 9.86 | 1.83 |
| 2 | Nashik | 2978.66 | 26.8 | 1076.75 | 36.15 |
| 3 | Pune | 4640.1 | 41.8 | 2853.57 | 61.5 |
| 4 | Aurangabad | 872.394 | 7.9 | 321.494 | 36.85 |
| 5 | Latur | 893.224 | 8.0 | 27.446 | 3.07 |
| 6 | Amravati | 660.113 | **5.9** | 31.755 | **4.81** |
| 7 | Nagpur | 520.118 | **4.7** | 219.365 | **42.18** |
| Total | | 11102.289 | 100.0 | 4540.24 | 40.89 |

Fig. 3.6: Species wise Milk Yield in Maharashtra (Kg./Day)

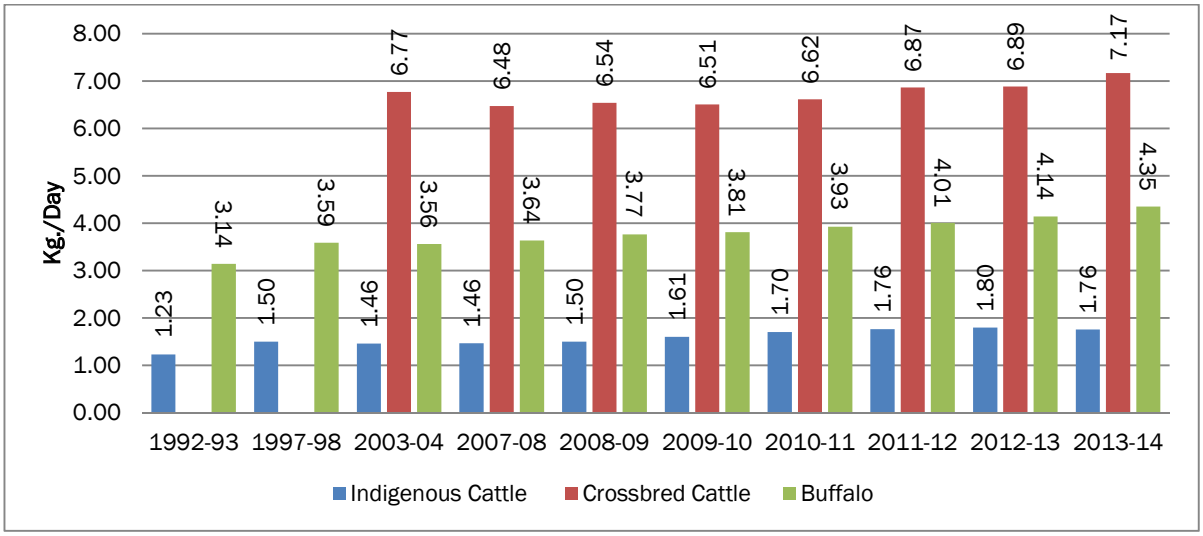


Table 3.8: District-wise Estimated Per Day Average Milk Yield in State During 2017-18.

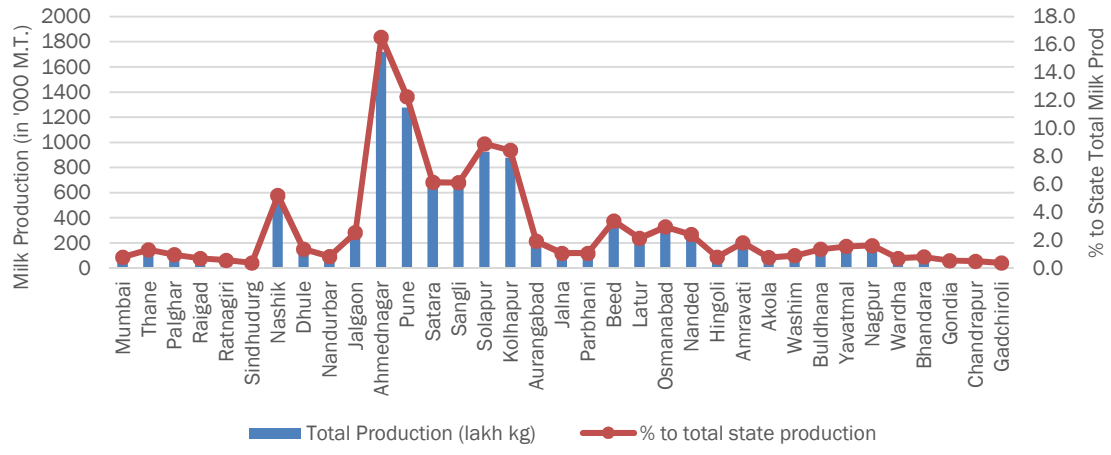
| Sr. No. | Name of Districts | Per day average milk yield (kg) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Exotic cow | CB Cow | IND Cow | ND Cow | IND Buffalo | ND Buffalo | Goat |
| 1 | Mumbai | 11.600 | 10.424 | 0.000 | 0.000 | 0.000 | 7.258 | 0.000 |
| 2 | Thane | 9.148 | 7.212 | 3.945 | 2.240 | 6.012 | 4.074 | 0.307 |
| 3 | Palghar | 10.174 | 6.843 | 3.568 | 2.295 | 6.524 | 4.132 | 0.307 |
| 4 | Raigad | 8.815 | 6.625 | 3.392 | 1.862 | 5.877 | 3.574 | 0.230 |
| 5 | Ratnagiri | 10.959 | 6.350 | 0.000 | 2.183 | 5.570 | 3.590 | 0.244 |
| 6 | Sindhudurg | 8.584 | 6.515 | 0.000 | 1.869 | 5.653 | 3.743 | 0.196 |
| **Mumbai Region** | | **9.442** | **6.973** | **3.605** | **2.104** | **6.133** | **4.729** | **0.277** |
| 7 | Nashik | 10.813 | 8.556 | 4.193 | 2.420 | 6.475 | 3.850 | 0.256 |
| 8 | Dhule | 11.781 | 7.873 | 4.085 | 2.373 | 5.631 | 3.451 | 0.224 |
| 9 | Nandurbar | 0.000 | 7.952 | 3.503 | 2.403 | 5.590 | 3.370 | 0.190 |
| 10 | Jalgaon | 9.663 | 8.405 | 3.797 | 1.932 | 5.313 | 3.612 | 0.214 |
| 11 | Ahmednagar | 8.630 | 9.939 | 4.585 | 2.406 | 7.357 | 4.089 | 0.252 |
| **Nashik Region** | | **10.433** | **9.528** | **4.301** | **2.319** | **6.521** | **3.713** | **0.238** |
| 12 | Pune | 11.314 | 10.295 | 3.816 | 2.137 | 7.123 | 4.224 | 0.289 |
| 13 | Satara | 0.000 | 9.747 | 4.366 | 2.210 | 6.624 | 4.000 | 0.283 |
| 14 | Sangli | 10.499 | 8.567 | 3.133 | 2.255 | 6.549 | 3.698 | 0.285 |
| 15 | Kolhapur | 0.000 | 9.229 | 3.495 | 2.280 | 6.809 | 4.767 | 0.293 |
| 16 | Solapur | 10.578 | 9.376 | 3.364 | 2.281 | 6.183 | 4.395 | 0.272 |
| **Pune Region** | | **11.193** | **9.612** | **3.529** | **2.199** | **6.627** | **4.309** | **0.282** |
| 17 | Aurangabad | 9.479 | 8.514 | 2.925 | 1.664 | 5.946 | 3.766 | 0.162 |
| 18 | Jalna | 0.000 | 7.860 | 3.178 | 2.167 | 5.316 | 3.834 | 0.141 |
| 19 | Parbhani | 8.918 | 7.926 | 2.923 | 1.998 | 6.414 | 3.810 | 0.295 |
| 20 | Beed | 7.605 | 7.658 | 3.088 | 2.088 | 6.923 | 3.883 | 0.199 |
| **Aurangabad** | | **8.385** | **8.091** | **3.017** | **1.974** | **6.532** | **3.832** | **0.190** |
| 21 | Latur | 9.498 | 7.780 | 3.624 | 2.369 | 5.706 | 3.177 | 0.262 |
| 22 | Osmanabad | 7.041 | 8.766 | 3.143 | 2.432 | 5.962 | 4.430 | 0.272 |
| 23 | Nanded | 8.038 | 7.943 | 2.786 | 2.168 | 5.339 | 3.787 | 0.254 |
| 24 | Hingoli | 0.000 | 6.940 | 2.530 | 1.325 | 5.644 | 3.768 | 0.266 |
| **Latur Region** | | **7.943** | **8.454** | **3.133** | **2.049** | **5.694** | **3.807** | **0.262** |
| 25 | Amravati | 5.342 | 7.030 | 4.453 | 1.648 | 6.954 | 4.238 | 0.157 |
| 26 | Akola | 0.000 | 7.047 | 2.144 | 1.800 | 6.218 | 4.555 | 0.197 |
| 27 | Washim | 9.002 | 6.181 | 3.260 | 2.169 | 6.021 | 3.673 | 0.150 |
| 28 | Buldhana | 10.493 | 7.963 | 3.790 | 1.633 | 6.160 | 4.121 | 0.147 |
| 29 | Yavatmal | 8.981 | 6.129 | 1.945 | 2.263 | 5.082 | 4.216 | 0.194 |
| **Amravati Region** | | **8.443** | **7.218** | **3.567** | **1.918** | **6.224** | **4.164** | **0.168** |
| 30 | Nagpur | 0.000 | 6.915 | 2.757 | 1.426 | 6.164 | 3.731 | 0.169 |
| 31 | Wardha | 0.000 | 7.244 | 2.138 | 1.450 | 6.234 | 4.114 | 0.449 |
| 32 | Bhandara | 8.915 | 6.285 | 0.000 | 2.031 | 5.763 | 4.035 | 0.471 |
| 33 | Gondia | 0.000 | 5.855 | 1.726 | 1.764 | 4.998 | 2.954 | 0.138 |
| 34 | Chandrapur | 0.000 | 5.465 | 1.986 | 1.159 | 4.432 | 3.426 | 0.167 |
| 35 | Gadchiroli | 0.000 | 5.523 | 2.493 | 1.057 | 4.140 | 3.966 | 0.120 |
| **Nagpur region** | | **8.828** | **6.599** | **2.592** | **1.364** | **5.959** | **3.629** | **0.234** |
| **State Total** | | **10.287** | **9.170** | **3.440** | **1.967** | **6.380** | **4.109** | **0.240** |

Source: GOM (2019a-ISS).

District-wise milk production in Maharashtra for the year 2017-18 is presented in Fig 3.7. It can be seen that Ahmednagar was the highest milk producing district in the state with an estimated milk production of about 18.27 lakh tonnes during 2017-18 accounting for 16.5 per cent of total milk production in the state. Pune was the second largest producer of milk with an estimated share

of about 111.5 percent, followed by Kolhapur (9.0 per cent), Solapur (8.8 per cent), Sangli (6.4 percent) and Nashik (5.4 per cent). These top seven districts together contributed about 64 per cent of milk production of the state. (Table 3.8).

Fig. 3.7: Districtwise Milk Production in Maharashtra (2017-18)




## 3.5 Status of Availability of Feeds and Fodder

Maharashtra has been struggling with droughts[1] and water shortage for last many years and this has resulted in shortage of both green and dry fodder. With scarcity looming large ('Out of fodder'), the fodder gets costlier. Particularly in the dry region of Vidarbha and Marathawada area which face heavy stress of fodder shortage which sometime force the cattle owners to sell their livestock that to at very low rate. In Maharashtra, total reporting area is 307.58 lakh ha. Out of this 56.39 percent is net sown area, 10.43 per cent area is land not available for cultivation and 2.99 per cent land is a cultivable waste land. The permanent pasture and other grazing land is 4.06 percent of the total area. The collective population of cattle, buffaloes, sheeps and goats is 320.94 lakh (i.e. about 28% of the human population) while their feeding area is only 4.06 per cent.

As a relief measure, the government supports dairying by organizing free fodder camps every year in rainfall deficit areas. It also arranges for the procurement of sugarcane tops from cane growers, its transportation and ultimate distribution to the livestock owners in scarcity areas at subsidized rates. To cope up with fodder shortages, government is often forced to ban the sale of fodder outside the district where it is produced and prohibits cattle herders from the

[1] With drought declared in 5000 villages in 2019, over 1.75 lakh cattle heads were admitted to fodder campus run in different parts of the State (https://timesofindia.indiatimes.com/city/nagpur/over-1-75l-cattle-surviving-drought-in-fodder-camps/articleshow/68636012.cms).

neighbouring states from grazing their animals in Maharashtra[2]. Region-wise, dry matter availability from crop residues is considerably lower in the districts of Ahmadnagar, Pune, Kolhapur, Sangli and Satara due to higher density of dairy animals in these regions. In case of Gadchiroli, Gondia and Chandrapur, the area under forest is relatively greater reducing dry matter availability (NDDB, 2018). The Department of Animal Husbandry of Government of Maharashtra estimated the requirement and availability of feeds and fodder by taking in to account livestock population of Census 2012 and observed a deficit of 59 per cent of green fodder and 31 per cent deficit of dry fodder (Table 3.9). There is no authentic data on area under forage and fodder crops at district level. Government of Maharashtra has issued Feed, Fodder, Animal Nutrition and Grazing Policy (Box 3.1)

Table 3.9: Availability and Requirement of Fodder in Maharashtra (2015)

| Particulars | Green | Dry | Concentrates |
|---|---|---|---|
| Availability (Lakh metric tones) | 1108 | 443 | 110 |
| Requirement (Lakh metric tones) | 449 | 304 | 75 |
| Deficit (Lakh metric tones) | 649 | 139 | 35 |
| Deficit (%) | 59 | 31 | 32 |

Note: Estimates for 3.18 crore livestock as per provisional Livestock Census 2012
Source: GOM (2015, https://ahd.maharashtra.gov.in/pdf/booklet/2014_15/13.pdf)

Box 3.1: Feed, Fodder, Animal Nutrition and Grazing Policy of Govt of Maharashtra

It is observed that fodder crop cultivation is not up to the desired level in the state. Usually the animals are fed with food crop residues. Only few progressive farmers and organized dairymen feed chaffed fodder to the animals. Stocking of dry fodder in the form of silage was also restricted to few places. The waste lands and Gairans (common grazing land) have not been developed as grazing lands. It was observed that green fodder and concentrate feed was supplied only to the productive animals (only during their productive period). The dry-pregnant cows, buffalo heifers and male calves do not receive the desired nutritious feed on account of negligence of owners. At present there is no legislation for regulation of the quality of cattle & poultry feed. **Following measures are therefore necessary and will be introduced by**

a. Cattle & poultry feed manufacturing should be freed from reservation for small- scale sector.
b. Promoting the farmers to put at least 10% of the total cultivable land for fodder crop production while making their crop-plan. For this, area specific fodder varieties will be identified by and developed as is being done by Uttranchal Livestock Development Board.
c. Development of waste lands / gairans into community pasture lands through systematic efforts of green cover augmentation under soil & water conservation schemes with involvement of village panchayats and NGOs.
d. Democratization of management of grazing areas on forest land through effective implementation of joint-forest management and giving priority to plant and grass species which provide good quantity and quality of green fodder.
e. In order to protect the fodder cover on grass-land on CPRs stall-feeding shall be promoted by suitable extension tool, programme-based tools and regulatory interventions.
f. A study group will be set up to study the practice of free-grazing by cattle on community pasture land in larger parts of Konkan, Vidarbha, Marathwada and hilly and tribal areas, in order to get a suitable intervention tool designed for conserving grass land and at the same time improve the animal husbandry practices adopted by the local people in those areas; the study group will also study various aspects of sheep and goat rearing by shepherd community and intervention tools for improving their lot and also conserving pasture land resources.
g. Promotion of fodder enrichment techniques (nutritive value addition with use of urea & molasses) shall be researched and introduced suitably to address the problem of fodder shortage in hilly, tribal and drought prone areas.
h. Mineral deficiency pattern and its geo-climatic distribution be determined and updated from time to time so that suitable mineral supplementation (in feed) can be prescribed.
i. Establishment of fodder banks in the drought prone areas to deal with fodder scarcity.
j. Quality parameters for cattle & poultry feed, minerals & trace minerals (for supplementation in feed) should be up-graded. Stipulated quality parameters will be made mandatory for the manufacturers through enactment and enforcement of suitable legislation.

Source: Dept. of Animal Husbandry, GOM
(https://ahd.maharashtra.gov.in/index.php?option=com_content&view=article&id=68&Itemid=62

[2] https://www.downtoearth.org.in/coverage/starved-of-fodder-48980

## 3.6 Dairy Development in Maharashtra:

The history of dairy development in Maharashtra dates back to 1940s. At that juncture, the then Civil Supplies department controlled dairy development. In 1947, Aarey Milk Colony was established to supply clean milk to the consumers. In 1958, an independent Dairy Development Department was established which was headed by a Milk Commissioner. After 1970, substantial funds were disbursed through cooperatives for dairy development during 'Operation Flood Programme'. The State also initiated Integrated Dairy Development Programmes in districts which were not covered under Operation Flood. In due course of time, Animal Husbandry Department was strengthened with independent Commissioner.

MRSDMM[3] (Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit) is an Apex Federation of District / Taluka milk unions established to implement the Operation Flood programme in the state of Maharashtra. The main objectives of MRSDMM was to procure milk from the member milk unions at remunerative rates and distribute the same to the consumers at reasonable rates. MRSDMM was established on 9th June, 1967. At present, MRSDMM has 85 member unions (25 District + 60 Talukas) with more than 24000 primary milk societies and 25 lakh milk producers including approximately 27000 women members.

MAHANAND dairy is the unit run by the MRSDMM. Mahanand Dairy has made significant growth and progress in the field of productivity improvement, quality improvement, energy conservation, cost control etc. due to sincere and dedicated efforts at all levels. MRSDMM, Mahanand Dairy has milk procurement system spread across Maharashtra, producing and marketing liquid milk and other value added milk products. Milk procurement volumes widely varied throughout the year as per seasonal changes. In order to take care of seasonal fluctuations in milk procurement, the dairy installed its own Milk Powder Plant of 30 tons per day capacity. The total sale of milk under Mahanand Brand name in the state was 4.00 lakh lite per day (LLPD) including the sale of milk in Konkan, Pune, and Nagpur region. In government and cooperative sectors together, there are 98 milk processing plants and 156 chilling centres with a capacity of 90.17 lakh litres and 26,55 lakh litres per day respectively. In the state, there are 14,921 cooperative

[3] http://www.mahanand.in/

dairy societies and 85 cooperative dairy unions. About 37.6 per cent cooperative dairy societies and 29.4 per cent dairy unions are in loss. The enrolled members in cooperative dairy societies stand at 11.6 lakh and 1.43 lakh in cooperative dairy unions, according to officials in the Commissioner for Cooperative and Registrar Cooperative Societies[4]. The average daily collection of milk by the government and cooperative dairies taken together was 44.50 lakh litres during 2017-18. It was 51.13 lakh litres during 2015-16. There are 192 cold storages with a capacity of 7,618.77 MT, of which 167 cold storages with a capacity of 7172.12 MT are with the private sector.

Mother Dairy[5] has invested around Rs 65 crore in 2017[6] to upgrade the Nagpur plant and setting up of milk procurement network in the regions of Marathawada & Vidarbha. The Nagpur dairy plant has been refurbished and liquid milk packed at the dairy is being marketed in Nagpur city. Mother Dairy has initiated milk procurement[7] operations in Amravati, Wardha, Nagpur, Chandrapur, Nanded, Osmanabad, Buldana and Yavatmal.

### Launch of the first all Women Dairy Enterprise[8]

In 2015, Maval Dairy Farmer Services Producer Company was set up as Maharashtra's first all women dairy enterprise at Maval in Pune with 334 members with an aims to empower women, economically and socially. The dairy co-operative also received support from India's power company, Tata Power, which supported it to launch its own brand Creyo. With a capacity of 10,000 liters per day (LPD) capacity, Maval Dairy has set up 15 advanced milk collection centres covering 26 villages which procure around six tons of milk daily from various partner villages.

[4] https://indianexpress.com/article/cities/mumbai/maharashtra-govt-to-appoint-administrator-for-dairy-cooperative-societies-4686526/
[5] Mother Dairy is wholly owned subsidiary of the National Dairy Development Board (NDDB).
[6] https://www.motherdairy.com/pdf/PR/2017/2017-06-04.pdf
[7] https://www.thehindubusinessline.com/economy/agri-business/mother-dairy-maharashtra-tieup-for-processing-plant/article9854434.ece
[8] https://www.dairyglobal.net/Milking/Articles/2020/1/India-Maharashtras-first-all-women-dairy-co-op-in-operation-533912E/

## 3.7 Genesis of Vidarbha Marathawada Dairy Development Project (VMDDP):

As mentioned earlier, dairy development in the State has inter-regional variations, particularly in Vidarbha and Marathawada regions is comparatively lower than other parts of the state. Vidarbha and Marathawada regions are less developed in the area of infrastructure development as well as the overall State development indicators. The less development in these regions is due to its disadvantageous geographical location, frequent droughts, scarcity of water, cracked soils and poor socio-economic condition compared to other regions of the state. In 2014-15, average annual rain fall in Marathawada was 721 mm and in Vidarbha, it was 994 mm whereas the State average was 1159 mm. Occurrence of frequent drought and inadequate irrigation facilities in these regions is leading to frequent crop failure and rising debt burdens on farmers, which leads to the high incidence of farmers' suicide in these regions. About 58 per cent of Below Poverty Line (BPL) population of the state resides in these regions only while about 44 per cent (104 lakh) of SC/ST population of the state are residing in these regions. The characteristics[9] of these regions are as follows:

- These regions have geographical disadvantages - low rainfall and lower ground water level leading to frequent occurrence of droughts and drying of open water bodies.
- These regions together accounts for 46 per cent of rural population and 53 per cent of geographical region of the state which produces only 73 LKgPD of milk which is about 28 per cent of State milk production. During the period 2003-04 to 2014-15, the growth in milk production has been 3 per cent/annum.
- These regions have 34.17 lakh milch animals – accounting for about 41% of state milch animal population with large number being indigenous cow (55%), most of them are non-descript. Therefore, there is definite sufficient scope for improving genetic potential by improving Artificial Insemination coverage.
- The milk productivity of animals in these regions is 3.21 KgPD/in-milk animal which is below State and national average of 4.42 and 4.32 KgPD respectively.
- About 58 per cent of the milch animal owning households are rearing only one milch animal.

[9] Office of the VMDDP, Nagpur (Note on need of VMDDP).

- Per capita availability of milk in these regions is as low as 170 grams per day, as compared to state and national average of 227 and 322 grams per day. Given the low availability of milk, consumption of milk is also very low in these regions giving rise to issues like under nourishment.
- These regions have a total of 56 LKgPD marketable surplus of milk, of which Dairy Cooperatives procure only 8 per cent, whereas in the state it is 22 per cent. Dairy Cooperatives in these regions, cover 19 per cent of rural villages and milch animal owning households.
- The institutional structure to promote cooperative dairying in these regions is very weak. There are 37 Milk Unions consisting of district, taluka and multi-state level registered Dairy Cooperatives in these regions. Only about 20 per cent of the total Milk Unions in these regions are procuring more than 10 TKgPD of milk. Most of the Milk Unions are either procuring small volume of milk or currently non-functional.

This region holds promise for stimulating growth, given the resources available for dairying. Dairy can play a pivotal role in providing sustainable livelihood in these regions. States like Rajasthan and Gujarat which are respectively second and fifth largest milk producing States, having dry climate with frequent occurrence of droughts, are well developed in dairying. Now dairying has become a source of livelihood for rural household in these states. The milk production over the last decade in these states has grown by 7.38 per cent and 5.65 per cent annum respectively which is even more than the all India average growth rate in milk production (4.69% p.a.). In 2014-15, dairy cooperatives in these states have procured about 25 and 137 lakh Kg per day of milk with an aggregate pay-out of Rs. 3000 crore and Rs. 14000 crore respectively to the milk producers. The milk procurement by Dairy Cooperatives in these states have grown by 7.02% and 8.54% per annum respectively over last decade while procurement by all Dairy Cooperatives in India have grown by 6.22% per annum during the same period.

Vidarbha and Marathwada could achieve this sustainable growth only through implementation of integrated Dairy Development intervention in mission mode. Although, investments would need to be made during next 5 years, impacts

would be visible only in next 10 years or beyond. Thus, it is proposed to develop a region specific dairy development strategy through a focused approach by creating sustainable livelihood opportunities for poverty alleviation in these regions by improving milch animal productivity thereby increasing milk production ensuring greater livelihood opportunities for small and marginal milk producers.

As dairying is recognized as an effective tool for social and economic development. Anecdotal evidence across India suggests that dairying is a better insurance for livelihood security in the drought prone regions. A planned intervention in dairy sector in these regions will help in improving the overall livelihood of rural farmers. With an objective to make dairying as a source of sustainable livelihood and poverty alleviation for milk producers in Vidarbha and Marathawada region of the Maharashtra, Government of Maharashtra has approved the 'Vidarbha and Marathawada Dairy Development Project (VMDDP). VMDDP was envisaged with the implementation of following components.

1) Doorstep delivery of Artificial Insemination (AI) services,

2) Ration Balancing Advisory Services (RBAS),

3) Fodder Development Activities,

4) Supply of quality feed and feed supplements,

5) Village level animal health services &

6) Animal induction

These objectives are being pursued through adoption of focused scientific and systematic processes in provision of technical inputs. National Dairy Development Board working with Government of Maharashtra has implemented Vidarbha and Marathwada Dairy Development Project (VMDDP), with an aim to transform the lives of small and marginal dairy farmers in Vidarbha and Marathwada regions of Maharashtra. Dairying has turned in as the ray of hope to ease farmers' distress with NDDB's initiatives enhancing the income of more than 91,000 farmers by providing fair share of consumer price[10].

Ration Balancing Programme under VMDDP has planned to cover 10 districts. However, currently the activity has been taken up in three districts

[10] https://thelivenagpur.com/2020/11/13/nddbs-vidarbha-marathwada-dairy-development-project-transforming-lives-chairman-nddb/

namely Nagpur, Wardha and Amravati of VMDDP area. It was envisaged that RBP would cover about 13,600 milch animals of 6,800 farmers in 400 villages using the services of about 200 LRPs, who would be identified, trained and supervised by Mooofarm, an implementing agency for the activity. The NDDB has conducted pilot study in Vidarbha region which shows that RBP intervention has increased average milk yield by 150 ml per day per animal. It is assumed that in the project implementation area there could be increase in productivity up to 200 ml per day per animals, depending upon the level of nutrients in the ration before implementing the RBP. Feed cost alone accounts for about 70 per cent of the production cost. The NDDB pilot study has shown that RBP could reduce feed cost up to 8 per cent. It is assumed that in the project implementation area there could be 7 per cent reduction in feed cost.

Government of Maharashtra vide its resolution dated August 9, 2017 issued the implementation procedures for special project 'Mahadudh' under Rashtriya Krishi Vikas Yojana (RKVY) for incremental increase in milk production in Vidarbha and Marathawada regions of Maharashtra. Under enhancement in Productivity and Production of milk, component covered are Provision of Artificial Insemination at doorstep of farmers, Ration Balancing Programme, Fodder Development Program, Quality Feed and Feed supporting ingredients, Veterinary services at village level and distribution of milch animals.

Government of Maharashtra vide its resolution dated December 28, 2018 issued administrative approval for implementation of advisory services for balanced fodder and animal induction-distribution of milch cows and buffalos under RKVY program in Vidarbha and Marathawada region with an aim to increase milk production in this regions.

The Triparty Memorandum of Understanding is signed on September 7, 2019 between three parties, viz. Department of Animal Husbandry, Dairying and Fisheries, State Government of Maharashtra; National Dairy Development Board, Anand; and MooofFarm Private Limited, Gurgaon (Haryana) for implementation of Ration Balancing Advisory Servicing using NDDB's INAPH software and extension services using Mooofarm's White Tech ICT application in Nagpur, Amaravati and Wardha district of Maharashtra under Vidarbha Marathawada Dairy Development Project for the project duration from September 2019 to March 2020. Under

RKVY, eleven districts of Vidarbha (viz. Nagpur, Wardha, Akola, Amaravati, Chandrapur, Yavatmal, Buldana) and Marathawada (Nanded, Latur, Osmanabad, Jalna) are planned to cover to meet two objectives, viz. enhancement in productivity & production of milk, and Collection and Marketing of Milk produced.

## 3.8 Chapter Summary

This chapter presented the characteristics of the study area, composition of livestock, trend in milk production and productivity as per breed at State as well as at district level. Besides, availability and requirement of fodder is presented. The dairy development of in the state has inter-regional variations, particularly in Vidarbha and Marathawada regions is comparatively lower than other parts of the state. In comparison to other parts of the State, Vidarbha and Marathawada regions are less developed in the area of infrastructure development as well as the overall State development indicators. The less development in these regions is due to its disadvantageous geographical location, frequent droughts, scarcity of water, cracked soils and poor socio-economic condition compared to other regions of the state. This region holds promise for stimulating growth, given the resources available for dairying. Vidarbha and Marathawada could achieve this sustainable growth only through implementation of integrated Dairy Development intervention in mission mode. With an objective to make dairying as a source of sustainable livelihood and poverty alleviation for milk producers in Vidarbha and Marathawada region of the Maharashtra, Government of Maharashtra has approved the 'Vidarbha and Marathawada Dairy Development Project (VMDDP). Ration Balancing Programme under VMDDP has planned to cover 10 districts. However, currently the activity has been taken up in three districts namely Nagpur, Wardha and Amravati of VMDDP area. It was envisaged that RBP would cover about 13,600 milch animals of 6,800 farmers in 400 villages using the services of about 200 LRPs, who would be identified, trained and supervised by Mooofarm, an implementing agency for the activity

The next chapter presents the about selected villages, households and LRPs.

Chapter IV

# Implementation and Monitoring of RBP by EIA

## 4.1 Introduction

The Standard Operating Procedures (SOP) was issued by the VMDDP, Nagpur towards implementation of RBP by the EIA in selected districts of Vidarbha region of Maharashtra. Each selected village to be covered by LRP and supervised by a Technical Officer (TO) and cluster coordinators (CCs). A LRP is appointed for a group of villages (about 3-4 villages). These modules are managed and coordinated by the Project Coordinator of the implementing agency. The major activities undertaken for implementation of RBP at the level of TO/CC and LRPs are as follows,

(a) Concept of balanced ration is explained to the milk producers by organizing a village level meeting, which is convened by the TO/CCs and the trained LRP of the village. Through such meetings, receptive members interested to implement the programme are identified.

(b) Animals to be covered under RBP are identified and they are ear tagged.

(c) Animal wise information required balancing the ration of cattle and buffaloes is recorded.

(d) Animal's body girth, milk yield, SNF, milk fat % & quantity of feed ingredients fed to animals is recorded.

(e) Considering availability of feed ingredients, balanced ration is formulated and recommended.

(f) Re-recording of information of every animal is done at an interval of every 3-4 weeks or whenever there is change in feed resources.

(g) Proper follow-ups is done to ensure that every farmer feeds the balanced ration to their animals.

(h) Awareness amongst the milk producers on feeding balanced ration is created.

(i) Promotion of area specific mineral mixture, cattle feed & other feed supplements /nutraceuticals in the villages.

This chapter provides the implementation of RBP by the EIA in selected three districts of Vidarbha region on the basis of data provided by the EIA in prescribed format.

## 4.2 About End Implementing Agency (EIA):

MoooFarm Pvt. Limited, Gurgaon, Haryana is private firm registered on **July 19, 2019** (Registration No.: U72900HR2019PTC081571) in Haryana State mostly engaged in the activities of sustainable development of farmers in States of Punjab and Haryana. The EIA has no past experience of RBP implementation before implementing in Vidarbha region of Maharashtra.

Table 4.1: Activities of EIA and Coverage

| Sr. No. | Particulars | Since when | *State* | *No. of Districts covered* | *No. of Villages covered* | *No. of Farmers/ Cattle owners covered* |
|---|---|---|---|---|---|---|
| A | Activity | | | | | |
| 1 | Project for sustainable development of farmers | October August 2018 | Punjab | 1 | 19 | 1500 |
| 2 | Project for sustainable development of farmers | August 2016 | Punjab | 1 | 100 | 15000 |
| 3 | Project for sustainable development of farmers | October 2019 | Uttar Pradesh | 2 | 40 | 2500 |
| B | Past Experience of RBP implementation (before implementing in Vidarbha region of MS) in **Oct 2019** | *Nil* | | | | |

## 4.3 Targets and Achievements:

The date of official inception of RBP in Vidarbha region of Maharashtra is November 2019. At the time of the implementation of programme, target was set to cover 13600 animals and 6800 farmers /cattle owners from 400 villages of 3 districts. To achieve the said target, it was planned to appoint 200 local resource persons and 10 cluster coordinators in these districts. As per the data submitted by EIA (Table 4.2), all the set targets are achieved. Though 209 LRPs were appointed and trained, but due to high rate of attrition, only 110 LRPs and 9 CCs are working at present which is short of target of 200 and 10 respectively. All the LRPs appointed are male and none of the female staff as LRP and or Cluster Coordinator was found working. Total 395 village awareness programmes were organized. While neither poster and banners were displayed in the villages nor

pamphlets were distributed among the villagers. No one has reported about the wall painting in villagers regarding this programme.

Table 4.2: Target and Achievement by EIA

| Sr. No. | Particulars | Target | | Achievement | |
|---|---|---|---|---|---|
| 1 | No. of districts* covered | 3 | | 3 | |
| 2 | No of Villages covered | 400 | | 462 | |
| 3 | No of Farmers/ Cattle Owners covered | 6800 | | 8863 | |
| 4 | No. of Animals covered | 13600 | | 17057 | |
| 5 | Staff position for RBP (appointed & trained) | Male | Female | Male | Female |
| 5.1 | Local Resource Persons trained (no.) | 200 | 0 | 209 | 1 |
| 5.2 | Local Resource Persons functioning (no.) | 200 | 0 | 110 | 0 |
| 5.3 | Cluster Coordinators & TO trained (no) | 10 | 0 | 11 | 0 |
| 5.4 | Cluster Coordinators & TO functioning (no) | 10 | 0 | 9 | 0 |
| 6 | Village Area Programme conducted (no.)<br>(a) No. of RBP pamphlets distributed<br>(b) RBP Documentary shown in villages<br>(c) RBP posters displayed | Nil | | 395 | |
| 7. | What services were provided to cattle owner at his doorstep- **breeding, nutrition and health service** | RBP | | RBP, EVM demo, Silage making demo | |

Note: Besides villages in selected three districts, few villages in Akola district were also covered.
Source: Mooofarm, Noida.

## 4.4 RBP Implementation:

### 4.4.1 Training Programs:

The staff of the EIA including project manager, project coordinator, cluster coordinators and technical officers along with 23 LRPs have attended the six days training programme at National Dairy Development Board, Anand during October 10-15, 2019 (Table 4.3). The project coordinators, cluster coordinators and technical officers of Mooofarm who got training at NDDB Anand) have trained the LRPs appointed in each district by conducting six days training programme having theory and practical content. The training content includes about RBP, INAPH software, digestive physiology, factors affecting quality and quantity of milk, classification of feeds, dry matter intake, introduction to cattle feed and mineral mixture, care and management of different categories of animals, green fodder production and silage, importance of calf care, deworming, vaccination and mastitis, importance of AI and breed identification and EVM.

Table 4.3: Details on Training Programme Attended and Organized

| Sr. No. | Trainee | No. | Period | Location |
|---|---|---|---|---|
| 1 | Project Manager, Project Coordinator, Cluster Coordinators, Technical Officers | 13 | 10 Oct 19 to 15 Oct 19 | NDDB, Anand |
| 2 | LRPs | 13 | 10 Oct 19 to 15 Oct 19 | NDDB, Anand |
| 3 | LRPs Amravati | 22<br>21<br>21<br>07<br><br>06 | 22 Oct 19 to 27 Oct 19<br>11 Jan 20 to 16 Jan 20<br>15 Jan 20 to 20 Jan 20<br>2 Sept 20 to 8 Sept 20<br><br>3 Sept 20 to 9 Sept 20 | DD Office, Amravati<br>Veterinary polyclinic, Achalpur<br>DD Office, Amravati<br>Vaishali Deshpande Public School, Achalpur<br>DD Office, Amravati |
| 4 | LRPs- Wardha | 26<br>10<br>15<br>07 | 2 Nov 2019 to 7 Nov 19<br>13 Jan 20 to 18 Jan 20<br>20 Jan 20 to 25 Jan 20<br>7 Sept 20 to 13 Sept 20 | Talegaon Raghuji, Wardha<br>Karanja, Wardha<br>DD Office, Wardha<br>DD Office, Wardha |
| 5 | LRPs- Nagpur | 26<br>20<br>19<br>05<br><br>05 | 5 Nov 19 to 10 Nov 19<br>13 Jan 20 to 18 Jan 20<br>20 Jan 20 to 25 Jan 20<br>9 Sept 20 to 15 Sept 20<br><br>4 Sept 20 to 9 Sept 20 | Paradshinga, Katol<br>Paradshinga, Katol<br>Sarpanch Bhavan, Nagpur<br>Nagarparishad School No 4, Katol<br>Bull rearing centre, Nagpur |

Source: Mooofarm, Noida.

### 4.4.2 Village Awareness Programme Organized:

The details on village awareness programmes conducted by the EIA presented in Tables 4.4 and 4.5 indicate that number of VAPs conducted were significant during the first month of inception of programme (November, 2019) and later on number of VAPs have drastically declined which may be due to Corona19 Pandemic. Total 395 VAPs were conducted of which maximum were organized in Amravati district followed by Wardha and lowest were in Nagpur District. The VAP material includes information video on about RBP, ration balanced/compound cattle feed, Ethonoveterinary (traditional treatment method for livestock disease), factors affecting quality and quantity of milk, importance of green fodder in animal diet, and silage making.

Table 4.4: Details on Village Area Programme conducted

| Sr. No. | Name of District and Village | Month of inclusion of village under RBP | No. of VAPs conducted | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Nov 2019 | Dec 2019 | Jan 20 | Feb 20 | Mar20 | Apr20 | May20 | Jun20 | Ju;y20 | Aug2020 | Sept 20 | Oct | Nov 20 | Dec 20 |
| a | Nagpur district | Nov 19 | 32 | 3 | 20 | 13 | 4 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 0 | 16 |
| b | Wardha district | Nov 19 | 45 | 0 | 16 | 14 | 6 | 0 | 0 | 0 | 0 | 0 | 7 | 21 | 1 | 31 |
| c | Amravati district | Nov 19 | 42 | 3 | 24 | 40 | 4 | 0 | 0 | 0 | 0 | 1 | 6 | 9 | 0 | 19 |

Table 4.5: Details on VAP material

| Sr. No. | Details of VAP | Slides |
|---|---|---|
| 1 | Ration Balanced /Compound Cattle Feed | 15 |
| 2 | Ethonoveterinary – traditional treatment method for livestock disease | 15 |
| 3 | Factors affecting quality and quantity of milk | 22 |
| 4 | Importance of Green Fodder in animal diet | 31 |
| 5 | About RBP | 12 |
| 6 | Silage | 31 |

Source: Mooofarm, Noida.

### 4.4.3 RBP Material distribution:

As per the programme requirement, LRPs are provided with necessary materials such as weighing balance (5 and 25 kg), tag applicator, measuring tape, ready reckoner, leather Bag, measuring Jar and sample bottles (Table 4.6). While no LRP was provided with tablet, RBP information booklet, Cap, T shirt, netbooks and identity card. However, identify cards and projectors are given to only Cluster Coordinators and not to LRP. Due to high rate of attrition, though 210 LRPs were trained, 170 LRPs were provided with these materials, of which 110 are functioning.

Table 4.6: RBP KIT distributed to LRP and any material given to Cluster Coordinator

| Sr. No. | Material | Given to LRP (Nos) | Given to Cluster Coordinator (Nos) | Total |
|---|---|---|---|---|
| 1 | Tablet with accessories | 0 | 0 | 0 |
| 2 | Weighing balance – 5 kg | 170 | 0 | 170 |
| 3 | Weighing balance – 25 kg | 170 | 0 | 170 |
| 4 | Tag applicator | 170 | 0 | 170 |
| 5 | Measuring Tape | 170 | 0 | 170 |
| 6 | RBP Information Booklet | 0 | 0 | 0 |
| 7 | Ready Reckoner | 170 | 0 | 170 |
| 8 | Cap | 0 | 0 | 0 |
| 9 | T Shirt | 0 | 0 | 0 |
| 10 | Tablet/Netbooks purchased | 0 | 0 | 0 |
| 11 | Leather Bag | 170 | 0 | 170 |
| 12 | Identity Card | 0 | 10 | 10 |
| 13 | Measuring Jar 2lit | 170 | 0 | 170 |
| 14 | Sample bottles | 850 | 0 | 850 |
| 15 | Projectors | 0 | 6 | 0 |

Note:* 200 LRPs were trained but due to high attrition rate of LRPs 170 RBP kits were used.
Source: Mooofarm Pvt. Ltd. Gurgaon.

### 4.4.4 Use of INAPH (Information Network for Animal Productivity and Health)

It can be seen from the Table 4.7 that application of INAPH used is android based for LRP which is offline while same was web based online for Cluster Coordinators working on the field which is in English language. The data uploaded by LRPs directly goes to NDDB INAPH backend server and this data reports are generated through INAPH dashboard. In the absence of network connection (offline mode), there is a provision for data to be captured and stored for later synchronization with the central server through the GPRS network. The issues related to software in notebook/android phone of LRP are majorly resolved by CCs, TOs and PC, and if issue remain unresolved, then same is reported to NDDB. As the software is provided by NDDB and troubleshooting is done by NDDB's team, no local IT expert has been appointed by EIA. Whatever the data is uploaded by LRP is being checked, cross verified, and assessed regularly based on which suitable recommendations are given to the LRPs for better implementation of program.

No one has reported use of Mooofarm's White Tech ICT application.

Table 4.7: Details on Use of INAPH and Suggestions made by EIA

| Sl | Particulars | Details |
|---|---|---|
| 1. | Application of INAPH used | • For LRPs- Android Application<br>• For CCs- Web Based (For report Generation & online monitoring) |
| 2. | Language of software used | English |
| 3. | Mode of application available | For LRPs- Offline<br>For CCs- Online |
| 4. | Access hierarchy mechanism in place for check of the data submission or action on data submitted to be taken (e.g. data submitted by LRP to NDDB software directly? Or any other structure)? | Data uploaded by LRPs directly goes to NDDB INAPH backend server & this data reports generated through INAPH dashboard. Based on report cross checking done on field. |
| 5. | In the absence of network connection (offline mode), whether there is a provision for data to be captured and stored for later synchronization with the central server through the GPRS network | Yes |
| 6. | Mechanism adopted for addressing the issue in software in notebook/android phone of LRP? | These issues are majorly resolved by CCs, TOs & PC, If there is any main issue in software then same is reported to NDDB and it is then resolved by them. |
| 7. | Whether data generated in RBP for further analysis and suitable modification in said program? | Yes, RBP data is checked, cross verified, and assessed regularly based on which suitable recommendations are given to the LRPs for better implementation of program |
| 8. | Organization level administration managed at local EIA level | The project is managed by Project Manager at Head Office level and project Co-ordinator is appointed at the local EIA level along with project team. |
| 9. | Is there any Field IT Implementation Support exists in field including system Installation and Troubleshooting Functional? | The software is provided by NDDB and troubleshooting is done by NDDB's team.<br>Project's core team received training by NDDB experts at Anand who trained the team in apt usage and handling of the software. |
| 10 | Any IT Project Coordinator, IT Officer and Area Officers in place to monitor and address the field IT and RBP related issues | The software is provided by NDDB and troubleshooting is assisted by NDDB's team, hence no local IT expert has been appointed. |
| 11 | Suggestions made to VMDDP for further and better implementation of program? | The program has been very well developed under guidance of experts, therefore, well equipped with details for assistance to farmers in decreasing cost. The only suggestion will be increase the scope with mandatory involvement of aligned activities such as Silage Making, adoption of Ethno Veterinary Medicines, Loan and Subsidiary knowledge dissemination so as to provide holistic inputs to farmers for assistance in increasing income and decreasing cost. |

The whole project is managed by Project Manager at Head Office level and project Co-ordinator appointed at the local EIA level along with project team. EIA opinioned to increase the scope with mandatory involvement of aligned activities such as Silage Making, adoption of Ethno-Veterinary Medicines, Loan and Subsidiary knowledge dissemination so as to provide holistic inputs to farmers for assistance in increasing income and decreasing cost.

### 4.4.5 LRP-Village Coverage:

It can be seen from the Table 4.8 that in selected three districts, EIA reported[1] that 170 LRPs are working in selected three districts. All LRP are male and each of the LRP covered around 3-4 villages at overall level. Every LRP covered around 37-51 cattle owners and 79-90 animals. On an average, every LRP has given 5 advisories. Despite of SOP, data shows that significant number of LRPs have covered more than five villages (Table 4.9) which is not practical to cover and attend each household in stipulated time frame.

Table 4.8: Coverage of Villages by LRP

| Sr. No. | Particulars | Akola | Amravati | Nagpur | Wardha | Total |
|---|---|---|---|---|---|---|
| 1 | Total Number of Village | 6 | 224 | 201 | 223 | 654 |
| 2 | Total Number of LRPs | 1 | 69 | 67 | 63 | 171 |
| 3 | Number of Villages/LRP | 6.0 | 3.2 | 3.0 | 3.5 | 3.8 |
| 4 | Gender of LRPs- Male (%) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 5 | Total number of Cattel Owners | 75 | 3536 | 2485 | 2767 | 8863 |
| 6 | No. of Cattle Owners covered/LRP | 75.0 | 51.2 | 37.1 | 43.9 | 51.8 |
| 7 | Total Number of RB Animals | 101 | 5987 | 5288 | 5681 | 17057 |
| 8 | No of RB Animals/LRP | 101.0 | 86.8 | 78.9 | 90.2 | 99.7 |
| 9 | Total Number of RB Transactions | 546 | 29050 | 28007 | 32633 | 90236 |
| 10 | No of RB Transactions/LRP | 5.4 | 4.9 | 5.3 | 5.7 | 5.3 |

Table 4.9: Number of Villages Covered by each LRP

| Sr. No. | No. of Villages Covered | Number of LRPs |
|---|---|---|
| 1 | 1 | 22 |
| 2 | 2 | 23 |
| 3 | 3 | 43 |
| 4 | 4 | 34 |
| 5 | 5 | 16 |
| 6 | 6 | 12 |
| 7 | 7 | 08 |
| 8 | 8 | 07 |
| 9 | 9 | 04 |
| 10 | 10 | 01 |
| 11 | 11 | 01 |

[1] EIA reported that 209 LRPs were trained and due to high attrition, 110 are working in Table 4.2.

### 4.4.6 Remuneration Paid to LRP

The LRP is paid remuneration on the basis of total number of animals covered having maximum limit of Rs. 9500/- per month. No other allowances are paid to LRP and to CC. While inquired with LRP during the visit, it was revealed that Rs. 70/- per animal remuneration is fixed and maximum three animals per households can be enrolled under RBP. As per Table 4.9, on an average 100 animals are covered by each LRP, thus total remuneration for a month per LRP is worked out to be Rs. 7000/- thus lower than maximum limit reported by EIA. Besides remuneration, LRP opined that they should have been provided with petrol allowance, internet charges and accidental life insurance facility.

Table 4.10: Remuneration paid to LRP and Cluster Coordinator (Rs./month)

| Sr. No. | Particulars | LRP (Rs./month) | Cluster Coordinator (Rs./month) |
|---|---|---|---|
| 1 | Pay (Please specify criteria....per animal/village/any other) | RS. 9500 per month (Max) | Rs. 30000 per month |
| 2 | Data management and communication charges | 0 | 0 |
| 3 | Petrol Allowances | 0 | 0 |
| 4 | Meeting allowances | 0 | 0 |
| 5 | Additional Allowances, if any | 0 | 0 |
| 6 | Accidental Insurance Coverage, (if given) | 0 | 0 |
| 7 | Any other, please specify | 0 | 0 |

Note: * The salary of LRPs is based on the transactions that they complete each month.

## 4.5 Impact of RBP

As Mooofarm is engaged in advisory services only and unlike the Milk Unions in Gujarat and Punjab states, no procurement of milk, sale of mineral mixture and cattle feed was undertaken, thus impact cannot be assessed at EIA level (Table 4.11). Mother dairy, who is procurement agency for milk from cattle owners covered under RBP, was requested to provide data on milk procurement in selected villages at two-time period to assess the impact, but no data was made available.

EIA reported that no incentives are provided to local resource person at present which is a major concern to retain them. LRPs are provided with NDDB EVM booklet which specify the traditional practices to control various diseases of milch animals. LRPs are using same for additional advisory to cattle owners. As per EIA response, Field and online Monitoring of LRPs is regularly done by CCs & TOs and data filled by LRPs in INAPH is checked regularly by project coordinator and

project manager, then based on data analysis, instructions are given to team for better implementation. Besides, it was reported that monthly review meetings of LRPs and CCs are taken alongside surprise visits by team from Head Office (Table 4.12).

Table 4.11: Impact of RBP at EIA Level

| Sr. No. | Particulars | Before RBP t | | After RBP | |
|---|---|---|---|---|---|
| | | Annual average | Dec 2019....* | Annual average# | Dec 2020 |
| 1 | Milk procurement (lit.) | NA | NA | NA | NA |
| 2 | DCS members (no.) | NA | NA | NA | NA |
| 3 | Pourer members (no.) | NA | NA | NA | NA |
| 4 | Milk fat (%) | NA | NA | NA | NA |
| 5 | Daily milk yield (liter/member ) | NA | NA | NA | NA |
| 6 | Mineral mixture sale (kg.) | NA | NA | NA | NA |
| 7 | Cattle feed sale (tons) | NA | NA | NA | NA |
| 8 | Bypass Fat sale (kg.) | NA | NA | NA | NA |
| 9 | De-wormer (doses) | NA | NA | NA | NA |
| 10 | Veterinary Visits | NA | NA | NA | NA |
| 11 | Conception Rate | NA | NA | NA | NA |

Note: Not Applicable.

EIA has not so far put suitable mechanism in place to ensure sustainability of the programme either through commission on sale of mineral mixture, concentrates, etc. or by capacity building of LRP for paid advisory to farmers on veterinary and related issues.

In response to issue of sustainability of program, EIA opined that at the moment handholding of the program is required as farmers are still developing the habit of implementing RBP. It is only with time that impact will start showing for each farmer and impact will be essential for farmers to understand the RBP practices. As of now, farmers follow the advice suggested by LRP as LRPs suggest that program is beneficial as well as farmers don't have to pay anything. It is only after a long run once impact shows, that project can be taken into transition phase and farmers can be convinced towards making marginal payment for each transaction to LRP which will lead the project towards a sustainable model. EIA reported reduction in the cost of milk production by 8.55 per cent. It would be interesting to see the exact cost incurred per liter production of milk before and after implementation of program.

Table 4.12: Implementation, Monitoring and Evaluation of RBP

| Sr. No. | Particulars | Details |
|---|---|---|
| 1. | Incentives provided to Local Resource Persons | • As per remuneration details provided above and it is a key learning for us and Incentives/bonus will be included in future projects.<br>• This is a learning that a Fixed plus Variable salary structure will play a vital role in motivating LRPs to perform better as well as incentivize LRPs who outperform others. |
| 2. | Innovative practices for programme implementation | • While implementing program, for better interaction with farmers, we started silage and EVM practices demonstration at farmers' doorstep with due guidance by NDDB which helped enhancing farmer's faith in the project. The results have been overwhelming hence, we will try to include these as part of overall RBP project. Also, we helped farmers for availing VMDDP schemes (Green fodder production, Chaff cutter purchase)<br>• We created Digital community of farmers for circulating digital RBP content, best dairy management practices<br>• Additional Vet support was provided to farmers throughout lockdown period through Toll-Free and MoooFarm App to ensure access to vet services and guidance. |
| 3. | Monitoring system: provide information about review meetings, field visits and the authorities | • Field and online Monitoring of LRPs is regularly done by CCs & TOs on daily basis,<br>• Data filled by LRPs in INAPH is checked regularly by project coordinator and project manager, then based on data analysis, instructions are given to team for better implementation.<br>• Monthly review meetings of LRPs & CCs are taken alongside surprise visits by team from Head Office<br>• On ground support of NDDB team has been really helpful in boosting morale of team and faith of farmers. |
| 4. | Evaluation system: provide information about record keeping system | • All the data uploaded by LRPs saved in INAPH server.<br>• This data reports are generated from INAPH dashboard.<br>• Based on online reports, field monitoring is done.<br>• RBP work online & on field evaluation have been done by NDDB regularly. |
| 5. | Any mechanism put in place to ensure sustainability of the programme | • At the moment handholding of the program is required as farmers are still developing the habit of implementing RBP. It is only with time that impact will start showing for each farmer, impact will be essential for farmers to understand the RBP practices.<br>• As of now, farmers follow the advice suggested by LRP as LRPs suggest that program is beneficial as well as farmers don't have to pay anything.<br>• It is only after a long run once impact shows, that project can be taken into transition phase and farmers can be convinced towards making marginal payment for each transaction to LRP which will lead the project towards a sustainable model |
| 6. | Any reduction in Cost of Feeding observed?, if yes, please submit case study report/s with benchmark survey? | • Yes, as per INPAH reports till 30 Nov 20, 8.55% cost reduction has been observed.<br>• INAPH Impact report and case study reports. |

## 4.6 Constraints faced by EIA

Though at overall level, the programme has registered the positive growth, EIA have faced some constraints while implementing the RBP. Due to less stipend to LRP, proper selection of LRP has become a tedious task as well as continuation of same person is also overwhelming. High attrition of LRPs, shortage of tag and delayed in procurement of projectors were major problems faced. The selected EIA has faced financial problem in implementation of this programme as funds alternation was not permitted.

Table 4.13: Constraints faced by EIA in implementation of RBP

| Sr. No. | Particulars | Response |
|---|---|---|
| 1 | Manpower constraints (eg. Problems in recruiting staff- LRP, high attrition rate of LRP, etc.) | • As the project locations are remote, availability of qualified youth at the approved salary budget has been a constraint.<br>• The attrition rate of LRPs is really high leading to on-ground problems including hiring of more staff of regular basis as well as their training. A fixed plus variable salary model will assist in retention of LRPs for future projects |
| 2 | Technical constraints: (eg. Problems in availability of inputs, net connectivity, shortfall in technical assistance provided, etc.) | • In initial phase of project implementation there was some problems in INAPH android app, but same was timely resolved by NDDB.<br>• Due to certain technical specifications, the procurement of projectors got slightly delayed that led to further delay in start of VAP's.<br>• after some time, VAP's using Laptops are conducted to avoid further delay |
| 3 | Governance issues: (eg. Procedure of procurement, shortcomings in monitoring and evaluation system, etc.) | • At start of project it was directed that tags will be provided by Local veterinary dispensaries to LRPs, however, due to shortage of tags animal coverage was extremely slow.<br>• As a solution, later MoooFarm purchased tags and this amount is reimbursed from VMDDP project |
| 4 | Financial constraints | • The usage of funds under the project is restricted to the total amount under each head. There was no provision of using funds for one objective from another head if funds under one were exhausted.<br>• The overall cap of the budget cannot be altered but provision for usage of funds from separate account/head upon exhaustion of funds under one head should be made possible, without altering the overall project cost. |

## 4.7 Opinions and Suggestions of EIA of RBP

The selected EIA was asked to give its opinions and suggestions about programme and responses are presented in Table 4.14. It can be seen from this

table that program has supported LRPs in improving their communication as well social skills. The most critical components to achieve programme objectives is assessing the impact of RBP on cattle as farmers leave their cattle for grazing. Mooofarm has no plan or any source of funds to continue the program. EIA has also opined that monetary benefit to LRPs is most important factor for success of program and therefore without this program, currently the LRPs cannot remain financially viable.

Table 4.14: Opinions and Suggestions of EIA of RBP

| Sr. No. | Particulars | Response of EIA |
|---|---|---|
| 1. | Has program improved the capacity of EIA for delivering goods and services to farmers/Cattle owners? | • Definitely. The program has supported LRPs in improving their communication as well social skills.<br>• LRPs are now more confident in suggesting the implementation of practices. |
| 2. | Most critical components to achieve programme objectives/targets? | • RBP impact on cattle has been the most critical component to achieve.<br>• Major reason is the fact that in majority of the areas, farmers leave their cattle for grazing.<br>• There has also been shortage of mineral mixture/Cattle feed for several reasons including, transport restrictions during Covid lockdown period |
| 3. | Do you plan to extend coverage of RBP beyond the mandatory targets? If yes, what will be source of funds? | • Mandatory targets have been overachieved and we are hopeful that we will be provided with an extension/expansion of the program. |
| 4. | Are beneficiary households likely to continue receiving RBP advisory services after the program ends? | • Our LRPs have played a crucial role in supporting and assisting farmers towards reduction of cost. They will readily help farmers as and when required, however upon completion of program they will continue this on goodwill basis but constant services will require a monetary benefit to LRPs.<br>• Upon increase in number of animals under impact, villages under impact and direct reduction in cost and increase in income will lead to transition phase wherein farmers are more likely to pay for services of LRP regarding RBP advices. |
| 5. | Are LRPs likely to continue operating and remain financially viable after the program ends? | • Currently, the LRPs have learned the RBP details and implementation practices but still require regular inputs/monitoring and constant feedback to further improvise<br>• Without the program, currently the LRPs cannot remain financially viable. |
| 6. | How the RBP would be implemented by the EIA after the financial support from | • We hope that farmers will adhere to the RBP practices that LRPs have suggested them as currently there is dire need to continue the RBP support to the farmers to |

| | | |
|---|---|---|
| | VMDDP is withdrawn? | ensure application of the RBP and sustainability in the long run.<br>• Farmers are still in the learning phase about the program, experiencing the benefits of the program. Once, they understand the value the project brings to them, impact is highly visible, then they might be ready to shell out money from their pockets for RBP services provided by LRPs. Upon visibility of impact for a set period, transition of project from government funding to self-payment by farmers might be possible. However, this will require some amount of time to move farmers from dependency on government funds for making payment for RBP. |
| 7. | Does gender of LRP make difference to effectiveness of programme especially in ensuring retention of LRPs for longer period with the programme? | • We really want women to come forward and join the force but certain family/societal parameters keep them away from taking up jobs that require constant travel in villages and interacting with farmers on daily basis, however, we have been able to bring one woman LRP on board who has performed really well. |
| 8. | What are the main lessons that can be drawn from the program experience since its inception? | • Grazing is a common practice in Vidarbha Region and it is slightly difficult in the beginning to convince farmers for RBP but when results start showing in fellow farmers farm, few get encouraged to implement the RBP<br>• Regular supply of Mineral Mixture, Cattle Feed, etc is definitely required to ensure continuous implementation of ration balancing.<br>• Although, we have organized refresher training for LRPs as and when needed but one major learning has been to follow a strict disciplinary regime for refresher trainings and sharing LRP cases within teams in order to ensure continuous revision of the subject matter as well as understanding of practical examples. |
| 9 | What has been the main lessons learned regarding targeting and working with vulnerable households? | • One important factor that was identified in the very beginning and implemented through out was winning the interest and faith of farmer towards the program.<br>• It is a new concept and convincing them that it will provide them with reduction in cost and increase in income (directly/indirectly) has been tough as they adhere to age old practices and methods being followed in family for generations.<br>• A single rupee holds great value to these households and ensuring good return for each ruppe spent and saved on RBP has been tedious but once results show, farmers call LRPs to their home regularly to learn more. |
| 10 | What actions are recommended to follow up or reinforce initial benefits from the program? | • Regular Visits by LRPs, and constant follow up by TOs and CCs<br>• Constant care of cattle with regards to change in Ration as per age and stage (milking/dry/early lactation/mid lactation/late lactation)<br>• Regular training sessions of the team |

| | | |
|---|---|---|
| 11 | What corrective actions are recommended regarding the program? | ○ Design: NA<br>○ Implementation- Some specific and longer (60-70 days) time period for strategizing and team building as well as capacity building in the beginning of the program will be highly helpful.<br>○ Reporting: - Monthly, quarterly and yearly reports can be prepared to ensure constant MoM review to check the growth.<br>○ Monitoring: - Quantitative and Qualitative aspects, can be traced through regular case studies and identification of certain cases in the beginning and constant check till the end.<br>○ Evaluation: NA |
| 11 | Future plans and other information wish to share | ○ Along with RBP, we can include CMT test in the overall program to ensure that diseases such as Mastitis are diagnosed in the beginning and Vet support be provided. Mastitis is a major reason for reduction in milk yield and farmers aren't much aware about Mastitis as well as sub-clinical mastitis wherein symptoms aren't visible.<br>• MoooFarm Farmer application has been updated and many new features are available for farmers, such as:<br>• Virtual Vet Support/E-Dairy Mitra: Through application farmers can connect with Veterinary officers via audio/video calls and get solutions for their problems. This feature will enable access to vets at a click of button thereby eradicating the gap between requirements of services to availability of services. The farmers will also receive E-Prescription which will help them in maintaining history of cattle health and medicines given.<br>• Farmer Community Platform/ MoooFarm Saba: An online platform to connect farmers with fellow farmers, access to dairy related knowledge, inputs on loans, schemes and subsidies, and practical know-how.<br>• Cattle Trading Platform: Online platform for farmers to sale/purchase cattle without any hassle. |

Mooofarm Pvt. Limited reported that grazing is a common practice in Vidarbha Region and it was slightly difficult in the beginning to convince farmers for RBP but when results start showing in fellow farmer's farm, few get encouraged to implement the RBP. Regular supply of Mineral Mixture, Cattle Feed, etc is definitely required to ensure continuous implementation of ration balancing. Constant care of cattle with regards to change in Ration as per age and stage are some actions recommended to follow up or reinforce initial benefits from the program.

## 4.8 Chapter Summary

This chapter presented the implementation of RBP by the EIA in selected three districts of Vidarbha region. As per the data submitted by EIA, EIA has no past experience of RBP implementation before implementing in Vidarbha region of Maharashtra. all the set targets are achieved. Though 209 LRPs were appointed and trained, but due to high rate of attrition, only 110 LRPs and 9 CCs are working at present which is short of target. Total 395 village awareness programme were organized. While neither poster and banners were displayed in the villages nor pamphlets were distributed among the villagers. No one has reported about the wall painting in villages. Each of the LRP covered around 3-4 villages at overall level. Every LRP covered around 37-51 cattle owners and 79-90 animals. On an average, every LRP has given 5 advisories. Despite of SOP, data shows that significant number of LRPs have covered more than five villages which is not practical for to cover and attend each household. So far EIA has not put suitable mechanism in place to ensure sustainability of the programme either through commission on sale of mineral mixture, concentrates, etc. or by capacity building of LRP for paid advisory to farmers on veterinary and related issues. The selected EIA opined that program has supported LRPs in improving their communication as well social skills. Mooofarm has no plan or any source of funds to continue. EIA has also opined that monetary benefit to LRPs is most important factor for success of program and therefore without the program, currently the LRPs cannot remain financially viable.

The next chapter presents findings from secondary data.

Chapter V

# Findings from Secondary Data

## 5.1 Introduction

As mentioned in introductory chapter, the before and after approach is used to evaluate the impact of RBP through the animal wise data collected by the LRP under the programme. The information of the animal collected before extending RBP advisory to them is treated as base data (t=1) and the information on the animal collected after 180 days is treated as t=2 (after) and results are presented below.

## 5.2 Progress of RBP in Selected three districts of Vidarbha

As per the data provided, at the time of receipt of data, total 272 villages of selected three districts were functional under RBP of which 89 villages each were in Wardha and Amravati district and 86 villages were covered in Nagpur district. On an average, 23-28 households and 47-49 animals are covered in each village and around 5 advisories (Table 5.1).

The number of villages covered and responses on selected parameters at two points of time (November, 2019 and December 2020) are presented in Table 5.2. In all the selected villages, the impact of RBP can be seen in terms of increase in number of pourer members, mineral mixture sale, fat and SNF % in milk (except in case of Wardha). Decline in milk procurement and SNF % is estimated in Nagpur district, while decline in FAT and SNF% is estimated in Wardha district. While cattle feed sale increased in Nagpur district while same was declined in other two districts. No sale of Vitamins and Bypass fat was reported in these districts. De-wormer sale was started in the beginning which seems to be discontinued later time period. Same trend was observed in all the selected 20 villages each in three selected districts as seen earlier. Decline in milk fat% in RBP villages of Wardha district is the major concern. No veterinary visit was arranged by the Mother dairy or any stakeholder in this programme.

Table 5.1: Details on Coverage of RBP in Vidarbha region

| Sr. No. | District/Tahsil | No. of Villages under RBP | No. of HH Covered | Number of Animals covered under RBP | Non of Transactions under RBP |
|---|---|---|---|---|---|
| 1 | Akola | 4 | 67 | 76 | 346 |
| | Akot | 4 | 67 | 76 | 346 |
| **2** | **Amravati** | **89** | **2562** | **4341** | **20029** |
| | Achalpur | 10 | 204 | 374 | 1476 |
| | Amravati | 6 | 133 | 299 | 1267 |
| | Anjangaon Surji | 6 | 128 | 190 | 677 |
| | Bhatkuli | 1 | 28 | 64 | 361 |
| | Chandur Railway | 19 | 847 | 1319 | 6430 |
| | Chandurbazar | 14 | 437 | 651 | 3265 |
| | Chikhaldara | 5 | 72 | 144 | 333 |
| | Dhamangaon Railway | 19 | 343 | 650 | 3272 |
| | Morshi | 1 | 30 | 60 | 327 |
| | Nandgaon-Khandeshwar | 3 | 170 | 280 | 905 |
| | Teosa | 5 | 170 | 310 | 1716 |
| **3** | **Nagpur** | **83** | **1842** | **3867** | **19910** |
| | Hingna | 18 | 335 | 797 | 3475 |
| | Katol | 31 | 730 | 1495 | 8817 |
| | Mauda | 7 | 189 | 360 | 1264 |
| | Nagpur (Rural) | 9 | 243 | 539 | 2496 |
| | Narkhed | 5 | 153 | 270 | 1573 |
| | Parseoni | 8 | 105 | 205 | 1552 |
| | Ramtek | 1 | 35 | 76 | 86 |
| | Umred | 4 | 52 | 125 | 647 |
| **4** | **Wardha** | **99** | **2292** | **4724** | **24246** |
| | Arvi | 27 | 705 | 1415 | 8678 |
| | Ashti | 7 | 95 | 197 | 919 |
| | Deoli | 2 | 47 | 96 | 253 |
| | Karanja | 35 | 861 | 1847 | 9489 |
| | Seloo | 21 | 436 | 895 | 3630 |
| | Wardha | 7 | 148 | 274 | 1277 |
| | **Grand Total** | **275** | **6763** | **13008** | **64531** |

Source: VMDDP, Nagpur.

Table 5.2: Coverage of Villages under RBP in three districts of Vidarbha

| Particulars | November 2019 | | | | December 2020 | | | | Change in status | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL |
| Number of Villages | 86 | 89 | 89 | 272 | 86 | 89 | 89 | 272 | - | - | - | - |
| **Change in Responses** | | | | | | | | | | | | |
| Total No. of Pourer members (Mother dairy) | 73 | 84 | 75 | 232 | 71 | 86 | 76 | 233 | -2.7 | 2.4 | 1.3 | 0.4 |
| Milk procurement (Av. LPD.) by (Mother dairy) | 73 | 84 | 75 | 232 | 71 | 86 | 76 | 233 | -2.7 | 2.4 | 1.3 | 0.4 |
| Av. Milk fat | 73 | 84 | 75 | 232 | 71 | 86 | 76 | 233 | -2.7 | 2.4 | 1.3 | 0.4 |
| Avg. SNF | 73 | 84 | 75 | 232 | 71 | 86 | 76 | 233 | -2.7 | 2.4 | 1.3 | 0.4 |
| Mineral mixture sale | 8 | 4 | 14 | 26 | 36 | 21 | 20 | 77 | 350.0 | 425.0 | 42.9 | 196.2 |
| Vitamins sale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Cattle feed sale | 19 | 32 | 49 | 100 | 47 | 39 | 23 | 109 | 147.4 | 21.9 | -53.1 | 9.0 |
| Bypass fat sale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| De-wormer (doses) | 4 | 2 | 15 | 21 | 0 | 0 | 0 | 0 | -100 | -100 | -100 | -100 |
| Veterinary visits (doctors of Mother dairy) if applicable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

Table 5.3: Impact of RBP in Selected three districts of Vidarbha

| Particulars | November 2019 | | | | December 2020 | | | | Change in status | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL |
| Total No. of Pourer members (Mother dairy) | 1292 | 1390 | 126 | 3949 | 1391 | 1580 | 1340 | 4311 | 7.7 | 13.7 | 5.8 | 9.2 |
| Milk procurement (Av. LPD.) by (Mother dairy) | 11883.3 | 11045.9 | 9003.7 | 31932.9 | 11303.9 | 13329.8 | 9004.0 | 33637.7 | -4.9 | 20.7 | 0.0 | 5.3 |
| Av. Milk fat (%) | 5.3 | 5.5 | 5.3 | 5.4 | 5.3 | 5.5 | 5.7 | 5.5 | 0.1 | -0.3 | 6.5 | 2.1 |
| Avg. SNF (%) | 8.7 | 8.7 | 8.8 | 8.7 | 8.6 | 8.6 | 8.8 | 8.7 | -0.8 | -1.1 | 0.8 | -0.4 |
| Mineral mixture sale (kg.) | 56.0 | 20.0 | 56.0 | 132.0 | 365.0 | 177.0 | 166.0 | 708.0 | 551.8 | 785.0 | 196.4 | 436.4 |
| Vitamins sale (kg) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Cattle feed sale (kg.) | 9950 | 16050 | 26350 | 52350 | 18250 | 15300 | 5175 | 38725 | 83.4 | -4.7 | -80.4 | -26.0 |
| Bypass fat sale (kg.) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| De-wormer (doses)-Kg | 6.0 | 1.5 | 43.5 | 51.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100 | -100 | -100 | -100 |
| Veterinary visits (Mother dairy) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

Table 5.4 Impact of RBP in Selected Villages of three districts of Vidarbha

| Particulars | November 2019 | | | | December 2020 | | | | Change in status | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL | Nagpur | Wardha | Amravati | ALL |
| Number of Villages | 20 | 20 | 20 | 60 | 20 | 20 | 20 | 60 | - | - | - | - |
| Total No. of Pourer members (Mother dairy) | 525.0 | 558.0 | 468.0 | 1551.0 | 505.0 | 548.0 | 521.0 | 1574.0 | -3.8 | -1.8 | 11.3 | 1.5 |
| Milk procurement (Av. LPD.) by (Mother dairy) | 4541.5 | 4252.1 | 3570.4 | 12364.1 | 4076.7 | 4602.2 | 3881.5 | 12560.4 | -10.2 | 8.2 | 8.7 | 1.6 |
| Av. Milk fat (%) | 5.1 | 5.5 | 5.2 | 5.3 | 5.2 | 5.4 | 5.6 | 5.4 | 1.8 | -0.7 | 7.3 | 2.8 |
| Avg. SNF (%) | 8.6 | 8.7 | 8.8 | 8.7 | 8.5 | 8.6 | 8.8 | 8.6 | -0.6 | -1.1 | 0.2 | -0.5 |
| Mineral mixture sale (kg.) | 41.0 | 14.0 | 35.0 | 90.0 | 42.0 | 77.0 | 43.0 | 162.0 | 2.4 | 450.0 | 22.9 | 80.0 |
| Vitamins sale (kg) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Cattle feed sale (kg.) | 2950 | 4850 | 11950 | 19750 | 6025 | 3525 | 1075 | 10625 | 104.2 | -27.3 | -91.0 | -46.2 |
| Bypass fat sale (kg.) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| De-wormer (doses)-Kg | 6.0 | 0.0 | 19.5 | 25.5 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Veterinary visits (Mother dairy) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

## 5.3 Impact of RBP in Selected three districts of Vidarbha

In order to see the impact of RBP, data uploaded on software was received from NDDB, Nagpur which was segregated for two period points, i.e. at the time of first advisory (at the beginning of programme, t=1) and another after minimum 180 days or last advisory (recent past time, t=2). It can be seen from the table 5.5 that major achievement of the RBP programme is observed in terms of increase in fat content of milk, while milk productivity found to be declined which need to be investigated further in detail to know the reasons for same.

Table 5.5: Impact on Selected Parameters (Six months interval) of Dairy Farmers

| District | Milk Yield (lit) | Fat% | DM (kg) | TDN (kg) | CP gm | Calcium (gm) | P_(gm) | RB Cost |
|---|---|---|---|---|---|---|---|---|
| **First Advisory** | | | | | | | | |
| Akola (39) | 6.36 | 5.24 | 8.64 | 4.75 | 1.07 | 0.05 | 0.02 | 94.08 |
| Amravati (1257) | 6.57 | 4.96 | 9.90 | 5.47 | 1.25 | 0.05 | 0.03 | 110.55 |
| Nagpur (1237) | 6.62 | 4.70 | 9.28 | 5.38 | 1.16 | 0.04 | 0.02 | 120.17 |
| Wardha (1677) | 5.97 | 5.05 | 9.35 | 5.27 | 1.24 | 0.04 | 0.02 | 114.30 |
| Washim (01) | 7.00 | 6.20 | 13.05 | 6.71 | 1.40 | 0.07 | 0.03 | 130.81 |
| Yavatmal (02) | 6.50 | 4.65 | 10.13 | 5.28 | 1.02 | 0.04 | 0.02 | 113.90 |
| ALL (4213) | 6.34 | 4.92 | 9.49 | 5.36 | 1.22 | 0.04 | 0.03 | 114.72 |
| **Last Advisory (after 180 days)** | | | | | | | | |
| Akola | 4.35 | 5.35 | 8.61 | 4.60 | 0.91 | 0.04 | 0.02 | 76.87 |
| Amravati | 5.50 | 5.22 | 9.50 | 5.13 | 1.04 | 0.04 | 0.02 | 95.11 |
| Nagpur | 5.25 | 4.91 | 8.63 | 4.87 | 0.97 | 0.04 | 0.02 | 97.25 |
| Wardha | 4.93 | 5.39 | 8.66 | 4.86 | 1.01 | 0.04 | 0.02 | 95.24 |
| Washim | 4.20 | 7.10 | 11.67 | 6.19 | 1.08 | 0.06 | 0.03 | 107.79 |
| Yavatmal | 5.10 | 5.50 | 10.18 | 5.43 | 1.08 | 0.05 | 0.02 | 102.06 |
| ALL | 5.19 | 5.20 | 8.90 | 4.94 | 1.01 | 0.04 | 0.02 | 95.63 |
| | | | | | | | | |
| Akola | -31.66 | 2.20 | -0.32 | -3.31 | -15.07 | -17.47 | -16.34 | -18.29 |
| Amravati | -16.33 | 5.38 | -4.13 | -6.16 | -16.59 | -5.15 | -10.55 | -13.97 |
| Nagpur | -20.63 | 4.44 | -6.99 | -9.50 | -16.35 | -10.00 | -12.76 | -19.07 |
| Wardha | -17.40 | 6.89 | -7.39 | -7.87 | -18.45 | -5.18 | -10.81 | -16.67 |
| Washim | -40.00 | 14.52 | -10.56 | -7.86 | -22.77 | -22.31 | -16.10 | -17.60 |
| Yavatmal | -21.54 | 18.28 | 0.48 | 2.69 | 5.85 | 20.46 | -7.03 | -10.39 |
| ALL | -18.20 | 5.71 | -6.20 | -7.79 | -17.26 | -6.75 | -11.34 | -16.64 |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

As the advisory given by LRP was not implemented in toto by all the farmers, thus, during next visit and enquiry, LRP has reported the status of adoption of advisory on software. Therefore, those cattle owners who have adopted the advisory as reported by the LRP were segregated and then impact was estimated. It can be seen from the Table 5.6 that number of cow dominates the milch animals covered under RBP. The significant number of buffaloes found included in Amravati district. Average age of cattle and buffalo is estimated to 7-8 years having average weight of around 434 kg in case of buffalo and 329 kg in case of cows. Average lactation status is estimated to be around 3 having period of 6 months after lactation in both cases.

The milk yield increase by 2 per cent over base period is estimated in these villages at overall level. The decline in milk yield in the villages of Amravati district is major concern that to when advisory was adopted by all these cattle owners. While DM and average cost of fodder has declined in all the places except in Wardha district in case of DM in Buffalo. The milk yield has increased by 2 per cent, fat by 3.61 percent while average cost of feeds and fodder has declined by 6.6 per cent

Table 5.6: Details on Animal Covered those who have adopted the Advisory

| Sr.No. | Particulars | Buffalo | Cattle | Total |
|---|---|---|---|---|
| A | Number of Animals | | | |
| | Akola | 2 | 17 | 19 |
| | Amravati | 172 | 426 | 598 |
| | Nagpur | 43 | 602 | 645 |
| | Wardha | 52 | 531 | 583 |
| | Total | 269 | 1576 | 1845 |
| B | Average of Age | | | |
| | Akola | 7.10 | 6.22 | 6.31 |
| | Amravati | 7.75 | 6.83 | 7.10 |
| | Nagpur | 7.38 | 6.55 | 6.60 |
| | Wardha | 8.24 | 6.82 | 6.94 |
| | Total | 7.78 | 6.71 | 6.87 |
| C | Average of Weight | | | |
| | Akola | 500.0 | 311.8 | 331.6 |
| | Amravati | 434.3 | 325.4 | 356.7 |
| | Nagpur | 415.1 | 325.8 | 331.8 |
| | Wardha | 446.2 | 336.5 | 346.3 |
| | Total | 434.0 | 329.2 | 344.5 |
| D | Average of Lactation | | | |
| | Akola | 3.0 | 2.4 | 2.4 |
| | Amravati | 3.1 | 2.9 | 2.9 |
| | Nagpur | 3.7 | 2.9 | 3.0 |
| | Wardha | 3.1 | 2.9 | 2.9 |
| | Total | 3.2 | 2.9 | 2.9 |
| E | Average of Month After Calving | | | |
| | Akola | 8.5 | 8.5 | 8.5 |
| | Amravati | 6.4 | 6.1 | 6.2 |
| | Nagpur | 6.4 | 5.8 | 5.9 |
| | Wardha | 4.6 | 5.5 | 5.4 |
| | Total | 6.1 | 5.8 | 5.9 |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

Table 5.7: Impact on Milk Yield and FAT % those who have adopted advisory

| Sr. No. | Particulars | Milk Yield | | | FAT % | | |
|---|---|---|---|---|---|---|---|
| | | Buffalo | Cattle | Total | Buffalo | Cattle | Total |
| A | MilkYield_1 | | | | | | |
| | Akola | 3.75 | 5.57 | 5.38 | 4.30 | 4.52 | 4.50 |
| | Amravati | 6.27 | 6.25 | 6.26 | 6.28 | 4.15 | 4.76 |
| | Nagpur | 5.37 | 6.81 | 6.71 | 6.16 | 4.14 | 4.27 |
| | Wardha | 5.32 | 7.34 | 7.16 | 6.69 | 4.01 | 4.25 |
| | Total | 5.92 | 6.82 | 6.69 | **6.33** | **4.10** | **4.43** |
| B | MilkYield_2 | | | | | | |
| | Akola | 3.30 | 5.36 | 5.14 | 4.55 | 4.70 | 4.68 |
| | Amravati | 6.38 | 6.22 | 6.27 | 6.45 | 4.28 | 4.90 |
| | Nagpur | 5.43 | 6.91 | 6.81 | 6.21 | 4.26 | 4.39 |
| | Wardha | 5.55 | 7.65 | 7.47 | 6.86 | 4.26 | 4.49 |
| | Total | 6.05 | 6.96 | 6.83 | **6.48** | **4.27** | **4.59** |
| C | Change over base (%) | | | | | | |
| | Akola | -12.00 | -3.80 | -4.40 | 5.81 | 3.98 | 4.00 |
| | Amravati | 1.79 | -0.48 | 0.18 | 2.71 | 3.13 | 2.94 |
| | Nagpur | 1.13 | 1.52 | 1.50 | 0.81 | 2.90 | 2.81 |
| | Wardha | 4.45 | 4.34 | 4.34 | 2.54 | 6.23 | 5.65 |
| | Total | 2.09 | 2.00 | 2.01 | 2.37 | 4.15 | 3.61 |

Table 5.8: Impact on DM in Milk and Average Cost of Fodder

| Sr. No. | Particulars | DM (kg) | | | Average Cost of Fodder (Rs) | | |
|---|---|---|---|---|---|---|---|
| | | Buffalo | Cattle | Total | Buffalo | Cattle | Total |
| A | MilkYield_1 | | | | | | |
| | Akola | 12.30 | 10.08 | 10.31 | 124.00 | 95.16 | 98.20 |
| | Amravati | 11.96 | 10.18 | 10.69 | 126.19 | 104.85 | 110.99 |
| | Nagpur | 10.38 | 9.57 | 9.62 | 122.18 | 111.38 | 112.10 |
| | Wardha | 9.95 | 9.79 | 9.81 | 133.63 | 121.31 | 122.41 |
| | Total | **11.32** | **9.81** | **10.03** | **126.97** | **112.79** | **114.86** |
| B | MilkYield_2 | | | | | | |
| | Akola | 10.34 | 8.72 | 8.89 | 108.08 | 83.52 | 86.10 |
| | Amravati | 11.90 | 9.15 | 9.94 | 125.33 | 96.08 | 104.49 |
| | Nagpur | 10.37 | 8.98 | 9.08 | 122.19 | 105.27 | 106.40 |
| | Wardha | 11.01 | 9.09 | 9.26 | 128.97 | 110.16 | 111.84 |
| | Total | **11.47** | **9.06** | **9.41** | **125.40** | **104.20** | **107.29** |
| C | Change over base (%) | | | | | | |
| | Akola | -15.93 | -13.49 | -13.77 | -12.84 | -12.23 | -12.32 |
| | Amravati | -0.50 | -10.12 | -7.02 | -0.68 | -8.36 | -5.86 |
| | Nagpur | -0.10 | -6.17 | -5.61 | 0.01 | -5.49 | -5.08 |
| | Wardha | 10.65 | -7.15 | -5.61 | -3.49 | -9.19 | -8.63 |
| | Total | 1.33 | -7.65 | -6.18 | -1.24 | -7.62 | -6.59 |

Source: NDDB, Nagpur/Mother Dairy, Nagpur.

## 5.4 Chapter Summary:

The progress of RBP is analyzed by using the secondary data received from the NDDB, Nagpur. Total 272 villages were covered under RBP at the time of receipt of data of which 89 villages each were in Wardha and Amravati district and 86 villages were covered in Nagpur district. On an average, 23-28 households and 47-49 animals are covered in each village and around 5 advisories are provided to each animal. In all the selected villages, the impact of RBP can be seen in terms of increase in number of pourer members, mineral mixture sale and fat % in milk (except in case of Wardha). No sale of Vitamins and Bypass fat was reported in these districts. De-wormer sale was started in the beginning which seems to be discontinues later time period. As per INAPH dataset, the major achievement of the RBP programme is observed in terms of increase in fat content of milk. The milk yield increased by 2 per cent and fat by 3.61 percent over base period at overall level. The average cost of feeds and fodder declined by 6.59 per cent.

The next chapter presents about the selected villages, households and LRPs.

Chapter VI

# About Selected Villages, Sample Households & Local Resource Persons

## 6.1 Introduction:

As mentioned earlier, this programme has been implemented in three districts of Vidarbha region (Nagpur, Wardha and Amravati). From every district, as mentioned in introductory chapter, as per share of villages in each tehsil (Map 6.1), 20 villages were selected. This chapter present and discuss about the selected district, village, households and LRPs in RBP.

## 6.2 About Region and Selected Districts

Vidarbha is the north-eastern region of Maharashtra, comprising of Nagpur Division and Amravati Division. Vidarbha holds two-thirds of Maharashtra's mineral resources and three-quarters of its forest resources, and is a net producer of power. Gondia, Wardha, Yavatmal, Chandrpaur, Amravati are important cities of Vidarbha for business. Nagpur is a central hub for business and healthcare. Amravati is known for educational institutions and cloth markets. Traditional crops such as cotton, jowar, bajra, tur and rice are grown. The main cash crops of the region are cotton, oranges and soybean. The living conditions of farmers in this region is poor compared to India as a whole. Between 2001 and 2018, a total of 6,154 farmers from Marathawada died by suicide, while the number for Vidarbha is 17,547 (Talule, 2020). In 2006, the Ministry of Panchayati Raj named Amravati one of the country's 250 most backward districts (out of a total of 640). Amravati is one of the twelve districts in Maharashtra currently receiving funds from the Backward Regions Grant Fund Programme (BRGF).

The livestock population in selected three districts is presented in Table 6.1. It can be seen from the table that the cow dominates in the total livestock population in each district by accounting more than half of total livestock population. Goat accounts for more than one fourth of total livestock population of the selected district while buffalo accounts for around 10 per cent of total livestock population of each district.

Map 6.1: Location Map of Selected Tahsils in Selected district

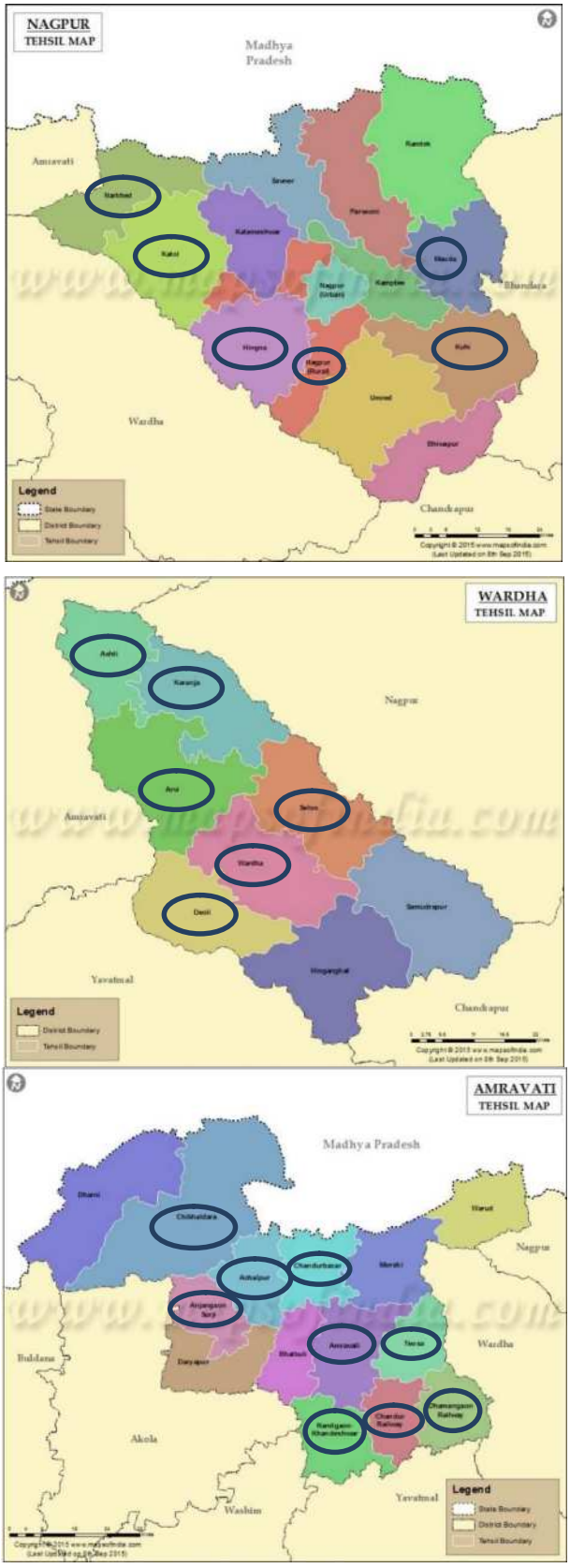


Table 6.1: Basic Information about Livestock Population in Selected districts

| Sr.No. | Particulars | Cattle | Buffaloes | Goat | Sheep | Others * |
|---|---|---|---|---|---|---|
| **A** | **% to district total** | | | | | |
| 1 | Nagpur | 53.15 | 9.52 | 30.08 | 0.87 | 6.37 |
| 2 | Wardha | 60.06 | 9.63 | 25.72 | 0.33 | 4.26 |
| 3 | Amravati | 50.83 | 11.86 | 27.69 | 6.66 | 2.96 |
| 4 | Selected three districts | 53.58 | 10.55 | 28.14 | 3.26 | 4.46 |
| | Maharashtra State | 45.85 | 16.57 | 24.98 | 7.64 | 4.96 |
| **B** | **% to State Population** | | | | | |
| 1 | Nagpur | 3.03 | 1.50 | 3.15 | 0.30 | 3.36 |
| 2 | Wardha | 1.97 | 0.87 | 1.55 | 0.07 | 1.29 |
| 3 | Amravati | 3.46 | 2.24 | 3.46 | 2.72 | 1.87 |
| 4 | Selected three districts | 8.46 | 4.61 | 8.15 | 3.09 | 6.52 |
| | Maharashtra State | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Note: *Others includes Camel, Dogs, Donkey, Elephant, Horses Mithuns, Mules, Pigs, Rabbit
Source: Livestock Census 2019 (https://farmer.gov.in/)

## 6.3 About Selected Villages

It can be seen from Tables 6.2 to 6.4 that selected villages were of medium size in terms of population having average size of 2000-2800 population with average number of household ranges from 415 to 673. The villages in Amravati district are more populated and large in size as compared to other two districts. Villages in Nagpur and Wardha are around 22 kms away from nearest town while villages in Amravati are found much closer to town (12 kms around). Out of the total geographical area of the village, net sown area accounts for around 76 per cent in Wardha, 72 per cent for Amravati and 69 per cent for Nagpur district. The highest area under irrigation is reported to be in Wardha followed by Nagpur and then Amravati district. Despite of very poor irrigation coverage in Amravati division, selected villages accounted significant sown area under irrigation which indicates the selection of villages on the basis of irrigation availability which is must for fodder production and livestock rearing purpose.

The villagewise livestock population again depict the dominance of cattle in the total livestock population in each village by accounting more than half of total livestock population. Goat accounts for more than one fourth of total livestock population of the selected district while buffalo accounts for around one tenth of total livestock population of each village (Table 6.5 to 6.7).

Table 6.2: Demographic and Other details of Selected Villages of Nagpur district

| Tahsil | Town/Village Name | Total Geographical Area (in Ha) | Total Households | Total population ( 2011 census ) | Land Use | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Nearest Town Name | Nearest Town Distance from Village (in Km.) | Net Area Sown (% to geographical area) | Net irrigated area (% NSA) |
| Hingna | Kavdas | 1623.98 | 278 | 1541 | Nagpur | 45 | 23.5 | 91.0 |
| Hingna | Kanholibara | 1607.21 | 1554 | 6844 | Nagpur | 38 | 49.0 | 92.6 |
| Hingna | Degma kh | 816.39 | 173 | 732 | Nagpur | 33 | 53.0 | 97.4 |
| Hingna | Junewani | 435.26 | 232 | 1017 | Nagpur | 21 | 73.7 | 81.1 |
| Katol | Sonoli | 395.56 | 381 | 1572 | Katol | 12 | 59.0 | 21.0 |
| Katol | Kalambha | 481.71 | 308 | 1238 | Katol | 15 | 85.1 | 83.6 |
| Katol | Yenwa | 761.77 | 514 | 2138 | Katol | 12 | 77.5 | 79.9 |
| Katol | Yerla (Dhote) | 825.51 | 351 | 1351 | Katol | 15 | 66.3 | 86.8 |
| Katol | Digras (Bk) | 535.21 | 367 | 1532 | Katol | 12 | 83.5 | 75.0 |
| Katol | Dorli (Bk) | 591.12 | 273 | 1495 | Katol | 24 | 65.5 | 85.4 |
| Katol | Raulgaon | 1021.14 | 219 | 939 | Katol | 26 | 75.8 | 88.6 |
| Katol | Murti | 638.4 | 492 | 1923 | Katol | 15 | 54.5 | 79.1 |
| Mauda | Wirshi | 836.18 | 297 | 1380 | Bhandara | 23 | 80.0 | 11.8 |
| Mauda | Indora | 375.64 | 364 | 1497 | Ramtek | 15 | 76.5 | 12.4 |
| Nagpur (R) | Satnavari | 328.16 | 396 | 1678 | Nagpur | 31 | 68.2 | 68.9 |
| Nagpur (Rl) | Dhamana | 437.61 | 72 | 331 | Nagpur | 15 | 81.3 | 81.3 |
| Nagpur (R) | Ashta | 538.67 | 211 | 868 | Nagpur | 49 | 70.9 | 89.1 |
| Narkhed | Bhidhnur | 991.91 | 744 | 3224 | Katol | 15 | 86.5 | 69.6 |
| Narkhed | Sawanga (Lohari) | 987.00 | 776 | 3235 | Katol | 40 | 72.7 | 79.0 |
| Parseoni | Nilaj | 490.04 | 306 | 1538 | Kamptee | 15 | 84.0 | 72.9 |

Table 6.3: Demographic and Other details of Selected Villages of Wardha district

| Tahsil | Town/Village Name | Total Geographical Area (in Ha) | Total Households | Total population ( 2011 census ) | Land Use | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Nearest Town Name | Nearest Town Distance from Village (in Km.) | Net Area Sown (% to geographical area) | Net irrigated artea (% to NSA) |
| Arvi | Jalgaon | 1074.39 | 846 | 3369 | Arvi | 11 | 81.9 | 72.0 |
| Arvi | Bedhona | 778.00 | 228 | 957 | Arvi | 11 | 94.9 | 99.8 |
| Arvi | Wadhona | 834.48 | 792 | 3362 | Arvi | 15 | 87.1 | 97.1 |
| Arvi | Morangana | 693.39 | 740 | 3031 | Wardha | 27 | 51.1 | 89.7 |
| Arvi | Virul | 1074.29 | 920 | 3653 | Pulgaon | 10 | 90.0 | 88.5 |
| Ashti | Chamala | 270.68 | 98 | 464 | Arvi | 30 | 80.1 | 96.8 |
| Karanja | Borgaon (Dhole) | 669.59 | 266 | 1059 | Katol | 32 | 73.4 | 95.0 |
| Karanja | Malegaon Kali | 844.14 | 223 | 929 | Arvi | 28 | 76.1 | 92.8 |
| Karanja | Thanegaon | 1096.22 | 700 | 2908 | Katol | 25 | 86.6 | 87.8 |
| Karanja | Bhiwapur | 277.53 | 76 | 312 | Wardha | 45 | 72.4 | 98.8 |
| Karanja | Bangadapur | 275.88 | 121 | 495 | Wardha | 40 | 54.2 | 100.0 |
| Karanja | Met Hiraji | 529.66 | 182 | 775 | Katol | 45 | 66.3 | 85.4 |
| Karanja | Danapur | 265.02 | 197 | 845 | Arvi | 24 | 72.1 | 100.0 |
| Seloo | Hingni | 577.52 | 1299 | 5416 | Wardha | 26 | 67.7 | 83.0 |
| Seloo | Ghorad | 825.93 | 1437 | 5973 | Wardha | 20 | 76.0 | 93.4 |
| Seloo | Zadshi | 194.14 | 514 | 2021 | Wardha | 22 | 58.6 | 94.9 |
| Seloo | Antargaon | 333.2 | 196 | 798 | WARDHA | 23 | 85.1 | 88.6 |
| Wardha | Kamthi | 159.02 | 66 | 295 | WARDHA | 20 | 86.4 | 74.0 |
| Wardha | Rotha | 734.76 | 358 | 1496 | WARDHA | 6 | 74.6 | 87.3 |
| Arvi | Jalgaon | 1074.39 | 846 | 3369 | ARVI | 11 | 81.9 | 72.0 |

Table 6.4: Demographic and Other details of Selected Villages of Amravati district

| Tahsil | Town/Village Name | Total Geographical Area (in Ha) | Total Households | Total population ( 2011 census ) | Land Use | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Nearest Town Name | Nearest Town Distance from Village (in Km.) | Net Area Sown (% to geographical area) | Net irrigated artea (% to NSA) |
| Achalpur | Upatkheda | 422.77 | 218 | 1089 | Achalpur | 15 | 5.9 | 48.8 |
| Achalpur | Parasapur | 385.57 | 829 | 4050 | Achalpur | 8 | 85.9 | 61.8 |
| Amravati | Digargavhan | 759.4 | 176 | 726 | Amravati | 28 | 84.9 | 91.3 |
| Amravati | Kapustalani | 779.34 | 256 | 1091 | Amravati | 31 | 86.0 | 97.0 |
| Anjangaon Surji | Khanampur | 274.1 | 857 | 3717 | Anjangaon | 6 | 89.6 | 60.1 |
| Chandur Railway | Karala | 1822.79 | 622 | 2880 | Chandur | 13 | 49.5 | 88.6 |
| Chandur Railway | Jalka Jagtap | 1197 | 536 | 2262 | Chandur | 14 | 60.7 | 86.0 |
| Chandur Railway | Manjarkhed | 1458.3 | 631 | 2698 | Chandur | 5 | 71.0 | 97.5 |
| Chandur Railway | Dahigaon | 917.62 | 202 | 873 | Chandur | 8 | 94.6 | 98.6 |
| Chandurbazar | Sarfapur | 166.77 | 240 | 1027 | Achalpur | 16 | 91.8 | 49.8 |
| Chandurbazar | Belora | 1264.48 | 647 | 2653 | Chandurbazar | 6 | 95.8 | 91.4 |
| Chikhaldara | Vastapur | 269.2 | 339 | 1599 | Achalpur | 23 | 81.4 | 74.9 |
| Dhamangaon Railway | Ashok Nagar | 1106.36 | 456 | 1785 | Dattapur Dhamangaon | 9 | 95.4 | 81.1 |
| Dhamangaon R | Kawali | 1100.34 | 515 | 2098 | Dattapur Dhamangaon | 12 | 73.1 | 87.0 |
| Dhamangaon R | Mund Nilkanth S | 1426.81 | 1652 | 6649 | Dattapur Dhamangaon | 16 | 91.1 | 73.1 |
| Dhamangaon R | Juna Dhamangaon | 1066 | 1756 | 7192 | Dattapur Dhamangaon | 1 | 87.2 | 66.9 |
| Dhamangaon R | Deogaon | 850.78 | 518 | 2096 | Dattapur Dhamangaon | 11 | 86.1 | 73.2 |
| Nandgaon-K | Dhawalsari | 621.21 | 302 | 1332 | Amravati | 21 | 93.7 | 93.2 |
| Teosa | Kurha | 2135 | 2489 | 10886 | Chandur | 18 | 27.1 | 90.2 |
| Achalpur | Upatkheda | 422.77 | 218 | 1089 | Achalpur | 15 | 5.9 | 48.8 |

Table 6.5: Livestock Population in Selected Villages of Nagpur district

| Tahsil | Town/Village Name | Cattle | Buffaloes | Goat | Sheep | Others * |
|---|---|---|---|---|---|---|
| Hingna | Degma kh | 853 | 386 | 147 | 6 | 23 |
| | Junewani | 473 | 32 | 222 | 0 | 7 |
| | Kanholibara | 1214 | 110 | 531 | 0 | 161 |
| | Kavdas | 639 | 249 | 206 | 0 | 109 |
| Katol | Digras (Bk) | 499 | 27 | 175 | 0 | 9 |
| | Dorli (Bk) | 839 | 150 | 406 | 6 | 34 |
| | Kalambha | 385 | 172 | 242 | 0 | 7 |
| | Murti | 833 | 83 | 204 | 0 | 31 |
| | Raulgaon | 705 | 187 | 165 | 0 | 38 |
| | Sonoli | 596 | 65 | 255 | 0 | 1 |
| | Yenwa | 771 | 25 | 263 | 107 | 36 |
| | Yerla (Dhote) | 468 | 20 | 189 | 0 | 9 |
| Mauda | Indora(535659) | 512 | 96 | 78 | 0 | 4 |
| | Wirshi | 236 | 120 | 64 | 0 | 5 |
| Nagpur (Rural) | Ashta | 376 | 17 | 227 | 0 | 15 |
| | Dhamana | 112 | 60 | 86 | 0 | 2 |
| | Satnavari | 447 | 40 | 325 | 0 | 8 |
| Narkhed | Bhidhnur | 1671 | 267 | 442 | 538 | 198 |
| | Sawanga (Lohari) | 1437 | 262 | 426 | 0 | 76 |
| Parseoni | Nilaj | 347 | 141 | 325 | 0 | 20 |
| | NAGPUR | 468907 | 84007 | 265340 | 7713 | 56239 |

Table 6.6: Livestock Population in Selected Villages of Wardha district

| Tahsil | Town/Village Name | Cattle | Buffaloes | Goat | Sheep | Others * |
|---|---|---|---|---|---|---|
| Arvi | Bedhona | 401 | 221 | 78 | 0 | 33 |
| | Jalgaon | 669 | 123 | 437 | 2 | 22 |
| | Morangana | 629 | 355 | 321 | 0 | 22 |
| | Virul | 1273 | 189 | 517 | 0 | 23 |
| | Wadhona | 959 | 125 | 347 | 0 | 71 |
| Ashti | Chamala | 388 | 196 | 146 | 0 | 40 |
| Deoli | Pulgaon (M Cl) | 561 | 185 | 938 | 1 | 349 |
| Karanja | Bangadapur | 334 | 416 | 176 | 0 | 17 |
| | Bhiwapur | 237 | 17 | 137 | 0 | 14 |
| | Borgaon (Dhole) | 543 | 121 | 174 | 0 | 35 |
| | Danapur | 1108 | 591 | 160 | 0 | 0 |
| | Malegaon Kali | 459 | 601 | 21 | 0 | 12 |
| | Met Hiraji | 414 | 353 | 179 | 0 | 53 |
| | Thanegaon | 923 | 74 | 373 | 0 | 52 |
| Seloo | Antargaon | 246 | 29 | 314 | 0 | 50 |
| | Ghorad | 1544 | 193 | 588 | 0 | 203 |
| | Hingni | 1404 | 87 | 427 | 41 | 30 |
| | Zadshi | 568 | 85 | 345 | 0 | 50 |
| Wardha | Kamthi | 174 | 0 | 15 | 0 | 16 |
| | Rotha | 550 | 70 | 129 | 0 | 8 |
| | WARDHA | 304359 | 48793 | 130342 | 1685 | 21571 |

Table 6.7: Livestock Population in Selected Villages of Amravati district

| Tahsil | Town/Village Name | Cattle | Buffaloes | Goat | Sheep | Others * |
|---|---|---|---|---|---|---|
| Achalpur | Parasapur | 362 | 79 | 187 | 0 | 2 |
| | Upatkheda | 400 | 277 | 203 | 0 | 12 |
| Amravati | Digargavhan | 457 | 119 | 142 | 0 | 0 |
| | Kapustalani | 458 | 51 | 107 | 0 | 0 |
| Anjangaon Surji | Khanampur | 537 | 208 | 293 | 0 | 40 |
| Chandur Railway | Chandur Railway (M Cl) | 1191 | 408 | 528 | 0 | 117 |
| | Dahigaon | 297 | 88 | 95 | 119 | 0 |
| | Jalka Jagtap | 821 | 93 | 664 | 2884 | 47 |
| | Karala | 1056 | 313 | 610 | 0 | 41 |
| | Manjarkhed | 1180 | 198 | 387 | 0 | 33 |
| Chandurbazar | Belora | 742 | 182 | 457 | 0 | 23 |
| | Sarfapur | 440 | 59 | 166 | 0 | 10 |
| Chikhaldara | Vastapur | 0 | 0 | 0 | 0 | 0 |
| Dhamangaon R | Ashok Nagar | 647 | 45 | 161 | 0 | 21 |
| | Deogaon | 168 | 40 | 78 | 0 | 6 |
| | Juna Dhamangaon | 768 | 205 | 276 | 0 | 68 |
| | Kawali | 1097 | 152 | 550 | 0 | 41 |
| | Mund Nilkanth Sakharam | 1341 | 236 | 469 | 0 | 144 |
| Nandgaon-Khand | Dhawalsari | 354 | 131 | 243 | 0 | 30 |
| Teosa | Kurha | 1582 | 363 | 1045 | 366 | 78 |
| | AMRAVATI | 536026 | 125116 | 292007 | 70212 | 31267 |

## 6.4 About Sample Households

As mentioned in introductory chapter, sample of 5 beneficiary cattle owners and 5 non-beneficiary dairy farmers (not included under RBP advisory services) from each village were selected randomly from each village. Thus total 300 RBP and 300 non-RBP farmers/dairy owners were contacted from 60 selected villages under study area. The details on the profile of selected households, socio-economic characteristics of households and communication source are presented and discussed below.

### 6.4.1 Profile of Selected Households

It can be seen from table 6.8 that the average size of household is estimated to be six persons, while across groups, size of beneficiary households found to be higher than non-beneficiary household in all three districts. While across districts, large size of households is reported in Wardha (more than 6 persons) followed by Nagpur and Amravati. The share of adult family members working in dairy is estimated to be the highest in Amravati district (42-42%) followed by in Nagpur (37-40%) and the lowest in Wardha district (33-37%). The average age of the respondent was between 40-45 years having education level up to 9$^{th}$ standard only.

Around 88 per cent of selected beneficiary households owned agriculture land having more than 17 years of experience in dairy and 12 years of farming experience. Majority of them maintained the dairy records. While very few households in Wardha and Amravati district have biogas facility at home and none in Nagpur district has this facility. Almost more than 95 per cent of selected households have toilet facility at home. Thus, beneficiary household is large in size, more members works in dairy, younger and more experienced than non-beneficiary household.

Table 6.8: Profile of Selected Households

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=300 | n=300 |
| 1 | Av. Household Size (Nos.) | 5.83 | 5.25 | 6.30 | 6.05 | 5.70 | 5.53 | 5.94 | 5.66 |
| | Male | 2.55 | 2.47 | 3.05 | 2.81 | 2.77 | 2.70 | 2.79 | 2.67 |
| | Female | 2.20 | 2.04 | 2.22 | 2.26 | 2.12 | 2.06 | 2.18 | 2.14 |
| | Children (below 15 years) | 1.08 | 0.74 | 1.03 | 0.98 | 0.81 | 0.77 | 0.97 | 0.85 |
| 2 | Family members working in dairy | 1.91 | 1.66 | 1.93 | 1.68 | 2.28 | 2.01 | 2.04 | 1.80 |
| | Male | 1.57 | 1.38 | 1.45 | 1.25 | 1.77 | 1.67 | 1.60 | 1.44 |
| | Female | 0.34 | 0.28 | 0.48 | 0.43 | 0.51 | 0.34 | 0.44 | 0.36 |
| | Children (below 15 years) | - | - | - | - | - | - | - | - |
| 3 | Av. Age of Respondent | 48.47 | 47.56 | 40.13 | 45.45 | 46.37 | 44.85 | 44.99 | 46.00 |
| 4 | Av. Education Level (years) | 8.64 | 8.1 | 9.74 | 8.79 | 8.76 | 8.9 | 9.05 | 8.52 |
| 5 | Own ag Land Holding | | | | | | | | |
| | Landless | 12.00 | 20.00 | 12.00 | 11.00 | 12.00 | 18.00 | 12.00 | 16.33 |
| | Land holding | 88.00 | 80.00 | 88.00 | 89.00 | 88.00 | 82.00 | 88.00 | 83.67 |
| 6 | Experience in dairy (years) | 16.54 | 12.68 | 12.85 | 13.57 | 21.77 | 18.43 | 17.05 | 14.89 |
| 7 | Experience in Farming (years) | 14.16 | 12.04 | 11.74 | 11.02 | 13.97 | 13.22 | 13.29 | 12.09 |
| 8 | Maintain dairy (milk) financial record- yes | 62.00 | 12.00 | 82.00 | 26.00 | 83.00 | 42.00 | 75.67 | 26.67 |
| 9 | Biogas Facility at home (Yes) | 0.00 | 0.00 | 24.00 | 11.00 | 10.00 | 14.00 | 11.33 | 8.33 |
| 10 | Toilet facility at home (yes) | 91.00 | 88.00 | 100.0 | 100.0 | 95.00 | 80.00 | 95.33 | 89.33 |

Source: Field survey data.

### 6.4.2 Socio-Economic Characteristics

The socio-economic characteristics of selected households are presented in Table 6.9. It can be seen from the table that around 98 per cent households belong to hindu religion while remaining are from Islam, Christian and Sikh religion. Almost 78 per cent of total households belong to Other Backward Class social category followed by around 13 per cent belongs SC ST category and rest were from general category. In all the districts and both the cases, agriculture was the main occupation and animal husbandry and dairying reported as subsidiary occupation. Majority of the beneficiary households in all three selected districts were from APL category, highest number of households were found in Wardha followed by Nagpur and the lowest are in Amravati district.

Table 6.9: Socio-Economic Characteristics of Selected Households

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=300 | n=300 |
| 1 | Religion | | | | | | | | |
| | Hinduism | 100.0 | 100.00 | 94.00 | 98.00 | 99.00 | 98.00 | 97.67 | 98.67 |
| | Islam | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 2.00 | 0.67 | 1.00 |
| | Christianity | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| | Sikhism | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 1.67 | 0.00 |
| 2 | Social Group | | | | | | | | |
| | ST | 11.00 | 11.00 | 6.00 | 2.00 | 4.00 | 4.00 | 7.00 | 5.67 |
| | SC | 3.00 | 7.00 | 13.00 | 12.00 | 1.00 | 6.00 | 5.67 | 8.33 |
| | OBC | 78.00 | 75.00 | 75.00 | 80.00 | 85.00 | 80.00 | 79.33 | 78.33 |
| | General | 8.00 | 7.00 | 6.00 | 6.00 | 10.00 | 10.00 | 8.00 | 7.67 |
| 3 | Main Occupation | | | | | | | | |
| | Cultivator | 80.00 | 75.00 | 75.00 | 76.00 | 86.00 | 78.00 | 80.33 | 76.33 |
| | AH & Dairying | 16.00 | 11.00 | 18.00 | 18.00 | 12.00 | 19.00 | 15.33 | 16.00 |
| | Agri. Labour | 2.00 | 10.00 | 6.00 | 5.00 | 1.00 | 3.00 | 3.00 | 6.00 |
| | Nonfarm Labour | 1.00 | 2.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.33 | 1.00 |
| | Own Non-Farm Establishment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Trade | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.67 | 0.33 |
| | Service | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.33 |
| | Secondary Occupation | | | | | | | | |
| | Cultivator | 6.00 | 2.00 | 8.00 | 10.00 | 2.00 | 2.00 | 5.33 | 4.67 |
| | AH & Dairying | 84.00 | 86.00 | 79.00 | 78.00 | 87.00 | 81.00 | 83.33 | 81.67 |
| | Agri. Labour | 6.00 | 5.00 | 11.00 | 11.00 | 11.00 | 15.00 | 9.33 | 10.33 |
| | Nonfarm Labour | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.33 | 0.33 |
| | Own Non-Farm Establishment | 2.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.67 |
| | Trade | 1.00 | 7.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 2.33 |
| | Service | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 |
| 4 | Income Group | | | | | | | | |
| | BPL | 39.00 | 45.00 | 19.00 | 38.00 | 42.00 | 67.00 | 33.33 | 50.00 |
| | APL | 60.00 | 54.00 | 80.00 | 57.00 | 57.00 | 32.00 | 65.67 | 47.67 |
| | AAY | 1.00 | 1.00 | 1.00 | 5.00 | 1.00 | 1.00 | 1.00 | 2.33 |

Source: Field survey data.

### 6.4.3 Communication Characterises

The details on frequency of extension contact, mass media exposure and exposure of any training to the selected household are presented in Tables 6.10. It can be seen from these table that in case of beneficiary households, the local resource person (LRP) had regularly visited 66 percent households while 24 percent households respectively received regular support of Veterinary assistant surgeons. The non-beneficiary households received relatively less extent of support of veterinary assistant surgeon and from LRP as well. Though few farmers have received support from other extension agency/personal, but majority of both the categories of households had mentioned that they had never received any

support of Dairy Extension Officers, B.D.O., Scientist from KVK, progressive farmers, neighbours/friends, input dealer and output buyer.

Table 6.10: Details on Communication Characteristics

| SL | | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| 1 | Stockman/LRP | | | | | | | | |
| | Never-0 | 2.0 | 34.0 | | 49.0 | | 10.0 | 0.7 | 31.0 |
| | Sometine-1 | 2.0 | 49.0 | 1.0 | 19.0 | 98.0 | 89.0 | 33.7 | 52.3 |
| | Regularly-2 | 96.0 | 17.0 | 99.0 | 32.0 | 2.0 | 1.0 | 65.7 | 16.7 |
| 2 | Vet. Asstt. Surgeon | | | | | | | | |
| | Never-0 | 28.0 | 32.0 | | 11.0 | 5.0 | 9.0 | 11.0 | 17.3 |
| | Sometine-1 | 33.0 | 50.0 | 68.0 | 85.0 | 94.0 | 91.0 | 65.0 | 75.3 |
| | Regularly-2 | 39.0 | 18.0 | 32.0 | 4.0 | 1.0 | | 24.0 | 7.3 |
| 3 | Dairy extension officers | | | | | | | | |
| | Never-0 | 95.0 | 100.0 | 58.0 | 74.0 | 93.0 | 96.0 | 82.0 | 90.0 |
| | Sometine-1 | 5.0 | | 41.0 | 24.0 | 7.0 | 4.0 | 17.7 | 9.3 |
| | Regularly-2 | | | 1.0 | 2.0 | | | 0.3 | 0.7 |
| 4 | C.D.O/ B.D.O./ VDO/Village Level Worker | | | | | | | | |
| | Never-0 | 97.0 | 100.0 | 11.0 | 49.0 | 92.0 | 96.0 | 66.7 | 81.7 |
| | Sometine-1 | 3.0 | | 57.0 | 39.0 | 8.0 | 4.0 | 22.7 | 14.3 |
| | Regularly-2 | | | 32.0 | 12.0 | | | 10.7 | 4.0 |
| 5 | KVK Scientist | | | | | | | | |
| | Never-0 | 97.0 | 98.0 | 34.0 | 47.0 | 95.0 | 92.0 | 75.3 | 79.0 |
| | Sometine-1 | 3.0 | 2.0 | 66.0 | 45.0 | 5.0 | 8.0 | 24.7 | 18.3 |
| | Regularly-2 | | | | 8.0 | | | 0.0 | 2.7 |
| 6 | Progressive farmers | | | | | | | | |
| | Never-0 | 44.0 | 46.0 | 50.0 | 53.0 | 61.0 | 70.0 | 51.7 | 56.3 |
| | Sometine-1 | 48.0 | 48.0 | 40.0 | 41.0 | 38.0 | 30.0 | 42.0 | 39.7 |
| | Regularly-2 | 8.0 | 6.0 | 10.0 | 6.0 | 1.0 | | 6.3 | 4.0 |
| 7 | Neighbors/ Friends | | | | | | | | |
| | Never-0 | 47.0 | 48.0 | 36.0 | 33.0 | 11.0 | 49.0 | 31.3 | 43.3 |
| | Sometine-1 | 42.0 | 41.0 | 45.0 | 56.0 | 88.0 | 51.0 | 58.3 | 49.3 |
| | Regularly-2 | 11.0 | 11.0 | 19.0 | 11.0 | 1.0 | | 10.3 | 7.3 |
| 8 | Input dealer | | | | | | | | |
| | Never-0 | 98.0 | 98.0 | 55.0 | 75.0 | 25.0 | 54.0 | 59.3 | 75.7 |
| | Sometine-1 | 2.0 | 1.0 | 40.0 | 21.0 | 75.0 | 45.0 | 39.0 | 22.3 |
| | Regularly-2 | | 1.0 | 5.0 | 4.0 | | 1.0 | 1.7 | 2.0 |
| 9 | Output buyer | | | | | | | | |
| | Never-0 | 98.0 | 97.0 | 41.0 | 71.0 | 25.0 | 51.0 | 54.7 | 73.0 |
| | Sometine-1 | 2.0 | 3.0 | 44.0 | 26.0 | 74.0 | 49.0 | 40.0 | 26.0 |
| | Regularly-2 | | | 15.0 | 3.0 | 1.0 | | 5.3 | 1.0 |

Source: Field survey data.

The frequency of mass media exposures through television and educational film was relatively low and majority of the selected households had not received magazine, newspaper and pamphlets (Table 6.11). It was also observed that sometime selected households had attended the common functions such as dairy training, group meeting, while majority of them has never got chance to attend

dairy mela/cattle show, dairy exhibition, educational tour, farmer's day, field day, vacation campus, and any demonstration (Table 6.12).

Thus, at overall level, the beneficiary farmers had little bit more exposure and received support as compared to non-beneficiary farmers, due to implementation of programme having support of local resource person.

Table 6.11: Details on Mass Media Exposure

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| 1 | Radio | | | | | | | | |
| | Never-0 | 57.0 | 91.0 | 54.0 | 60.0 | 69.0 | 66.0 | 180.0 | 217.0 |
| | Sometine-1 | 43.0 | 9.0 | 22.0 | 20.0 | 31.0 | 34.0 | 96.0 | 63.0 |
| | Regularly-2 | | | 24.0 | 20.0 | | | 24.0 | 20.0 |
| 2 | T.V. | | | | | | | | |
| | Never-0 | 34.0 | 49.0 | 9.0 | 10.0 | 39.0 | 62.0 | 82.0 | 121.0 |
| | Sometine-1 | 56.0 | 44.0 | 48.0 | 61.0 | 59.0 | 37.0 | 163.0 | 142.0 |
| | Regularly-2 | 10.0 | 7.0 | 43.0 | 29.0 | 2.0 | 1.0 | 55.0 | 37.0 |
| 3 | Film (educational) | | | | | | | | |
| | Never-0 | | | | | | | | |
| | Sometine-1 | 1.0 | 3.0 | 32.0 | 21.0 | 20.0 | 17.0 | 53.0 | 41.0 |
| | Regularly-2 | | 1.0 | 9.0 | 2.0 | | | 9.0 | 3.0 |
| 4 | Magazine | | | | | | | | |
| | Never-0 | 99.0 | 97.0 | 65.0 | 85.0 | 83.0 | 83.0 | 247.0 | 265.0 |
| | Sometine-1 | 1.0 | 3.0 | 34.0 | 14.0 | 17.0 | 17.0 | 52.0 | 34.0 |
| | Regularly-2 | | | 1.0 | 1.0 | | | 1.0 | 1.0 |
| 5 | Newspaper | | | | | | | | |
| | Never-0 | 93.0 | 99.0 | 40.0 | 40.0 | 79.0 | 82.0 | 212.0 | 221.0 |
| | Sometine-1 | 6.0 | 1.0 | 51.0 | 53.0 | 21.0 | 17.0 | 78.0 | 71.0 |
| | Regularly-2 | 1.0 | | 9.0 | 7.0 | | 1.0 | 10.0 | 8.0 |
| 6 | Pamphlets | | | | | | | | |
| | Never-0 | 100.0 | 98.0 | 64.0 | 76.0 | 43.0 | 68.0 | 207.0 | 242.0 |
| | Sometine-1 | | 2.0 | 33.0 | 24.0 | 57.0 | 32.0 | 90.0 | 58.0 |
| | Regularly-2 | | | 3.0 | | | | 3.0 | |

### 6.4.4 Holding of Productive Assets

The details on holding of productive assets presented in Table 6.13 indicate that chaff cutter was the most common productive asset with some of the households while very few has milk machine and fodder harvester.

Table 6.12: Details on Functions Attended

| Sr. No. | | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| 1 | Dairy mela/cattle show | | | | | | | | |
| | Never-0 | 89.0 | 95.0 | 45.0 | 79.0 | 32.0 | 58.0 | 166.0 | 232.0 |
| | Sometine-1 | 11.0 | 5.0 | 50.0 | 16.0 | 68.0 | 42.0 | 129.0 | 63.0 |
| | Regularly-2 | | | 5.0 | 5.0 | | | 5.0 | 5.0 |
| 2 | Dairy exhibition | | | | | | | | |
| | Never-0 | 89.0 | 98.0 | 48.0 | 82.0 | 89.0 | 90.0 | 226.0 | 270.0 |
| | Sometine-1 | 11.0 | 1.0 | 46.0 | 16.0 | 11.0 | 10.0 | 68.0 | 27.0 |
| | Regularly-2 | | 1.0 | 6.0 | 2.0 | | | 6.0 | 3.0 |
| 3 | Educational tour | | | | | | | | |
| | Never-0 | 98.0 | 100.0 | 65.0 | 87.0 | 97.0 | 94.0 | 260.0 | 281.0 |
| | Sometine-1 | 2.0 | | 33.0 | 10.0 | 3.0 | 6.0 | 38.0 | 16.0 |
| | Regularly-2 | | | 2.0 | 3.0 | | | 2.0 | 3.0 |
| 4 | Farmer's day | | | | | | | | |
| | Never-0 | 96.0 | 98.0 | 51.0 | 81.0 | 75.0 | 78.0 | 222.0 | 257.0 |
| | Sometine-1 | 4.0 | 2.0 | 43.0 | 18.0 | 25.0 | 22.0 | 72.0 | 42.0 |
| | Regularly-2 | | | 6.0 | 1.0 | | | 6.0 | 1.0 |
| 5 | Demonstration | | | | | | | | |
| | Never-0 | 98.0 | 100.0 | 46.0 | 85.0 | 77.0 | 91.0 | 221.0 | 276.0 |
| | Sometine-1 | 2.0 | | 42.0 | 14.0 | 23.0 | 9.0 | 67.0 | 23.0 |
| | Regularly-2 | | | 12.0 | 1.0 | | | 12.0 | 1.0 |
| 6 | Dairy training | | | | | | | | |
| | Never-0 | 98.0 | 100.0 | 63.0 | 84.0 | 91.0 | 97.0 | 252.0 | 281.0 |
| | Sometine-1 | 2.0 | | 27.0 | 14.0 | 9.0 | 3.0 | 38.0 | 17.0 |
| | Regularly-2 | | | 10.0 | 2.0 | | | 10.0 | 2.0 |
| | Group meeting | | | | | | | | |
| | Never-0 | 73.0 | 89.0 | 25.0 | 66.0 | 23.0 | 37.0 | 121.0 | 192.0 |
| | Sometine-1 | 7.0 | 5.0 | 39.0 | 11.0 | 76.0 | 62.0 | 113.0 | 78.0 |
| | Regularly-2 | 20.0 | 6.0 | 36.0 | 23.0 | 1.0 | 1.0 | 57.0 | 30.0 |

Table 6.13: Holding of Productivity Assets

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | NBEN |
| 1 | Milk Machine | 4.0 | 0.0 | 1.0 | 0.0 | 5.0 | 1.0 | 10.0 | 1.0 |
| 2 | Chaff Cutter | 6.0 | 0.0 | 38.0 | 27.0 | 2.0 | 1.0 | 46.0 | 28.0 |
| 3 | Fodder Chaffer-Manual | 1.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 4.0 | 2.0 |
| 4 | Fodder Chaffer Power | 6.0 | 1.0 | 3.0 | 0.0 | 13.0 | 3.0 | 22.0 | 4.0 |
| 5 | Fodder harvester/ mowers | 0.0 | 0.0 | 3.0 | 0.0 | 1.0 | 0.0 | 4.0 | 0.0 |
| 6 | Feed Mixer/ TMR mixer | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| 7 | Grass Chopper | 4.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 6.0 | 0.0 |
| 8 | Fogger | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| 9 | Biogas unit | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 1.0 | 3.0 | 1.0 |
| 10 | Tractor trolley | 4.0 | 3.0 | 0.0 | 0.0 | 1.0 | 1.0 | 5.0 | 4.0 |
| 11 | Large Auto (material shifting) | 0.0 | 1.0 | 1.0 | 0.0 | 5.0 | 0.0 | 6.0 | 1.0 |

### 6.4.5 Cropping Pattern:

The details on cropping pattern of selected households are presented in Table 6.14. It can be seen from the table that sample households had the highest area under cotton crop followed by area under soybean crop and fodder crop. The beneficiary households had put relatively more area under fodder crops than non-beneficiary households.

## Table 6.14: Cropping Pattern of Selected Households

| Sr. No. | Particulars | Cropping Pattern of Selected Households- % to GCA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Nagpur | | Wardha | | Amravati | | Maharashtra | |
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| (I) | Kharif | | | | | | | | |
| A | Paddy | 9.86 | 11.36 | 0.22 | 0.00 | 0.00 | 0.00 | 3.91 | 4.34 |
| S | Jowar | 3.13 | 0.67 | 2.94 | 1.61 | 0.79 | 0.00 | 2.39 | 0.90 |
| 2 | Maize | 0.53 | 0.00 | 1.63 | 0.34 | 0.04 | 0.00 | 0.73 | 0.14 |
| 3 | Bajra | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.03 |
| 4 | Tur | 6.38 | 7.03 | 6.41 | 9.11 | 15.95 | 17.64 | 9.39 | 11.60 |
| 5 | Moog | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| B | Cash Crop | | | | | | | | |
| 1 | Cotton | 29.12 | 30.07 | 40.59 | 30.43 | 27.22 | 28.31 | 32.51 | 32.09 |
| 2 | Soybean | 10.81 | 10.40 | 14.27 | 21.92 | 15.65 | 11.66 | 13.51 | 16.19 |
| 3 | Groundnut | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.67 | 0.00 | 0.50 |
| 4 | Sesamum | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.06 |
| 5 | Sugarcane | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 |
| 6 | Vegitable | 0.83 | 4.41 | 0.00 | 0.00 | 0.00 | 0.10 | 1.36 | 0.43 |
| 7 | Custard apple | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| 8 | Orange | 2.66 | 3.82 | 0.00 | 0.00 | 2.33 | 2.01 | 1.89 | 1.89 |
| 9 | Spiece | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.38 | 0.00 | 0.11 |
| C | Fodder Crop | | | | | | | | |
| 1 | Bajra | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.03 |
| 2 | Berseem | 0.06 | 0.07 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.04 |
| 3 | Maize | 0.83 | 3.22 | 0.58 | 0.00 | 1.65 | 0.63 | 1.68 | 0.59 |
| 4 | Sorghum | 0.24 | 0.52 | 0.04 | 0.00 | 2.63 | 0.67 | 0.98 | 0.31 |
| 5 | Napier | 1.09 | 0.46 | 0.33 | 0.32 | 0.24 | 0.72 | 0.60 | 0.52 |
| **(II)** | **Rabi** | | | | | | | | |
| A | *Cereals* | | | | | | | | |
| S | Rabi Jowar | 1.18 | 0.60 | 2.78 | 2.18 | 0.00 | 0.00 | 1.34 | 1.10 |
| 2 | Wheat | 17.28 | 16.71 | 14.30 | 24.97 | 18.03 | 22.03 | 15.21 | 17.21 |
| 3 | Maize | 0.00 | 0.15 | 6.56 | 4.08 | 0.75 | 0.44 | 1.57 | 1.81 |
| 4 | Gram | 7.47 | 5.46 | 5.87 | 3.69 | 13.36 | 6.74 | 8.35 | 5.57 |
| B | Cash Crop | | | | | | | | |
| 1 | Rapeseed | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 | 0.17 |
| 2 | Linseed | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 1.82 | 0.05 | 0.54 |
| 3 | Orange | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 1.62 | 0.14 | 0.49 |
| 4 | Vegetables | 0.74 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.17 |
| C | Fodder Crop | | | | | | | | |
| 1 | Berseem | 0.50 | 0.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.31 |
| 2 | Maize | 3.43 | 2.39 | 0.22 | 0.00 | 0.08 | 1.24 | 1.43 | 1.29 |
| | Napier | 1.12 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.06 |
| | Sorghum | 0.12 | 0.00 | 0.06 | 0.03 | 0.15 | 0.36 | 0.11 | 0.12 |
| **(III)** | **Summer** | | | | | | | | |
| A | *Cereals* | | | | | | | | |
| S | *S Paddy* | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 2 | *S Jowar* | 0.41 | 0.30 | 0.51 | 0.00 | 0.00 | 0.00 | 0.32 | 0.11 |
| 3 | *S Maize* | 0.00 | 0.00 | 2.14 | 1.18 | 0.08 | 0.57 | 0.70 | 0.64 |
| 4 | *S Bajra* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.11 |
| B | Cash Crop | | | | | | | | |
| C | Fodder Crop | | | | | | | | |
| 1 | Maize | 0.24 | 0.52 | 0.15 | 0.00 | 0.00 | 0.19 | 0.14 | 0.26 |
| 2 | Napier | 1.09 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.06 |
| 3 | Bajra | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| (IV) | *GCA* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (V) | *Cropping Intensity* | 135.9 | 144.5 | 130.5 | 129.3 | 129.9 | 139.9 | 130.8 | 127.2 |

Source: Field survey data.

## 6.5 About Local Resource Persons (LRP)

The details about the selected LRPs are presented in Table 6.15. It can be seen from the table that all LRPs were male and no female LRP was found working in any selected districts of Vidarbha region. The average age of LRP is estimated to be 27 years. Out of total LRPs, hardly 27 per cent were married, thus majority of them were bachelor. It may be due the fact that most of LRPs were undergraduate or diploma holder having average education of 14 years.

Table 6.15: Profile of Selected Local Resource Persons

| Sr. No. | Particulars | Nagpur | Wardha | Amravati | All |
|---|---|---|---|---|---|
| 1 | Gender (% to total) | | | | |
| | Male | 100 | 100 | 100 | 100 |
| | Female | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Ave Age (years) | | | | |
| | Male | 27.1 | 25.9 | 28.1 | 27.0 |
| | Female | - | - | - | - |
| 3 | Education (years) | 14.4 | 14.1 | 13.6 | 14.0 |
| 4 | Marital Status (% to total) | | | | |
| | Married | 20.0 | 30.0 | 30.0 | 26.7 |
| | Unmarried | 80.0 | 70.0 | 70.0 | 73.3 |
| | Others | 0.0 | 0.0 | 0.0 | 0.0 |
| 5 | Own Agri Land holding | | | | |
| | Yes | 90.0 | 75.0 | 90.0 | 85.0 |
| | No | 10.0 | 25.0 | 10.0 | 15.0 |
| | If yes, average Land holding (Acre) | 6.8 | 5.2 | 4.7 | 5.6 |
| 6 | Own Milch Animal (No.) | 3.6 | 3.2 | 1.6 | 2.8 |
| 7 | Experience in Dairy (years) | 9.3 | 3.7 | 3.7 | 5.5 |
| 8 | Member of dairy cooperative (years) | 2.9 | 1.2 | 1.9 | 2.0 |

At overall level, about 85 per cent of LRPs reported having agricultural land with household with average size of holdings of 3.53 acre. The average number of milch animals owned by selected LRP is estimated to 2.8 animals, having highest in Nagpur district (3.6 animals) and the lowest one in Amravati district (1.6 animals). Three LRPs each in Nagpur and Amravati while one LRP in Wardha did not own any livestock. Same trend was observed in case of experience in dairy wherein LRPs in Nagpur are experienced than Wardha and Amravati district.

Table 6.16: Socio-Economic Characteristics of Selected LRPs

| Sr. No. | Particulars | Nagpur | Wardha | Amravati | Total |
|---|---|---|---|---|---|
| 1 | Social Group (%to total) | | | | |
| | ST | 10.0 | 10.0 | 10.0 | 10.0 |
| | SC | 15.0 | 5.0 | 0.0 | 6.7 |
| | OBC | 70.0 | 75.0 | 75.0 | 73.3 |
| | General | 5.0 | 10.0 | 15.0 | 10.0 |
| 2 | Occupation of HH | | | | |
| A | Main | | | | |
| | Cultivator | 90.0 | 65.0 | 95.0 | 83.3 |
| | AH&D | 5.0 | 30.0 | 0.0 | 11.7 |
| | Ag Labour | 0.0 | 0.0 | 0.0 | 0.0 |
| | Non-Farm Labour | 0.0 | 0.0 | 0.0 | 0.0 |
| | Own Non-Farm Establishment | 0.0 | 0.0 | 0.0 | 0.0 |
| | Trade | 0.0 | 0.0 | 0.0 | 0.0 |
| | Service | 5.0 | 0.0 | 0.0 | 1.7 |
| | Other | 0.0 | 5.0 | 5.0 | 3.3 |
| B | Subsidiary | | | | |
| | Cultivator | 0.0 | 10.0 | 0.0 | 3.3 |
| | AH&D | 75.0 | 70.0 | 90.0 | 78.3 |
| | Ag Labour | 0.0 | 5.0 | 0.0 | 1.7 |
| | Non-Farm Labour | 0.0 | 0.0 | 0.0 | 0.0 |
| | Own Non-Farm Establishment | 0.0 | 0.0 | 0.0 | 0.0 |
| | Trade | 5.0 | 0.0 | 0.0 | 1.7 |
| | Service | 10.0 | 5.0 | 0.0 | 5.0 |
| | Other | 10.0 | 10.0 | 10.0 | 10.0 |
| | Cultivator | 90.0 | 65.0 | 95.0 | 83.3 |
| 3 | Annual Income (Rs.) | 154750 | 70550 | 146500 | 123933 |
| 4 | Monthly Income | | | | |
| | Fixed salary | 7355 | 7480 | 7255 | 7363 |
| | Incentive | 0.0 | 0.0 | 0.0 | 0.0 |
| | Commission | 0.0 | 0.0 | 0.0 | 0.0 |
| | Feed sale | 0.0 | 0.0 | 0.0 | 0.0 |
| | MM sale | 0.0 | | | |
| 5 | House Structure (%) | | | | |
| | Pakka | 55.0 | 65.0 | 35.0 | 51.7 |
| | Semi Pakka | 25.0 | 25.0 | 40.0 | 30.0 |
| | kachcha | 20.0 | 10.0 | 25.0 | 18.3 |
| 6 | Household electrification (% to total) | 100.0 | 100.0 | 95.0 | 98.3 |
| 7 | Biogas Facility at home | 0.0 | 50.0 | 20.0 | 23.3 |
| 8 | Toilet facility at home | 100.0 | 100.0 | 100.0 | 100.0 |

It can be seen from Table 6.16 that almost two third of total LRPs belongs to Other Backward Class social category followed by ST and General. As some part of each district fall in hilly area and categorized as tribal area, 10 per cent of sample LRPs belong to this category. Crop cultivation is the main occupation and animal husbandry and dairy is the subsidiary one. Annual household income is estimated to be around Rs.1.24 lakh per household, having highest in Nagpur and lowest in Wardha district. Though the selected LRP receive fixed salary as per number of animals covered with is estimated around Rs. 7363 per month, none of

them have earned incentives on sale of other product as well as through other assignments. Most of the LRPs have puccka house with electric facility. All the LRPs have toilet facility at home.

## 6.6 Chapter Summary:

The field survey data indicate that beneficiary household is large in size, more members works in dairy, younger and more experienced than non-beneficiary household. Around 98 per cent households belong to Hindu religion while remaining are from Islam, Christian and Sikh religion. Almost 78 per cent of total households belong to other backward class social category followed by around 13 per cent belongs SC ST category and rest were from general category. In all the districts and both cases, agriculture was the main occupation and animal husbandry and dairying reported as subsidiary occupation. The beneficiary farmers had little bit more exposure and received support as compared to non-beneficiary farmers, due to implementation of programme having support of local resource person. Chaff cutter was the most common productive asset with some of the households while very few has milk machine and fodder harvester. Sample households had highest area under cotton crop followed by area under soybean crop and fodder crop. The beneficiary households had put relatively more area under fodder crops than non-beneficiary households.

All LRPs were male and no female LRP was found working in any selected districts of Vidarbha region. The average age of LRP was estimated to be 27 years. Though the selected LRP receive fixed salary as per number of animals covered with is estimated around Rs. 7363 per month, none of them have earned incentives on sale of other product as well as through other assignments. Most of the LRPs have puccka house with electric facility. All the LRPs have toilet facility at home.

After having discussed about the selected area and households, the findings from field survey data are discussed in the next chapter.

Chapter VII

# Findings from Field Survey data

## 7.1 Introduction:

After having discussed about the selected study area and characteristics of the sample households, this chapter presents the data on various parameters collected from the beneficiary and the non-beneficiary households in order to work out the size of the herd, number of animals covered under programme, details on feeds and fodder, labour use and expenditure on animal health, milk production and pattern of sale of milk. The outreach, perceptions and constraints in implementation of programme are also presented and discussed in this chapter.

## 7.2 Livestock holdings/Herd Strength

The details on herd strength are presented in Tables 7.1. It can be seen from the table that all together, as the trend was observed in the district as well as village livestock census data, same trend was observed with sample households also. Cattle dominates in the total livestock population in selected households by accounting more than half of total milch animal population. Unlike as observed at district level, share of goat accounts for very small share in livestock population of each household. The number of cows covered under RBP found to be higher than buffaloes in selected areas of all three districts. However, among the cows, crossbreed cows dominate the numbers. Among the districts, selected households in Wardha district has the highest herd strength followed by Nagpur and Amravati district. Overall, beneficiary households have larger herd strength than non-beneficiary households in all three districts. The number of animals reared are very high in Wardha district, having dominance of crossbred cows followed by local cows and then buffaloes. While in case of Nagpur and Amravati districts, the highest number was of crossbred cows followed by buffaloes and then local cows. Total 675 milch animals are covered under RBP with 163 milch animals not covered of RBP beneficiary households along with 679 milch animals of non-beneficiary households. As per the RBP guidelines, in-milk cow and buffalos are preferred first to select under programme followed by adult female cows and

buffaloes and heifers, the data confirmed the coverage of animals as per guidelines stipulated.

Table 7.1: Herd Strength with Selected Beneficiary households (No/hh)

| Sr. No. | Particulars | Nagpur (n=100) | | | Wardha (n=100) | | | Amravati (n=100) | | | Maharashtra (n=300) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Cattle | | B | Number of Cattle | | B | Number of Cattle | | B | Number of Cattle | | B |
| | | LC | CB | | LC | CB | | LC | CB | | LC | CB | |
| BENFICIARY HOUSEHOLDS | | | | | | | | | | | | | |
| A | Covered under RBP | 0.02 | 2.84 | 0.21 | 1.35 | 4.20 | 0.89 | 0.55 | 1.99 | 0.67 | 0.64 | 3.01 | 0.59 |
| 1 | In Milk | 0.02 | 1.72 | 0.18 | 0.22 | 1.76 | 0.17 | 0.27 | 0.80 | 0.28 | 0.17 | 1.43 | 0.21 |
| 2 | Dry | 0.00 | 0.36 | 0.02 | 0.01 | 0.04 | 0.00 | 0.20 | 0.54 | 0.16 | 0.07 | 0.31 | 0.06 |
| 3 | Pregnant Heifer | 0.00 | 0.04 | 0.00 | 0.11 | 0.64 | 0.15 | 0.00 | 0.10 | 0.02 | 0.04 | 0.26 | 0.06 |
| 4 | Calves- | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Male | 0.00 | 0.34 | 0.01 | 0.16 | 0.47 | 0.08 | 0.02 | 0.17 | 0.08 | 0.06 | 0.33 | 0.06 |
| | Female | 0.00 | 0.38 | 0.00 | 0.23 | 0.89 | 0.36 | 0.01 | 0.32 | 0.13 | 0.08 | 0.53 | 0.16 |
| 5 | Adult Male | 0.00 | 0.00 | 0.00 | 0.36 | 0.40 | 0.13 | 0.00 | 0.06 | 0.00 | 0.12 | 0.15 | 0.04 |
| 6 | Goat | 0.00 | 0.00 | 0.00 | 0.26 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| B | Not Covered Under RBP | 0.80 | 2.41 | 0.34 | 0.41 | 0.21 | 0.19 | 1.67 | 1.55 | 0.88 | 0.95 | 1.39 | 0.47 |
| 1 | In Milk | 0.11 | 0.54 | 0.08 | 0.08 | 0.02 | 0.07 | 0.03 | 0.01 | 0.02 | 0.06 | 0.19 | 0.06 |
| 2 | Dry | 0.03 | 0.33 | 0.03 | 0.01 | 0.00 | 0.00 | 0.06 | 0.17 | 0.07 | 0.03 | 0.17 | 0.03 |
| 3 | Pregnant Heifer | 0.03 | 0.13 | 0.04 | 0.00 | 0.01 | 0.08 | 0.09 | 0.15 | 0.08 | 0.04 | 0.10 | 0.07 |
| 4 | Calves | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Male | 0.08 | 0.48 | 0.08 | 0.07 | 0.08 | 0.01 | 0.27 | 0.41 | 0.21 | 0.14 | 0.32 | 0.10 |
| | Female | 0.05 | 0.67 | 0.11 | 0.04 | 0.03 | 0.03 | 0.34 | 0.73 | 0.50 | 0.14 | 0.48 | 0.21 |
| 5 | Adult Male | 0.42 | 0.23 | 0.00 | 0.17 | 0.05 | 0.00 | 0.52 | 0.05 | 0.00 | 0.37 | 0.11 | 0.00 |
| 6 | Goat | 0.08 | 0.03 | 0.00 | 0.04 | 0.02 | 0.00 | 0.36 | 0.03 | 0.00 | 0.16 | 0.03 | 0.00 |
| C | Total | 0.82 | 5.25 | 0.55 | 1.76 | 4.41 | 1.08 | 2.22 | 3.54 | 1.55 | 1.59 | 4.40 | 1.06 |
| 1 | In Milk | 0.13 | 2.26 | 0.26 | 0.30 | 1.78 | 0.24 | 0.30 | 0.81 | 0.30 | 0.23 | 1.62 | 0.27 |
| 2 | Dry | 0.03 | 0.69 | 0.05 | 0.02 | 0.04 | 0.00 | 0.26 | 0.71 | 0.23 | 0.10 | 0.48 | 0.09 |
| 3 | Pregnant Heifer | 0.03 | 0.17 | 0.04 | 0.11 | 0.65 | 0.23 | 0.09 | 0.25 | 0.10 | 0.08 | 0.36 | 0.12 |
| 4 | Calves | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Male | 0.08 | 0.82 | 0.09 | 0.23 | 0.55 | 0.09 | 0.29 | 0.58 | 0.29 | 0.20 | 0.65 | 0.16 |
| | Female | 0.05 | 1.05 | 0.11 | 0.27 | 0.92 | 0.39 | 0.35 | 1.05 | 0.63 | 0.22 | 1.01 | 0.38 |
| 5 | Adult Male | 0.42 | 0.23 | 0.00 | 0.53 | 0.45 | 0.13 | 0.52 | 0.11 | 0.00 | 0.49 | 0.26 | 0.04 |
| 6 | Goat | 0.08 | 0.03 | 0.00 | 0.30 | 0.02 | 0.00 | 0.41 | 0.03 | 0.00 | 0.26 | 0.03 | 0.00 |
| Non-beneficiary households | | Nagpur (n=100) | | | Wardha (n=100) | | | Amravati (n=100) | | | Maharashtra (n=300) | | |
| | | LC | CB | B | LC | CB | B | LC | CB | B | LC | CB | B |
| | | 1.16 | 2.66 | 0.39 | 2.37 | 1.38 | 1.16 | 3.84 | 1.71 | 1.42 | 2.46 | 1.92 | 0.99 |
| 1 | In Milk | 0.38 | 1.04 | 0.26 | 1.20 | 0.68 | 0.60 | 0.52 | 0.53 | 0.34 | 0.70 | 0.75 | 0.40 |
| 2 | Dry | 0.13 | 0.48 | 0.02 | 0.04 | 0.07 | 0.08 | 0.09 | 0.23 | 0.10 | 0.09 | 0.26 | 0.07 |
| 3 | Pregnant Heifer | 0.04 | 0.20 | 0.01 | 0.14 | 0.04 | 0.11 | 0.15 | 0.20 | 0.17 | 0.11 | 0.15 | 0.10 |
| 4 | Calves | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Male | 0.08 | 0.20 | 0.02 | 0.37 | 0.21 | 0.12 | 0.34 | 0.25 | 0.24 | 0.26 | 0.22 | 0.13 |
| | Female | 0.16 | 0.48 | 0.07 | 0.29 | 0.27 | 0.21 | 0.43 | 0.37 | 0.50 | 0.29 | 0.37 | 0.26 |
| 5 | Adult Male | 0.28 | 0.17 | 0.01 | 0.31 | 0.11 | 0.04 | 0.66 | 0.13 | 0.07 | 0.42 | 0.14 | 0.04 |
| 6 | Goat | 0.09 | 0.09 | 0.00 | 0.02 | 0.00 | 0.00 | 1.65 | 0.00 | 0.00 | 0.59 | 0.03 | 0.00 |

Notes: LC- Local Cows; CB- Crossbred and B- Buffalo.
Source: Field survey data.

## 7.3 Breedable Animals

On the date of survey, the information was collected on numbers of breedable animals with the selected households and presented in Tables 7.2 and 7.3. It can be seen from these tables that on an average, in both beneficiary and non-beneficiary group, the age at first calving of buffalo was found to be higher than crossbred cows. The average age of first calving ranges from 28-30 months in case of crossbred cows and 41-44 months in case of buffaloes. Milch animals in beneficiary households has lower age of first calving than non-beneficiary households. The average age at the time of last calving month is estimated to be between 70-80 months in both the cases.

On an average, order of present lactation is estimated to be between 3-4 in both the group across all the breeds. The average number of dry period is estimated to be around 70 days for crossbred cows and 75 days for local cows and buffaloes in beneficiary households which was relatively higher in case of non-beneficiary households. The lactation period is estimated to be around 287-300 days in both the groups. The level of peak yield recorded during the present lactation was found higher than earlier lactation in the both groups. The peak yield level of milk of local and crossbred cows covered under RBP was found higher than animals not covered under RBP as well as the yield level recorded of animals with non-beneficiary households. The average milk recorded was higher in crossbred cows than local cows as well as buffaloes. Thus, the positive impact of programme on ration balancing could be broadly seen from the high level of peak yield figures of crossbred cows. The milk yield is reported the highest in crossbred cows followed by in buffalo and the lowest was in local cows.

During the FGDs, the selected households mentioned that the cost of each of local cow ranges between 12-15 thousand; Rs. 40-50 thousand for crossbred cows such as Jersey and Rs. 40-50 thousand for buffalo.

Table 7.2: Details of Breedable Animals with Beneficiary and Non-Beneficiary Households

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| A | Animal (No./hh) | | | | | | | | |
| | LC | 0.0 | 0.5 | 0.2 | 1.2 | 0.5 | 0.6 | 0.2 | 0.8 |
| | CB | 2.1 | 1.5 | 1.8 | 0.8 | 1.3 | 0.8 | 1.7 | 1.0 |
| | B | 0.2 | 0.3 | 0.2 | 0.7 | 0.4 | 0.4 | 0.3 | 0.5 |
| 1 | Age at First Calving Month | | | | | | | | |
| | LC | 40.0 | 41.4 | 40.7 | 41.4 | 40.7 | 40.8 | 40.7 | 41.2 |
| | CB | 29.0 | 28.8 | 28.2 | 28.8 | 29.5 | 29.4 | 29.0 | 28.9 |
| | B | 42.9 | 43.0 | 42.8 | 42.8 | 41.4 | 43.7 | 42.6 | 43.2 |
| 2 | Last calving (month) | | | | | | | | |
| | LC | 120.0 | 86.9 | 71.9 | 65.4 | 86.7 | 83.9 | 82.9 | 76.4 |
| | CB | 83.7 | 77.7 | 55.0 | 55.7 | 78.7 | 84.9 | 71.8 | 74.5 |
| | B | 80.3 | 90.3 | 104.4 | 72.6 | 76.5 | 92.1 | 81.8 | 84.8 |
| 3 | Present Lactation order | | | | | | | | |
| | LC | 7.0 | 3.0 | 2.8 | 2.3 | 4.3 | 4.0 | 3.9 | 3.1 |
| | CB | 4.0 | 3.1 | 2.6 | 2.7 | 4.5 | 5.0 | 3.6 | 3.5 |
| | B | 3.6 | 3.2 | 5.6 | 2.8 | 3.7 | 4.8 | 4.0 | 3.8 |
| 4 | Dry period (days) | | | | | | | | |
| | LC | 85.0 | 78.3 | 87.5 | 81.8 | 66.8 | 73.9 | 74.3 | 78.2 |
| | CB | 69.9 | 80.5 | 70.5 | 80.2 | 76.4 | 72.2 | 72.0 | 77.8 |
| | B | 78.8 | 76.7 | 80.0 | 81.8 | 71.3 | 78.2 | 74.5 | 79.4 |
| 5 | Lactation period (days) | | | | | | | | |
| | 1 | 296.4 | 285.0 | 293.5 | 285.3 | 304.7 | 287.2 | 300.3 | 280.2 |
| | 2 | 298.7 | 298.7 | 297.3 | 281.4 | 296.5 | 290.4 | 297.5 | 292.4 |
| | 3 | 316.0 | 296.3 | 294.0 | 283.2 | 300.5 | 276.1 | 298.4 | 278.7 |
| 6 | Av. Previous lactation (maximum) | | | | | | | | |
| | LC | 4.3 | 4.1 | 4.3 | 4.4 | 5.3 | 4.4 | 4.3 | 4.3 |
| | CB | 13.3 | 11.0 | 12.7 | 11.9 | 12.1 | 11.2 | 12.2 | 11.1 |
| | B | 10.1 | 10.1 | 11.1 | 11.0 | 11.2 | 10.2 | 10.4 | 10.3 |
| 7 | Av. Present lactation (maximum) | | | | | | | | |
| | LC | 5.3 | 4.0 | 4.2 | 4.3 | 5.2 | 4.5 | 4.6 | 4.2 |
| | CB | 14.5 | 11.5 | 14.7 | 13.1 | 15.2 | 12.0 | 14.4 | 12.1 |
| | B | 11.1 | 10.8 | 12.2 | 11.8 | 12.5 | 11.1 | 11.7 | 11.0 |
| a | Milk Yield-Morning-liters | | | | | | | | |
| | LC | 2.7 | 2.4 | 1.8 | 2.2 | 2.4 | 2.4 | 2.2 | 2.1 |
| | CB | 7.2 | 6.2 | 6.7 | 6.1 | 7.2 | 6.3 | 7.0 | 6.1 |
| | B | 5.7 | 5.4 | 6.0 | 5.8 | 6.2 | 5.6 | 6.0 | 5.5 |
| b | Milk Yield- Evening -liters | | | | | | | | |
| | LC | 2.5 | 1.6 | 2.4 | 2.1 | 2.7 | 2.1 | 2.4 | 2.0 |
| | CB | 6.9 | 5.1 | 7.4 | 6.8 | 6.1 | 5.4 | 6.8 | 5.9 |
| | B | 5.4 | 5.3 | 6.0 | 5.7 | 6.1 | 5.3 | 6.0 | 5.4 |
| c | Milk Yield- Average of Total | | | | | | | | |
| | LC | 5.3 | 4.0 | 4.2 | 4.3 | 5.2 | 4.5 | 4.6 | 4.2 |
| | CB | 14.1 | 11.2 | 14.1 | 12.9 | 13.3 | 11.6 | 13.8 | 12.0 |
| | B | 11.1 | 10.8 | 12.1 | 11.6 | 12.3 | 10.9 | 12.0 | 11.0 |

Source: Field survey data.

Table 7.3: Details of Non Covered Breedable Animals with Beneficiary Households

| Sr. No. | Particulars | Nagpur | Wardha | Amravati | Maharashtra |
|---|---|---|---|---|---|
| | | BEN | BEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 |
| A | Animal (No./hh) | | | | |
| | LC | 0.1 | 0.1 | 0.1 | 0.1 |
| | CB | 0.9 | 0.0 | 0.2 | 0.4 |
| | B | 0.1 | 0.1 | 0.1 | 0.1 |
| 1 | Age at First Calving Month | | | | |
| | LC | 41.4 | 42.3 | 40.8 | 41.1 |
| | CB | 30.0 | 31.1 | 29.5 | 29.5 |
| | B | 42.5 | 43.7 | 43.6 | 43.1 |
| 2 | Last calving (month) | | | | |
| | LC | 75.7 | 87.7 | 90.8 | 82.0 |
| | CB | 63.3 | 73.1 | 74.8 | 65.0 |
| | B | 71.9 | 76.2 | 86.3 | 77.8 |
| 3 | Present Lactation order | | | | |
| | LC | 2.9 | 3.8 | 4.2 | 3.4 |
| | CB | 2.8 | 3.5 | 3.8 | 3.0 |
| | B | 2.5 | 2.7 | 3.6 | 2.9 |
| 4 | Dry period (days) | | | | |
| | LC | 85.8 | 87.8 | 79.9 | 82.2 |
| | CB | 80.2 | 79.4 | 83.2 | 79.3 |
| | B | 85.8 | 81.3 | 82.2 | 82.4 |
| 5 | Lactation period (days) | | | | |
| | 1 | 288.3 | 295.7 | 281.2 | 284.5 |
| | 2 | 289.4 | 295.5 | 292.4 | 290.5 |
| | 3 | 288.2 | 290.5 | 278.1 | 284.3 |
| 6 | Av. Previous lactation (maximum) | | | | |
| | LC | 3.0 | 4.8 | 4.5 | 4.0 |
| | CB | 11.4 | 10.7 | 11.1 | 10.9 |
| | B | 9.5 | 10.5 | 10.9 | 10.2 |
| 7 | Av. Present lactation (maximum) | | | | |
| | LC | 4.5 | 3.8 | 4.5 | 4.2 |
| | CB | 13.9 | 12.4 | 12.3 | 12.5 |
| | B | 10.9 | 11.9 | 11.2 | 11.1 |
| a | Milk Yield-Morning-liters | | | | |
| | LC | 1.2 | 1.3 | 2.7 | 1.7 |
| | CB | 6.9 | 5.9 | 5.8 | 6.0 |
| | B | 5.5 | 5.8 | 5.6 | 5.6 |
| b | Milk Yield- Evening -liters | | | | |
| | LC | 0.8 | 2.5 | 1.8 | 1.4 |
| | CB | 6.5 | 5.9 | 5.4 | 5.8 |
| | B | 5.1 | 5.7 | 5.4 | 5.3 |
| c | Milk Yield- Average of Total | | | | |
| | LC | 2.0 | 3.8 | 4.5 | 3.1 |
| | CB | 13.4 | 11.7 | 11.2 | 11.8 |
| | B | 10.5 | 11.5 | 11.0 | 10.9 |

## 7.4 Details on Feeds and Fodder

There is a direct relation between the nutritional status of the animals and the type of feed fed. For getting the best results, feeding of animal need planned scientific, practical as well as economical approach in feeding of animals. Livestock feeds are generally classified as roughages and concentrates. Roughages are further classified into green fodder and dry fodder. Green fodder is cultivated and harvested for the animals in the form of forage (cut green and fed as fresh), silage (preserved under anaerobic condition) and hay (dehydrated green fodder). Fodder production and its utilization depend on various factors like cropping pattern followed, climatic condition of the area as well as the socio-economic conditions of the household and type of livestock reared. The cattle and buffaloes are normally fed on the fodder available from cultivated areas, supplemented to a small extent by harvested grasses. The major sources of fodder supply are crop residues, cultivated fodder and fodder from common property resources like forests, permanent pastures and grazing lands.

At present, there is huge gap between demand and supply of animal feeds and fodder. The increased growth of livestock particularly that of genetically upgraded animals, has further aggravated the situation. Additionally, the quality of the available fodder is also poor, being deficient in energy, protein and minerals. Therefore, it is important to have information on feeds and fodder fed to animals. The details on feeds and fodder fed by the selected households at the time of survey are presented in Tables 7.4 and 7.6. It can be seen from the tables that the animals selected under RBP were not only stall fed but also taken out for grazing. The stall feeding is the mandatory requirement to balance the diet of particular animal, however, the practice of out-grazing is prevalent in study area. It was reported that rather animals are habituated to go out for same and feel restless due to lack of physical exercise if keep under stall feeding. On an average, five to six hours of grazing-out was reported by the selected households. Thus, grazing out practice of milch animals covered under RBP definitely unbalance the nutrition of animals covered under RBP and thus affect the outcome of advisory given by the LRP. Also it is important to have in-depth analysis of impact of regurgitation[1] of

[1] Ruminants regurgitate their food as a normal part of digestion. During their idle time, animals chew the regurgitated food and swallow it again, which increases digestibility by reducing particle size.

food on milk yield and its composition. The selected cattle owners are required to be educated and convinced about the only stall feeding practice for better result of RBP which covers health, milk yield as well as pregnancy issues of milch animals.

Table 7.4: Details on Mode of Feeding and Grazing (BEN & NON-BEN)

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| A | Mode of Feeding | | | | | | | | |
| (i) | Only Stall Feeding | | | | | | | | |
| | LC | 50.0 | 23.5 | 21.7 | 7.3 | 61.7 | 59.0 | 48.6 | 24.2 |
| | CB | 52.4 | 13.8 | 27.2 | 17.3 | 62.7 | 75.0 | 46.4 | 30.0 |
| | B | 65.0 | 35.7 | 17.6 | 17.6 | 56.8 | 68.2 | 50.6 | 37.1 |
| | Total | 53.5 | 18.6 | 25.9 | 12.7 | 61.3 | 68.0 | 47.1 | 29.5 |
| (ii) | Stall Feeding + Grazing | | | | | | | | |
| | LC | 50.0 | 76.5 | 82.6 | 92.7 | 40.4 | 75.4 | 54.2 | 84.7 |
| | CB | 68.8 | 86.2 | 86.7 | 85.3 | 51.5 | 72.4 | 70.5 | 82.5 |
| | B | 55.0 | 64.3 | 88.2 | 82.4 | 47.7 | 59.1 | 58.0 | 71.4 |
| | Total | 67.4 | 81.4 | 86.4 | 88.0 | 48.4 | 70.2 | 67.3 | 81.0 |
| (B) | Grazing hours | | | | | | | | |
| | LC | 5.89 | 5.00 | 6.74 | 6.28 | 5.98 | 5.49 | 6.08 | 5.94 |
| | CB | 6.23 | 7.13 | 5.44 | 6.24 | 6.62 | 5.86 | 5.58 | 5.96 |
| | B | 6.05 | 7.36 | 6.07 | 6.36 | 6.73 | 6.44 | 6.02 | 6.28 |
| | Total | 5.89 | 5.00 | 6.74 | 6.28 | 5.98 | 5.49 | 6.08 | 5.94 |

The average fodder consumption for animals covered under RBP is estimated to be lower than animals of non-beneficiary in case of local and crossbred cows but no difference is observed in case of buffaloes. The significant difference is observed in case of dry fodder fed to animals covered under RBP (after RBP) as compared to fodder fed before RBP. Reduction in green fodder feeding is also observed in case of local cows, crossbred cows and buffaloes. The animals were also fed with concentrates which were mostly purchased from the market. Selected households reported that due to RBP, they have started giving mineral mixture and cattle feed which has helped in increase of milk yield as well as notable increase in fat % in milk. Mineral mixture use has been reported in case of crossbred and buffalo.

Table 7.5: Details of Feeds and Fodder (at the Time of Survey): BEN & NONBEN

| Sr. No | Particulars | Before RBP-BEN | | | | After RBP-BEN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | Total | Nagpur | Wardha | Amravati | Total |
| A | Dry Fodder (kg/animal) | | | | | | | | |
| | LC | 7.5 | 6.2 | 7.4 | 7.0 | 5.5 | 4.7 | 6.1 | 5.6 |
| | CB | 6.3 | 6.4 | 9.0 | 7.0 | 4.8 | 5.3 | 7.9 | 5.8 |
| | B | 5.7 | 6.6 | 11.4 | 9.0 | 4.8 | 5.4 | 8.9 | 7.1 |
| B | Green (kg/animal) | | | | | | | | |
| | LC | 13.0 | 9.7 | 10.9 | 10.6 | 11.0 | 7.9 | 9.1 | 9.3 |
| | CB | 10.8 | 10.1 | 12.8 | 11.2 | 13.5 | 13.0 | 14.0 | 13.5 |
| | B | 11.9 | 11.8 | 13.2 | 12.3 | 13.0 | 12.5 | 14.5 | 13.3 |
| C | Con. (kg/animal) | | | | | | | | |
| | LC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | CB | 2.3 | 3.4 | 4.2 | 3.2 | 2.1 | 2.7 | 3.5 | 2.7 |
| | B | 2.4 | 3.3 | 4.5 | 3.7 | 2.5 | 2.6 | 3.9 | 3.3 |
| D | Supplement (gm/animals) | | | | | | | | |
| | LC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | CB | - | - | - | - | 75.0 | 78.0 | 65.0 | 72.7 |
| | B | - | - | - | - | 80.0 | 75.0 | 70.0 | 70.3 |

Table 7.6: Details of Feeds and Fodder (at the Time of Survey)-NON BEN

| Sr. No. | Particulars | Animals of NONBEN HH | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | Total |
| A | Dry Fodder (kg/animal) | | | | |
| | LC | 7.2 | 5.4 | 11.8 | 6.3 |
| | CB | 6.8 | 5.1 | 11.0 | 6.8 |
| | B | 7.5 | 6.0 | 9.8 | 7.1 |
| | Green (kg/animal) | | | | |
| B | LC | 9.0 | 5.0 | 11.3 | 6.3 |
| | CB | 9.3 | 6.7 | 10.6 | 8.7 |
| | B | 9.8 | 5.3 | 11.0 | 7.3 |
| C | Con. (kg/animal) | | | | |
| | LC | | | | |
| | CB | 1.7 | 4.8 | 4.2 | 2.9 |
| | B | 2.0 | 4.8 | 3.4 | 3.9 |
| D | Supplement (gm/animals) | | | | |
| | LC | - | - | - | - |
| | CB | - | - | - | - |
| | B | - | - | - | - |

Source: Field Survey Data.

## 7.5 Details on Prices of Feeds and Fodder and Wages

The details of prices of feeds and fodder, wages and value of animals and use of dung by selected households are presented in Table 4.7. It can be seen from the table that there was not much difference between the rate paid for fodder and concentrates by the beneficiary and non-beneficiary households in selected districts. On an average, rate of dry fodder is estimated to be between Rs. 5-6 per

kg, Rs. 1.3-3 per kg for green fodder. The rate for concentrates ranges from Rs. 15-30 per kg depending upon the type of concentrates. As mentioned earlier, use of mineral mixture is increased in study area and the rate of same ranges between Rs. 90-250 per kg. The rate for per day use of human labour for male ranges between 180-380, while same for female workers is estimated to be between Rs. 150-230/- per day.

Table 7.7: Details of Prices of Feeds and Fodder, Wages and Value of Animals and Use of Dung by Selected Households

| Sr. No. | Particulars | BEN | | | | NON-BEN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Amravati | Nagpur | Wardha | Total | Amravati | Nagpur | Wardha | Total |
| A | Feeds and Fodder (Rs./kg) | | | | | | | | |
| | 1. Dry Fodder[2] | 5.9 | 4.5 | 5.4 | 5.3 | 6.1 | 4.3 | 6.3 | 5.6 |
| | 2.Green Fodder [3] | 3.2 | 1.3 | 2.6 | 2.4 | 2.7 | 1.2 | 2.7 | 2.2 |
| | 3.Concentrate[4] | 26.4 | 15.7 | 27.9 | 30.0 | 16.4 | 27.2 | 26.4 | 15.7 |
| | 4.Supplements[5] Rs./kg-MM | 89.0 | 95.8 | 150.1 | 111.6 | 90.0 | 114.3 | 250.0 | 182.1 |
| B | Labour Wages (agriculture) (Rs./day) | | | | | | | | |
| | Men | 380.2 | 317.7 | 269.8 | 321.9 | 300.0 | 242.7 | 188.0 | 207.2 |
| | Women | 222.9 | 185.7 | 224.0 | 211.9 | 175.0 | 150.0 | 193.3 | 185.5 |
| C | Cost of Feeds and Fodder (Rs./animal) | | | | | | | | |
| | Before RBP | 110.0 | 126.2 | 165.6 | 136.9 | - | - | - | - |
| | After RBP | 108.4 | 112.6 | 149.6 | 126.9 | - | - | - | - |

Source: Field Survey Data.

It can be estimated from Table 7.5 and 7.7 (by using RBP after prices as constant prices), the cost of feeds and fodder is declined after RBP by 7.3 per cent at overall level over the before RBP period.

## 7.6 Details on Veterinary and Breeding Services and Expenditures

The details of veterinary and breeding expenditure incurred during last one year by beneficiary and non-beneficiary households are presented in Table 7.8. It

[2] Dry fodder includes jowar, gram, maize, tur, pay, soybean, wheat, etc.
[3] Green fodder includes fodder crops such as country grass, sorghum, maize, napier, bajra and green leaves of vegetables, etc.
[4] Concentrates includes Cotton seed cake, groundnut cake, maize cake, soybean cake, sudana cattle feed, sugras, Wheat bran, Calsagar cattle feed, Shakti Cattle feed etc.
[5] Supplements in Gomix, R-Vita, and other miner mixtures, power calcium, etc.

can be seen from the table that the selected households had incurred expenditure on medicine and veterinary doctor as and when some of the animals fell sick. The data presented in table indicate that on an average beneficiary household had incurred medicine plus doctor visit fee cost ranging between Rs. 450-800/- per animal during the year, while corresponding figure for non-beneficiary was which ranges between Rs. 400-750/animal. The amount spent towards cost of medicine and doctor on animals not covered RBP by beneficiary households was relatively lower than animals covered under RBP. During the visit to the field and discussion with the selected household, it was observed that despite of various efforts made by the government; availability of veterinary doctor is one of the bottlenecks in dairy development. It can be seen from the table that on an average, every year total number of visit of veterinary doctor (includes mostly private agency doctors) ranges between 6-9 only that to after repeated follow-up. Thus, most of the households had either depend on the alternative source of advisory and medical support for their animals.

Table 7.8: Details of Veterinary and Breeding Expenditure during last one year BY Beneficiary and Non-Beneficiary Households

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| 1 | Medicines+ doctor (Rs./animal) | | | | | | | | |
| | LC | 457.4 | 300.0 | 434.8 | 445.8 | 358.3 | 414.6 | 407.7 | 395.8 |
| | CB | 656.6 | 853.9 | 766.4 | 773.1 | 772.0 | 792.5 | 615.2 | 743.9 |
| | B | 742.0 | 872.5 | 597.1 | 743.8 | 881.1 | 641.7 | 527.0 | 669.8 |
| 2 | Average of No. of visits by Vet doctor/year | | | | | | | | |
| | LC | 5.00 | 6.32 | 2.74 | 2.51 | 10.94 | 8.63 | 8.15 | 4.85 |
| | CB | 6.99 | 6.21 | 4.44 | 2.91 | 14.27 | 9.64 | 7.98 | 6.31 |
| | B | 6.60 | 9.56 | 2.29 | 3.21 | 12.82 | 9.20 | 9.07 | 6.25 |
| 3 | Av. of No. of AI/ Conception | | | | | | | | |
| | LC | 1.00 | 1.15 | 1.13 | 1.37 | 1.11 | 1.33 | 1.11 | 1.32 |
| | CB | 1.28 | 1.35 | 1.41 | 1.23 | 1.37 | 1.47 | 1.35 | 1.35 |
| | B | 1.05 | 1.06 | 1.29 | 1.19 | 1.11 | 1.18 | 1.14 | 1.17 |

As like in the state of Gujarat where cooperative milk sector has developed and member of any dairy cooperative can register a complaint at dairy society and doctor visit the village of cattle owner for animal treatments, which assure on time

visit of doctor with charges to be deducted through milk poured in dairy cooperative society. Such system did not prevails in any place in study area. Beside natural service, artificial insemination facility was availed by the selected households for their animals and on an average, rate of conception of AI was less than 2. No one has reported about animal insurance coverage of their animals. Some of the households have reported that those milch animals who were dry for a long period of time are covered under RBP and has conceived through Natural service.

Table 7.9: Details of Veterinary and Breeding Expenditure during last one year by Beneficiary Households for animals not covered under BRP

| Sr. No. | Particulars | Nagpur | Wardha | Amravati | Maharashtra |
|---|---|---|---|---|---|
| | | BEN | BEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 |
| 1 | Animal Covered (% to animals covered) | | | | |
| | LC | 14 | 9 | 6 | 29 |
| | CB | 87 | 2 | 18 | 107 |
| | B | 11 | 7 | 9 | 27 |
| 2 | Medicines+ doctor (Rs./animal) | | | | |
| | LC | 360.0 | 330.8 | 288.9 | 323.6 |
| | CB | 586.1 | 419.2 | 525.0 | 449.5 |
| | B | 600.6 | 615.0 | 615.0 | 610.2 |
| 3 | Average of No. of visits by Vet doctor/year | | | | |
| | LC | 6.08 | 2.11 | 17.17 | 7.18 |
| | CB | 6.57 | 2.50 | 18.67 | 8.55 |
| | B | 4.50 | 3.00 | 16.25 | 8.04 |
| 4 | Av. of No. of AI/ Conception | | | | |
| | LC | 1.31 | 1.33 | 1.17 | 1.29 |
| | CB | 1.15 | 1.00 | 1.00 | 1.12 |
| | B | 1.00 | 1.33 | 1.13 | 1.13 |

## 7.7 Labour Use Pattern

As dairy activities are carried out as complimentary activity to agriculture activities, the labour use pattern by the selected sample households indicate the dominance of use family labour who were engaged in both the activities and out of total time worked in a day, about half of the time was spent on dairy and household activities while remaining time was spent on field. Though some of the household had hired casual labour, which were mainly used for agriculture activities, while tendency of having permanent labour was very rare and found with few households only. The activities of dairy were carried out mostly by the household members (Table 7.10 to 7.11).

Table 7.10: Labour Use Pattern

| Sr. No. | Particulars | Family | | Hired casual | | Hired permanent labour | | No. of days labour hired | |
|---|---|---|---|---|---|---|---|---|---|
| | | Male (No.) | Female (No.) | Male (No.) | Female (No.) | Male (No.) | Female (No.) | In month | In year |
| A | RBP | | | | | | | | |
| | Nagpur | 1.57 | 0.34 | 0.06 | 0.00 | 0.01 | 0.00 | 0.29 | 0.01 |
| | Wardha | 1.45 | 0.48 | 0.07 | 0.03 | 0.03 | 0.00 | 0.39 | 0.03 |
| | Amravati | 1.77 | 0.51 | 0.09 | 0.04 | 0.05 | 0.00 | 0.33 | 0.05 |
| | All | 1.60 | 0.44 | 0.07 | 0.02 | 0.03 | 0.00 | 0.34 | 0.03 |
| B | NONBEN | | | | | | | | |
| | Nagpur | 1.38 | 0.28 | 0.06 | 0.00 | 0.01 | 0.00 | 0.22 | 0.01 |
| | Wardha | 1.25 | 0.43 | 0.17 | 0.00 | 0.00 | 0.01 | 1.36 | 0.02 |
| | Amravati | 1.67 | 0.34 | 0.26 | 0.06 | 0.00 | 0.00 | 1.07 | 0.00 |
| | All | 1.44 | 0.36 | 0.15 | 0.02 | 0.00 | 0.00 | 0.85 | 0.01 |

Table 7.11: Distribution of total working hours

| Particulars | Distribution of total hours work (Hours/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dairy activities | | | Agri. Operations | | | Other (household etc. | | |
| | Family | Hired casual | Hired permanent labour | Family | Hired casual | Hired permanen t labour | Family | Hired casual | Hired permane nt labour |
| RBP | | | | | | | | | |
| Nagpur | 5.05 | 0.34 | 0.00 | 4.01 | 0.52 | 0.08 | 2.82 | 0.06 | 0.00 |
| Wardha | 3.49 | 0.09 | 0.02 | 4.24 | 0.73 | 0.30 | 2.40 | 0.00 | 0.00 |
| Amravati | 3.16 | 0.10 | 0.00 | 6.10 | 0.80 | 0.40 | 2.70 | 0.00 | 0.00 |
| All | 3.90 | 0.18 | 0.01 | 4.78 | 0.68 | 0.26 | 2.64 | 0.02 | 0.00 |
| NRBP | | | | | | | | | |
| Nagpur | 4.61 | 0.15 | 0.00 | 3.92 | 0.48 | 0.08 | 3.33 | 0.02 | 0.00 |
| Wardha | 3.10 | 0.10 | 0.00 | 4.85 | 1.25 | 0.02 | 2.01 | 0.00 | 0.02 |
| Amravati | 3.36 | 0.50 | 0.00 | 5.67 | 2.08 | 0.00 | 3.21 | 0.00 | 0.00 |
| All | 3.72 | 0.25 | 0.00 | 4.81 | 1.19 | 0.03 | 2.85 | 0.01 | 0.01 |

Source: Field Survey Data.

## 7.8 Feeding of Animals and Income from Dairying

As dairy activities are carried out mostly at household level and it has been observed that most of the labours engaged in dairy activities were family labour, it was expected that the dominance of female member in feeding the animals as well as handling the income of dairy. It can be seen from the Table 7.12 that in majority of the cases, feeding of animals was done by the family members that to by male member of family. Across the districts, both male and female were engaged in animal activities in Nagpur district, while same was done by male family member in Wardha and Amravati district. The income from dairy was handled by the male member in all three districts. The male member generally pour milk in society and thus collect the payment.

Table 7.12: Handling of Feeding and Income from Dairying

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| A | Who handles animal feeding family/hired worker | | | | | | | | |
| | family | 100.0 | 100.0 | 95.0 | 94.0 | 91.0 | 74.0 | 95.33 | 89.33 |
| | hired worker | 0 | 0 | 5.0 | 6.0 | 9.0 | 26.0 | 4.67 | 10.67 |
| B | Who handles animal feeding | | | | | | | | |
| | Male | 0 | 0 | 73.0 | 84.0 | 100.0 | 100.0 | 57.67 | 61.33 |
| | Female | 0 | 0 | 27.0 | 16.0 | 0 | 0 | 9.0 | 5.33 |
| | Both | 100.0 | 100.0 | 0 | 0 | 0 | 0 | 33.3 | 33.3 |
| C | Who handles income from dairying? | | | | | | | | |
| | Male | 100.0 | 100.0 | 100.0 | 100.0 | 99.0 | 100.0 | 96.67 | 100 |
| | Female | 0 | 0 | 0 | 0 | 1 | 0 | 0.33 | 0.0 |

Note: Multiple responses.
Source: Field Survey Data.

## 7.9 Production of Milk

The data was collected on production of milk on the earlier day of visit and before adoption of RBP and same is presented in Tables 7.13 and 7.15.

Table 7.13: Production of Milk by selected Beneficiary Households

| Sr. No. | Breed | Duration | RBP | | | |
|---|---|---|---|---|---|---|
| A | Local Cow | | Nagpur | Wardha | Amravati | Total |
| 1 | RBP (Before) | Milk yield in litre | 5.3 | 3.9 | 5.7 | 4.7 |
| | | Fat % | 3.2 | 3.5 | 3.9 | 3.7 |
| | | SNF | 7.8 | 8.0 | 8.1 | 8.0 |
| 2 | RBP (After) | Milk yield in litre | 5.3 | 4.2 | 5.2 | 4.6 |
| | | Fat % | 3.7 | 3.8 | 4.4 | 4.1 |
| | | SNF | 8.2 | 8.3 | 8.4 | 8.3 |
| B | Cross bred | | | | | |
| 1 | RBP (Before) | Milk yield in litre | 12.3 | 13.4 | 11.0 | 12.4 |
| | | Fat % | 3.9 | 3.9 | 4.7 | 4.1 |
| | | SNF | 8.1 | 8.0 | 8.3 | 8.1 |
| 2 | RBP (After) | Milk yield in litre | 14.3 | 14.7 | 13.3 | 14.2 |
| | | Fat % | 4.5 | 4.4 | 4.9 | 4.6 |
| | | SNF | 8.5 | 8.4 | 8.6 | 8.5 |
| C | Buffalo | | | | | |
| 1 | RBP (Before) | Milk yield in litre | 10.4 | 10.9 | 11.1 | 10.9 |
| | | Fat % | 6.1 | 6.2 | 6.2 | 6.2 |
| | | SNF | 8.0 | 8.2 | 8.5 | 8.3 |
| 2 | RBP (After) | Milk yield in litre | 11.1 | 12.1 | 12.3 | 12.0 |
| | | Fat % | 6.4 | 6.5 | 6.8 | 6.5 |
| | | SNF | 8.6 | 8.4 | 8.7 | 8.6 |

It can be seen from the table that the fat and SNF level was found higher in milk drawn from animal covered under RBP than other uncovered animals with beneficiary households in all three districts. The milk yield per animal realised by the beneficiary households was higher than milk yield per animal realised by non-beneficiary except in case of buffalo. The average milk yield is increased by 9.6 per cent, and fat% is increased by the 8.6 per cent. The variability in the milk yield across the sample beneficiary households is estimated lower than the milk yield level realised by the non-beneficiary households (table 7.16).

Table 7.14: Production of Milk by selected Non-Beneficiary Households

| Sr.No. | Breed | Duration | RBP | | | |
|---|---|---|---|---|---|---|
| A | Local Cow | | Nagpur | Wardha | Amravati | Total |
| | | Milk yield in litre | 4.0 | 4.3 | 4.5 | 4.2 |
| | | Fat % | 3.8 | 3.4 | 4.0 | 3.7 |
| | | SNF | 7.9 | 7.9 | 8.2 | 8.0 |
| B | Cross bred | | | | | |
| | | Milk yield in litre | 11.2 | 12.9 | 11.6 | 12.0 |
| | | Fat % | 4.0 | 3.8 | 4.1 | 4.0 |
| | | SNF | 8.0 | 8.5 | 8.2 | 8.2 |
| C | Buffalo | | | | | |
| | | Milk yield in litre | 10.8 | 11.6 | 10.9 | 11.0 |
| | | Fat % | 6.0 | 6.1 | 6.2 | 6.1 |
| | | SNF | 8.3 | 7.6 | 8.4 | 8.1 |

Source: Field Survey Data.

Table 7.15: Coefficient of Variation and Standard Deviation in Milk Yield level

| Sr. No. | Particulars | Nagpur | | Wardha | | Amravati | | Maharashtra | |
|---|---|---|---|---|---|---|---|---|---|
| | | BEN | NBEN | BEN | NBEN | BEN | NBEN | BEN | BEN |
| | | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 | n=100 |
| 1 | SD | | | | | | | | |
| | LC | 0.35 | 1.19 | 1.37 | 1.71 | 1.59 | 1.82 | 1.10 | 1.57 |
| | CB | 2.25 | 2.85 | 2.47 | 2.99 | 1.53 | 2.87 | 2.08 | 2.90 |
| | B | 2.92 | 3.93 | 1.62 | 3.13 | 2.16 | 3.33 | 2.23 | 3.46 |
| 2 | Mean(liters) | | | | | | | | |
| | LC | 5.25 | 3.97 | 4.15 | 4.28 | 5.17 | 4.46 | 4.6 | 4.18 |
| | CB | 14.25 | 11.24 | 14.67 | 12.85 | 13.31 | 11.63 | 14.15 | 12.04 |
| | B | 11.14 | 10.75 | 12.06 | 11.58 | 12.26 | 10.88 | 12.02 | 10.95 |
| 3 | Coefficient of Variation | | | | | | | | |
| | LC | 6.73 | 29.89 | 32.95 | 39.94 | 30.70 | 40.90 | 23.97 | 37.64 |
| | CB | 15.79 | 25.34 | 16.80 | 23.27 | 11.53 | 24.72 | 14.72 | 24.12 |
| | B | 26.18 | 36.58 | 13.40 | 27.00 | 17.64 | 30.58 | 18.57 | 31.62 |

## 7.10 Disposal of Milk and Dung

Table 7.16 presented the details on disposal of milk by selected households. It was observed that milk was sold to different agencies and even after getting Mother dairy unit at village level, beneficiary households are selling milk to vendors, sweet shop owners as well as to private milk dairy/plant. In some of the villages more than one milk procurement agency was observed, such as Dinshwa dairy, Narmada dairy, etc. Dung is used for dung cake and manure purpose while cattle urine is used as insecticide for the spraying on orange and banana crop.

Table 7.16: Disposal of Milk by Selected Beneficiary Households (All)

| Sr. No. | Agency | Before | | | | | | After | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amravati | | Nagpur | | Wardha | | Amravati | | Nagpur | | Wardha | |
| | | Sum of Quantity (lit.) | Average of Prices Rs./lit) | Sum of Quantity (lit.) | Average of Prices Rs./lit) | Sum of Quantity (lit.) | Average of Prices Rs./lit) | Sum of Quantity (lit.) | Average of Prices Rs./lit) | Sum of Quantity (lit.) | Average of Prices Rs./lit) | Sum of Quantity (lit.) | Average of Prices Rs./lit) |
| A | LC | | | | | | | | | | | | |
| | 1 | | | | | | | | | | | | |
| | 2 | 44.0 | 30.3 | | | | | 78.5 | 34.7 | | | 48.0 | 30.0 |
| | 3 | | | | | 241.5 | 23.8 | | | | | 255.0 | 24.4 |
| | 4 | | | | | 14.0 | 25.0 | | | | | 18.0 | 24.0 |
| | 5 | | | | | | | | | 10.0 | 29.0 | | |
| | 6 | 137.0 | 22.7 | 9.50 | 28.5 | | | 183.5 | 23.5 | 9.50 | 27.4 | | |
| B | CB | | | | | | | | | | | | |
| | 1 | | | 28.0 | 31.5 | 34.0 | 23.0 | 35.0 | 40.0 | | | | |
| | 2 | 51.0 | 32.6 | 82.0 | 24.2 | | | 4.0 | 29.0 | | | 43.0 | 32.0 |
| | 3 | | | 21.0 | 29.3 | 34.0 | 23.3 | 7.0 | 25.0 | 14.0 | 26.0 | | |
| | 4 | | | | | 74.0 | 30.0 | 82.0 | 31.5 | | | 82.0 | 35.0 |
| | 5 | | | 94.0 | 26.3 | 32.8 | 30.3 | | | | | 6.0 | 40.0 |
| | 6 | 609.5 | 22.4 | 1344.5 | 26.4 | 1181.3 | 26.7 | 753.0 | 27.2 | 1632.3 | 31.2 | 1266.1 | 30.3 |
| C | B | | | | | | | | | | | | |
| | 1 | | | | | | | | | | | | |
| | 2 | | | 23.0 | 40.0 | 127.0 | 40.0 | | | 48.0 | 42.5 | | |
| | 3 | | | 31.0 | 43.3 | 96.0 | 32.0 | 39.0 | 42.0 | | | | |
| | 4 | | | | | | | | | | | | |
| | 5 | | | 2.0 | 20.0 | | | | | 9.0 | 47.5 | | |
| | 6 | 218.0 | 32.2 | 44.0 | 36.3 | 87.0 | 29.3 | 300.0 | 41.1 | 86.0 | 40.1 | 335.5 | 36.9 |

Notes: Consumer - 1, Vendor/middlemen - 2, Sweet shop - 3, cooperative society - 4, Private milk plant - 5, Mother dairy – 6
Source: Field Survey Data.

## 7.11 Awareness about RBP among Adopters:

The details about the awareness about RBP among selected beneficiary and non-beneficiary households are presented in Table 7.17. Non beneficiary were also asked about their awareness to know about spread of information of programme through VAP and LRP.

Table 7.17: Awareness about the Programme among Adopters

| Sr. No | Particulars | Awareness about the programme (% to responses) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | RBP | | | | NON-RBP | | | |
| | | Nagpur | Wardha | Amravati | MS | Nagpur | Wardha | Amravati | MS |
| 1 | Have you heard of RBP (%) | | | | | | | | |
| | No | 17.0 | 7.0 | 1.0 | 8.3 | 88.0 | 54.0 | 26.0 | 56.0 |
| | Yes | 83.0 | 93.0 | 99.0 | 91.7 | 12.0 | 46.0 | 74.0 | 44.0 |
| | If yes, source of information on RBP | | | | | | | | |
| | Milk Union-1 | 8.0 | 0.0 | 0.0 | 2.7 | 8.3 | 0.0 | 5.4 | 3.8 |
| | DCS-2 | 7.0 | 7.0 | 9.0 | 7.7 | 16.7 | 0.0 | 17.6 | 11.4 |
| | LRPs-3 | 68.0 | 86.0 | 90.0 | 81.3 | 75.0 | 100.0 | 77.0 | 84.8 |
| | Others -4 | 8.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Have you seen any documentary on RBP | | | | | | | | |
| | No | 87.0 | 59.0 | 78.0 | 74.7 | 100.0 | 80.0 | 76.0 | 85.3 |
| | Yes | 13.0 | 41.0 | 22.0 | 25.3 | 0.0 | 20.0 | 24.0 | 14.7 |
| 3 | Have you seen any poster/banner on RBP | | | | | | | | |
| | No | 98.0 | 31.0 | 27.0 | 52.0 | 100.0 | 87.0 | 67.0 | 84.7 |
| | Yes | 2.0 | 69.0 | 73.0 | 48.0 | 0.0 | 13.0 | 33.0 | 15.3 |
| 4 | Have you received any pamphlet on RBP | | | | | | | | |
| | No | 97.0 | 54.0 | 52.0 | 67.7 | 98.0 | 81.0 | 75.0 | 84.7 |
| | Yes | 3.0 | 46.0 | 48.0 | 32.3 | 2.0 | 19.0 | 25.0 | 15.3 |
| 5 | Have you attended village awareness program (VAP) | | | | | | | | |
| | No | 77.0 | 8.0 | 41.0 | 42.0 | 93.0 | 67.0 | 48.0 | 69.3 |
| | Once | 8.0 | 27.0 | 16.0 | 17.0 | 6.0 | 17.0 | 43.0 | 22.0 |
| | Twice | 6.0 | 21.0 | 21.0 | 16.0 | 1.0 | 13.0 | 6.0 | 6.7 |
| | Thrice | 2.0 | 11.0 | 17.0 | 10.0 | 0.0 | 2.0 | 3.0 | 1.7 |
| | More | 7.0 | 33.0 | 5.0 | 15.0 | 0.0 | 1.0 | 0.0 | 0.3 |

Source: Field survey data.

It can be seen from the table that about 92 per cent of beneficiaries have heard about the programme, while corresponding figure for the non-beneficiary household was about 44 per cent. Those who were aware, the major source of information about the programme for more than 81 percent of beneficiary household was LRP itself, followed by the dairy society and other sources such as

friends, progressive farmer in village and relatives. Only one fourth of beneficiary households have seen any documentary on RBP. Thus, about three fourth of total beneficiary households did not seen documentary on RBP while more than half of the beneficiary households mentioned that they have not seen poster/banner on RBP, while corresponding figure was 85 per cent in case non-beneficiary households. Hardly one third of beneficiary households have received pamphlets or any document on RBP. Thus, around two third of beneficiary did not receive pamphlets or any document on RBP. The village awareness programme was attended by 58 per cent of beneficiary and 31 per cent of non-beneficiary households. The pattern was different in all the three selected districts. Majority of the beneficiary households in Nagpur and Amravati districts did not attend any VAP, which is a matter of concern. EIA must have to look into the same and investigate what went wrong about the same.

### 7.12 Outreach of RBP among Adopters and its Benefits:

In order to know about outreach of RBP and its benefits realized by the adopters, the data were collected on specific parameters which are presented in Table 7.18. It can be seen from this table that around 86 per cent of total beneficiary households were not aware about ration balancing before adopting it. On an average, more than ten advisory recommendations were received till date by the beneficiary households. More than 91 per cent of beneficiary households have opined that benefits of RBP has increased their interest in dairy and would like increase the herd strength in coming days.

Around 89 per cent of beneficiary households mentioned that they feel involved in programme which is important point for future progress of the programme. The success of RBP can be seen from the fact that about 98 per cent of farmers were following the recommended ration advisory given by LRP. Though most of beneficiary households followed the advice given by the LRP, some of them had faced the constraints in regular feeding to animals as shortage of recommended ration (such as timely supply of concentrate and availability of mineral mixture), frequent change in feed items, LRP do not visit timely and not convinced about the recommendations.

Table 7.18: Outreach of Programme among RBP Adopters

| Sr. No. | Particulars | | Nagpur | Wardha | Amravati | MS |
|---|---|---|---|---|---|---|
| 1 | Awareness about ration balancing before adopting RBP | No | 94.0 | 75.0 | 89.0 | 86.0 |
| | | Somewhat | 5.0 | 19.0 | 8.0 | 10.7 |
| | | Well aware | 1.0 | 6.0 | 3.0 | 3.3 |
| 2 | Av. number of Visits by LRP for checking/ recommendation | No./hh | 10.5 | 10.1 | 10.2 | 10.3 |
| 3 | Benefits of RBP increased interest in dairy | No | 4.0 | 0.0 | 2.0 | 2.0 |
| | | Yes | 91.0 | 93.0 | 97.0 | 93.7 |
| | | Can't say | 5.0 | 7.0 | 1.0 | 4.3 |
| 4 | Would like to increase herd strength | No | 1.0 | 0.0 | 4.0 | 1.7 |
| | | Yes | 89.0 | 92.0 | 91.0 | 90.7 |
| | | May be | 10.0 | 8.0 | 5.0 | 7.7 |
| 5 | Feel about involvement in the program | No | 1.0 | 5.0 | | 2.0 |
| | | Yes | 78.0 | 94.0 | 95.0 | 89.0 |
| | | Somewhat | 21.0 | 1.0 | 5.0 | 9.0 |
| 6 | Following the recommended ration correctly | No | 1.0 | 4.0 | 1.0 | 2.0 |
| | | Yes | 99.0 | 96.0 | 99.0 | 98.0 |
| 7 | Constraints in regular feeding of recommended ration | Mineral mixture shortage | 92.0 | 35.0 | 80.0 | 69.0 |
| | | Frequent change in feed items | 0.0 | 65.0 | 10.0 | 25.0 |
| | | LRP not visit timely | 0.0 | 0.0 | 6.0 | 2.0 |
| | | Not convinced about the recommendations | 8.0 | 0.0 | 4.0 | 4.0 |
| | | Any others | 0.0 | 0.0 | 0.0 | 0.0 |

Source: Field survey data.

The changes realized by the RBP adopted in various parameters are presented in Table 7.19. It can be seen from the table that more than 94 per cent of beneficiary households opined that milk production has increased. Not only milk production was increased, the composition of milk was also improved. Most of the households have also reported that health of animals is also improved after adoption of RBP. Decrease in digestive disorders of animals after adoption of RBP was experienced by majority of the selected sample households. By following the recommended ration given by the LRP under programme, more than two third of the selected households have realized reduction in feed cost, while feed cost was increased in case of more than one fourth households and same was unchanged in case of remaining households. Though one third of households mentioned that additional expenditure (money/labour) is involved in adopting RBP while more than 85 per cent of selected households mentioned that employment opportunity has increased after RBP.

Table 7.19: Changes realized by the RBP Adopters

| Sr. No. | Particulars | | Changes realized (% to total responses) | | | |
|---|---|---|---|---|---|---|
| | | | Nagpur | Wardha | Amravati | MS |
| 1 | Increase in milk production after RBP[6] | No | 2.0 | 6.0 | 10.0 | 6.0 |
| | | Yes | 98.0 | 94.0 | 90.0 | 94.0 |
| 2 | Improved Composition of Milk | No | 3.0 | 13.0 | 4.0 | 6.7 |
| | | Yes | 97.0 | 87.0 | 96.0 | 93.3 |
| 3 | Change in general health of animal after RBP | No | 2.0 | 1.0 | | 1.0 |
| | | Yes | 95.0 | 67.0 | 100.0 | 87.3 |
| | | Can't say | 3.0 | 32.0 | | 11.7 |
| 4 | Experienced decrease in digestive disorders of animals | No | 2.0 | 1.0 | 1.0 | 1.3 |
| | | Yes | 91.0 | 67.0 | 95.0 | 84.3 |
| | | Can't say | 7.0 | 32.0 | 4.0 | 14.3 |
| 5 | Change in feed cost of milch animal after RBP | decreased | 66.0 | 61.0 | 74.0 | 67.0 |
| | | increased | 28.0 | 34.0 | 20.0 | 27.3 |
| | | unchanged | 6.0 | 5.0 | 6.0 | 5.7 |
| 6 | Additional expenditure (money/labour) is involved in adopting RBP | No | 68.0 | 42.0 | 71.0 | 60.3 |
| | | Yes | 21.0 | 56.0 | 22.0 | 33.0 |
| | | Can't say | 11.0 | 2.0 | 7.0 | 6.7 |
| 7 | Any Change in employment opportunity after RBP | decreased | 1.0 | 4.0 | 5.0 | 3.3 |
| | | increased | 83.0 | 95.0 | 79.0 | 85.7 |
| | | unchanged | 16.0 | 1.0 | 16.0 | 11.0 |
| 8 | Changes in Monthly income from dairy | decreased | | 6.0 | 3.0 | 3.0 |
| | | increased | 96.0 | 92.0 | 88.0 | 92.0 |
| | | unchanged | 4.0 | 2.0 | 9.0 | 5.0 |
| 9 | Savings from dairy have increased after adopting RBP | No | 4.0 | 1.0 | 1.0 | 2.0 |
| | | Yes | 88.0 | 75.0 | 92.0 | 85.0 |
| | | Can't say | 8.0 | 24.0 | 7.0 | 13.0 |
| | if *yes*, additional saving from dairying utilized for | Education | 29.0 | 11.0 | 5.0 | 15.0 |
| | | Nutrition & health | 42.0 | 77.0 | 13.0 | 44.0 |
| | | Expanding dairying | 29.0 | 12.0 | 82.0 | 41.0 |
| | | Others (Edu+Nuti) | | | | 0.0 |
| 10 | After adopting the RBP, milk consumption has increased | No | 83.0 | 27.0 | 54.0 | 54.7 |
| | | Yes | 17.0 | 73.0 | 46.0 | 45.3 |

Source: Field survey data.

It can be seen from the table that more than 92 per cent of households realized that monthly income from dairy has increased after adoption of RBP, while about 85 per cent households mentioned that their savings from dairy have increased which was utilized for nutrition and health, for expanding the dairy business as well as for children's education. Despite of all benefits discussed above, actual consumption of milk in household did not increase significantly as it was expected. Besides improvement in the health and digestive system of animals, the respondents have mentioned the other benefits as well.

[6] See Table 7.14 for the same.

Though majority of the selected beneficiary households have reported that after adoption of RBP, rate of conception has increased, reduction in service period was noted, observed improvement in lactation length, experienced reduction in inter-calving period and repeat breeding and also helped in controlling the diseases such as prolapsed of uterus as well as anoestrous, but none of them were able to specify the extent of impact in such a short period covered (Table 7.20).

Table 7.20: Benefits of RBP realized by Adopters/Beneficiary hh

| Sr.No. | Particulars | | Nagpur | Wardha | Amravati | Maharashtra |
|---|---|---|---|---|---|---|
| A | Increasing conception rate | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| B | Reducing Service Period | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| C | Improving lactation length | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| D | Reducing inter calving period | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| E | Reducing repeat breeding | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| F | Controlling prolapsed of uterus | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |
| G | Controlling anestrous | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Can't say | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Field survey data.

The selected households were asked to give their feedback about programme and suggestions for improvement of RBP. On an average, selected beneficiary households rank RBP as successful programme by marking programme with 9.1 Points on ten-point scale (Table 7.21). Though majority of the households in Amravati and Nagpur felt that RBP program is beneficial, few suggestions were given by the selected households for the improvement of RBP and its benefits such as Mineral Mixture should be available adequate quantity

and at cheaper rate under RBP program; Cattle feed & fodder supply through RBP program; AI and vaccination should be involved in RBP program; Increase the awareness about animal rearing and guidance for selection of animals; provision of subsidised loan for animal purchase should be made provided through RBP program and Training and seminars should be provided through RBP program at intervals.

Table 7.21: Rank to RBP & Suggestions for Improvement of RBP

| Sr. No. | Suggestions | RBP adopters (% to total) | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | Maharashtra |
| a | On a 10 point scale how many points you will give to RBP | 9.2 | 8.2 | 9.3 | 8.9 |
| B | Suggestions for Improvement | | | | |
| 1 | AI and vaccination should be involved in RBP program | 7.0 | 10.0 | 6.0 | 7.7 |
| 2 | All Equipments related to dairy should be provided through RBP on subsidized rate | 7.0 | 4.0 | 6.0 | 5.7 |
| 3 | Cattle feed & fodder supply through RBP program | 9.0 | 24.0 | | 11.0 |
| 4 | Demonstration, field visit & tour should include under RBP program | 2.0 | | 1.0 | 1.0 |
| 5 | Difference amount of rate in dairy should be given under RBP | 2.0 | | 1.0 | 1.0 |
| 6 | Increase the awareness about animal rearing & guidance for selection of animals | 8.0 | 1.0 | 7.0 | 5.3 |
| 7 | Increase the rate of milk in dairy | | 8.0 | | 2.7 |
| 8 | Medicine of various disease should be provided through RBP Program | 2.0 | 1.0 | | 1.0 |
| 9 | Mineral Mixture should be available adequate and cheaper under RBP program | 16.0 | 27.0 | 4.0 | 15.7 |
| 10 | Regular doctor visit be provided through RBP program | 9.0 | 5.0 | 7.0 | 7.0 |
| 11 | Subsidized loan for animal purchase should be provided through RBP program | 4.0 | 7.0 | 3.0 | 4.7 |
| 12 | Supply of R vita MM should continue through RBP program | 1.0 | | | 0.3 |
| 13 | Taste and smell of MM should be improve | 1.0 | | 1.0 | 0.7 |
| 14 | Training and seminars should be provided through RBP program | 1.0 | 11.0 | 1.0 | 4.3 |
| 15 | No suggestion, RBP program is good enough | 31.0 | 2.0 | 63.0 | 32.0 |

Source: Field survey data.

## 7.13 Performance of LRPs:

The data were collected from selected beneficiary households on selected parameters related to working and approach of LRP which is presented in Table 7.22. It can be seen from the table that more than 97 per cent of households had received brief on RBP from selected LRP, while all the households have received RB advice slip from LRP of which almost 98 per cent have kept advice slip and was displayed properly. About 70 per cent of selected households mentioned that LRP is visiting/contacting them always while 29.7 per cent informed that LRP is contacting them sometime over phone to follow up the advisory given by him, while most of households themselves contacted the LRP for ration re-formulation when there was a change in feed items. Most of the selected households have used same advisory to feed the animals which are not covered under RBP.

Around 66 per cent of selected households have reported that they get additional services from LRP while almost 29 per cent of households received LRP additional services sometime, thus all together almost 95 per cent of total households receive additional services of LRP which is positive point of programme towards its sustainability. All the selected households reported that they were explained the benefits of feeding mineral mixtures and all animals bears a valid tag. Almost 99 per cent of households reported that measurement of heart girth was taken by the LRP and animal weight is mentioned in the advice sheet. Also more 99 per cent of households reported that LRP has taken milk sample at cattle owners' place after milking on the day of visit. LRP has advised the quantity of feed ingredients in terms of measures (bowls/vessels) used by cattle farmers. Almost 99 per cent of households have reported that LRP has visited the animals covered under RBP every month and also provided them advise on regular vaccinations of the animals. Almost all the selected households are aware about the importance of chaffing of fodder. Around 94 per cent of selected households have been briefed by LRP about importance of drinking water while almost 93 per cent of households were advised on quality and quantity of drinking water need for animal. All the selected households have informed that LRP has advised them about feeding trough/manger.

Table 7.22: Performance of Selected LRPs

| Sr. No. | RBP adopters | | Performance of LRP (% to responses) | | | |
|---|---|---|---|---|---|---|
| | | | Nagpur | Wardha | Amravati | Vidarbha |
| 1 | LRP gave brief on benefits of RB initially | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 98.0 | 95.0 | 100.0 | 97.7 |
| | | Somewhat | 2.0 | 5.0 | | 2.3 |
| 2 | RB advice slip was given by LRP | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 100.0 | 100.0 | 100.0 | 100.0 |
| 3 | Advice slip is kept and displayed properly | No | | | 7.0 | 2.3 |
| | | Yes | 100.0 | 100.0 | 93.0 | 97.7 |
| 4 | LRP is visiting/contacting over phone after giving RB recommendation to follow up | never | 1.0 | | | 0.3 |
| | | sometimes | 22.0 | 35.0 | 32.0 | 29.7 |
| | | always | 77.0 | 65.0 | 68.0 | 70.0 |
| 5 | Contacted with LRP anytime for ration re-formulation when there was a change in feed items | never | 5.0 | 4.0 | 28.0 | 12.3 |
| | | sometimes | 59.0 | 47.0 | 54.0 | 53.3 |
| | | always | 36.0 | 49.0 | 18.0 | 34.3 |
| 6 | Trying to feed balanced ration to animals which are not covered under RBP | never | 16.0 | 8.0 | 27.0 | 17.0 |
| | | sometimes | 52.0 | 79.0 | 47.0 | 59.3 |
| | | most often | 32.0 | 13.0 | 26.0 | 23.7 |
| 7 | Get any additional service from LRP | No | 8.0 | 3.0 | 6.0 | 5.7 |
| | | Yes | 21.0 | 86.0 | 90.0 | 65.7 |
| | | sometime | 71.0 | 11.0 | 4.0 | 28.7 |
| 8 | Whether LRP explained the benefits of feeding mineral mixture? no-1, yes-2 | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 100.0 | 100.0 | 100.0 | 100.0 |
| 9 | Does animal bears a valid tag? | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 100.0 | 100.0 | 100.0 | 100.0 |
| 10 | Whether measurement of heart girth is done by the LRP and animal weight is mentioned in the advice sheet? | No | 4.0 | | | 1.3 |
| | | Yes | 96.0 | 100.0 | 100.0 | 98.7 |
| 11 | Whether milk is measured at cattle owner's place after milking in each visit? | No | 2.0 | | | 0.7 |
| | | Yes | 98.0 | 100.0 | 100.0 | 99.3 |
| 12 | Whether quantity of feed ingredients advised in terms of measures (bowls/vessels) are used by cattle farmers? | No | 2.0 | 4.0 | | 2.0 |
| | | Yes | 98.0 | 96.0 | 100.0 | 98.0 |
| 13 | Does LRP revisit this animal every month? | No | 3.0 | | | 1.0 |
| | | Yes | 97.0 | 100.0 | 100.0 | 99.0 |
| 14 | Does LRP advise you on regular vaccination of animals? | No | 3.0 | | | 1.0 |
| | | Yes | 97.0 | 100.0 | 100.0 | 99.0 |
| 15 | Does LRP advise you on chaffing of green/dry fodder? | No | 1.0 | | | 0.3 |
| | | Yes | 99.0 | 100.0 | 100.0 | 99.7 |
| 16 | Are you aware of benefits of chaffing of green/dry fodder? | No | 3.0 | | | 1.0 |
| | | Yes | 97.0 | 100.0 | 100.0 | 99.0 |
| 17 | Does the LRP advise you in importance of drinking water? | No | 13.0 | | 5.0 | 6.0 |
| | | Yes | 87.0 | 100.0 | 95.0 | 94.0 |
| 18 | Does the LRP told you how much drinking water your animals need per day? | No | 16.0 | | 6.0 | 7.3 |
| | | Yes | 84.0 | 100.0 | 94.0 | 92.7 |
| 19 | Has the LRP advised you on importance of feeding trough/mangers? | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Yes | 100.0 | 100.0 | 100.0 | 100.0 |
| 20 | Do you recommend other farmers also join RBP | No | 6.0 | 21.0 | 1.0 | 9.3 |
| | | Yes | 94.0 | 79.0 | 99.0 | 90.7 |
| 21 | Willingness to pay-Like to adopt RB on payment basis after the end of programme | No | 20.0 | 0.0 | 13.0 | 11.0 |
| | | Yes | 77.0 | 92.0 | 82.0 | 83.7 |
| | | Can't say | 3.0 | 8.0 | 5.0 | 5.3 |
| 22 | On a 10 point scale, points given to LRP | Point | 9.0 | 9.0 | 9.3 | 9.1 |

Source: Field survey data.

More than 90 per cent of respondents had mentioned that they would recommend the other dairy farmers also to join the RBP. Across the districts, the highest intensity for recommendation to other cattle owners is found in Amravati

and the lowest was in Nagpur. On an average, out of 10 points, 9.1 performance points were given to LRP by the selected respondents indicating better working of LRP in selected areas of Vidarbha regions of Maharashtra. Across the districts, performance of LRP was the best in Amravati and very good in Nagpur district. Around 84 per cent of respondents mentioned their willingness to pay/like to adopt RB advisory on payment basis after the end of programme, while 16 per cent of households refused to pay or mentioned unwillingness to adopt the RBP after the end of the programme on payment basis and rest of them could not say anything on this point. Across the districts, 92 per cent of selected households in Wardha and 82 per cent in Amravati opined their willingness to pay for advisory while 70 per cent households in Nagpur refused for any such support.

## 7.14 Chapter Summary:

Field survey data showed that crossbred cow dominates in the total livestock population in selected households by accounting more than half of total milch animal population. The positive effect of programme on ration balancing could be broadly seen from the high level of peak yield figures of crossbred cows. The milk yield is reported the highest in crossbred cows followed by in buffalo and the lowest was in local cows. The animals selected under RBP were not only stall fed but also taken out for grazing. The stall feeding is the mandatory requirement to balance the diet of particular animal, however, the practice of grazing is prevalent in study area. It was reported that rather animals are habituated to go out for some and feel restless due to lack pf physical exercise if keep under stall feeding. On an average, five to six hours of grazing out was reported by the selected households. Thus grazing out practice of milch animals covered under RBP definitely unbalance the nutrition of animals covered under RBP and thus affect the outcome of advisory given by the LRP. The significant difference is observed in case of dry fodder fed to animals covered under RBP (after RBP) as compared to fodder fed before RBP. The animals were also fed with concentrates which were mostly purchased from the market. Selected households reported that due to RBP, they have started giving mineral mixture and cattle feed which has helped in milk yield as well as fat % in milk. The average milk yield is increased by 9.6 per cent, and fat% is increased by the 8.6 per cent. The variability in the milk

yield across the sample beneficiary households is estimated lower than the milk yield level realised by the non-beneficiary households

About 92 percent of beneficiaries have heard about the programme, while corresponding figure for the non-beneficiary household was about 44 percent. About three fourth of total beneficiary households did not seen documentary on RBP while more than half of the beneficiary households mentioned that they have not seen poster/banner on RBP, while corresponding figure was 85 per cent in case non-beneficiary households. Hardly one third of beneficiary households have received pamphlets or any document on RBP. Thus, around two third of beneficiary did not received pamphlets or any document on RBP. The village awareness programme was attended by 58 percent of beneficiary and 31 per cent of non-beneficiary households.

The success of RBP can be seen from the fact that about 98 percent of farmers were following the recommended ration advisory given by LRP. Though most of beneficiary households followed the advice given by the LRP, some of them had faced the constraints in regular feeding to animals as shortage of recommended ration (such as mineral mixture), frequent change in feed items, LRP do not visit timely and not convinced about the recommendations. More than 94 per cent of beneficiary households opined that milk production has increased. Not only milk production was increased, the composition of milk was also improved. Most of the households have also reported that health of animals is also improved after adoption of RBP. Decrease in digestive disorders of animals after adoption of RBP was experienced by majority of the selected sample households. By following the recommended ration given by the LRP under programme, more than two third of the selected households have realized reduction in feed cost, while feed cost was increased in case of more than one fourth households and same was unchanged in case of remaining households. Though one third of households mentioned that additional expenditure (money/labour) is involved in adopting RBP while more than 85 per cent of selected households mentioned that employment opportunity has increased after RBP.

More than 92 per cent of households realized that monthly income from dairy has increased after adoption of RBP, while about 85 percent households mentioned that their savings from dairy have increased which was utilized

for nutrition and health, for expanding the dairy business as well as for children's education. Despite of all benefits discussed above, actual consumption of milk in household did not increase significantly as it was expected. Besides improvement in the health and digestive system of animals, the respondents have mentioned the other benefits as well. Though majority of the selected beneficiary households have reported that after adoption of RBP, rate of conception has increased, reduction in service period was noted, observed improvement in lactation length, experienced reduction in inter-calving period and repeat breeding and also helped in controlling the diseases such as prolapsed of uterus as well as anestrous, but none of them were able to clearly specify.

On an average, selected beneficiary households rank RBP as successful programme by marking programme with 9.1 Points on ten-point scale. On an average, out of 10 points, 9.1 performance points were given to LRP by the selected respondents indicating better working of LRP in selected areas of Vidarbha regions of Maharashtra.

The last chapter presents opinion of LRPs.

Chapter VIII

# Opinion of Local Resource Persons

## 8.1 Introduction

After having discussed about the programme, perceptions of the selected households about benefit of program, constraints in implementation/adoption of programme and also suggestions received from famers to improve the impact of programme, it also important to have opinion of local resource person about the programme.

## 8.2 Functioning under LRP:

The details about the pattern and procedures adopted in the implementation and monitoring of RBP advisory adoption along other services provided by the LRP is presented in Table 8.1 It can be seen from the table that on an average 12 months period have passed since these selected LRPs are working in this project. It seems that there is high turnout ratio in Nagpur district as the lowest working period is estimated. Every day on an around 4-5 hours are spent by each LRP for visit, advisory and follow up purpose. The seriousness of LRP can be seen from the fact that each one is working almost 28 days in a month. Around 60 farmers are covered by each LRP having coverage of 125 animals[1].

The RBP software is required to be operated on android mobile for advisory services. Most of the LRPs have reported satisfaction on handling of software on android mobile. While doing RBP advisory, LRP has contacted both the person who feed animals as well as house owner. Advisory slip was provided to cattle owners during every advisory visit by LRP wherein recommendations on feed items was noted in both ways, i,e. converted to vassels /bundles and kilograms. LRP ensure that farmers are following RBP advisory by interacting with them either during next visit or follow up visit before due date of RB as well as verifying over phone as and

[1] While at overall level, it was estimated coverage of 52 cattle owners and around 100 animals per LRP- see Chapter 4, Table 4.8.

when required. Besides providing advisory services, LRP also provides advice on animal healthcare[2] and management of fodder and water.

Table 8.1: Details on functioning of LRP

| Sr. No. | Particulars | Nagpur | Wardha | Amravati | All |
|---|---|---|---|---|---|
| 1 | Time of starting working as LRP (Months) | 13.3 | 11.5 | 13.0 | 12.6 |
| 2 | Daily Average time spent for RBP (Hours/day) | 4.1 | 4.6 | 4.4 | 4.4 |
| 3 | Average Number of days spent (Days/month) | 25.7 | 28.9 | 26.5 | 27.0 |
| 4 | Total farmers covered under RBP so far | 65.9 | 50.9 | 58.2 | 58.3 |
| 4 | Total animals covered under RBP | 173.2 | 107.1 | 95.7 | 125.3 |
| 5 | Handling of RBP software | | | | |
| | Difficult | 5.0 | 0.0 | 0.0 | 1.7 |
| | Easy | 95.0 | 50.0 | 50.0 | 65.0 |
| | Very Easy | 0.0 | 50.0 | 50.0 | 33.3 |
| 6 | While doing RBP, with whom do you interact | | | | |
| | Houseowner | 5.0 | 0.0 | 20.0 | 8.3 |
| | Person who feeding animal | 10.0 | 70.0 | 25.0 | 35.0 |
| | Both | 85.0 | 30.0 | 55.0 | 56.7 |
| 7 | Do you give RB advice slip to farmer | | | | |
| | No | 0.0 | 0.0 | 0.0 | 0.0 |
| | Yes | 100.0 | 100.0 | 100.0 | 100.0 |
| 8 | How do you give recommendation of feed items to farmers | | | | |
| | Kg | 0.0 | 45.0 | 30.0 | 25.0 |
| | Converted to Vassels/bundles | 0.0 | 45.0 | 25.0 | 23.3 |
| | Both | 100.0 | 10.0 | 45.0 | 51.7 |
| 9 | How do you ensure that farmers are following RBP? | 100.0 | 100.0 | 100.0 | 100.0 |
| a | by interaction with farmer during next visit | 100.0 | 100.0 | 30.0 | 76.7 |
| b | Follow up visit before due date of RB | 100.0 | 60.0 | 85.0 | 81.7 |
| c | Verifying over phone | 60.0 | 50.0 | 15.0 | 41.7 |
| d | Any other-specify | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | Any additional advice/ input supply to farmers other than RBP -Yes | 90.0 | 20.0 | 100.0 | 96.7 |
| a | Mineral mixture supply | 5.0 | 70.0 | 90.0 | 55.0 |
| b | de-wormer supply | 40.0 | 70.0 | 70.0 | 60.0 |
| c | Any other supply specify | 0.0 | 0.0 | 0.0 | 0.0 |
| d | Advice on animal management–chaffing fodder, drinking water etc. | 55.0 | 55.0 | 90.0 | 66.7 |
| e | Advice on animal healthcare | 80.0 | 65.0 | 90.0 | 78.3 |
| f | Calf& heifer care | 50.0 | 75.0 | 90.0 | 71.7 |

On an average, 6-7 village awareness programs were conducted by each LRP, while same was the highest in Wardha and the lowest were in Amravati

[2] Traditional healthcare practises and medicines are suggested on various diseases of milch animals, as per Ethonoveterinary Medicine (EVM) practises booklet suggested by NDDB, Anand.

district. Majority of the LRPs have shown documentary on RBP during village awareness programme, while one fourth of total selected LRPs in Nagpur and Amravati districts did not shown documentary. It was very strange to note that two third of total LRPs did not distribute any literature on LRP to farmer's /cattle owners. At the same time, more than half of the total LRPs did not display RBP poster/banners in village or at Mother dairy units. While no banner/poster was displayed and no pamphlet were distributed by EIA. Despite of same, LRPs have reported that awareness of Farmers on RBP in village is very good and excellent. About 11 visits have been reported by the each LRP to selected farmer's /cattle owner household.

Table 8.2: Coverage and Efficiency of RBP

| Sr.No. | Particulars | Nagpur | Wardha | Amravati | Total |
|---|---|---|---|---|---|
| 1 | No. of Village Awareness Programs conducted in village | 6.4 | 10.1 | 3.1 | 6.5 |
| 2 | Whether the documentary on RBP was shown during village awareness programme? | | | | |
| | No | 25.00 | 5.00 | 25.00 | 18.33 |
| | Yes | 75.00 | 95.00 | 75.00 | 81.67 |
| 3 | No. of review meetings you have attended in last one year | 11.95 | 13.85 | 5.35 | 10.38 |
| 4 | Whether you distribute any literature on RBP to farmers | | | | |
| | No | 60.00 | 65.00 | 75.00 | 66.67 |
| | Yes | 40.00 | 35.00 | 25.00 | 33.33 |
| 5 | Is RBP poster/banner displayed in your village/DCS | | | | |
| | No | 70.00 | 65.00 | 25.00 | 53.33 |
| | Yes | 30.00 | 35.00 | 75.00 | 46.67 |
| 6 | Awareness of Farmers on RBP in your village | | | | |
| | Less | 15.00 | 5.00 | 5.00 | 8.33 |
| | Good | 45.00 | 75.00 | 65.00 | 61.67 |
| | Excellent | 40.00 | 20.00 | 30.00 | 30.00 |
| 7 | Do officers from Milk Union visit you for monitoring work after initiation of RBP? | | | | |
| | Never | 5.00 | 40.00 | 25.00 | 23.33 |
| | Sometimes | 10.00 | 40.00 | 35.00 | 28.33 |
| | Frequently | 85.00 | 20.00 | 40.00 | 48.33 |
| 8 | Av. No. of visits in past 1 year | 12 | 11 | 9.1 | 10.7 |

The LRPs in these three districts have adopted different criteria for the inclusion of cattle owners under RBP programme (table 8.3). The selection of

cattle owners in Nagpur district was based on cooperative nature of farmers having wiliness to join, famers having high yielding animals, same was suggested by dairy officials, while in case of Wardha and Amravati, personal preference was the determinant in selection of cattle owner. Thus, at overall level, LRP's preference was for cooperative nature of farmer criteria for the inclusion of cattle owner under RBP.

Table 8.3: Criteria for Selection of Cattle Owners under RBP by LRP

| Sr. No. | Criteria | % to Total | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | ALL |
| 1 | First come first serve-1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | Suggested by DCS officials-2 | 20.0 | 5.0 | 0.0 | 8.3 |
| 3 | Personal preferences-3 | 5.0 | 95.0 | 95.0 | 65.0 |
| 4 | Maximum animal in HH | 0.0 | 0.0 | 0.0 | 0.0 |
| 5 | More cooperative farmer | 50.0 | 0.0 | 0.0 | 16.7 |
| 6 | High yielding animals | 10.0 | 0.0 | 0.0 | 3.3 |
| 7 | Willingness farmers | 10.0 | 0.0 | 0.0 | 3.3 |
| 8 | only crossbreed animal holder | 5.0 | 0.0 | 5.0 | 3.3 |

As per LRP, the benefits of RBP are reported as decreasing cost of feed, reduced repeat breeding problem in cow, improved digestive system and increasing fat and SNF while some of them also believed that RBP help in increase in milk production, getting timely pregnancy, better fodder management as well as reduction in health relate problems of milch animals (Table 8.4).

Table 8.4: Understanding of LRP about RBP Benefits

| Sr. No. | Criteria | % to Total | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | ALL |
| 1 | Decreasing cost of feed | 100.0 | 65.0 | 95.0 | 86.7 |
| 2 | Reduced Repeating Problem in cow | 100.0 | 20.0 | 0.0 | 40.0 |
| 3 | improved digestive system | 100.0 | 10.0 | 0.0 | 36.7 |
| 4 | increasing fat & SNF | 100.0 | 55.0 | 30.0 | 61.7 |
| 5 | Increased in milk production | 0.0 | 45.0 | 65.0 | 36.7 |
| 6 | Timely Pregnancy | 0.0 | 35.0 | 5.0 | 13.3 |
| 7 | Fodder management | 0.0 | 40.0 | 5.0 | 15.0 |
| 8 | reduce health related problems | 0.0 | 0.0 | 20.0 | 6.7 |
| 9 | reduced the inter carving period | 0.0 | 0.0 | 50.0 | 16.7 |

## 8.3 Constraints Faced by LRPs:

The constraints faced by the LRPs are presented in Table 8.5. It can be seen from the table that except LRPs from Nagpur district, some of the LRPs from Wardha and Amravati had faced problem in software and the last problem faced was during last one-month period from survey visit. Such problems were sorted out by self or sometime help of other LRP was taken. As software was operated on android mobile and none of the LRP was given notebook, thus no such hardware problem was reported. Internet connectivity was the biggest problem for more than half of LRPs in Wardha and Amravati district while one fourth of LRPs in Nagpur district had faced same problem. While all the selected cattle owners have cooperated and non-beneficiary have not created any hurdles in the programme. Mineral mixture availability reported to be inadequate. Majority of LRPs have reported dissatisfactions over financial incentive received by them.

## 8.4 Opinions and Suggestions by LRPs

The opinion of LRP was sought about the programme. It can be seen from the Table 8.6 that on an average, 85 per cent of total LRPs have opined that they have seen notable impact of RBP in their village. The notable changes are in terms of increase in fat percentage as well as milk yield of animal, reduction in feed and fodder cost. Some have reported that number of animal have increased. The impact of RBP was reported relatively poor in Amravati district.

The main reason behind working as a LRP is to help the farmers and earn some income through this advisory services (Table 8.7). Some of the LRPs have interest in dairy thus joined the same. Due to working as a LRP, social status has been changed. Villagers have started believing in LRP and contacting him for any work. While half of the LRPs were not either sure or not feel that programme would be sustainable after withdrawal of government support.

Table 8.5: Constraints faced by the LRP

| Sr. no. | Particulars | Nagpur | Wardha | Amravati | All |
|---|---|---|---|---|---|
| 1 | Do you face problems with software | | | | |
| | No | 100.00 | 25.00 | 60.00 | 61.67 |
| | Sometime | 0.00 | 65.00 | 40.00 | 35.00 |
| | Frequently | 0.00 | 10.00 | 0.00 | 3.33 |
| 2 | Last software problem faced by the LRP (Days) | 0.00 | 6.00 | 20.25 | 8.75 |
| 3 | When you have some problems with software operation how do you handle it? | | | | |
| | Mostly set it right by self1 | 0.00 | 25.00 | 10.00 | 11.67 |
| | mostly seek the help of other lrp2 | 0.00 | 50.00 | 40.00 | 30.00 |
| | mostly seek the help from milk union | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | Are there any hardware problems in netbook | | | | |
| | No | 100.00 | 90.00 | 95.00 | 95.00 |
| | Sometime | 0.00 | 10.00 | 5.00 | 5.00 |
| | Frequently | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | Is internet connectivity a problem | | | | |
| | No | 75.00 | 35.00 | 45.00 | 51.67 |
| | Sometime | 25.00 | 45.00 | 25.00 | 31.67 |
| | Frequently | 0.00 | 20.00 | 30.00 | 16.67 |
| 6 | Do RBP Farmers cooperate easily? | | | | |
| | No | 0.00 | 5.00 | 15.00 | 6.67 |
| | Often | 0.00 | 35.00 | 35.00 | 23.33 |
| | Always | 100.00 | 60.00 | 50.00 | 70.00 |
| 7 | Do non-RBP cattle owner create any hurdles in programme? | | | | |
| | No | 100.00 | 55.00 | 95.00 | 83.33 |
| | Sometime | 0.00 | 45.00 | 5.00 | 16.67 |
| | Frequently | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | Is lack of support from EIA/DCS a constraint | | | | |
| | No | 100.00 | 100.00 | 75.00 | 91.67 |
| | Sometime | 0.00 | 0.00 | 25.00 | 8.33 |
| | Frequently | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | Is lack of support from milk union a constraint | | | | |
| | No | 100.00 | 80.00 | 55.00 | 78.33 |
| | Sometime | 0.00 | 10.00 | 10.00 | 6.67 |
| | Frequently | 0.00 | 10.00 | 35.00 | 15.00 |
| 10 | Is mineral mixture supply adequately available | | | | |
| | No | 35.00 | 65.00 | 25.00 | 41.67 |
| | Often | 5.00 | 20.00 | 35.00 | 20.00 |
| | Always | 60.00 | 15.00 | 40.00 | 38.33 |
| 11 | Are you satisfied with the financial incentive that you receive | | | | |
| | No | 60.00 | 60.00 | 50.00 | 56.67 |
| | Somewhat | 0.00 | 25.00 | 5.00 | 10.00 |
| | Yes | 40.00 | 15.00 | 45.00 | 33.33 |

Table 8.6: Notable Impact of RBP notices villages

| Sr. No. | Criteria | % to Total | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | ALL |
| 1 | Do you see any notable impact of RBP in your village? --- No | 0.00 | 0.00 | 0.00 | 0.00 |
| | Yes | 100.00 | 100.00 | 100.00 | 100.00 |
| | If yes, | | | | |
| 1 | Decreased expenses on feed & fodder | 35.0 | 30.0 | 5.0 | 23.3 |
| 2 | Decreased expenses on feed & fodder and Increased milk production of village | 0.0 | 0.0 | 10.0 | 3.3 |
| 3 | enhance awareness about the animal health | 0.0 | 0.0 | 25.0 | 8.3 |
| 4 | Increase fat of Milk | 35.0 | 70.0 | 0.0 | 35.0 |
| 5 | increase yield of animal | 30.0 | 0.0 | 0.0 | 10.0 |
| 6 | Increased milk production and number of animals in village | 0.0 | 0.0 | 5.0 | 1.7 |
| 7 | Increased milk production of village | 0.0 | 0.0 | 10.0 | 3.3 |
| 8 | Increased number of animals in village | 0.0 | 0.0 | 15.0 | 5.0 |
| 9 | Increased the income of households | 0.0 | 0.0 | 5.0 | 1.7 |
| 10 | number of animal increasing | 0.0 | 0.0 | 10.0 | 3.3 |
| 11 | Regularization of FMD vaccination | 0.0 | 0.0 | 5.0 | 1.7 |
| 12 | Use of Mineral Mixture increased | 0.0 | 0.0 | 5.0 | 1.7 |
| 13 | Use of Mineral Mixture and deworming increased | 0.0 | 0.0 | 5.0 | 1.7 |

Table 8.7: Opinion of LRP about RBP

| Sr. No. | Particulars | | Nagpur | Wardha | Amravati | All |
|---|---|---|---|---|---|---|
| 1 | Do you see any notable impact of RBP in your village? | No | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Yes | 100.00 | 100.00 | 100.00 | 100.00 |
| | Increase fat of Milk | | 35.00 | | | |
| | increase yield of animal | | 30.00 | | | |
| | Reduced cost on feed & fodder | | 35.00 | | | |
| | Number of Animals are increasing | | 0.00 | | 5.0 | |
| 2 | What prompted you to work as an LRP? | | | | | |
| | To do help to farmer community & earn some money | | 100.0 | 45.0 | 0.0 | 48.3 |
| | Have interest in dairy profession | | 0.0 | 0.0 | 20.0 | 6.7 |
| | Have interest in dairy profession & to earn some money | | 0.0 | 5.0 | 50.0 | 18.3 |
| | Inspire by this scheme | | 0.0 | 0.0 | 5.0 | 1.7 |
| | on recommendation of veterinary doctor | | 0.0 | 5.0 | 0.0 | 1.7 |
| | on request of cluster coordinator | | 0.0 | 20.0 | 0.0 | 6.7 |
| | on request of mother dairy representative | | 0.0 | 25.0 | 0.0 | 8.3 |
| | Self interest | | 0.0 | 0.0 | 5.0 | 1.7 |
| | Social work & to earn some money | | 0.0 | 0.0 | 15.0 | 5.0 |
| | to earn some money | | 0.0 | 0.0 | 5.0 | 1.7 |
| 3 | Do you feel any change in your social status after working as LRP? | No | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Somewhat | 0.00 | 40.00 | 25.00 | 21.67 |
| | | Yes | 100.00 | 60.00 | 75.00 | 78.33 |
| 4 | Do you think programme would be sustainable after withdrawal of government support? | No | 20.00 | 45.00 | 30.00 | 31.67 |
| | | Yes | 75.00 | 35.00 | 45.00 | 51.67 |
| | | Can't say | 5.00 | 20.00 | 25.00 | 16.67 |
| 5 | Would you like to continue providing the service after the end of programme? | No | 25.00 | 5.00 | 5.00 | 11.67 |
| | | Yes | 70.00 | 70.00 | 90.00 | 76.67 |
| | | Can't say | 5.00 | 25.00 | 5.00 | 11.67 |

Table 8.8: Suggestions for Improvement of RBP

| Sr. No. | Criteria | % to Total | | | |
|---|---|---|---|---|---|
| | | Nagpur | Wardha | Amravati | ALL |
| 1 | Provide Transport Allowances separately to LRP | 60.0 | 45.0 | 15.0 | 40.0 |
| 2 | Insure remunerative price for milk | 0.0 | 10.0 | 90.0 | 33.3 |
| 3 | Timely and Adequate supply of Miner Mixture at Village level | 10.0 | 5.0 | 0.0 | 5.0 |
| 4 | Provide loan for purchase of livestock without interest | 0.0 | 10.0 | 0.0 | 3.3 |
| 5 | Provide Insurance to LRP | 40.0 | 30.0 | 5.0 | 25.0 |
| 6 | Make available fodder seed and Feed at village level | 0.0 | 25.0 | 5.0 | 10.0 |
| 7 | Need subsidy for Godown | 0.0 | 10.0 | 10.0 | 6.7 |
| 8 | Training for AI | 0.0 | 25.0 | 0.0 | 8.3 |

## 8.5 Chapter Summary:

On an average, 6-7 village awareness programs were conducted by each LRP. LRP prefer cooperative farmer criteria for the inclusion of cattle owner under RBP. The benefits of RBP understand by the LRP are decreasing cost of feed, reduced repeating problem in cow, improved digestive system and increasing fat & SNF while some of them also believe that RBP would help in increase in milk production, getting timely pregnancy, better fodder management as well as reduction in health relate problems of milch animals. Majority of LRPs have reported dissatisfactions over financial incentive received by them. On an average, 85 per cent of total LRPs have opined that they have seen notable impact of RBP in their village. The notable changes are in terms of increase in fat percentage as well as milk yield of animal, reduction in feed and fodder cost. Some have reported that number of animal have increased. The main reason behind working as a LRP is to help the farmers and earn so income through this advisory services. Some of the LRPs have interest in dairy thus joined the same. Due to working as a LRP, social status has been changed. Villagers have started believing in LRP and contacting him for any work. While half of the LRPs were not either sure or not feel that programme would be sustainable after withdrawal of government support.

The last chapter presents conclusions and policy implications.

Chapter IX

# Conclusions and Policy Implications

## 9.1 Conclusions:

### Impact of RBP

- The implementation of the programme has resulted in increase in milk yield, SNF and fat content along with reduction in feeding cost.
- As per INAPH dataset, the major achievement of the RBP programme is observed (for 180 days interval period) in terms of increase in fat content of milk. The milk yield increased by 2.0 per cent and fat% by 3.6 per cent over base period at overall level. The average cost of feeds and fodder declined by 6.6 per cent.
- The field survey data also indicate that average milk yield is increased by 9.6 per cent, fat% is increased by the 8.6 per cent and cost of feeds and fodder declined by 7.3 per cent. The variability in the milk yield across the sample beneficiary households is estimated lower than the milk yield level realised by the non-beneficiary households.
- The milk yield per animal realised by the beneficiary households was higher than milk yield per animal realised by non-beneficiary except in case of buffalo.
- The fat and SNF level was found higher in milk drawn from animal covered under RBP than other uncovered animals with beneficiary households in all three districts.
- On an average, 85 per cent of total LRPs have opined that they have seen notable impact of RBP in their village. The remarkable changes are in terms of increase in fat percentage as well as milk yield of animal, reduction in feed and fodder cost. Some have reported that number of animal have increased.
- Cattle owners have started using the Mineral Mixture and Cattle feed.

*Outreach of RBP among Adopters and its Benefits:*

- More than 91 per cent of beneficiary households have opined that benefits of RBP has increased their interest in dairy and would like increase the herd strength in coming days.
- Around 89 per cent of beneficiary households mentioned that they feel involved in programme which is important point for future progress of the programme.
- The success of RBP can be seen from the fact that about 98 per cent of farmers were following the recommended ration advisory given by LRP.
- More than 94 per cent of beneficiary households opined that milk production as well as composition of milk has increased.
- Most of the households have also reported that health of animals is also improved after adoption of RBP. Decrease in digestive disorders of animals after adoption of RBP was experienced by majority of the selected sample households.
- On an average, selected beneficiary households rank RBP as successful programme by marking programme with 9.1 points on ten-point scale.

Implementation and Monitoring of RBP by EIA:

- As per the data submitted by EIA, almost all set targets are achieved, viz. covered more than 13600 animals of 6800 farmers/cattle owners from 400 villages of 3 districts. As against target to appoint 200 local resource persons and 10 cluster coordinators for execution, 110 LRPs and 9 CC are reported working. Though 209 LRPs and 11 CCs were appointed and trained, but due to high rate of attrition, only 110 LRPs and 9 CCs are working at present which is short of target.
- Total 395 village awareness programme were organized. The number of VAPs conducted were significant during the first month of inception of programme (November 2019) and later on number of VAPs have drastically declined which may be due to Corona Pandemic.

- While display of poster and banners as well as distribution of pamphlets was not executed.
- The staff of the EIA including project manager, project coordinator, cluster coordinators and technical officers along with LRPs have attended the training programme at National Dairy Development board, Anand.
- The project coordinators, cluster coordinators and technical officers of Mooofarm who got training at NDDB Anand have trained the LRPs appointed in each district by conducting six days training programme having theory and practical content.
- The application of INAPH used is android based for LRP which is offline while same was web based online for Cluster Coordinators working on the field which is in English language. The issues related to software in notebook/android phone of LRP are majorly resolved by CCs, TOs & PC, and if issue remain unresolved, then same is reported to NDDB.
- Whatever the data is uploaded by LRP is being checked, cross verified, and assessed regularly based on which suitable recommendations are given to the LRPs for better implementation of program.
- Majority of LRPs have reported dissatisfactions over financial incentive received by them.

Reporting and Monitoring System:

- The whole project is managed by Project Manager at Head Office level and cluster co-ordinator appointed at the local level along with LRPs.
- Each of the LRP covered around 3-4 villages at overall level. Every LRP covered around 37-51 cattle owners and 79-90 animals. On an average, every LRP has given 5 advisories. While some of the LRPs have covered more than five villages which is not practical to cover and attend each household.
- The LRP is paid remuneration on the basis of total number of animals covered having maximum limit of Rs. 9500/- per month. No other allowances are paid to LRP and CC. While inquiry with LRP during visit

revealed that Rs. 70/- per animal remuneration is fixed and maximum three animals per households can be enrolled under RBP.

- No incentives are provided to local resource person at present which is of major concern to retain the LRPs. LRPs are provided with NDDB EVM booklet which specifies the traditional practices to control various diseases of milch animals. LRPs are using same while giving additional advisory to cattle owners.
- Field and online Monitoring of LRPs is regularly done by CCs & TOs and data filled by LRPs in INAPH is checked regularly by project coordinator and project manager, then based on data analysis, instructions are given to team for better implementation.
- Besides, it was reported that monthly review meetings of LRPs & CCs are taken alongside surprise visits by team from Head Office

Sustainability of Program.

- So far EIA has not put suitable mechanism in place to ensure sustainability of the programme either through commission on sale of mineral mixture, concentrates, etc. or by capacity building of LRP for paid advisory to farmers on veterinary and related issues.
- Mooofarm has no plan or any source of funds to continue. EIA has also opined that monetary benefit to LRPs is most important factor for success of program and therefore without the program, currently the LRPs cannot remain financially viable.
- In response to issue of sustainability of program, EIA opined that at the moment handholding of the government supported program is required as farmers are still developing the habit of implementing RBP. It is only with time that impact will start showing for each farmer.
- Around 84 per cent of respondents mentioned their willingness to pay/like to adopt RB advisory on payment basis after the end of programme, while 16 per cent of households refused to pay or mentioned unwillingness to adopt the RBP after the end of the programme on payment basis and rest of them could not say anything on this point.

### Bottlenecks in Implementation of Programme

- Grazing is a common practice in Vidarbha Region and it is slightly difficult in the beginning to convince farmers for RBP but when results start showing in fellow farmer's farm, few get encouraged to implement the RBP.
- EIA reported that due to less stipend to LRP, proper selection of LRP is a tedious task as well as continuation of same person is also overwhelming. High attrition of LRPs, shortage of tag and delayed in procurement of projectors were major problems faced by EIA.
- Most of the selected households have adopted the advisory but kept grazing out the animals indicate the partial adoption of the same.

## 9.2 Policy Implications:

- In view of positive impacts of Ration Balancing Programme in selected three districts of Vidarbha regions of Maharashtra, programme need to be continued. The project also needs to be implemented in the areas with less sizeable population of cattle and buffaloes having stall feeding practices.
- Government should make necessary arrangement to have in time availability of adequate supply of concentrates and supplements (mineral mixtures) for milch animal in deficient area. It can be supplied through milk procurement unit of Mother dairy in each village.
- The regular health check-up of animal health, regular visit and availability of veterinary doctor at village level need to be arranged and monitored by both State Government and VMDDP.
- As no selected dairy farmer had insured their livestock. Therefore, link should be established between RB program and animal insurance scheme.
- RB programme is designed for the stall feeding (zero grazing) animals wherein one can check and control the diet. However, grazing animal's diet cannot be control and thus have limitation on impact of RBP in short run. Therefore, cattle owner need to be educated and convinced about importance of stall feeding so that in the long run, impact of RBP can be realised and dairy sector can be flourished.

- The remuneration of LRP should be lucrative so as to encourage the local youth to get involved in this program. LRPs should be provided with petrol allowance, Identity Card and Accidental Insurance which make them more confident and serious about performing their job and duties.
- In view of deficiency of veterinary services, LRP should be trained with a certificate programme on Artificial insemination and Livestock Management so that gap can be filled up and LRP can earn more income and thus program can become sustainable in future.
- EIA (Mooofarm) must have at least one district office at every district where once in fortnight meeting should be held to discuss the issues and possible options to solve the same.
- Many milk pourers have reported that fat and SNF testing machine at Mother diary collection unit remains in not working mode frequently which takes three-four weeks time to bring back it to working condition. During the period of absence of testing machine, milk pourer is given average milk fat and SNF % which demoralise the beneficiary as well as progressive dairy owners.
- At most of the places, condition of cattle shed is found very bad. Most of them mentioned that they have difficulty in getting Cattle shed loan from bank. Therefore, State Government must put in place the linking of beneficiary farmers and banks.
- Most of the farmers have shown interest in chaff cutter but State Department is not in position to meet the demand of chaff cutter. Therefore, State Government should provide the chaff cutter to the beneficiary households.
- Active involvement of State Government of Animal Husbandry and Dairy Development active involvement in this programme would help to accelerate the vaccination and AI of the animals. Therefore, there is a need to get services of Veterinary doctor till LRPs are provided with Certificate Course on Livestock Management.

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Annexure I

## Glimpses of Visit to Field:

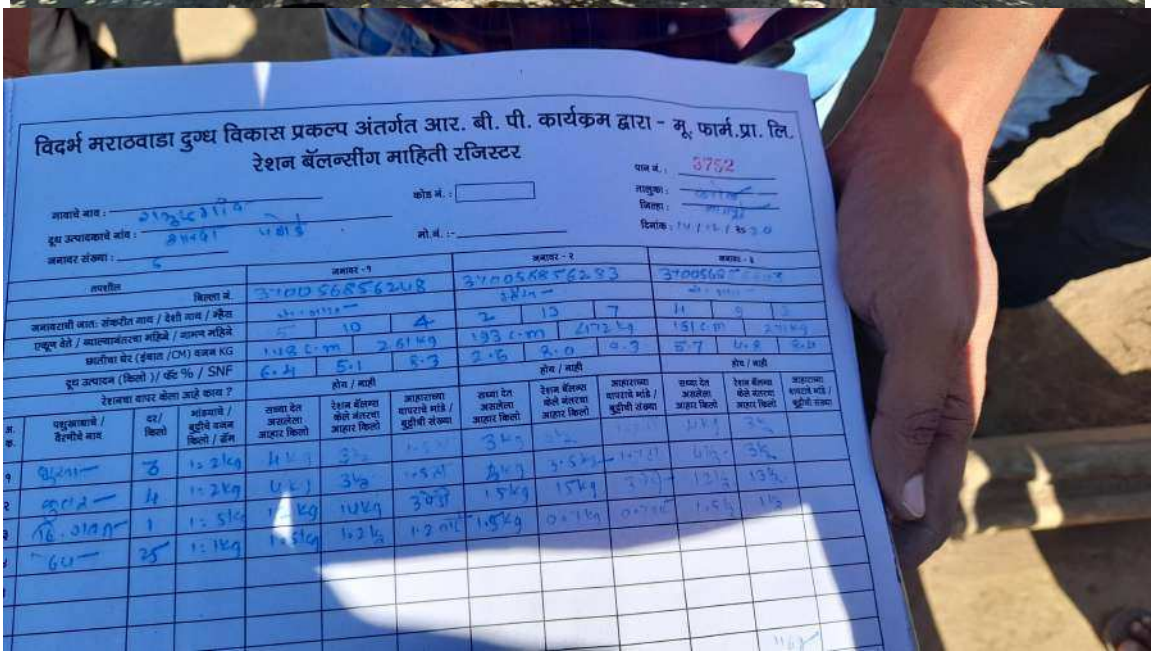
1. VMDDP, NDDB, MOTHER DAIRY AND DEPT OF AHDS, College of Ag, Nagpur; KVK, Wardha and College of Agriculture, Amravati


Dr. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA
ANIMAL HUS.& DAIRY SCIENCE SECTION
COLLEGE OF AGRICULTURE, NAGPUR


डॉ.पंजाबराव देशमुख कृषि विद्यापीठ, अकोला
कृषि विज्ञान केंद्र
वर्धा (सेलसुरा)
Dr.PANJABRAO DESHMUKH KRISHI VIDYAPEETH,AKOLA
KRISHI VIGYAN KENDRA
WARDHA (SELSURA)


श्री शिवाजी कृषी महाविद्यालय अमरावती

## 2. Nagpur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रेशन बॅलन्सींग माहिती रजिस्टर

## 3. Wardha

## 4. Amravati

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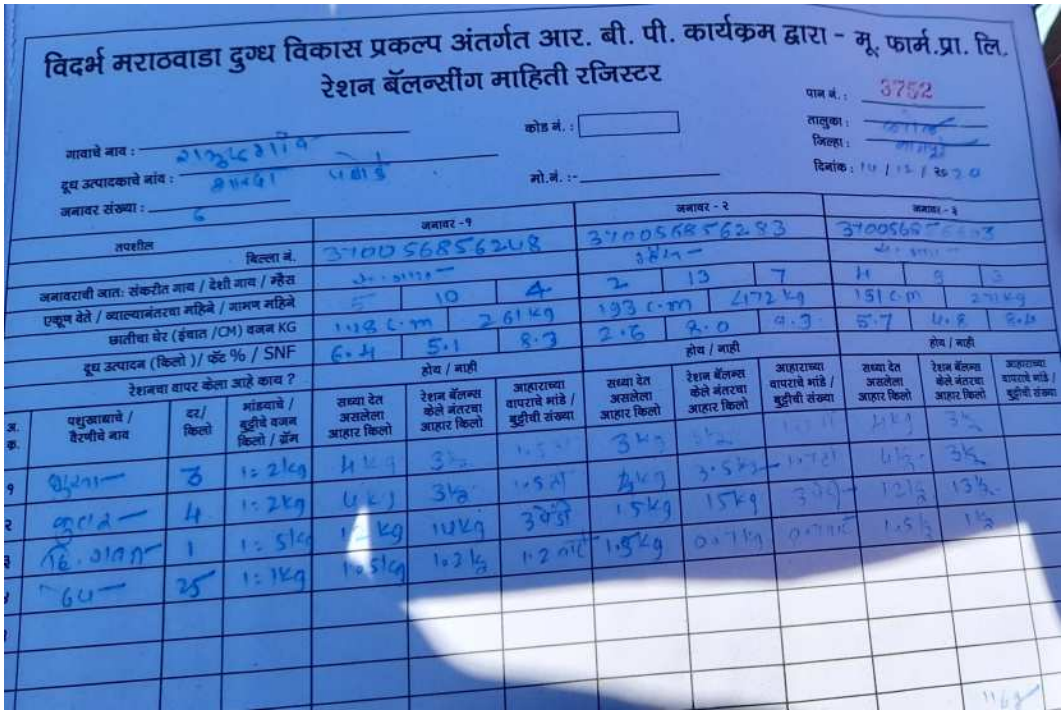
Annexure II

Book entry and Material provided



विदर्भ मराठवाडा दुग्ध विकास प्रकल्प अंतर्गत आर. बी. पी. कार्यक्रम द्वारा - मे. फार्म.प्रा. लि.

रेशन बॅलन्सींग माहिती रजिस्टर

पान नं. : 3752

गावाचे नाव : [illegible]

कोड नं. :

तालुका : [illegible]

दूध उत्पादकाचे नांव : [illegible]

मो.नं. :-

जिल्हा : [illegible]

दिनांक : 10 / 12 / 2020

जनावर संख्या : 6

| तपशील | जनावर - १ | जनावर - २ | जनावर - ३ |
|---|---|---|---|
| बिल्ला नं. | 3100568562 08 | 3100568562 83 | 3100568[illegible] |
| जनावराची जात: संकरीत गाय / देशी गाय / म्हैस | [illegible] | [illegible] | [illegible] |
| एकूण वेते / व्याल्यानंतरचा महिने / गाभण महिने | 5 \| 10 \| 4 | 2 \| 13 \| 7 | 1 \| 9 \| 3 |
| छातीचा घेर (इंचात /CM) वजन KG | 118 c.m \| 261 kg | 193 c.m \| 272 kg | 151 c.m \| 231 kg |
| दूध उत्पादन (किलो )/ फॅट % / SNF | 6.4 \| 5.1 \| 8.3 | 2.6 \| 8.0 \| 9.9 | 5.7 \| 6.8 \| 8.6 |
| रेशनचा वापर केला जाहे काय ? | होय / नाही | होय / नाही | होय / नाही |

| अ. क्र. | पशुआहाराचे / वैरणीचे नाव | दर/ किलो | मांडयाचे / बुट्टीचे वजन किलो / ग्रॅम | सध्या देत असलेला आहार किलो | रेशन बॅलन्स केले नंतरचा आहार किलो | आहाराच्या वापराचे मांडे / बुट्टीची संख्या | सध्या देत असलेला आहार किलो | रेशन बॅलन्स केले नंतरचा आहार किलो | आहाराच्या वापराचे मांडे / बुट्टीची संख्या | सध्या देत असलेला आहार किलो | रेशन बॅलन्स केले नंतरचा आहार किलो | आहाराच्या वापराचे मांडे / बुट्टीची संख्या |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| १ | [illegible] | 3 | 1:2kg | 4kg | 3kg | [illegible] | 3kg | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| २ | [illegible] | 4 | 1:2kg | 4kg | 3kg | [illegible] | 4kg | 3.5kg | [illegible] | [illegible] | [illegible] | [illegible] |
| ३ | [illegible] | 1 | 1:5kg | 12kg | 11kg | [illegible] | 1.5kg | 15kg | [illegible] | [illegible] | [illegible] | [illegible] |
| ४ | [illegible] | 25 | 1:1kg | 1.5kg | 1.2kg | [illegible] | 1.5kg | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |


moofarm
Ritesh J. Chauhan
Cluster Coordinator
Employee Code : Mooo-0126
Blood Group : AB - ve

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**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

[विदर्भ व मराठवाडा दुग्धव्यवसाय विकास प्रकल्प- महाराष्ट्रातील रेशन बॅलन्सिंग (पशु आहार व्यवस्थापन कार्यक्रम) प्रोग्रामवरील पायलट प्रोजेक्टचे मूल्यांकन]

# Village Schedule: 1.0 गाव सर्वेक्षण फॉर्म 1.0

| **[0] Descriptive Identification of Sample Village** (नमुना गावची वर्णनात्मक ओळख) | | | |
|---|---|---|---|
| Particulars (तपशील) | **Name** (नाव) | Particulars (तपशील) | **Name** (नाव) |
| 1. State (राज्य) | Maharashtra | 5. Name of informant (माहिती देणा-याचे नाव) | |
| 2. District (जिल्हा) | | 6. Designation (in DCS/Gram Panchayat/Mot dairy) (पदनाम -डीसीएस / ग्रामपंचायत / मदर डेअरीमध्ये) | |
| 3. Tehsil (तहसील / तालुका) | | | |
| 4. Village (गाव) | | 7. Mobile number (मोबाइल नंबर/भ्रमण ध्वनि) | |
| 5. DCS (दुग्ध सहकारी संस्था)/ Mother dairy (मदर डेअरी) | | | |

| **[1] General Information of Village** गावाची सामान्य माहिती | | | | | | |
|---|---|---|---|---|---|---|
| 1. Number of Household (कुटुंबाची एकूण संख्या) | | | | 6. Geographical Area (ha) (भौगोलिक क्षेत्र हेक्टर) | | |
| 2. Number of Dairy Animal Farmers (पशुपालकांची संख्या) | | | | 7. Cultivated Area (ha) (लागवड क्षेत्र हेक्टर) | Irrigated सिंचित | Rainfed कोरड वाहू |
| | | | | | | |
| 3. Number of Dairy Animals (दुधाळ जनावरांची संख्या) | Local Cows (गावठी गाय) | CrossBred (संकरित गाय) | Buffalo (म्हशींची संख्या) | | Kharif (खरीप पिके) | |
| | | | | | | |
| 4. Number of DCS/Mother dairy Members (दुग्ध सहकारी संस्था / मदर डेअरी सदस्यांची संख्या) | | | | | Rabi (रबी पिके) | |
| 5. Profile of DCS /Mother dairy Members (Number) (दुग्ध सहकारी संस्था / मदर डेअरी सदस्यांचे प्रोफाइल) | Male (पुरूष): | Female (स्त्री): | | 8. Major Crops (प्रमुख पिके) | Summer (उन्हाळा पिके) | |
| | SC अनुसूचित जाती | OBC इतर मागासवर्गीय | | | | |
| | ST अनुसूचित जमाती | GEN खुला | | | | |

| **[2] Availability of Some Facilities** सुविधांची उपलब्धता | | | |
|---|---|---|---|
| No. | Item | Within Village (write '0') खेड्यात ('0' लिहा) | Distance from Village (in km) गाव पासून अंतर (किमी मध्ये) |
| 1. | Road Connectivity *Kaccha- 1, Pucca- 2* (रस्ता कनेक्टिव्हिटी : कच्चा- १, पक्का- २) | | |
| 2. | Name of Nearest Town/City (जवळचे शहर / शहराचे नाव) | | |
| 3. | Dairy Cooperative Society/Mother Dairy (दुग्ध सहकारी संस्था / मदर डेअरी) | | |
| 4.<br>4.1<br>4.2 | Milk Collection Centre (दूध संकलन केंद्र)<br>Co-Operative/Mother Dairy (दुग्ध सहकारी संस्था / मदर डेअरी)<br>Private Sector (खाजगी दुध युनिट) | | |
| 5. | Chilling Centre/Bulk Milk Cooler (शीतकरण केंद्र / मोठ्या प्रमाणात दूध कूलर) | | |

| | | | |
|---|---|---|---|
| 6. | Krishi Vigyan Kendra/Extension Institution<br>(कृषी विज्ञान केंद्र / विस्तार संस्था) | | |
| 7. | Artificial Insemination Centre (कृत्रिम रेतन केंद्र) | | |
| 8. | Semen Collection Centre (वीर्य संकलन केंद्र) | | |
| 9. | Panchayati Breeding Bull (पंचायती पैदास वळू) | | |
| 10. | Veterinary Hospital/ Dispensary (पशु चिकित्सालय / दवाखाना) | | |
| 11. | Markets for purchase of Cattle Feed (पशुखाद्य खरेदीसाठी बाजारपेठा) | | |
| 12. | Market for Sale and Purchase of Livestock Products<br>(पशुधन उत्पादनांच्या विक्री व खरेदीसाठी बाजार) | | |

**[3] Any outbreak of disease of livestock during the past one year** गेल्या एक वर्षात पशुपालिकेच्या आजाराचा कोणताही प्रादुर्भाव)

| Particulars (तपशील) | No. of Animals (गुरांची संख्या) | | | | |
|---|---|---|---|---|---|
| | Local (गावठी) | Crossbred (संकरित) | No. of buffaloes (म्हशींची संख्या) | Goat (शेळी/ बकरी) | |
| 1. Animals affected (also specify name of the disease)<br>(प्रभावित गुरांची संख्या -रोगाचे नाव देखील निर्दिष्ट करा) | | | | | |
| 2. Number of prophylactic vaccinations made for<br>(रोगप्रतिबंधक लस टोचण्याची संख्या)<br>• Foot and Mouth Disease (FMD) पाय आणि तोंड रोग<br>• Black Quarter (BQ) ब्लॅक क्वार्टर (बीक्यू)<br>• Haemorrhagic septicaemia (HS) हेमोरॅजिक सेप्टीसीमिया<br>• Any Others इतर कोणतेही | _____<br>_____<br>_____<br>_____ | | | | |
| 3. Animals died (specify name of the disease) (मरण पावलेल्या गुरांची संख्या -रोगाचे नाव निर्दिष्ट करा) | | | | | |

**[4] Details of development programmes/support** (विकास कार्यक्रमांचा तपशील)

| Name of the development programme (विकास कार्यक्रमाचे नाव) | Code (कोड) |
|---|---|
| 1. Productivity enhancement components of national dairy plan that are in operation<br>*RBP-1, fodder cultivation-2, animal breeding- 3, animal health-4……*give month and year of start for each programme<br>कार्यान्वित असलेल्या राष्ट्रीय दुग्ध योजनेचे उत्पादकता वर्धक घटक-<br>आरबीपी 1, चारा लागवड 2, प्राण्यांचे प्रजनन 3, प्राण्यांचे आरोग्य 4 (प्रत्येक कार्यक्रमास सुरू होणारा महिना आणि वर्ष द्या) | |
| 2. Support presently provided by DCS/Mother Dairy for RBP<br>*supply of mineral mixture-1, LRP remuneration-2, awareness campaign-3, other-4 (specify)*<br>(सध्या आरबीपीसाठी दुग्ध सहकारी संस्था / मदर डेअरीद्वारे पुरविलेला आधार)<br>खनिज मिश्रण 1, एलआरपी मोबदला 2, जागरूकता मोहीम 3, इतर 4 (निर्दिष्ट करा) चे पुरवठा | |
| 3. National project for cattle and buffalo breeding (NPCBB) *no-1, yes-2*<br>गोवंश आणि म्हशींच्या पैदाससाठी राष्ट्रीय प्रकल्प (एनपीसीबीबी) नाही 1, होय 2 | |
| 4. Feed and fodder development *no-1, yes-2*<br>(खाद्य आणि चारा विकास) नाही 1, होय 2 | |
| 5. Special livestock breeding project *no-1, yes-2*<br>(विशेष पशुधन प्रजनन प्रकल्प ) नाही 1, होय 2 | |
| 6. Any other development program/facility by co-operative/Mother dairy (specify) *no-1, yes-2*<br>सहकारी /मदर डेअरीद्वारे किंवा अन्य एजन्सीद्वारे विकसित केलेला कोणताही विकास कार्यक्रम / सुविधा (निर्दिष्ट करा)<br>नाही 1, होय 2 | |

| **[5] Effect of RBP on key variables,** आरबीपी चा प्रभाव | *Before RBP* आरबीपी पूर्वी | *After RBP* आरबीपी नंतर |
|---|---|---|
| 1. DCS/Mother dairy membership (दुग्ध संस्था / मदर डेअरी सदस्यता) | | |
| 2. Milk Pourer membership (दूध भरणारे सभासद संख्या) | | |
| 3. Average daily milk procurement (दररोज सरासरी दूध खरेदी- लिटर) | | |
| 4. Average milk fat % Fat % (दुधात स्निग्ध घटक पदार्थाचे प्रमाण %) | | |
| 5. Average SNF (Solids-not-fat ) % (दुधात स्निग्धघटक विरहित घटकचे प्रमाण %) | | |
| 6. Average monthly mineral mixture sale kg (सरासरी मासिक खनिज मिश्रण विक्री- किलोग्राम) | | |
| 7. Average monthly cattle feed sale in quintal (सरासरी मासिक पशुखाद्य विक्री - क्विंटल) | | |

| **[6] General Opinion, Perception, Constraints and Suggestions Regarding RBP**<br>आरबीपी संबंधी सामान्य मत, समज, निर्बंध आणि सूचना | **Code** (कोड) |
|---|---|
| 1. Is there any change in financial status of DCS/Mother Dairy after RBP ( from milk or input sales)<br>*No-1,improved-2, can't say-3*<br>१. आरबीपी नंतर दुग्ध संस्था / मदर डेअरीच्या आर्थिक स्थितीत काही बदल झाले आहेत (दूध किंवा इनपुट विक्रीतून)<br>नाही 1, सुधारले आहे 2, सांगू शकत नाही -3 | |
| 2. What is the general opinion about RBP in the village *-Beneficial-1,not beneficial-2, can't say-* गावात आरबीपी बद्दल सामान्य मत काय आहे? लाभदायक -1, फायदेशीर नाही2 सांगू शकत नाही -3 | |
| 3. Any significant change noticed in the village after RBP in …….. *no-1,yes-2, can't say-3*<br>आरबीपी नंतर गावात कोणताही महत्त्वपूर्ण बदल लक्षात आला ..... नाही 1, होय 2 सांगू शकत नाही -3<br>a. Improvement in fertility status of animals (प्राण्यांच्या प्रजनन स्थितीत सुधारणा)<br>b. Reduction in disease incidence among milch animals (दुभत्या जनावरांमध्ये रोगाचा प्रादुर्भाव कमी)<br>c. Increase in income levels of farmers (शेतकऱ्यांच्या उत्पन्नाच्या पातळीत वाढली)<br>d. Decrease in number of veterinary visits per year for treatment Decrease in number of veterinary visits per year for treatment (उपचारासाठी दर वर्षी पशुवैद्यकीय भेटींची संख्या कमी झाली) | |
| 4. Do you feel RBP to be continued in the village ……*no-1, yes-2*<br>आपणास असे वाटते की आरबीपी खेड्यात सुरू ठेवले पाहिजे .....नाही 1, होय 2<br>If *no* specify why…..नाही, निर्दिष्ट | |
| 3. Do you feel LRPs can be utilized for some DCS/Mother Dairy/Veterinary activities also in future<br>*No-1,yes-2* if *yes* specify activities<br>आपल्याला असे वाटते की भविष्यातही काही दुग्धसहकारी/मदर डेअरी/पशुवैद्यकीय उपक्रमांसाठी एलआरपीचा उपयोग केला जाऊ शकतो .....नाही -1, होय -2, जर हो क्रियाकलाप निर्दिष्ट केल्यास | |
| 4. Is DCS/Mother Dairy ready to pay some remuneration to LRP from own fund *no-1,yes-2*<br>दुग्धसहकारी/मदर डेअरी स्वत: च्या निधीतून एलआरपीला काही मोबदला देण्यास तयार आहेत का ? (नाही 1, होय 2)<br>If *yes* specify average monthly remuneration to LRP, that DCS/Mother Dairy can bear<br>जर होय, सरासरी मासिक मोबदला निर्दिष्ट करा | |
| 5. What are the constraints in implementation of RBP in the village?<br>गावात आरबीपी कार्यान्वयन करताना कोणत्या अडचणी आहेत?<br>a. _____<br>b. _____<br>c. _____ | |

6. Would you like to give suggestion for improvement in RBP?
आरबीपी मध्ये सुधारणा करण्यासाठी आपण सूचना देऊ इच्छिता काय?

a. _____

b. _____

c. _____

**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

[विदर्भ व मराठवाडा दुग्धव्यवसाय विकास प्रकल्प- महाराष्ट्रातील रेशन बॅलन्सिंग (पशु आहार व्यवस्थापन कार्यक्रम) प्रोग्रामवरील पायलट प्रोजेक्टचे मूल्यांकन]

**Beneficiary Household Survey Schedule: 2.0** (लाभार्थी घरगुती सर्वेक्षण फॉर्म 2.0)

| **[0] Identification of Sample Household** (नमुना घरगुती ओळख) | | | |
|---|---|---|---|
| Particulars (तपशील) | **Name** (नाव) | Particulars (तपशील) | **Name** (नाव) |
| 1. State (राज्य) | Maharashtra | 6. Name of household head (कुंटूब प्रमुखाचे नांव) | |
| 2. District (जिल्हा) | | 7. Age of Head of Household (कुंटूब प्रमुखाचे वय वर्षे) | |
| 3. Tehsil (तहसील / तालुका) | | 8. Education in years (शिक्षण- वर्षे) | |
| 4. Village (गाव) | | 9. Name of informant (माहिती देणा-याचे नाव) | |
| 5. DCS (दुग्ध सहकारी संस्था) | | 10. Mobile number (मोबाइल नंबर/भ्रमण ध्वनि) | |

| **[1a] Socio- economic characteristics** (सामाजिक- आर्थिक वैशिष्ट्ये) | | | | |
|---|---|---|---|---|
| 1. Religion (code)- (1:Hindu, 2:Muslim, 3:Christian, 4: Sikh, 5:Others) धर्म (कोड) (१: हिंदु, २: मुस्लिम, 3 ख्रिश्चन, 4 शीख, 5 इतर) | | 3. Occupation- (code)- 1: Cultivator, 2: Animal Husbandry and Dairying, 3: Agri. Labour, 4:Nonfarm Labour, 5:Own Non-Farm Establishment, 6:Trade, 7:Employee in Service, 8: Other (व्यवसाय- 1: शेतकरी, 2: पशु पालन व दुग्ध व्यवसाय, 3: कृषी. कामगार, 4: नॉनफार्म कामगार, 5: स्वत: ची बिगर-शेती स्थापना, 6: व्यापार, 7: सेवेतील कर्मचारी, 8: इतर) | Main (मुख्य) | |
| 2. Social Group (1:SC, 2:ST, 3: OBC, 4: Open) (सामाजिक गट- 1: अनुसूचित जाती, 2 अनुसूचित जमाती, 3: इतर मागासवर्गीय, 4: खुला) | | | Subsidiary (पुरक) | |
| 4. Income Group (1:BPL/ 2:APL/ 3:AAY) (मिळकत गट १-बीपीएल, २-एपीएल, 3 एएवाय) | | 5. Landless (write -zero)/ Land Holdings (acre) [भूमिहीन (शून्य) / जमीन धारणा (एकर)] | | |
| 6. Experience in Dairy (years) (दुग्ध व्यवसायातील अनुभव –वर्ष) | | 7. Experience in Farming (years) शेतीचा अनुभव असल्यास (वर्षे) | | |
| 8. Since how long you are a member of dairy cooperative? (years) (आपण दुग्ध सहकारी संस्था सदस्य किती कालावधी पासून आहात? (वर्षे)) | | 9. Do you maintain dairy (milk) financial record? 1:No 2:Yes (आपण दुध व्यवसायाची आर्थिक नोंदी ठेवता का? १: नाही २: होय) | | |
| 10.Biogas Facility at home- 1: No 2:Yes (तुमच्या घरी बायोगॅस सयंत्र कार्यरत आहे का?) १: नाही २: होय) | | 11. Toilet facility at home 1:No 2:Yes (घरात शौचालयाची सुविधा आहे का?) १: नाही २: होय) | | |
| 12. Total Family members (कुटुंबातील एकूण सदस्य): - Male (पुरूष): Female (स्त्री): Children (मुले -15 वर्षापेक्षा कमी): Family members working in dairy (दुग्ध व्यवसायात काम करणारे कुटुंबातील सदस्य) Male (पुरूष): Female (स्त्री): Children (मुले): | | | | |

**[1b] Holding of Productive Assets (Dairy)** उपलब्ध साधनसामग्री (दुग्ध व्यवसाय)

| Sr. | Assets (उपलब्ध साधनसामग्री - दुग्ध व्यवसाय) | No. | Sr. No. | Assets (उपलब्ध साधनसामग्री - दुग्ध व्यवसाय) | No. |
|---|---|---|---|---|---|
| 1 | Milk Machine (दुध मशीन) | | 7 | Grass Chopper (गवत कुट्टी यंत्र) | |
| 2 | Grass Cutter (गवत कापणी यंत्र) | | 8 | Fogger (फॉगर) | |
| 3 | Fodder Chaffer-Manual (चारा कुट्टी यंत्र मानव संचालित) | | 9 | Biogas unit (बायोगॅस सयंत्र) | |
| 4 | Fodder Chaffer Power ( चारा कुट्टी यंत्र -विद्युत/डिझेल शक्ती) | | 10 | Tractor trolley (ट्रॅक्टर ट्रॉली) | |
| 5 | Fodder harvester/ mowers (चारा कापणी / मोव्हर्स) | | 11 | Large Auto (material shifting) वाहन (साहित्य हलविणे) | |
| 6 | Feed Mixer/ TMR mixer (मिक्सर / टीएमआर फीड मिक्सर) | | 12 | Any other (इतर ) | |

**[2] Communication Characteristics:** संपर्क वैशिष्ट्ये ..... (दुधाचे उत्पादन आणि चारा लागवडीशी संबंधित)

***2.1 Frequency of extension contact (in past one year) code:*** *never - 0, sometime 1, regularly –2* (कधीही नाही - 0, कधीतरी 1, नियमितपणे 2)

| Particular | Code | Particular | Code | | Code |
|---|---|---|---|---|---|
| 1. Stockman/LRP (स्टॉकमॅन / एलआरपी) | | 5. KVK Scientist (कृषी विज्ञान केंद्र चे विषय तज्ञ) | | 9. Output buyer (खरेदीदार) | |
| 2. Vet. Asstt. Surgeon पशुवैद्यकीय सहाय्यक शल्यचिकित्सक | | 6. Progressive farmers (पुरोगामी शेतकरी) | | 10. Any other (specify) इतर (निर्दिष्ट) | |
| 3. Dairy extension officers (दुग्ध विस्तार अधिकारी) | | 7. Neighbors / Friends (शेजारी / मित्र) | | | |
| 4. C.D.O/ B.D.O./VDO/Village Level Worker | | 8. Input dealer (दुग्ध व्यवसाय सामग्री वितरक) | | | |
| ***2.2 Mass media exposure (in past one year) 2019-20*** | | | | | |
| 1. Radio (रेडिओ) | | 3. Film (educational) (चित्रपट शैक्षणिक) | | 5. Newspaper (वृत्तपत्र) | |
| 2. T.V. (टी.व्ही.) | | 4. Magazine (मासिका) | | 6. Pamphlets (पत्रके) | |
| ***2.3 Did you or any family member attend the following during last year?*** | | | | | |
| 1. Dairy mela/cattle show (पशुधन जत्रा /मेळावे) | | 4. Farmer's day (शेतकरी दिवस) | | 7. Group meeting (सामूहिक चर्चा) | |
| 2. Dairy exhibition (दुग्धशाळा प्रदर्शन) | | 5. Demonstration (प्रात्यक्षिक) | | 8. Any other इतर (निर्दिष्ट करा) | |
| 3. Educational tour (शैक्षणिक सहल) | | 6. Dairy training (दुग्ध व्यवसाय प्रशिक्षण) | | | |

| [3] **Cropping Pattern of Sample Farm** **2019-2020 unit code: Area in Acre** (क्षेत्र -एकर मध्ये) If possess the agri land शेती जमीन असल्यास | | | | | | |
|---|---|---|---|---|---|---|
| Seasons | **Cereals** (तृणधान्ये) | | **Cash crops** (नगदी पिक) | | **Fodder crops*** (चारा पिके) | |
| | Name (पीक) | Area (क्षेत्र) | Name (पीक) | Area (क्षेत्र) | Name (पीक) | Area (क्षेत्र) |
| Kharif (खरीप पिके) | | | | | | |
| Rabi (रबी पिके) | | | | | | |
| Summer (उन्हाळा पिके) | | | | | | |

Note: * if the crop is used for feeding the animals, report it as fodder crop (पिकाचा मुख्य वापर जनावरांना आहार देण्यासाठी केल्यास चारा पीक म्हणून नोंदवा)

| [4] **Herd Strength** पशुधन संख्या …….. No. of Animals (गुरांची संख्या) | | | | | | |
|---|---|---|---|---|---|---|
| | **Covered under RBP** (आरबीपी अंतर्गत) | | | **Not covered under RBP** (आरबीपीत समाविष्ट नाही) | | |
| Items | No. of Animals (गुरांची संख्या) | | No. of buffaloes (म्हशींची संख्या) | No. of Animals (गुरांची संख्या) | | No. of buffaloes (म्हशींची संख्या) |
| | Local (गावठी) | Crossbred (संकरित) | | Local (गावठी) | Crossbred (संकरित) | |
| 1. In milk (दुधातील पशु) | | | | | | |
| 2. Dry (दुध देणे बंद असणारे पशु) | | | | | | |
| 3. Pregnant heifer (गर्भवती कालवड) | | | | | | |
| 4. Calves (वासरे) Male (नर) | | | | | | |
| Female (मादी) | | | | | | |
| 5. Adult male बैल | | | | | | |
| 6. Goat (शेळी/ बकरी) | | | | | | |

| [5] **Labour use** (मजुर व्यवस्थापन) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type of labour मजुर प्रकार | No. of workers per day (प्रती दिन कामगारांची संख्या) | | No. of days labour hired (मजुरीचे दिवस) | Total hours worked per person/day प्रति (व्यक्ती/ दिवस एकूण कामाचे तास) | Distribution of total hours work (एकूण तासांच्या कामाचे वितरण) | | |
| | पुरूष | स्त्री | | | Dairy activities (दुग्धव्यवसाय व्यवस्थापन) | Agri. Operations (कृषी कार्य) | Other (household etc.(इतर -घरगुती इ.) |
| Family (कुटुंबातील सदस्य) | | | | | | | |
| Hired casual (रोजंदार मजुर) | | | In month (महिन्यात): | | | | |
| Hired permanent labour (कायमस्वरूपी मजुर) | | | In year (एका वर्षात): | | | | |
| Who handles animal feeding जनावरांना कोण खायला घालतो? family/hired worker (कुटुंबातील सदस्य / मजुर) male/female/children (पुरुष / | | | | | | | |
| Who handles income from dairying? (दुधापासून मिळणारे उत्पन्न कोण हाताळतो? adult male/female पुरुष / महिला / मुले | | | | | | | |

| [6] **Veterinary and breeding expenditure during last one year** (मागील एक वर्षात पशुवैद्यकीय व प्रजनन खर्च) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ear tag no*. | Animal Type (पशुधन प्रकार) | **Expenditure on (Rs.)** खर्च (रु.) | | | | | |
| | | Vaccinations (लसीकरण) (*HS, BQ, FMD*) | medicines+ doctor (वैद्यकीय उपचारांवरचा एकूण खर्च) | No. of visits by Vet doctor/year (पशुवैद्यकीय डॉक्टरांच्या भेटीची संख्या वार्षिक) | पशुधन फळवान्याची पद्धत (AI कृत्रिम रेतन1, natural service नैसर्गिक गर्भधारणा 2) | | No. of AI/Conception गाभण रहाण्यासाठी वापरलेली रेताची मात्रा |
| | | | | | Code (कोड) | Amount (रक्कम रु.) | |
| **Covered under RBP** (आरबीपी अंतर्गत) | | | | | | | |
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| **Not covered under RBP** (आरबीपीत समाविष्ट नाही) | | | | | | | |
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| [7] **Details of breedable animals on survey date** सर्वेक्षण तारखेला पैदास सक्षम पशुचा तपशील | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ear tag no. कान टॅग क्र | Animal | | Age at first calving (month) (पहिल्या वेताच्या वेळीचे वय - महिना) | Last calving (month) (शेवटचे वेताच्या वेळीचे वय -महिना) | Calving due (अपेक्षित पशु विन्याची तारीख) | Lactation order@ (दुध देन्याचा कालावधी क्रमांक) | Dry period (days) (तात्पुरता भाकड एकूण कालावधी - दिवस) | Lactation period (days) (दुधा देन्याचा एकूण कालावधी) | Maximum Yield in a day (lit) सर्वाधिक उत्पादन (लिटर प्रती दिवस) | | Milk Yield on a day before visit प्रती दिवस दुध उत्पादन | | |
| | *local cow 1, crossbred cow 2, buffalo 3* गावठी गाय - 1, संकरित गाय - 2, म्हशी -3) | Breed (पशुची जात) | | | | | | | Previous lactation (मागील दुध देन्याचा कालावधी) | Present lactation (सध्याचा दुध देन्याचा कालावधी) | morn. (सकाळ) | even. (संध्या काळ) | Total (एकूण) |
| **RBP** | | | | | | | | | | | | | |
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| **NON RBP** | | | | | | | | | | | | | |
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| [8] **Rate of Feeding of Feed and fodder per animal at the time of survey** (प्रत्येक जनावरांना दिलेल्या चाऱ्याविषयीचा तपशील) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ear tag no. | Animal Type (पशुधन प्रकार) | Stall-feeding quantity fed (kg) (गोठयातील पशुधन चारा व्यवस्थापन) | | | | | | | | Av. Time grazed daily (hours) एका दिवसात एकूण चरण्यासाठी वेळ (तास) |
| | | Dry fodder (सुका चारा) (kg/day) (नाव आणि स्त्रोत कोड) | | Green fodder (हिरवा चारा) (नाव आणि स्त्रोत कोड) | | Concentrates (पशू खाद्य) (नाव आणि स्त्रोत कोड) | | Supplements (पूरक) (नाव आणि स्त्रोत कोड) | | |
| | | 1.1 | | 2.1 | | 3.1 | | 4.1 | | |
| | | 1.2 | | 2.2 | | 3.2 | | 4.2 | | |
| | | 1.3 | | 2.3 | | 3.3 | | 4.3 | | |
| **RBP** | | आरबीपी पूर्वी | आरबीपी नंतर | आरबीपी पूर्वी | आरबीपी नंतर | आरबीपी पूर्वी | आरबीपी नंतर | आरबीपी पूर्वी | आरबीपी नंतर | |
| | | | | | | | | | | |
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| **NON RBP** | | | | | | | | | | |
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***instruction: * follow the same sequence in listing the animals as in block 6 & 7.*** ब्लॉक 6 आणि 7 मध्ये प्राण्यांच्या यादीमध्ये समान क्रमांचे अनुसरण करा

**Dry Fodder** *self-cultivated 1, purchased 2* कोरडा चारा स्त्रोत कोडः स्वत: ची लागवड - 1, खरेदी केलेले 2; **Green Fodder** *self-cultivated- 1, purchased- 2, collected (e.g. grass, tree leaves, etc.)- 3* हिरवा चारा स्त्रोत कोडः स्वयं-लागवड 1, खरेदी केलेले 2, संकलित (उदा. गवत, झाडाची पाने इ.)- 3; **Concentrates***: home prepared- 1, prepared cattle feed- 2* खाद्य स्त्रोत कोडः घरी तयार केलेले- 1, तयार गुरांचे खाद्य- 2.. **Supplements:** mineral mixture, salt, molasses, mustard oil, any other (specify) पूरक पदार्थ: खनिज मिश्रण, मीठ, गुळ, मोहरीचे तेल, इतर कोणतेही (निर्दिष्ट करा)

| [9] **Livestock fodder and other management** (पशुधन आहार आणि इतर व्यवस्थापन) | | Unit code | Prices per kg/ Wages Rs./Day) मजुरी (रुपये) | |
|---|---|---|---|---|
| Items | | | Before RBP (आरबीपी पूर्वी) | After RBP (आरबीपी नंतर) |
| 1. Dry fodder kg (सुका चारा -( किलो ग्रॅम) (as in block 8)-) | | | | |
| 1.1 | | | | |
| 1.2 | | | | |
| 1.3 | | | | |
| 2. Green fodder kg (हिरवा चारा किलो ग्रॅम ) (as in block 8) - kg | | | | |
| 2.1 | | | | |
| 2.2 | | | | |
| 2.3 | | | | |
| 3. Concentrate (पशुखाद्य )- kg | Brand (ब्रँड) | | | |
| 3.1. Concentrate -Readymade गुरांचे तयार खाद्य | | | | |
| 3.2. Concentrate -Home prepared घरी तयार | | | | |
| 4. Supplements पूरक आहार (gms) (ग्रॅम) | Brand (ब्रँड) | | | |
| 4.1. Mineral mixture (खनिज मिश्रण) | | | | |
| 4.2. Vitamins (जीवनसत्त्वे) | | | | |
| 4.3. | | | | |
| 5. Labour Wage Rate (agriculture)- man days/month (कामगार वेतन (शेती) - दरमहा मनुष्य दिवस) | | | | |
| 5.1. Men (पुरुष) | | | | |
| 5.2. Women (महिला) | | | | |
| 5.3. Child (मुले) | | | | |
| 6. Permanent labour man days per month (कायम स्वरुपी कामगार दरमहा मनुष्य दिवस) (Rs./month) | | | | |
| 7. Salvage value of adult unproductive animal (अनुत्पादक पशुचे मूल्य) *Rs./animal* | | | | |
| 7.1. Local cow (गावठी गाय) | | | | |
| 7.2. Crossbred cow (संकरित गाय) | | | | |
| 7.3. Buffalo (म्हशी) | | | | |
| 8. Rental value of land (Rs./acre) | | | | |
| 9. Value of milch animals *Rs./animal* (दुधाळ जनावराचे मूल्य- रुपये / जनावर) | | | | |
| 9.1. Local cow (गावठी गाय) | | | | |
| 9.2. Crossbred cow (संकरित गाय) | | | | |
| 9.3. Buffalo (म्हशी) | | | | |
| 10. Dung (tones/ animal) शेण (टन/जनावर ) | | | | |
| % of dung used as (शेणचा वापर %) 10.1. Manure (शेणखत) | | | | |
| 10.2. Dung cakes (गोवरी) | | | | |

| [10] **Production and Disposal of milk** (दुध उत्पादन व विल्हेवाट) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Milk production (liters) दुधाचे उत्पादन (लिटर) | Local Cow (स्थानिक गाय) | | Cross bred संकरित गाय | | Buffalo ( म्हशी) | | | | |
| | RBP | Non- RBP | RBP आरबीपी | Non- RBP | RBP | Non- RBP | | | |
| Before RBP- (आरबीपी अंमलबजावणीपूर्वी -लिटर) | _____ | | | | | | | | |
| Fat % (दुधात स्निग्ध घटक पदार्थाचे प्रमाण %) | _____ | | | | | | | | |
| SNF (दुधात स्निग्धघटक विरहित घटकचे प्रमाण %) | _____ | | | | | | | | |
| After RBP (milk yield in litre on day of visit) (आरबीपी नंतर- भेटीच्या दिवशी -लिटर) | | | | | | | | | |
| Fat %(दुधात स्निग्ध घटक पदार्थाचे प्रमाण %) | | | | | | | | | |
| SNF % (दुधात स्निग्धघटक विरहित घटकचे प्रमाण %) | | | | | | | | | |

| Milk disposal (दुधाची विल्हेवाट) | Local Cow (स्थानिक गाय) | | | Cross bred (संकरित गाय) | | | Buffalo (म्हशी) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agency code (खरेदीदार कोड) | Quantity (lit.) एकूण दूध (लिटर) | Prices Rs./lit) किंमत (रु. / लिटर ) | Agency code खरेदीदार कोड | Qua (lit.) एकूण दूध | Prices (Rs./lit) किंमत (रु./ लिटर ) | Agency code खरेदीदार कोड | Qut (lit.) दूध (लिटर) | Prices Rs./lit) किंमत (रु. / लिटर) |
| 1. Before RBP Implementation (litre) (आरबीपी अंमलबजावणीपूर्वी - लिटर) Fat (%) | | | | | | | | | |
| SNF (%) | | | | | | | | | |
| 2. After RBP- (आरबीपी नंतर- भेटीच्या दिवशी -लिटर) Fat (%) | | | | | | | | | |
| SNF (%) | | | | | | | | | |

**agency code:** *Consumer - 1, Vendor/middlemen - 2, Sweet shop - 3, cooperative society - 4, Private milk plant - 5, other (specify) – 6*
एजन्सी कोड: ग्राहक - 1, विक्रेता / बिचौलिया - 2, मिठाईचे दुकान- 3, सहकारी संस्था - 4, खाजगी दुध युनिट- 5, इतर (निर्दिष्ट) – 6

| **[11] Outreach, perception and constraints regarding RBP** (आरबीपी शी संबंधित पोहोच, समज आणि समस्या) | **Response** | **Specify** |
|---|---|---|
| 1. Have you heard of RBP (आपण आरबीपी बद्दल ऐकले आहे का?) *no-1, yes-2* (नाही 1, होय 2) | | |
| 2. Source of information on RBP (आरबीपी वरील माहितीचा स्रोत)<br>(milk union-1, dcs-2, LRP-3, others-4) ( दुध संघ -1, सोसायटी -2, एलआरपी-3, इतर -4 ) | | |
| 3. Have you seen any documentary on RBP? (आपण आरबीपी वर कोणतीही माहितीपट पाहिली आहेत का?)<br>*no-1, yes-2,* ( नाही 1, होय 2 ) if *yes* specify where (जर होय तर निर्दिष्ट करा) | | |
| 4. Have you seen any poster/banner on RBP? (आपण आरबीपी वर कोणतेही पोस्टर / बॅनर पाहिले आहे का? )<br>*no-1, yes-2,* नाही 1, होय 2 if *yes* specify where, जर होय तर निर्दिष्ट करा | | |
| 5. Have you received any pamphlet on RBP? ( तुम्हाला आरबीपी वर कोणतेही पत्रक मिळाले आहे का?)<br>*no-1, yes-2* नाही 1, होय 2 | | |
| 6. Have you attended village awareness program (VAP) (तुम्ही ग्रामीण जनजागृती कार्यक्रमात भाग घेतला आहे का?)<br>*No-1, once-2, twice-3, thrice-4, more-5* नाही 1, एकदा 2, दोनदा 3, तीनदा 4, तीनपेक्षा जास्त 5 | | |
| 7. Were you aware about ration balancing before adopting RBP (आरबीपीचा अवलंब करण्यापूर्वी तुम्हाला रेशन बॅलेन्सिंग /आहार संतुलन कार्यक्रमा बद्दल माहिती होती काय?)<br>*No-1, somewhat-2, well aware-3* नाही 1, काहीसे -2, चांगले माहिती होती -3 | | |
| 8. Number of RB recommendation received till date<br>(आजपर्यंत मिळालेल्या आरबीच्या शिफारशींची संख्या) | | |
| 9. Has milk production of your animal increased after RBP (आरबीपी नंतर दुधाचे उत्पादन वाढले आहे का? ) | आरबीपी पूर्वी | आरबीपी नंतर |
| *no-1, yes-2* नाही 1, होय 2 | | |
| जर होय, तर निर्दिष्ट करा avg. Milk yield (lit./day) सरासरी दुधाचे उत्पादन (lit./day) | | |
| 10. Has milk composition improved? (दुधाची गुणवत्ता सुधारली आहे का? ) | | |
| *no-1, yes-2* नाही 1, होय 2 | | |
| जर होय, तर निर्दिष्ट करा Fat दुध चरबी (%) | | |
| SNF (%) | | |
| 11. Any change in general health of animal after RBP<br>(आरबीपीनंतर आपल्या प्राण्यांच्या सर्वसाधारण आरोग्यामध्ये काही सुधरना झाली आहे का?)<br>*no-1, yes-2, can't say-3* (नाही 1, होय 2, म्हणू शकत नाही -3) | | |
| 12. In your experience have the digestive disorders of animals decreased<br>(आपल्या अनुभवात प्राण्यांच्या पचनाचे विकार कमी झाले आहेत का?)<br>*No-1,yes-2,can't say-3* ( नाही 1, होय 2, म्हणू शकत नाही -3) | | |
| 13. आरबीपी चा खालील गोष्टीं मध्ये फायदा झाला आहे का? | *Before* | *After* |
| A. Increasing conception rate (जनावरांच्या गर्भधारणा दरात वाढ) *no-1, yes-2* (नाही 1, होय 2) | | |
| If *yes* then specify avg. of inseminations (होय असल्यास, वेतमात्राची संख्या निर्दिष्ट करा) | | |
| B. Reducing Service Period (गाभण राहण्याचा कालावधी कमी झाला आहे) *no-1, yes-2* (नाही 1, होय 2) | | |
| C. Improving lactation length (दूध देन्याचा दिवसांचा एकूण कालावधी वाढला आहे) *no-1, yes-2* नाही 1, होय | | |
| If *yes* then specify avg. Lactation length (in months) ( महिन्यात सरासरी दुधाचे दुग्धपान लांबी) | | |
| D. Reducing inter calving period (दोन वेतातील कालावधी कमी झाला) *no-1, yes-2* नाही 1, होय 2 | | |
| If yes then specify avg. Inter calving period (in months) इंटर कॅव्हिलिंग कालावधी महिन्यात | | |
| E. Reducing repeat breeding (जनावर पुन्हा पुन्हा माजावर येने कमी झाले आहे) *no-1, yes-2* नाही 1, होय 2 | | |
| G. Controlling prolapsed of uterus (गर्भाशय/मायांग बाहेर येण्यावर नियंत्रण) *no-1, yes-2* नाही 1, होय 2 | | |
| H. Controlling anestrous (जनावर माजावर न येण्याचे प्रमाना वर नियंत्रण) *no-1,yes-2* नाही 1, होय 2 | | |
| 14. Do you think that the feed cost of your milch animal has changed after RBP<br>(आपल्याला असे वाटते का की आरबीपीनंतर आपल्या दुभत्या जनावरांचा आहार खर्चात बदल आला आहे ?)<br>*Decreased-1,increased-2,unchanged-3* ( घट -1, वाढ -2, काही बदल नाही 3) | | |
| 15. Do you feel that additional expenditure (money/labour) is involved in adopting RBP (तुम्हाला वाटते की आरबीपीचा अवलंब करण्यात अतिरिक्त खर्च (पैसे / श्रम) सामील आहेत ) *no-1,yes-2, can't say-3* नाही -1, होय -2, सांगू शकत नाही 3 | | |
| 16. Do you find change in employment opportunity after RBP? (आरबीपीनंतर तुम्हाला रोजगाराच्या संधींच्या उपलब्धता दिसतात का?)<br>*Decreased-1,increased-2,unchanged-3* घट -1, वाढ -2, काही बदल नाही 3 | | |
| 17. Do you think that your monthly income from dairy has changed?<br>(दुग्ध व्यवसायातून मिळणारे उत्पन्न बदलले आहे असे आपणास वाटते का?)<br>*Decreased-1,increased-2,unchanged-3* (घट -1, वाढ -2, काही बदल नाही 3) | | |

| | | |
|---|---|---|
| 18. Do you feel that your savings from dairy have increased after adopting RBP<br>(आरबीपीचा अवलंब केल्यावर दुग्ध व्यवसायातून मिळणाऱ्या वाढीव उत्पन्न हे बचत म्हनून झाली आहे असे तुम्हाला वाटते का?)<br>*No-1,yes-2, can't say-3* घट -1, वाढ -2, सांगू शकत नाही -3 | | |
| 19. If *yes* in above additional saving from dairying utilized for (दुय्यम सेवांच्या अतिरिक्त बचतीसाठी वापरल्यास)<br>*education-1, nutrition & health-2, expanding dairying-3, others-4 specify*<br>*(* शिक्षण -१, पोषण व आरोग्य -२, दुग्धशाळा वाढविणे-3, इतर-4) | | |
| 20. After adopting the RBP do you think that milk consumption has increased (आरबीपीचा अवलंब केल्यानंतर घरगुती वापरासाठी दुधाचा वापर वाढला आहे असे तुम्हाला वाटते का?) *No-1, yes-2* if *yes* specify नाही -1, होय -2, असल्यास- निर्दिष्ट करा | | |
| 21. Have benefits of RBP increased your interest in dairy (आरबीपीच्या फायद्यांमुळे दुग्ध व्यवसायविषयी आपली आवड वाढली आहे का?)) *no-1,yes-2,can't say-3* घट -1, वाढ -2, सांगू शकत नाही -3 | | |
| 22. Would you like to increase your herd strength (आपण आपल्या दुभत्या जनावरांची संख्या वाढवू इच्छिता का?)<br>*no-1, yes-2, maybe-3* नाही 1, होय 2, कदाचित -3 | | |
| 23. Do you feel involved in the program (आपण कार्यक्रमात सहभागी आहे असे आपणास वाटते का? )<br>*no-1,yes-2,somewhat-3* नाही 1, होय 2, काहीसे -3 | | |
| 24. Name of the LRP who gave RB advice (आरबीचा सल्ला दिला गेलेल्या एलआरपीचे नाव): | | |
| 25. Did LRP brief you on benefits of RB initially (आरबीच्या सुरुवातीच्या फायद्यांविषयी ची माहिती एलआरपीने आपल्याला दिली आहे का?) *no-1,yes-2,somewhat-3* नाही 1, होय 2, काहीसे -3 | | |
| 26. Whether RB advice slip was given by LRP (आरबीचा सल्ला स्लिप एलआरपीने दिली आहे का?)<br>*no-1, yes-2* नाही 1, होय 2 | | |
| 27. Whether advice slip is kept & displayed properly (सल्ला स्लिप ठेवली व योग्यरित्या प्रदर्शित केली आहे का? )<br>*no-1, yes-2* नाही 1, होय 2 | | |
| 28. Are you following the recommended ration correctly (आपण शिफारस केलेल्या रेशनचे/संतुलित आहार चे योग्यरित्या अनुसरण करीत आहात का?) *No-1,yes-2,* if *no* give reason नाही -१, होय -२, नाही तर कारण सांगा | | |
| 29. Constraints in regular feeding of recommended ration (शिफारस केलेल्या संतुलन आहाराचा अवलंब करन्यात येन्या-या अडचणी)<br>*Mineral mixture shortage-1, frequent change in feed items-2, lrp not visit timely-3,not convinced about the recommendations-4, any others-5,*specify<br>(खनिज मिश्रण कमतरता -१,<br>खाद्य घटक मध्ये वारंवार बदल 2, एलआरपी वेळेवर भेट देत नाही -3, शिफारसींविषयी खात्री नसते -4, इतर -5) | | |
| 30. Is LRP visiting after giving RB recommendation to follow up ? *Never-1,sometimes-2,always-3*<br>(शिफारस दिल्यानंतर एलआरपी पाठपुरावा करण्या साठी भेट देत आहे का?) *(* कधीही नाही -1, कधी -2, नेहमी -3) | | |
| 31. Have you contacted LRP anytime for ration re-formulation when there was a change in feed items?<br>*Never-1, sometimes-2,always-3*<br>(खाद्य घटक मध्ये बदल होताना आपण संतुलित आहार पुन्हा तयार करण्यासाठी कधीही एलआरपीशी संपर्क साधला आहे का?)<br>कधीही नाही -1, कधी -2, नेहमी -3 | | |
| 32. Do you get any additional service from LRP? *No-1,yes-2,sometime-3* if *yes* specify<br>(तुम्हाला एलआरपीकडून कोणतीही अतिरिक्त सेवा मिळते का?) नाही -1, होय -2, कधीतरी -3, होय निर्दिष्ट केल्यास | | |
| 33. Whether LRP explained the benefits of feeding mineral mixture? *no-1, yes-2*<br>एलआरपीने खनिज मिश्रण खाद्य देण्याचे फायदे स्पष्ट केले की नाही? नाही 1, होय 2 | | |
| 34. Does animal bears a valid tag? *no-1, yes-2* पशुला वैध टॅग आहे का? नाही 1, होय 2 | | |
| 35. Whether measurement of heart girth is done by the LRP and animal weight is mentioned in the advice sheet?<br>*no-1, yes-2*<br>हृदयाच्या घेरचे मोजमाप एलआरपीद्वारे केले जाते की नाही आणि पशुधनाचे वजन सल्ला पत्रकात नमूद केले आहे की नाही? नाही 1, होय 2 | | |
| 36. Whether milk is measured at cattle owner's place after milking in each visit? *no-1, yes-2*<br>प्रत्येक भेटीत दूध घेतल्यानंतर जनावरांच्या मालकाच्या ठिकाणी दूध मोजले जाते की नाही? नाही 1, होय 2 | | |
| 37. Whether milk sample is taken and fat estimation arranged for RBP animals? *no-1, yes-2*<br>दुधाचा नमुना घेतला आहे की नाही आणि आरबीपी जनावरांसाठी चरबीच्या निर्धाराची व्यवस्था आहे? नाही 1, होय 2 | | |
| 38. Whether quantity of feed ingredients advised in terms of measures (bowls/vessels) are used by cattle farmers?<br>*no-1, yes-2*<br>पशुपालकांनी दिलेल्या खाद्य पदार्थांचेप्रमाण (वाटी/पात्रेनुसार) वापरली जातात का? नाही 1, होय 2 | | |
| 39. Does LRP revisit this animal every month? *no-1, yes-2*<br>दर महिन्याला एलआरपी भेट देतो का? नाही 1, होय 2 | | |

| | |
|---|---|
| 40. Does LRP advise you on regular vaccination of animals? *no-1, yes-2*<br>एलआरपी तुम्हाला प्राण्यांच्या नियमित लसीकरणाचा सल्ला देतो का? नाही 1, होय 2 | |
| 41. Does LRP advise you on chaffing of green/dry fodder? *no-1, yes-2*<br>एलआरपी तुम्हाला हिरवा / कोरडा चारा देण्यास सल्ला देतो का? नाही 1, होय 2 | |
| 42. Are you aware of benefits of chaffing of green/dry fodder? *no-1, yes-2*<br>जनावरांसाठी कापून ठेवलेले हिरव्या / कोरड्या चाऱ्याच्या गवताच्या फायद्यांविषयी तुम्हाला माहिती आहे काय? नाही 1, होय 2 | |
| 43. Does the LRP advise you in importance of drinking water? *no-1, yes-2*<br>एलआरपी ने तुम्हाला पिण्याच्या पाण्याचे महत्व सांगितले आहे काय? नाही 1, होय 2 | |
| 44. Does the LRP told you how much drinking water your animals need per day? *no-1, yes-2*<br>आपल्या प्राण्यांना दररोज किती पिण्याचे पाणी आवश्यक आहे हे एलआरपीने आपल्याला सांगितले आहे का? नाही 1, होय 2 | |
| 45. Has the LRP advised you on importance of feeding trough/mangers? *no-1, yes-2*<br>जनावरांना अन्न, पाणी देण्यासाठी वापरतात त्या पात्रेतुन खाद्य देण्याच्या आवश्यकतेबद्दल सल्ला दिला आहे का? नाही 1, होय 2 | |
| 46. On a 10 point scale how many points you will give to LRP (आपण एलआरपीला 10 पैकी किती गुण द्याल?) | |
| 47. Are you trying to feed balanced ration to animals which are not covered under RBP (तुम्ही आरबीपीअंतर्गत नसलेल्या प्राण्यांना संतुलित आहार देण्याचा प्रयत्न करीत आहात का?) *never-1, sometimes-2,most often-3* कधीही नाही -1, कधी कधी -2-बहुतेक वेळा -3 | |
| 48. Would you like to adopt RBP on self-payment basis after the end of this programme? *No-1,yes-2,can't say-3*<br>(हा कार्यक्रम संपल्यानंतर आपण स्वत:चे पेमेंट आधारावर (स्वत:चे आर्थिक स्त्रोत मधुन) आरबीपीचा अवलंब करू इच्छिता का)?<br>नाही 1, होय -2, सांगू शकत नाही -3<br>If *yes,*<br>specify how much payment per animal per ration balancing (प्रत्येक पशुकरिता किती रुपये आपण देऊ इच्छिता शकता?) | |
| 49. Do you recommend other farmers also join RBP (तुम्ही इतर शेतक-यांनाही आरबीपी मधे सहभाग घेण्याचि शिफारस कराल का?)<br>*No-1,yes-2* if *no* specify reason नाही -1, होय -2, नसल्यास, कारण निर्दिष्ट करा | |
| 50. On a 10 point scale how many points you will give to RBP…… (आपण आरबीपीला 10 पैकी किती गुण द्याल?) | |
| 51. Would you like to give suggestion for improvement in RBP?<br>(आरबीपीमध्ये सुधारणा करण्यासाठी आपण काही सूचना देऊ इच्छिता काय?)<br>a. _____<br>b. _____<br>c. _____ | |

**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

[विदर्भ व मराठवाडा दुग्धव्यवसाय विकास प्रकल्प- महाराष्ट्रातील रेशन बॅलन्सिंग (पशु आहार व्यवस्थापन कार्यक्रम) प्रोग्रामवरील पायलट प्रोजेक्टचे मूल्यांकन]

## Non- Beneficiary Household Survey Schedule: 3.0 (गैरलाभार्थी घरगुती सर्वेक्षण फॉर्म 3.0)

**[0] Identification of Sample Household** (नमुना घरगुती ओळख)

| Particulars (तपशील) | **Name** (नाव) | Particulars (तपशील) | **Name** (नाव) |
|---|---|---|---|
| 1. State (राज्य) | Maharashtra | 6. Name of household head (कुंटूब प्रमुखाचे नांव) | |
| 2. District (जिल्हा) | | 7. Age of Head of Household (कुंटूब प्रमुखाचे वय वर्षे) | |
| 3. Tehsil (तहसील / तालुका) | | 8. Education in years (शिक्षण- वर्षे) | |
| 4. Village (गाव) | | 9. Name of informant (माहिती देणा-याचे नाव) | |
| 5. DCS (दुग्ध सहकारी संस्था) | | 10. Mobile number (मोबाइल नंबर/भ्रमण ध्वनि) | |

**[1a] Socio- economic characteristics** (सामाजिक- आर्थिक वैशिष्ट्ये)

| | | | | |
|---|---|---|---|---|
| 1. Religion (code)- (1:Hindu, 2:Muslim, 3:Christian, 4: Sikh, 5:Others) धर्म (कोड) (१: हिंदू, २: मुस्लिम, 3 ख्रिश्चन, 4 शीख, 5 इतर) | | 3. Occupation- (code)- 1: Cultivator, 2: Animal Husbandry and Dairying, 3: Agri. Labour, 4: Nonfarm Labour, 5:Own Non-Farm Establishment, 6:Trade, 7:Employee in Service, 8: Other (व्यवसाय- 1: शेतकरी, 2: पशु पालन व दुग्ध व्यवसाय, 3: कृषी. कामगार, 4: नॉनफार्म कामगार, 5: स्वत: ची बिगर-शेती स्थापना, 6: व्यापार, 7: सेवेतील कर्मचारी, 8: इतर) | Main (मुख्य) | |
| 2. Social Group (1:SC, 2:ST, 3: OBC, 4: Open) (सामाजिक गट- 1: अनुसूचित जाती, 2 अनुसूचित जमाती, 3: इतर मागासवर्गीय, 4: खुला) | | | Subsidiary (पुरक) | |
| 4. Income Group (1:BPL/ 2:APL/ 3:AAY) (मिळकत गट: १-बीपीएल, २-एपीएल, 3 एएवाय) | | 5. Landless (write -zero)/ Land Holdings (acre) [भूमिहीन (शून्य) / जमीन धारणा (एकर)] | | |
| 6. Experience in Dairy (years)(दुग्ध व्यवसायातील अनुभव –वर्ष) | | 7. Experience in Farming (years) शेतीचा अनुभव असल्यास (वर्षे) | | |
| 8. Since how long you are a member of dairy cooperative? (years) (आपण दुग्ध सहकारी संस्था सदस्य किती कालावधी पासून आहात? (वर्षे)) | | 9. Do you maintain dairy (milk) financial record? 1:No 2:Yes (आपण दुध व्यवसायाची आर्थिक नोंदी ठेवता का? १: नाही २: होय) | | |
| 10.Biogas Facility at home- 1: No 2:Yes (तुमच्या घरी बायोगॅस सयंत्र कार्यरत आहे का?) १: नाही २: होय) | | 11. Toilet facility at home 1:No 2:Yes (घरात शौचालयाची सुविधा आहे का?) १: नाही २: होय) | | |
| 12. Total Family members (कुटुंबातील एकूण सदस्य): - Male (पुरूष): Female (स्त्री): Children (मुले -15 वर्षापेक्षा कमी): Family members working in dairy (दुग्ध व्यवसायात काम करणारे कुटुंबातील सदस्य) Male (पुरूष): Female (स्त्री): Children (मुले): | | | | |

**[1b] Holding of Productive Assets (Dairy)** उपलब्ध साधनसामग्री (दुग्ध व्यवसाय)

| Sr. | Assets (उपलब्ध साधनसामग्री - दुग्ध व्यवसाय) | No. | Sr. No. | Assets (उपलब्ध साधनसामग्री - दुग्ध व्यवसाय) | No. |
|---|---|---|---|---|---|
| 1 | Milk Machine (दुध मशीन) | | 7 | Grass Chopper (गवत कुट्टी यंत्र) | |
| 2 | Grass Cutter (गवत कापणी यंत्र) | | 8 | Fogger (फॉगर) | |
| 3 | Fodder Chaffer-Manual (चारा कुट्टी यंत्र मानव संचालित) | | 9 | Biogas unit (बायोगॅस सयंत्र) | |
| 4 | Fodder Chaffer Power ( चारा कुट्टी यंत्र -विद्युत/डिझेल शक्ती) | | 10 | Tractor trolley (ट्रॅक्टर ट्रॉली) | |
| 5 | Fodder harvester/ mowers (चारा कापणी / मोव्हर्स) | | 11 | Large Auto (material shifting) वाहन (साहित्य हलविणे) | |
| 6 | Feed Mixer/ TMR mixer (मिक्सर / टीएमआर फीड मिक्सर) | | 12 | Any other (इतर ) | |

**[2] Communication Characteristics:** संपर्क वैशिष्ट्ये ..... (दुधाचे उत्पादन आणि चारा लागवडीशी संबंधित)

***2.1 Frequency of extension contact (in past one year) code:*** *never - 0, sometime 1, regularly – 2* (कधीही नाही - 0, कधीतरी - 1, नियमितपणे – 2)

| Particular | Code | Particular | Code | | Code |
|---|---|---|---|---|---|
| 1. Stockman/LRP (स्टॉकमॅन / एलआरपी) | | 5. KVK Scientist (कृषी विज्ञान केंद्र चे विषय तज्ञ) | | 9. Output buyer (खरेदीदार) | |
| 2. Vet. Asstt. Surgeon (पशुवैद्यकीय सहाय्यक शल्यचिकितसक) | | 6. Progressive farmers (पुरोगामी शेतकरी) | | 10. Any other (specify) इतर (निर्दिष्ट) | |
| 3. Dairy extension officers (दुग्ध विस्तार अधिकारी) | | 7. Neighbors / Friends (शेजारी / मित्र) | | | |
| 4. C.D.O/ B.D.O./VDO/Village Level Worker | | 8. Input dealer (दुग्ध व्यवसाय सामग्री वितरक) | | | |
| ***2.2 Mass media exposure (in past one year) 2019-20*** | | | | | |
| 1. Radio (रेडिओ) | | 3. Film (educational) (चित्रपट -शैक्षणिक) | | 5. Newspaper (वृत्तपत्र) | |
| 2. T.V. (टी.व्ही.) | | 4. Magazine (मासिका) | | 6. Pamphlets (पत्रके) | |
| ***2.3 Did you or any family member attend the following during last year?*** | | | | | |
| 1. Dairy mela/cattle show (पशुधन जत्रा /मेळावे) | | 4. Farmer's day (शेतकरी दिवस) | | 7. Group meeting सामूहिक चर्चा | |
| 2. Dairy exhibition (दुग्धशाळा प्रदर्शन) | | 5. Demonstration (प्रात्यक्षिक) | | 8. Any other इतर (निर्दिष्ट करा) | |
| 3. Educational tour (शैक्षणिक सहल) | | 6. Dairy training (दुग्ध व्यवसाय प्रशिक्षण) | | | |

**[3] Cropping Pattern of Sample Farm 2019-2020 unit code: Area in Acre (क्षेत्र -एकर मध्ये)**If possess the agri land शेती जमीन असल्यास

| Seasons | **Cereals** (तृणधान्ये) | | **Cash crops** (नगदी पिक) | | **Fodder crops*** (चारा पिके) | |
|---|---|---|---|---|---|---|
| | Name (पीक) | Area (क्षेत्र) | Name (पीक) | Area (क्षेत्र) | Name (पीक) | Area (क्षेत्र) |
| Kharif (खरीप पिके) | | | | | | |
| Rabi (रबी पिके) | | | | | | |
| Summer (उन्हाळा पिके) | | | | | | |

Note: * if the crop is used for feeding the animals, report it as fodder crop (पिकाचा मुख्य वापर जनावरांना आहार देण्यासाठी केल्यास चारा पीक म्हणून नोंदवा)

**[4] Herd Strength** पशुधन संख्या

| Items | No. of Animals (गुरांची संख्या) | | |
|---|---|---|---|
| | No of Cows (गायींची संख्या) | | No. of buffaloes (म्हशींची संख्या) |
| | Local (गावठी) | Crossbred (संकरित) | |
| 1. In milk (दुधातील पशु) | | | |
| 2. Dry (दुध देणे बंद असणारे पशु) | | | |
| 3. Pregnant heifer (गर्भवती कालवड) | | | |
| 4. Calves (वासरे) Male (नर) | | | |
| Female (मादी) | | | |
| 5. Adult male बैल | | | |
| 6. Goat (शेळी/ बकरी) | | | |

**[5] Labour use** (मजुर व्यवस्थापन)

| Type of labour मजुर प्रकार | No. of workers per day (प्रती दिन कामगारांची संख्या) | | No. of days labour hired (मजुरीचे दिवस) | Total hours worked per person/day प्रति (व्यक्ती/ दिवस एकूण कामाचे तास) | Distribution of total hours work (एकूण तासांच्या कामाचे वितरण) | | |
|---|---|---|---|---|---|---|---|
| | पुरुष | स्त्री | | | Dairy activities (दुग्धव्यवसाय व्यवस्थापन) | Agri. Operations (कृषी कार्य) | Other (household etc.(इतर -घरगुती इ.) |
| Family (कुटुंबातील सदस्य) | | | | | | | |
| Hired casual (रोजंदार मजुर) | | | In month (महिन्यात): | | | | |
| Hired permanent labour (कायमस्वरूपी मजुर) | | | In year (एका वर्षात): | | | | |

Who handles animal feeding जनावरांना कोण खायला घालतो? family/hired worker (कुटुंबातील सदस्य / मजुर) male/female/children (पुरुष / महिला /

Who handles income from dairying? (दुधापासून मिळणारे उत्पन्न कोण हाताळतो? adult male/female पुरुष / महिला / मुले

**[6] Veterinary and breeding expenditure during last one year** (मागील एक वर्षात पशुवैद्यकीय व प्रजनन खर्च)

| Ear tag no*. | Animal Type (पशुधन प्रकार) | **Expenditure on (Rs.)** खर्च (रु.) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Vaccinations (लसीकरण) (*HS, BQ, FMD)* | medicines+ doctor (वैद्यकीय उपचारांवरचा एकूण खर्च) | No. of visits by Vet doctor/year (पशुवैद्यकीय डॉक्टरांच्या भेटीची संख्या वार्षिक) | पशुधन फळवान्याची पद्धत (AI कृत्रिम रेतन1, natural service नैसर्गिक गर्भधारणा 2) | | No. of AI/Conception गाभण रहाण्यासाठी वापरलेली रेताची मात्रा |
| | | | | | Code (कोड) | Amount (रक्कम रु.) | |
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| [7] **Details of breedable animals on survey date** सर्वेक्षण तारखेला पैदास सक्षम पशुचा तपशील | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ear tag no. कान टॅग क्र | Animal | | Age at first calving (month) (पहिल्या वेताच्या वेळीचे वय - महिना) | Last calving (month) (शेवटचे वेताच्या वेळीचे वय - महिना) | Calving due (अपेक्षित पशु विन्याची तारीख) | Lactation order@ (दुध देन्याचा कालावधी क्रमांक) | Dry period (days) (तात्पुरता भाकड एकूण कालावधी - दिवस) | Lactation period (days) (दुधा देन्याचा एकूण कालावधी) | Maximum Yield in a day (lit) सर्वाधिक उत्पादन (लिटर प्रती दिवस) | | Milk Yield on a day before visit प्रती दिवस दुध उत्पादन | | |
| | *local cow 1, crossbred cow 2, buffalo 3* गावठी गाय - 1, संकरित गाय - 2, म्हशी -3) | Breed (पशुची जात) | | | | | | | Previous lactation (मागील दुध देन्याचा कालावधी) | Present lactation (सध्याचा दुध देन्याचा कालावधी) | morn. (सकाळ) | even. (संध्या काळ) | Total (एकूण) |
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| [8] **Rate of Feeding of Feed and fodder per animal at the time of survey** (प्रत्येक जनावरांना दिलेल्या चाऱ्याविषयीचा तपशील) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ear tag no. | Animal Type (पशुधन प्रकार) | Stall-feeding quantity fed (kg) (गोठयातील पशुधन चारा व्यवस्थापन) | | | | | | Av. Time grazed daily (hours) एका दिवसात एकूण चरण्यासाठी वेळ (तास) |
| | | Dry fodder (सुका चारा) (kg/day) (नाव आणि स्त्रोत कोड) | | Green fodder (हिरवा चारा) (नाव आणि स्त्रोत कोड) | | Concentrates (पशू खाद्य) (नाव आणि स्त्रोत कोड) | Supplements (पूरक) (नाव आणि स्त्रोत कोड) | |
| | | 1.1 | | 2.1 | | 3.1 | 4.1 | |
| | | 1.2 | | 2.2 | | 3.2 | 4.2 | |
| | | 1.3 | | 2.3 | | 3.3 | 4.3 | |
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***instruction: * follow the same sequence in listing the animals as in block 6 & 7.*** ब्लॉक 6 आणि 7 मध्ये प्राण्यांच्या यादीमध्ये समान क्रमांचे अनुसरण करा

**Dry Fodder** *self-cultivated 1, purchased 2* कोरडा चारा स्त्रोत कोडः स्वत: ची लागवड - 1, खरेदी केलेले 2; **Green Fodder** *self-cultivated- 1, purchased- 2, collected (e.g. grass, tree leaves, etc.)- 3* हिरवा चारा स्त्रोत कोडः स्वयं-लागवड 1, खरेदी केलेले 2, संकलित (उदा. गवत, झाडाची पाने इ.)- 3; **Concentrates***: home prepared- 1, prepared cattle feed- 2* खाद्य स्त्रोत कोडः घरी तयार केलेले- 1, तयार गुरांचे खाद्य- 2.. **Supplements:** mineral mixture, salt, molasses, mustard oil, any other (specify) पूरक पदार्थ: खनिज मिश्रण, मीठ, गुळ, मोहरीचे तेल, इतर कोणतेही (निर्दिष्ट करा)

| **[9] Livestock fodder and other management** (पशुधन आहार आणि इतर व्यवस्थापन) | | Unit code | Prices per kg/ Wages (Rs./Day) मजुरी (रुपये) |
|---|---|---|---|
| Items | | | |
| 1. Dry fodder kg (सुका चारा -( किलो ग्रॅम) (as in block 8)-) | | | |
| 1.1 | | | |
| 1.2 | | | |
| 1.3 | | | |
| 2. Green fodder kg (हिरवा चारा किलो ग्रॅम ) (as in block 8) - kg | | | |
| 2.1 | | | |
| 2.2 | | | |
| 2.3 | | | |
| 3. Concentrate (पशुखाद्य )- kg | Brand (ब्रँड) | | |
| 3.1. Concentrate -Readymade गुरांचे तयार खाद्य | | | |
| 3.2. Concentrate -Home prepared घरी तयार | | | |
| 4. Supplements पूरक आहार (gms) (ग्रॅम) | Brand (ब्रँड) | | |
| 4.1. Mineral mixture (खनिज मिश्रण) | | | |
| 4.2. Vitamins (जीवनसत्त्वे) | | | |
| 4.3. | | | |
| 5. Labour Wage Rate (agriculture)- man days/month (कामगार वेतन (शेती) - दरमहा मनुष्य दिवस) | | | |
| 5.1. Men (पुरुष) | | | |
| 5.2. Women (महिला) | | | |
| 5.3. Child (मुले) | | | |
| 6. Permanent labour man days per month (कायम स्वरुपी कामगार दरमहा मनुष्य दिवस) (Rs./month) | | | |
| 7. Salvage value of adult unproductive animal (अनुत्पादक पशुचे मूल्य) *Rs./animal* | | | |
| 7.1. Local cow (गावठी गाय) | | | |
| 7.2. Crossbred cow (संकरित गाय) | | | |
| 7.3. Buffalo (म्हशी) | | | |
| 8. Rental value of land (Rs./acre) | | | |
| 9. Value of milch animals *Rs./animal* (दुधाळ जनावराचे मूल्य- रुपये / जनावर) | | | |
| 9.1. Local cow (गावठी गाय) | | | |
| 9.2. Crossbred cow (संकरित गाय) | | | |
| 9.3. Buffalo (म्हशी) | | | |
| 10. Dung (tones/ animal) शेण (टन/जनावर ) | | | |
| % of dung used as (शेणचा वापर %) 10.1. Manure (शेणखत) | | | |
| 10.2. Dung cakes (गोवरी) | | | |

| **[10] Production and Disposal of milk** (दुध उत्पादन व विल्हेवाट) | | | |
|---|---|---|---|
| Milk production (liters) दुधाचे उत्पादन (लिटर) | Local Cow (स्थानिक गाय) | Cross bred (संकरित गाय) | Buffalo ( म्हशी) |
| Before RBP- (आरबीपी अंमलबजावणीपूर्वी -लिटर) | _____ | | |
| Fat % (दुधात स्निग्ध घटक पदार्थाचे प्रमाण %) | _____ | | |
| SNF (दुधात स्निग्धघटक विरहित घटकचे प्रमाण %) | _____ | | |
| After RBP (milk yield in litre on day of visit) (आरबीपी नंतर- भेटीच्या दिवशी - लिटर) | | | |
| Fat %(दुधात स्निग्ध घटक पदार्थाचे प्रमाण %) | | | |
| SNF % (दुधात स्निग्धघटक विरहित घटकचे प्रमाण %) | | | |

| Milk disposal (दुधाची विल्हेवाट) | Local Cow (स्थानिक गाय) | | | Cross bred (संकरित गाय) | | | Buffalo (म्हशी) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agency code (खरेदीदार कोड) | Quantity (lit.) एकूण दुध (लिटर) | Prices Rs./lit) किंमत (रु. / लिटर ) | Agency code खरेदीदार कोड | Qua (lit.) एकूण दुध | Prices (Rs./lit) किंमत (रु. / लिटर ) | Agency code खरेदीदार कोड | Qut (lit.) दूध (लिटर) | Prices Rs./lit) किंमत (रु. / लिटर) |
| 1. Milk disposal (litre) -लिटर) | | | | | | | | | |
| Fat (%) | | | | | | | | | |
| SNF (%) | | | | | | | | | |

**agency code:** *Consumer - 1, Vendor/middlemen - 2, Sweet shop - 3, cooperative society - 4, Private milk plant - 5, other (specify) – 6*
एजन्सी कोड: ग्राहक - 1, विक्रेता / बिचौलिया - 2, मिठाईचे दुकान- 3, सहकारी संस्था - 4, खाजगी दुध युनिट- 5, इतर (निर्दिष्ट) – 6

| **[11] Outreach, perception and constraints regarding RBP** (आरबीपी शी संबंधित पोहोच, समज आणि समस्या) | **Response** | **Specify** |
|---|---|---|
| 1. Have you heard of RBP (आपण आरबीपी बद्दल ऐकले आहे का?) *no-1, yes-2* (नाही 1, होय 2) | | |
| 2. Source of information on RBP (आरबीपी वरील माहितीचा स्रोत)<br>(milk union-1, dcs-2, LRP-3, others-4) ( दुध संघ -1, सोसायटी -2, एलआरपी-3, इतर -4 ) | | |
| 3. Have you seen any documentary on RBP? (आपण आरबीपी वर कोणतीही माहितीपट पाहिली आहेत का?)<br>*no-1, yes-2,* ( नाही 1, होय 2 ) if *yes* specify where (जर होय तर निर्दिष्ट करा) | | |
| 4. Have you seen any poster/banner on RBP? (आपण आरबीपी वर कोणतेही पोस्टर / बॅनर पाहिले आहे का? )<br>*no-1, yes-2,* नाही 1, होय 2 if *yes* specify where, जर होय तर निर्दिष्ट करा | | |
| 5. Have you received any pamphlet on RBP? ( तुम्हाला आरबीपी वर कोणतेही पत्रक मिळाले आहे का?)<br>*no-1, yes-2* नाही 1, होय 2 | | |
| 6. Have you attended village awareness program (VAP)<br>(तुम्ही ग्रामीण जनजागृती कार्यक्रमात भाग घेतला आहे का?)<br>*No-1, once-2, twice-3, thrice-4, more-5* नाही 1, एकदा 2, दोनदा 3, तीनदा 4, तीनपेक्षा जास्त 5 | | |
| 7. Are you interested in RBP? (आपणास आरबीपीमध्ये **समाविष्ट** होन्यास स्वारस्य/रस आहे?)<br>*no-1, yes-2* (नाही 1, होय 2) | | |
| 8. Do you think it is a beneficial program (आरबीपी हा एक फायदेशीर कार्यक्रम आहे असे आपल्याला वाटते का?)<br>*no-1,yes-2,can't say-3* नाही 1, होय -2, सांगू शकत नाही -3 | | |
| 9. Do you interact with LRP or RBP farmers to learn about benefits (फायद्यांबद्दल जाणून घेण्यासाठी आपण एलआरपी किंवा आरबीपी **अंतर्गत समाविष्ट करण्यात आलेले पशु पालकशी** संवाद साधता का?)<br>*no-1,yes-2* if *yes* specify | | |
| 10. Do you try to learn from RBP farmers and apply ration balancing on your animals? (आपण आरबीपी **अंतर्गत समाविष्ट करण्यात आलेले पशु पालकाकडून** शिकण्याचा प्रयत्न करीत आहात का? आणि आपल्या प्राण्यांवर संतुलन आहाराचा अवलंब तुम्ही करीत आहात का?)<br>*no-1,yes-2* (नाही 1, होय 2) | | |
| 11. Have you thought about any change in feeding pattern after RBP is implemented in your village? *no-1, yes-2*<br>(तुमच्या गावात आरबीपी लागू झाल्यानंतर पशुआहार पध्दतीत बदल करण्याबाबत विचार केला आहे का? (नाही 1, होय 2) | | |
| 12. Have you been approached by LRP for covering your animal? *No-1, yes-2*<br>(आपल्यास आपल्या प्राण्यांचा समावेश करण्यासाठी एलआरपीकडे संपर्क साधला आहे का? (नाही 1, होय 2)<br>if *yes,* then why you did not adopt the program<br>जर होय तर आपण कार्यक्रम का स्वीकारला नाही? | | |
| 13. Do you think selection of beneficiaries under RBP is biased? *no-1, yes-2* if *yes* specify<br>(आरबीपीअंतर्गत लाभार्थ्यांची निवड करणे हे पक्षपाती आहे असे तुम्हाला वाटते का?) (नाही 1, होय 2) | | |
| 14. Are you willing to avail this service on payment basis? *No-1, yes-2,can't say-3*<br>(आपण देय आधारावर या सेवेचा लाभ घेण्यास इच्छुक आहात का?) नाही 1, होय -2, सांगू शकत नाही -3<br>If *yes,* specify how much payment per animal per ration balancing you want<br>( जर होय, दर रेशन बॅलन्सिंगनुसार प्रत्येक प्राण्यांसाठी किती फी घ्याल? | | |

**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

[विदर्भ व मराठवाडा दुग्धव्यवसाय विकास प्रकल्प- महाराष्ट्रातील रेशन बॅलन्सिंग (पशु आहार व्यवस्थापन कार्यक्रम) प्रोग्रामवरील पायलट प्रोजेक्टचे मूल्यांकन]

**Local Resource Person (LRP) Survey Schedule 4.0** (स्थानिक मार्गदर्शक सर्वेक्षण फॉर्म 4.0)

| **[0] Identification of Local Resource Person (LRP)** (स्थानिक मार्गदर्शकाची ओळख) | | | |
|---|---|---|---|
| Particulars (तपशील) | **Name** (नाव) | Particulars (तपशील) | **Name** (नाव) |
| 1. District (जिल्हा) | | 5. Name of LRP (स्थानिक मार्गदर्शकाचे नांव) | |
| 2. Tehsil (तहसील / तालुका) | | 6. User id for INAPH* (INAPH साठी वापरकर्ता आयडी | |
| 3. Village (गाव) | | 7. Mobile number (मोबाइल नंबर/भ्रमण ध्वनि) | |
| 4. DCS (दुग्ध सहकारी संस्था) | | | |

*Information Network for Animal Productivity and Health (पशु उत्पादकता आणि आरोग्य माहिती नेटवर्क)

| **[1a] Socio- Economic characteristics of LRP** (स्थानिक मार्गदर्शकाची सामाजिक- आर्थिक वैशिष्ट्ये) | | | | |
|---|---|---|---|---|
| 1. Age in years (वय वर्षे ) | | *3. Occupation- (code)- 1: Cultivator, 2: Animal Husbandry and Dairying, 3: Agri. Labour, 4:Nonfarm Labour, 5:Own Non-Farm Establishment, 6:Trade, 7:Employee in Service, 8: Other (*व्यवसाय- 1: शेतकरी, 2: पशु पालन व दुग्ध व्यवसाय, 3: कृषी. कामगार, 4: नॉनफार्म कामगार, 5: स्वत: ची बिगर-शेती स्थापना, 6: व्यापार, 7: सेवेतील कर्मचारी, 8: इतर) | Main (मुख्य) | |
| 2. Sex (male -1, female-2) (पुरुष -1, महिला -2) | | | Subsidiary (पुरक) | |
| 4. Marital status (married-1,unmarried-2, divorced-3,widow-4, other specify-5) (वैवाहिक स्थिती -विवाहित -1, अविवाहित -2, घटस्फोटित -3, विधवा -4, इतर निर्दिष्ट -5) | | 5. Social Group (*1:SC, 2:ST, 3: OBC, 4: Open) (*सामाजिक गट- 1: अनुसूचित जाती, 2 अनुसूचित जमाती, 3: इतर मागासवर्गीय, 4: खुला) | | |
| 6. Education in years (शिक्षण- वर्षे) | | 10. Monthly income as LRP (लआरपी म्हणून मासिक उत्पन्न) | | |
| 7. No. of Milch animal owned (दुधाळ जनावरांची संख्या) | | A. Fixed salary (निश्चित पगार) | | |
| 8. Landless (write -zero)/ Land Holdings (acre) [भूमिहीन (शून्य) / जमीन धारणा (एकर)] | | B. Incentives (प्रोत्साहन भत्ते) | | |
| 9. Total annual income in Rs. (एकूण वार्षिक उत्पन्न-रुपये) | | C. Commission (कमिशन) | | |
| | | D. Feed sale (पशू खाद्यविक्री) | | |
| | | E. Fees from farmers (शेतकऱ्यांकडून फी) | | |
| | | F. Others please specify (इतर निर्दिष्ट करावे) | | |
| 11. Dwelling structure (Pucca-1, semi-pucca-2, kuccha-3) (निवास व्यवस्था पक्का -1, अर्ध-पक्का -2, कच्चा -3) | | 12. Household electrification No-1,yes-2 (घरात वीज कनेक्शन आहे का? नाही 1, होय 2 ) | | |
| 13. Since how long you are a member of dairy cooperative? (years) (आपण दुग्ध सहकारी संस्था सदस्य केव्हापासून आहात? (वर्षे)) | | 14. Experience in Dairy (years) (दुग्ध व्यवसायातील अनुभव –वर्ष) | | |
| 15.Biogas Facility at home- *1:No 2:Y* (तुमच्या घरी बायोगॅस सयंत्र कार्यरत आहे का?)१: नाही २: होय) | | 16. Toilet facility at home *1: No 2:Yes* (घरात शौचालयाची सुविधा आहे का?) १: नाही २: होय) | | |

| **[2] Functioning under RBP** आरबीपी अंतर्गत कामाबद्दल माहिती | | | |
|---|---|---|---|
| 1. Time of starting working as LRP (एलआरपी म्हणून काम सुरू करण्याचा कालावधी) | Month and Year (महिना आणि वर्ष) | | |
| 2. Average time spent for RBP (आरबीपीसाठीचा दिला जानारा सरासरी वेळ)<br>A. hours/day तास / दिवस<br>B. days/month एकूण दिवस / महिना | | | |
| 3. Total farmers covered under RBP so far (आतापर्यंत आरबीपी अंतर्गत समाविष्ट करण्यात आलेले एकूण शेतकरी) | | Male पुरूष | Female स्त्री |
| | | | |
| 4. Total animals covered under RBP (आरबीपी अंतर्गत एकूण दुधाळ जनावरांची संख्या) | | | |
| 5. Handling of RBP software (*difficult-1,easy-2,very easy-3)* (आरबीपी सॉफ्टवेअर हाताळणे -कठीण -1, सुलभ -2, अगदी सोपी -3) | | | |

| | |
|---|---|
| 6. While doing RBP, with whom do you interact (आरबीपी तर्गत संतुलित आहाराची शिफारस करत असताना आपण कोणाशी संवाद साधता) *House owner-1, person who feeding animal-2, both- 3* (घरमालक-१, पशुला आहार देणारी व्यक्ती2, दोन्ही-3) | |
| 7. Do you give RB advice slip to farmer (तुम्ही शेतक-यांना आरबीचा सल्ला स्लिप दिली का?) *no-1,yes-2* (नाही 1, होय -2) | |
| 8. How do you give recommendation of feed items to farmers (आपण शेतकऱ्यांना आहाराची शिफारस शी देता) *kg-1, converted to vessels/bundles-2,both-3* (किलो -1, पात्रांमध्ये / बंडल -2 मध्ये रुपांतरित केले, दोन्ही -3) | |
| 9. How do you ensure that farmers are following RBP? ( शेतकरी सुचवलेल्या संतुलित आहार चे वापर/अनुसरण करीत आहेत कि नाही याची खातरजमा करता का? *no-1, yes-2* नाही 1, होय -2 | |
| If yes, how? जर होय, तर कशी? | |
| A. by interaction with farmer during next visit (पुढच्या भेटीच्यावेळी शेतकरी सोबत संवाद साधून) | |
| B. Follow up visit before due date of RB (आरबीच्या मुदतपूर्व तारखेच्या अगोदर भेटीचा पाठपुरावा करुन) | |
| C. Verifying over phone (फोनवर पडताळणी करुन) | |
| D. Any other-specify इतर कोणतेही - कृपया निर्दिष्ट करा | |
| 10. Do you give any additional advice/ input supply to farmers other than RBP? (तुम्ही आरबीपी व्यतिरिक्त शेतकऱ्यांना काही अतिरिक्त सल्ला / दुग्ध व्यवसायशी संबंधित साधन पुरवठा करता?) *no-1, yes-2* नाही 1, होय -2 | |
| A. Mineral mixture supply (खनिज मिश्रण पुरवठा) | |
| B. de-wormer supply (जंत नाशक पुरवठा) | |
| C. Any other supply specify) इतर बाबीचा पुरवठा- कृपया निर्दिष्ट करा | |
| D. Advice on animal management– chaffing fodder, drinking water etc. (पशु व्यवस्थापनाविषयी सल्ला चारा, पिण्याचे पाणी, इ.) | |
| E. Advice on animal healthcare (पशुच्या आरोग्यासाठी सल्ला) | |
| F. Calf & heifer care (वासरू आणि कालवड ची काळजी) | |
| G. Other- please specify ( इतर- कृपया निर्दिष्ट करा) | |

## [3] Coverage and efficiency of RBP (आरबीपीची व्याप्ती आणि कार्यक्षमता)

| | | | |
|---|---|---|---|
| 1. No. of Village Awareness Programs conducted in village (गावात आयोजित गाव जागरूकता कार्यक्रमांची संख्या) | | 7. Do officers from Milk Union visit you for monitoring work after initiation of RBP? *-Never-1, sometimes--2, frequently-3 (specify no. Of visits in past 1 year* (आरबीपीची अंमलबजावणी झाल्यानंतर दुध संघटनेच्या अधिकाऱ्यांनी भेट दिली का? कधीही -1, कधीकधी - 2, वारंवार -3 (मागील 1 वर्षातील भेटींची संख्या निर्दिष्ट करा | |
| 2. Whether the documentary on RBP was shown during village awareness programme? (*no-1, yes-2)* (गाव जागरूकता कार्यक्रमा दरम्यान आरबीपीवरील माहितीपट दर्शविले गेले होते का ? नाही 1, होय -2) | | | |
| 3. No. Of review meetings you have attended in last one year (मागील एका वर्षामध्ये आपण उपस्थित असलेल्या पुनरावलोकन बैठकींची संख्या) | | 8. How do you select cattle owner for RBP advice<br>• *First come first serve-1*<br>• *Suggested by DCS officials-2*<br>• *Personal preferences-3*<br>• *Any other-4 (specify)*<br>(आरबीपीच्या सल्ल्यासाठी तुम्ही पशु पालकाची निवड कशी केली?)<br>• प्रथम संपर्क करनारे-1<br>• दुग्ध सहकारी संस्था अधिका-यांनी सुचविलेले -२<br>• वैयक्तिक पसंती -3<br>• इतर कोणतेही -4 (निर्दिष्ट करा) | |
| 4. Whether you distribute any literature on RBP to farmers (तुम्ही आरबीपी वर कोणतेही साहित्य शेतक-यांना वितरित करता का?) *no-1,yes-2* नाही 1, होय -2 | | | |
| 5. Is RBP poster/banner displayed in your village/DCS? *no-1,yes-2* (तुमच्या गावात दुग्ध सहकारी संस्था मध्ये आरबीपी पोस्टर / बॅनर प्रदर्शित केल आहे का? नाही 1, होय -2) | | 9. As per your understanding what are the benefits of RBP (आपल्या समजानुसार आरबीपीचे काय काय फायदे आहेत?) | |

| | | |
|---|---|---|
| 6. Awareness of farmers on RBP in your village *less-1, good-2, excellent-3* (आपल्या गावातील आरबीपीवरील शेतकऱ्यांचे जागरूकता) कमी -1, चांगले -2, उत्कृष्ट -3) | | |

| | |
|---|---|
| [4] **Constraints** समस्या | |
| 1. Do you face problems with software no-1, sometimes-2, frequently-3<br>(आपल्याला सॉफ्टवेअर हाताळणी **करताना** समस्येचा सामना करावा लागला आहे का?) नाही 1, कधीकधी -2, सहसा -3 | |
| 2. Last software problem faced by the LRP (*specify approximate days)*<br>(शेवटची सॉफ्टवेअर समस्या कधी आली - अंदाजे दिवस आधी) | |
| 3. When you have some problems with software operation how do you handle it?<br>(जेव्हा आपल्याला सॉफ्टवेअरमध्ये काही समस्या उदभवतात तेव्हा आपण ते कसे हाताळता?)<br>*Mostly set it right by self-1, mostly seek the help of other lrps-2, mostly seek the help from milk union-3*<br>(मुख्यतः स्वतच1: , इतर एलआरपीएस ची मदत 2, दूध संघ पासून मदत 3) | |
| 4. Are there any hardware problems in netbook *no-1, sometimes-2, frequently-3*<br>(नेटबुकमध्ये हार्डवेअर समस्या आहेत का?) नाही 1, कधीकधी -2, सहसा -3 | |
| 5. Is internet connectivity a problem *no-1, sometimes-2, frequently-3*<br>(इंटरनेट कनेक्टिव्हिटी ही समस्या आहे का? - ) नाही 1, कधीकधी -2, सहसा -3) | |
| 6. Do RBP farmers cooperate easily? *no-1, often-2, always-3*<br>(आरबीपीचे शेतकरी सहकार्य सहजपणे करतात का? (नाही 1, अनेकदा -2, नेहमी -3) | |
| 7. Do non-RBP cattle owner create any hurdles in programme? *no-1, sometimes-2, frequently-3*<br>(आरबीपी अंतर्गत नसलेले पशु पालक कार्यक्रमात अडथळे निर्माण करतात का? -नाही 1, कधीकधी -2, सहसा -3) | |
| 8. Is lack of support from EIA/DCS a constraint (*no-1,sometimes-2, frequently-3)*<br>(अंमलबजावणी करणारी यंत्रने कदुन पाठिंबा नसणे ही एक अडचण - नाही 1, कधीकधी -2, सहसा -3) | |
| 9. Is lack of support from milk union a constraint (*no-1,sometimes-2, frequently-3)*<br>(दूध संघाचा पाठिंबा नसणे ही एक अडचण आहे का? - नाही 1, कधीकधी -2, सहसा -3) | |
| 10. Is mineral mixture supply adequately available *no-1, often-2, always-3*<br>(खनिज मिश्रण पुरेशा प्रमाणात उपलब्ध आहे का?... नाही 1, अनेकदा -2, नेहमी -3) | |
| 11. Are you satisfied with the financial incentive that you receive *no-1,somewhat-2, yes-3*<br>(आपल्याला मिळालेल्या आर्थिक प्रोत्साहनपर रक्कमे वर समाधानी आहात काय? नाही 1, काहीसे -2, होय -3 | |
| 12. Any other constraints in RBP implementation (आरबीपीच्या अंमलबजावणीत इतर | |

***Instruction: note down the details about the nature of the problem faced in space provided***
(सूचना: प्रदान केलेल्या जागेत कोणत्या प्रकारची समस्या उद्भवली आहे त्याविषयीचे तपशील लिहा)

| | |
|---|---|
| [5] **Opinion and Suggestions** (मत आणि सूचना) | |
| 1. Do you see any notable impact of RBP in your village? *no-1, yes-2, (specify)*<br>(तुमच्या गावात आरबीपीचा कोणताही लक्षणीय परिणाम तुम्हाला दिसतो का?) नाही १, होय २, (निर्दिष्ट करा) | |
| 2. What prompted you to work as an LRP? (एलआरपी म्हणून काम करण्यास आपण कसे प्रवृत्त झालात? | |
| 3. Do you feel any change in your social status after working as LRP? *No-1, somewhat-2, yes-3 (specify)*<br>(एलआरपी म्हणून काम केल्यानंतर आपल्या सामाजिक स्थितीत काही बदल झाल्याचे आपल्याला वाटत आहे का?)<br>नाही 1, काहीसे -2, होय -3 | |
| 4. Do you think programme would be sustainable after withdrawal of government support?<br>*no-1, yes-2, can't say-3*<br>(तुम्हाला असे वाटते का की सरकारी मदत काढून घेतल्यानंतर कार्यक्रम यशस्वी होतो का? - नाही 1, होय 2, सांगू शकत नाही -3) | |
| 5. Would you like to continue providing the service after the end of programme? *no-1, yes-2, can't say-3*<br>(कार्यक्रम संपल्यानंतर आपण सेवा प्रदान करणे सुरू ठेवू इच्छिता का? नाही 1, होय 2, सांगू शकत नाही -3) | |

| | |
|---|---|
| If *yes* what remuneration do you expect (जर होय तर आपल्याला काय मोबदला मिळेल अशी अपेक्षा आहे) | |
| 6. Any suggestions for improvement in RBP (आरबीपीत सुधारण्यासाठी काही सूचना)<br>a.<br>b. | |

**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

# End Implementing Agency Questionnaire: 5.0

| [0] Basic information about End Implementing Agency (EIA) | | | | | | |
|---|---|---|---|---|---|---|
| **Particulars** | | | | | | |
| **1. EIA Name & address** | **Mooofarm Pvt. Limited, Gurgaon, Haryana**<br>**Regional office/s address (if any): _____** | | | | | |
| **2. Registration details** | Cooperative/Producers Company/Non Govt. Organization/Pvt. firm/Other ..... | | | | | |
| | Registration No. and date: | | | | | |
| **3. Key informant** | Name: | | | | | |
| | Designation: | | | Education: | | |
| | Email: | | | Mobile: | | |
| **4. Activities of EIA and Coverage** | Activity | Since when | *State* | *No. of Districts covered* | *No. of Villages covered* | *No. of Farmers/ Cattle owners covered* |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| **5. Past Experience of RBP implementation** | (before implementing in Vidarbha region of MS) | | | | | |

| [1] Coverage of RBP (please attach copy of work contract issued by VMDDP- Triparty agreement) | | | | |
|---|---|---|---|---|
| 1. Date of official inception of RBP in Vidarbha region of Maharashtra | Month & Year: | | | |
| | ***Target*** | | ***Achievement*** | |
| 2. No. of districts covered | | | | |
| 3. No of Villages covered | 400 | | | |
| 4.No of Farmers/ Cattle Owners covered | 6800 | | | |
| 5. No. of Animals covered<br>Local Cows:<br>Cross Bred:<br>Buffaloes:<br>Total: | | | _____<br>_____<br>_____<br>_____ | |
| 6. Staff position for RBP (appointed & trained) | | | | |
| 6.1 Local Resource Persons trained (no.)-<br>*please enclosed note on number of days and place with training course content with details on resource person* | *Male* | *Female* | *Male* | *Female* |
| 6.2 Local Resource Persons functioning (no.) | | | | |
| 6.3 Cluster Coordinators trained (no)<br>*please enclosed note on number of days and place with training course content with details on resource person* | | | | |
| 6.4 Cluster Coordinators functioning (no) | | | | |
| 7. Village Area Programme conducted (no.)<br>Please attach village-wise VAP conducted<br>(a) No. of RBP pamphlets distributed (please attach a copy pamphlet)<br>(b) RBP Documentary shown in villages (please share a clip shared)<br>(c) RBP posters displayed (please attach photo of same) | | | | |
| 8. What services were provided to cattle owner at his doorstep- **breeding, nutrition and health service** | | | | |

## [2] RBP KIT distributed to LRP and any material given to Cluster Coordinator

| Sr. No. | Material | Given to LRP (Nos) | Given to Cluster Coordinator (Nos) | Total |
|---|---|---|---|---|
| 1 | Tablet with accessories | | | |
| 2 | Weighing balance – 5 kg | | | |
| 3 | Weighing balance – 25 kg | | | |
| 4 | Tag applicator | | | |
| 5 | Measuring Tape | | | |
| 6 | RBP Information Booklet | | | |
| 7 | Ready Reckoner | | | |
| 8 | Cap | | | |
| 9 | T Shirt | | | |
| 10 | Tablet/Netbooks purchased | | | |
| 11 | Leather Bag | | | |
| 12 | Identity Card | | | |
| 13 | Any other1 (specify) | | | |
| | Any other2 (specify) | | | |

| **[4] Use of INAPH** (Information Network for Animal Productivity & Health) |
|---|
| 1. Which application of INAPH was used (Desktop Application, Android Application and Web Based Application)? |
| 2. What is the language of software used? |
| 3. Whether application mode available was online or offline? |
| 4. What is the access hierarchy mechanism in place for check of the data submission or action on data submitted to be taken (e.g. data submitted by LRP to NDDB software directly? Or any other structure)? |
| 5. In the absence of network connection (offline mode), whether there is a provision for data to be captured and stored for later synchronisation with the central server through the GPRS network |
| 6. What mechanism adopted for addressing the issue in software in notebook/android phone of LRP? |
| 7. Have you used data generated in RBP for further analysis and suitable modification in said program? |
| 8. Organization level administration managed at local EIA level |

| |
|---|
| 9. Do you have Field IT Implementation Support including system Installation and Troubleshooting Functional? If yes, please provide details? |
| 10. Do you have IT Project Coordinator, IT Officer and Area Officers in place to monitor and address the field IT and RBP related issues? |
| 11. Any suggestion made to VMDDP for further and better implementation of program? |

## [5] Remuneration paid to LRP and Cluster Coordinator (Rs./month)

| Sr. No. | Particulars | LRP (Rs./month) | Cluster Coordinator (Rs./month) |
|---|---|---|---|
| 1 | Pay (Please specify criteria....per animal/village/any other) | | |
| 2 | Data management and communication charges | | |
| 3 | Petrol Allowances | | |
| 4 | Meeting allowances | | |
| 5 | Additional Allowances, if any | | |
| 6 | Accidental Insurance Coverage, (if given) | | |
| 7 | Any other, please specify | | |

| [6] Implementation, monitoring and evaluation of RBP |
|---|
| 1. Incentives provided to Local Resource Persons |
| 2. Innovative practices for programme implementation |
| 3. Monitoring system: provide information about review meetings, field visits and the authorities |
| 4. Evaluation system: provide information about record keeping system |
| 5. Any mechanism put in place to ensure sustainability of the programme |
| 6. Any reduction in Cost of Feeding observed?, if yes, **please submit case study report/s with benchmark survey and** ? |

| [7] Impact of RBP (if applicable) | | | | |
|---|---|---|---|---|
| Particulars | Before RBP | | After RBP | |
| | Annual average | June 201....* | Annual average# | June 2015 |
| 1. Milk procurement (lit.) | | | | |
| 2. DCS/Mother Dairy members (no.) | | | | |
| 3. Pourer members (no.) | | | | |
| 4. Milk fat (%) | | | | |
| 5. Daily milk yield (litre) | | | | |
| 6. Mineral mixture sale (kg.) | | | | |
| 7. Cattle feed sale (kg.) | | | | |
| 8. Bypass fat sale (kg.) | | | | |
| 9. De-wormer (doses) | | | | |
| 10. Veterinary visits | | | | |
| 11. Conception rate | | | | |

**Note: information to be taken for the total RBP villages only.**

| [8] Constraints faced |
|---|
| 1. Manpower constraints (eg. Problems in recruiting staff- LRP, high attrition rate of LRP, etc.) |
| 2. Technical constraints: (eg. Problems in availability of inputs, net connectivity, shortfall in technical assistance provided, etc.) |
| 3. Governance issues: (eg. Procedure of procurement, shortcomings in monitoring and evaluation system, etc.) |
| 4. Financial constraints |
| 5. Any other |

| [9] Opinion and Suggestions |
|---|
| 1. Has program improved the capacity of EIA for delivering goods and services to farmers/Cattle owners? |
| 2. Most critical components to achieve programme objectives/targets? |
| 3. Do you plan to extend coverage of RBP beyond the mandatory targets? If yes, what will be source of funds? |
| 4. Are beneficiary households likely to continue receiving RBP advisory services after the program ends? |
| 5. Are LRPs likely to continue operating and remain financially viable after the program ends? |
| 6. How the RBP would be implemented by the EIA after the financial support from VMDDP is withdrawn? |
| 7. Does gender of LRP make difference to effectiveness of programme especially in ensuring retention of LRPs for longer period with the programme? |
| 8. What are the main lessons that can be drawn from the program experience since its inception? |
| 9. What has been the main lessons learned regarding targeting and working with vulnerable households? |
| 10. What actions are recommended to follow up or reinforce initial benefits from the program? |

11. What corrective actions are recommended regarding the program?

11.1 Design

11.2 Implementation

11.3 Reporting

11.4 Monitoring

11.5 Evaluation

| [10] Future plans and other information wish to share |
| --- |
| |
| |
| |

## (A) Local Resource Persons trained

| Sr. No. | Training Place | Duration | | Training Content | No. of LRPs trained | Resources persons from (name of organization) |
|---|---|---|---|---|---|---|
| | | From | To | | | |
| a | Nagpur district | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| b | Wardha district | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| c | Amravati district | | | | | |
| | | | | | | |
| | | | | | | |

## (B) Cluster Coordinators trained

| Sr. No. | Training Place | Duration | | Training Content | No. of Cluster Coordinators trained | Resources persons from (name of organization) |
|---|---|---|---|---|---|---|
| | | From | To | | | |
| a | Nagpur district | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| b | Wardha district | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| c | Amravati district | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## (C) Villages covered and VAP conducted

| Sr. No. | Name of District and Village | Month of inclusion of village under RBP | No. of VAPs conducted | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Nov 2019 | Dec 2019 | Jan 20 | Feb 20 | Mar20 | Apr20 | May20 | Jun20 | Ju;y20 | Aug2020 | Sept 20 | Oct | Nov 20 | Dec 20 |
| a | Nagpur district | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| b | Wardha district | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| c | Amravati district | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

## (D) Implementation of RBP in particular village

| Sr.No | Name of Village | Tehsil | District | Date and Month of inclusion of village under RBP |
|---|---|---|---|---|
| 1 | Akoli Jahangir (2746703989529764) | Akot | Akola | |
| 2 | Akolkhed (2746703989529765) | Akot | Akola | |
| 3 | Panaj (2746703989529768) | Akot | Akola | |
| 4 | Sawara (2746703989529792) | Akot | Akola | |
| 5 | Anjangaon (M Cl) (2750304003802684) | Anjangaon Surji | Amravati | |
| 6 | Hanawatkheda (2746804004531872) | Achalpur | Amravati | |
| 7 | Isapur(531999) (2746804004531999) | Achalpur | Amravati | |
| 8 | Kapustalni (2746804003531811) | Anjangaon Surji | Amravati | |
| 9 | Khanampur (2746804003531768) | Anjangaon Surji | Amravati | |
| 10 | Khatijapur (2746804004531948) | Achalpur | Amravati | |
| 11 | Kotegaon (2746804003531832) | Anjangaon Surji | Amravati | |
| 12 | Murtizapur Ghogadi (2746804003531745) | Anjangaon Surji | Amravati | |
| 13 | Parasapur (2746804004531949) | Achalpur | Amravati | |
| 14 | Sategaon (2746804003531746) | Anjangaon Surji | Amravati | |

| | | | | |
|---|---|---|---|---|
| 15 | Tawalar (2746804004531962) | Achalpur | Amravati | |
| 16 | Upatkheda (2746804004531944) | Achalpur | Amravati | |
| 17 | Amla Vishveshwar (2746804013533176) | Chandur Railway | Amravati | |
| 18 | Ashok Nagar (2746804014533269) | Dhamangaon Railway | Amravati | |
| 19 | Baslapur (2746804013533187) | Chandur Railway | Amravati | |
| 20 | Chandur Railway (M Cl) (2750304013802692) | Chandur Railway | Amravati | |
| 21 | Dabhada (2746804014533273) | Dhamangaon Railway | Amravati | |
| 22 | Dahigaon(533200) (2746804013533200) | Chandur Railway | Amravati | |
| 23 | Deogaon(533364) (2746804014533364) | Dhamangaon Railway | Amravati | |
| 24 | Dhanodi(533216) (2746804013533216) | Chandur Railway | Amravati | |
| 25 | Dhanora Mhali (2746804013533206) | Chandur Railway | Amravati | |
| 26 | Dighi Mahalle (2746804014533294) | Dhamangaon Railway | Amravati | |
| 27 | Gavha Farkade (2746804014533268) | Dhamangaon Railway | Amravati | |
| 28 | Gokulsara (2746804014533300) | Dhamangaon Railway | Amravati | |
| 29 | Jalka Jagtap (2746804013533178) | Chandur Railway | Amravati | |
| 30 | Jalka Patache (2746804014533362) | Dhamangaon Railway | Amravati | |
| 31 | Juna Dhamangaon (2746804014533312) | Dhamangaon Railway | Amravati | |
| 32 | Kalamgaon (2746804013533218) | Chandur Railway | Amravati | |
| 33 | Kalamjapur (2746804013533219) | Chandur Railway | Amravati | |
| 34 | Karala (2746804013533173) | Chandur Railway | Amravati | |
| 35 | Kawali (2746804014533272) | Dhamangaon Railway | Amravati | |
| 36 | Kurha (2746804008532583) | Teosa | Amravati | |
| 37 | Mandwa(533191) (2746804013533191) | Chandur Railway | Amravati | |
| 38 | Manjarkhed(533199) (2746804013533199) | Chandur Railway | Amravati | |
| 39 | Mund Nilkanth Sakharam (2746804014533291) | Dhamangaon Railway | Amravati | |
| 40 | Nimbhora Bodkha (2746804014533320) | Dhamangaon Railway | Amravati | |
| 41 | Nimboli (2746804014533328) | Dhamangaon Railway | Amravati | |
| 42 | Rajana(533197) (2746804013533197) | Chandur Railway | Amravati | |
| 43 | Satefal (2746804013533217) | Chandur Railway | Amravati | |
| 44 | Sawanga Vithoba (2746804013533184) | Chandur Railway | Amravati | |
| 45 | Shendurjana Kh. (2746804014533357) | Dhamangaon Railway | Amravati | |
| 46 | Shirajgaon Korde (2746804013533194) | Chandur Railway | Amravati | |
| 47 | Songaon(533209) (2746804013533209) | Chandur Railway | Amravati | |
| 48 | Talegaon Dashasar (2746804014533368) | Dhamangaon Railway | Amravati | |
| 49 | Taroda(533304) (2746804014533304) | Dhamangaon Railway | Amravati | |
| 50 | Tembhurni (2746804013533189) | Chandur Railway | Amravati | |
| 51 | Tiwra (2746804014533348) | Dhamangaon Railway | Amravati | |
| 52 | Tuljapur(533195) (2746804013533195) | Chandur Railway | Amravati | |
| 53 | Warud Bagaji (2746804014533281) | Dhamangaon Railway | Amravati | |
| 54 | Wathoda Bk. (2746804014533274) | Dhamangaon Railway | Amravati | |
| 55 | Zada (2746804014533329) | Dhamangaon Railway | Amravati | |
| 56 | Adgaon(532331) (2746804006532331) | Morshi | Amravati | |
| 57 | Dadhi (2746804010532818) | Bhatkuli | Amravati | |
| 58 | Devra (2746804009532600) | Amravati | Amravati | |

| | | | | |
|---|---|---|---|---|
| 59 | Devri (2746804009532599) | Amravati | Amravati | |
| 60 | Dhawalsari (2746804012533026) | Nandgaon-Khandeshwar | Amravati | |
| 61 | Digargavhan (2746804009532628) | Amravati | Amravati | |
| 62 | Jalaka (2746804009532657) | Amravati | Amravati | |
| 63 | Kapustalani (2746804009532629) | Amravati | Amravati | |
| 64 | Loni(533020) (2746804012533020) | Nandgaon-Khandeshwar | Amravati | |
| 65 | Malegaon(532565) (2746804008532565) | Teosa | Amravati | |
| 66 | Malegaon(532630) (2746804009532630) | Amravati | Amravati | |
| 67 | Mozari(532501) (2746804008532501) | Teosa | Amravati | |
| 68 | Shendola Bk. (2746804008532512) | Teosa | Amravati | |
| 69 | Takli Bk. (2746804012533011) | Nandgaon-Khandeshwar | Amravati | |
| 70 | Talegaon Thakur (2746804008532529) | Teosa | Amravati | |
| 71 | Achalpur (M Cl) (2750304004802685) | Achalpur | Amravati | |
| 72 | Alampur(532034) (2746804005532034) | Chandurbazar | Amravati | |
| 73 | Ambapati (2746804002531703) | Chikhaldara | Amravati | |
| 74 | Barhanpur(532181) (2746804005532181) | Chandurbazar | Amravati | |
| 75 | Belaj (2746804005532131) | Chandurbazar | Amravati | |
| 76 | Belkheda(532072) (2746804005532072) | Chandurbazar | Amravati | |
| 77 | Belora(532186) (2746804005532186) | Chandurbazar | Amravati | |
| 78 | Chichkheda (2746804002531701) | Chikhaldara | Amravati | |
| 79 | Dewari (2746804004531914) | Achalpur | Amravati | |
| 80 | Dhamangaon(531856) (2746804004531856) | Achalpur | Amravati | |
| 81 | Jambli (2746804002531702) | Chikhaldara | Amravati | |
| 82 | Jawla (2746804005532180) | Chandurbazar | Amravati | |
| 83 | Kalhodi (2746804005532035) | Chandurbazar | Amravati | |
| 84 | Khambora (2746804004531933) | Achalpur | Amravati | |
| 85 | Khel Mahal (Karajgaon) (2746804005532033) | Chandurbazar | Amravati | |
| 86 | Lakhanwadi(532047) (2746804005532047) | Chandurbazar | Amravati | |
| 87 | Ratanpur (2746804005532027) | Chandurbazar | Amravati | |
| 88 | Sarfapur (2746804005532036) | Chandurbazar | Amravati | |
| 89 | Sirajgaon Ardak (2746804005532136) | Chandurbazar | Amravati | |
| 90 | Somwarkheda (2746804002531710) | Chikhaldara | Amravati | |
| 91 | Tuljapur Gadhi (2746804005532133) | Chandurbazar | Amravati | |
| 92 | Vastapur (2746804002531698) | Chikhaldara | Amravati | |
| 93 | Wani(532071) (2746804005532071) | Chandurbazar | Amravati | |
| 94 | Ajangaon(534962) (2748404024534962) | Katol | Nagpur | |
| 95 | Bhidhnur (2748404023534878) | Narkhed | Nagpur | |
| 96 | Chikhali (Masod) (2748404024535090) | Katol | Nagpur | |
| 97 | Digras (Bk) (2748404024534938) | Katol | Nagpur | |
| 98 | Dorli (Bhandwalkar) (2748404024534928) | Katol | Nagpur | |
| 99 | Dorli (Bk) (2748404024534966) | Katol | Nagpur | |
| 100 | Gharatwada (2748404024535024) | Katol | Nagpur | |
| 101 | Harankhuri (2748404024534939) | Katol | Nagpur | |
| 102 | Kalambha (2748404024534932) | Katol | Nagpur | |

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|---|---|---|---|---|
| 103 | Khandala (Kh)(535016) (2748404024535016) | Katol | Nagpur | |
| 104 | Khapa(534899) (2748404023534899) | Narkhed | Nagpur | |
| 105 | Khapari (Kh) (2748404024534972) | Katol | Nagpur | |
| 106 | Kondhasaoli (2748404024534973) | Katol | Nagpur | |
| 107 | Kotwalbardi (2748404024534978) | Katol | Nagpur | |
| 108 | Ladgaon(535027) (2748404024535027) | Katol | Nagpur | |
| 109 | Lakholi (2748404024534958) | Katol | Nagpur | |
| 110 | Malegaon(534954) (2748404024534954) | Katol | Nagpur | |
| 111 | Masod (2748404024535091) | Katol | Nagpur | |
| 112 | Mendhepathar(534970) (2748404024534970) | Katol | Nagpur | |
| 113 | Mendki (2748404024534925) | Katol | Nagpur | |
| 114 | Mhaskhapra (2748404024534953) | Katol | Nagpur | |
| 115 | Mohkhedi(534933) (2748404024534933) | Katol | Nagpur | |
| 116 | Mukani (2748404024534911) | Katol | Nagpur | |
| 117 | Murti (2748404024535048) | Katol | Nagpur | |
| 118 | Panwadi(534940) (2748404024534940) | Katol | Nagpur | |
| 119 | Parsodi(535028) (2748404024535028) | Katol | Nagpur | |
| 120 | Raulgaon (2748404024534977) | Katol | Nagpur | |
| 121 | Ridhora(535022) (2748404024535022) | Katol | Nagpur | |
| 122 | Sawanga (Lohari) (2748404023534904) | Narkhed | Nagpur | |
| 123 | Shindi (Umari) (2748404023534859) | Narkhed | Nagpur | |
| 124 | Sonoli(534915) (2748404024534915) | Katol | Nagpur | |
| 125 | Umari(534858) (2748404023534858) | Narkhed | Nagpur | |
| 126 | Walni (2748404024535035) | Katol | Nagpur | |
| 127 | Wandli (Kh) (2748404024534931) | Katol | Nagpur | |
| 128 | Yenwa (2748404024534934) | Katol | Nagpur | |
| 129 | Ambazari(535980) (2748404033535980) | Hingna | Nagpur | |
| 130 | Ashta (2748404031535964) | Nagpur (Rural) | Nagpur | |
| 131 | Bajargaon (2748404031535819) | Nagpur (Rural) | Nagpur | |
| 132 | Bela (2748404034536262) | Umred | Nagpur | |
| 133 | Chargaon(536249) (2748404034536249) | Umred | Nagpur | |
| 134 | Daheli (2748404031535956) | Nagpur (Rural) | Nagpur | |
| 135 | Degma kh (2748404033536060) | Hingna | Nagpur | |
| 136 | Dhamana (2748404031535874) | Nagpur (Rural) | Nagpur | |
| 137 | Dhanoli(535991) (2748404033535991) | Hingna | Nagpur | |
| 138 | Gumgaon(536076) (2748404033536076) | Hingna | Nagpur | |
| 139 | Junewani(536061) (2748404033536061) | Hingna | Nagpur | |
| 140 | Kalamana(536275) (2748404034536275) | Umred | Nagpur | |
| 141 | Kanholibara (2748404033536013) | Hingna | Nagpur | |
| 142 | Kavdas (2748404033535990) | Hingna | Nagpur | |
| 143 | Khairi(535816) (2748404031535816) | Nagpur (Rural) | Nagpur | |
| 144 | Kinhi(536009) (2748404033536009) | Hingna | Nagpur | |
| 145 | Kotewada (2748404033536074) | Hingna | Nagpur | |
| 146 | Mandavghorad (2748404033536058) | Hingna | Nagpur | |

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|---|---|---|---|---|
| 147 | Mangli(536051) (2748404033536051) | Hingna | Nagpur | |
| 148 | Mohgaon(536050) (2748404033536050) | Hingna | Nagpur | |
| 149 | Neri(536034) (2748404033536034) | Hingna | Nagpur | |
| 150 | Pendhari(536004) (2748404033536004) | Hingna | Nagpur | |
| 151 | Pethkaldongari (2748404031535833) | Nagpur (Rural) | Nagpur | |
| 152 | Satgaon (Vena Nagar) (N.V.) (2748404033536099) | Hingna | Nagpur | |
| 153 | Satnavari (2748404031535825) | Nagpur (Rural) | Nagpur | |
| 154 | Sawali(536017) (2748404033536017) | Hingna | Nagpur | |
| 155 | Shivmadka (2748404033536072) | Hingna | Nagpur | |
| 156 | Sirpur(535814) (2748404031535814) | Nagpur (Rural) | Nagpur | |
| 157 | Vyahad (2748404031535835) | Nagpur (Rural) | Nagpur | |
| 158 | Wadgaon(536260) (2748404034536260) | Umred | Nagpur | |
| 159 | Wagdara(536084) (2750504033536084) | Hingna | Nagpur | |
| 160 | Borada (G) (2748404027535440) | Parseoni | Nagpur | |
| 161 | Bori (singori) (2748404027535449) | Parseoni | Nagpur | |
| 162 | Chacher (2748404029535628) | Mauda | Nagpur | |
| 163 | Dudhala(535613) (2748404029535613) | Mauda | Nagpur | |
| 164 | Hiwara (Gahu) (2748404027535445) | Parseoni | Nagpur | |
| 165 | Indora(535659) (2748404029535659) | Mauda | Nagpur | |
| 166 | Kandri (CT)(535453) (2748404027535453) | Parseoni | Nagpur | |
| 167 | Kanhan (Pipri) (CT) (2748404027535452) | Parseoni | Nagpur | |
| 168 | Khandala (Ghatate) (2748404027535447) | Parseoni | Nagpur | |
| 169 | Nagardhan (2748404028535595) | Ramtek | Nagpur | |
| 170 | Nilaj (2748404027535448) | Parseoni | Nagpur | |
| 171 | Nisatkheda (2748404029535629) | Mauda | Nagpur | |
| 172 | Rajoli(535620) (2748404029535620) | Mauda | Nagpur | |
| 173 | Rewaral (2748404029535643) | Mauda | Nagpur | |
| 174 | Wirshi (2748404029535642) | Mauda | Nagpur | |
| 175 | Yerla (Dhote) (2748404024534935) | Katol | Nagpur | |
| 176 | Yesamba (2748404027535422) | Parseoni | Nagpur | |
| 177 | Ambazari (2749804017533708) | Arvi | Wardha | |
| 178 | Ambikapur(533430) (2749804015533430) | Ashti | Wardha | |
| 179 | Arvi (M Cl) (2750404017802694) | Arvi | Wardha | |
| 180 | Bedhona (2749804017533702) | Arvi | Wardha | |
| 181 | Belhara (2749804017533675) | Arvi | Wardha | |
| 182 | Brahmanwada(533637) (2749804016533637) | Karanja | Wardha | |
| 183 | Chopan (2749804016533640) | Karanja | Wardha | |
| 184 | Dahegaon Mustafa (2749804017533716) | Arvi | Wardha | |
| 185 | Dahegaon( Gondi) (2749804017533786) | Arvi | Wardha | |
| 186 | Danapur (2749804016533643) | Karanja | Wardha | |
| 187 | Delwadi (2749804015533428) | Ashti | Wardha | |
| 188 | Deurwada (2749804017533729) | Arvi | Wardha | |
| 189 | Fefarwada (2749804016533641) | Karanja | Wardha | |
| 190 | Husenpur(533860) (2749804017533860) | Arvi | Wardha | |

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|---|---|---|---|---|
| 191 | Jalgaon (2749804017533657) | Arvi | Wardha | |
| 192 | Jolwadi (2749804015533424) | Ashti | Wardha | |
| 193 | Khairwada (2749804016533646) | Karanja | Wardha | |
| 194 | Khambit (2749804015533429) | Ashti | Wardha | |
| 195 | Kharangana (2749804017533787) | Arvi | Wardha | |
| 196 | Kinhala(533461) (2749804015533461) | Ashti | Wardha | |
| 197 | Kurzadi(534097) (2750404019534097) | Wardha | Wardha | |
| 198 | Mahadapur (2749804016533644) | Karanja | Wardha | |
| 199 | Morangana(533796) (2749804017533796) | Arvi | Wardha | |
| 200 | Natala (2749804017533809) | Arvi | Wardha | |
| 201 | Nijampur (2749804017533862) | Arvi | Wardha | |
| 202 | Pachegaon (2749804017533744) | Arvi | Wardha | |
| 203 | Pachod(533671) (2749804017533671) | Arvi | Wardha | |
| 204 | Pachod(533849) (2750404017533849) | Arvi | Wardha | |
| 205 | Panjara  Bothali (2749804017533817) | Arvi | Wardha | |
| 206 | Panjara Gondi (2749804016533639) | Karanja | Wardha | |
| 207 | Pilapur (2749804015533426) | Ashti | Wardha | |
| 208 | Pimpalgaon(533812) (2749804017533812) | Arvi | Wardha | |
| 209 | Pimpalkhuta (2749804017533775) | Arvi | Wardha | |
| 210 | Rasulabad (2749804017533871) | Arvi | Wardha | |
| 211 | Rohana (2749804017533835) | Arvi | Wardha | |
| 212 | Saldara (2749804017533833) | Arvi | Wardha | |
| 213 | Sorta (2749804017533865) | Arvi | Wardha | |
| 214 | Virul (2749804017533852) | Arvi | Wardha | |
| 215 | Wadala(533864) (2749804017533864) | Arvi | Wardha | |
| 216 | Wadhona(533703) (2750404017533703) | Arvi | Wardha | |
| 217 | Ajanadevi (2749804016533577) | Karanja | Wardha | |
| 218 | Ajandoh (2749804016533613) | Karanja | Wardha | |
| 219 | Antargaon(533954) (2749804018533954) | Seloo | Wardha | |
| 220 | Bangadapur (2749804016533627) | Karanja | Wardha | |
| 221 | Bhiwapur(533625) (2749804016533625) | Karanja | Wardha | |
| 222 | Bihadi (2749804016533575) | Karanja | Wardha | |
| 223 | Borgaon (Dhole) (2749804016533549) | Karanja | Wardha | |
| 224 | Botona (2749804016533540) | Karanja | Wardha | |
| 225 | Chamala (2749804015533453) | Ashti | Wardha | |
| 226 | Dahegaon (Gosai) (2749804018534010) | Seloo | Wardha | |
| 227 | Dhamangaon(533890) (2749804018533890) | Seloo | Wardha | |
| 228 | Dhamkund (2749804016533566) | Karanja | Wardha | |
| 229 | Helodi (2749804018534019) | Seloo | Wardha | |
| 230 | Hetikundi (2749804016533609) | Karanja | Wardha | |
| 231 | Hingni (2749804018533889) | Seloo | Wardha | |
| 232 | Hiwara(533952) (2750404018533952) | Seloo | Wardha | |
| 233 | Junapani (2749804016533552) | Karanja | Wardha | |
| 234 | Kajali (2749804016533617) | Karanja | Wardha | |

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|---|---|---|---|---|
| 235 | Kakada (2749804016533570) | Karanja | Wardha | |
| 236 | Kannamwar Gram (2749804016533622) | Karanja | Wardha | |
| 237 | Malegaon Kali (2749804016533558) | Karanja | Wardha | |
| 238 | Met Hiraji (2749804016533632) | Karanja | Wardha | |
| 239 | Morshi (2750404016533585) | Karanja | Wardha | |
| 240 | Nara (2749804016533578) | Karanja | Wardha | |
| 241 | Narsingpur(533561) (2749804016533561) | Karanja | Wardha | |
| 242 | Pardi(533539) (2749804016533539) | Karanja | Wardha | |
| 243 | Parsodi(533571) (2749804016533571) | Karanja | Wardha | |
| 244 | Ragadgaon (2749804016533563) | Karanja | Wardha | |
| 245 | Rahati (2749804016533619) | Karanja | Wardha | |
| 246 | Rajani(533548) (2749804016533548) | Karanja | Wardha | |
| 247 | Sawali Bk. (2749804016533547) | Karanja | Wardha | |
| 248 | Sindi Vihiri (2749804016533635) | Karanja | Wardha | |
| 249 | Takali (2749804018533927) | Seloo | Wardha | |
| 250 | Taroda(533569) (2749804016533569) | Karanja | Wardha | |
| 251 | Thanegaon (2749804016533583) | Karanja | Wardha | |
| 252 | Tuljapur(534027) (2749804018534027) | Seloo | Wardha | |
| 253 | Wadgaon(533936) (2749804018533936) | Seloo | Wardha | |
| 254 | Wanarvihira (2749804018533887) | Seloo | Wardha | |
| 255 | Zadshi (2749804018533931) | Seloo | Wardha | |
| 256 | Nagazari (2749804016533618) | Karanja | Wardha | |
| 257 | Amaji Majara (2749804019534045) | Wardha | Wardha | |
| 258 | Amgaon(533883) (2749804018533883) | Seloo | Wardha | |
| 259 | Charmandal (2749804018534006) | Seloo | Wardha | |
| 260 | Dhotra(534164) (2749804019534164) | Wardha | Wardha | |
| 261 | Gaimukh (2749804018533913) | Seloo | Wardha | |
| 262 | Ghorad (2749804018533909) | Seloo | Wardha | |
| 263 | Jamani(533935) (2749804018533935) | Seloo | Wardha | |
| 264 | Jungad (2749804018533902) | Seloo | Wardha | |
| 265 | Junona(534023) (2749804018534023) | Seloo | Wardha | |
| 266 | Kamthi(534046) (2749804019534046) | Wardha | Wardha | |
| 267 | Khapri(533903) (2749804018533903) | Seloo | Wardha | |
| 268 | Malegaon Theka (2749804017533785) | Arvi | Wardha | |
| 269 | Nachangaon (2749804020534209) | Deoli | Wardha | |
| 270 | Nagthana (2749804019534180) | Wardha | Wardha | |
| 271 | Pipri (CT) (2749804019534191) | Wardha | Wardha | |
| 272 | Pulgaon (M Cl) (2750404020802697) | Deoli | Wardha | |
| 273 | Rotha (2749804019534179) | Wardha | Wardha | |
| 274 | Seloo (2749804018533971) | Seloo | Wardha | |
| 275 | Yeli(533942) (2749804018533942) | Seloo | Wardha | |

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*(Ministry of Agriculture & Farmers Welfare, GOI),*
Sardar Patel University, Vallabh Vidyanagar , Anand, Gujarat

**VMDDP Funded Project: Evaluation of a Pilot Project on Ration Balancing Program in Maharashtra**

## Focus Group Discussion 6.0

1.1 Name of Village_____1.2 Nearby Town Name _____Distance _____(kms)

1.3 Name of District:_____ 1.4 Name of State: Maharashtra 1.5 No. of participants ____

### 2.1 Agriculture Seasons (write the period- from to months): 2019-20

| Rainy | Winter | Summer |
|---|---|---|
| | | |

**2.2 Milk Yield (lit/animal/day) along with fat %: 2019-20**

| Particulars | Rainy | Winter | Summer |
|---|---|---|---|
| LC | | | |
| CB | | | |
| B | | | |

**2.3 Labour Rate (Rs/day for 8 hours): 2019-20**

| M/F | Rainy | Winter | Summer |
|---|---|---|---|
| Male | | | |
| Female | | | |

### 2.4 Average Life Cycle of in Milch Animals

| Animal | | Average Life Cycle of in Milch Animals | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Age at first heat (months) | Services per conceptions (No.) | | Service period from first attempt till the success (days) | Av. Age at first calving (months) | Lactation length (days) | Dry Period (days) | Avg. No of lactations in life | Av. Productive life (years) | Life after last lactation (years) |
| | | AI | Natural | | | | | | | |
| LC | | | | | | | | | | |
| CB | | | | | | | | | | |
| B | | | | | | | | | | |

### 2.4 Fodder Consumption for Milch Animal (Kgs / day / animal)

| Sr. No. | Animal | Av. Quantity (Kgs / day / animal) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | In milk | | | | Dry Period | | | |
| | | Green Fodder | Dry Fodder | Supplements | Concentrates | Green Fodder | Dry Fodder | Supplements | Concentrates |
| 1 | LC | | | | | | | | |
| 2 | CB | | | | | | | | |
| 3 | B | | | | | | | | |

***Note** –Take actual quantity of fodder consumed (do not include quantity of wastage)*

## 2.5 Milk Rate (Rs. per Litre) received from different Agencies and dividend received: Please collect PDCS Rate list

| Animal | Milk Rate (Rs. per Litre)— (Milk directly sell by milk producer to) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Rainy and Winter Season | | | | | Summer Season | | | | |
| | PDCS | Consumer | Private Dairy / Agent | Sweet Shop, Hotel, Marriage, etc. | Range of fat (%) | PDCS | Consumer | Private Dairy / Agent | Sweet Shop, Hotel, Marriage, etc. | Range of fat (%) |
| **Rs. per Litre** | | | | | | | | | | |
| LC | | | | | | | | | | |
| CB | | | | | | | | | | |
| B | | | | | | | | | | |
| **Bonus/ Dividend %** | | | | | | | | | | |

## 2.6 Name of Fodder Crops (By-product and Main Product) Grown in the Area:

| Particulars | Fodder Crop available | | | | |
|---|---|---|---|---|---|
| | By product/ sole crop | Crop Name1 | Crop Name 2 | Crop Name 3 | Crop Name 4 |
| Kharif | Cereals and Pulses | | | | |
| | Oilseeds | | | | |
| | Sugarcane top | | | | |
| | **Fodder Crop** | | | | |
| Rabi | Cereals and Pulses | | | | |
| | Oilseeds | | | | |
| | Sugarcane top | | | | |
| | **Fodder Crop** | | | | |
| Summer | Cereals and Pulses | | | | |
| | Oilseeds | | | | |
| | Sugarcane top | | | | |
| | **Fodder Crop** | | | | |

## 2.7 Average Market Rate for Fodder and Feed

| Sr. No. | Assets | **Rs/kg** | Sr. | Assets | **Rs/kg** |
|---|---|---|---|---|---|
| 1 | Green Fodder | | 3 | Concentrate | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 2 | Dry Fodder | **Rs/kg** | 4 | Supplement | **Rs/grams** |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Annexure IX

Implementation of RBP in particular village

| Sr. No | Name of Village | Tehsil | District | Date and Month of inclusion of village under RBP |
|---|---|---|---|---|
| 1 | Akoli Jahangir (2746703989529764) | Akot | Akola | Feb-20 |
| 2 | Akolkhed (2746703989529765) | Akot | Akola | Mar-20 |
| 3 | Panaj (2746703989529768) | Akot | Akola | Feb-20 |
| 4 | Sawara (2746703989529792) | Akot | Akola | Feb-20 |
| 5 | Anjangaon (M Cl) (2750304003802684) | Anjangaon Surji | Amravati | Sep-20 |
| 6 | Hanawatkheda (2746804004531872) | Achalpur | Amravati | Feb-20 |
| 7 | Isapur(531999) (2746804004531999) | Achalpur | Amravati | Feb-20 |
| 8 | Kapustalni (2746804003531811) | Anjangaon Surji | Amravati | Feb-20 |
| 9 | Khanampur (2746804003531768) | Anjangaon Surji | Amravati | Feb-20 |
| 10 | Khatijapur (2746804004531948) | Achalpur | Amravati | Feb-20 |
| 11 | Kotegaon (2746804003531832) | Anjangaon Surji | Amravati | Feb-20 |
| 12 | Murtizapur Ghogadi (2746804003531745) | Anjangaon Surji | Amravati | Mar-20 |
| 13 | Parasapur (2746804004531949) | Achalpur | Amravati | Feb-20 |
| 14 | Sategaon (2746804003531746) | Anjangaon Surji | Amravati | Jan-20 |
| 15 | Tawalar (2746804004531962) | Achalpur | Amravati | Feb-20 |
| 16 | Upatkheda (2746804004531944) | Achalpur | Amravati | Jan-20 |
| 17 | Amla Vishveshwar (2746804013533176) | Chandur Railway | Amravati | Nov-19 |
| 18 | Ashok Nagar (2746804014533269) | Dhamangaon Railway | Amravati | Dec-19 |
| 19 | Baslapur (2746804013533187) | Chandur Railway | Amravati | Nov-19 |
| 20 | Chandur Railway (M Cl) (2750304013802692) | Chandur Railway | Amravati | Nov-19 |
| 21 | Dabhada (2746804014533273) | Dhamangaon Railway | Amravati | Feb-20 |
| 22 | Dahigaon(533200) (2746804013533200) | Chandur Railway | Amravati | Nov-19 |
| 23 | Deogaon(533364) (2746804014533364) | Dhamangaon Railway | Amravati | Nov-19 |
| 24 | Dhanodi(533216) (2746804013533216) | Chandur Railway | Amravati | Nov-19 |
| 25 | Dhanora Mhali (2746804013533206) | Chandur Railway | Amravati | Nov-19 |
| 26 | Dighi Mahalle (2746804014533294) | Dhamangaon Railway | Amravati | Feb-20 |
| 27 | Gavha Farkade (2746804014533268) | Dhamangaon Railway | Amravati | Dec-19 |
| 28 | Gokulsara (2746804014533300) | Dhamangaon Railway | Amravati | Dec-19 |
| 29 | Jalka Jagtap (2746804013533178) | Chandur Railway | Amravati | Nov-19 |
| 30 | Jalka Patache (2746804014533362) | Dhamangaon Railway | Amravati | Dec-19 |
| 31 | Juna Dhamangaon (2746804014533312) | Dhamangaon Railway | Amravati | Feb-20 |
| 32 | Kalamgaon (2746804013533218) | Chandur Railway | Amravati | Dec-19 |
| 33 | Kalamjapur (2746804013533219) | Chandur Railway | Amravati | Nov-19 |
| 34 | Karala (2746804013533173) | Chandur Railway | Amravati | Nov-19 |
| 35 | Kawali (2746804014533272) | Dhamangaon Railway | Amravati | Feb-20 |
| 36 | Kurha (2746804008532583) | Teosa | Amravati | Nov-19 |
| 37 | Mandwa(533191) (2746804013533191) | Chandur Railway | Amravati | Oct-20 |
| 38 | Manjarkhed(533199) (2746804013533199) | Chandur Railway | Amravati | Nov-19 |
| 39 | Mund Nilkanth Sakharam (2746804014533291) | Dhamangaon Railway | Amravati | Feb-20 |

| | | | | |
|---|---|---|---|---|
| 40 | Nimbhora Bodkha (2746804014533320) | Dhamangaon Railway | Amravati | Sep-20 |
| 41 | Nimboli (2746804014533328) | Dhamangaon Railway | Amravati | Sep-20 |
| 42 | Rajana(533197) (2746804013533197) | Chandur Railway | Amravati | Nov-19 |
| 43 | Satefal (2746804013533217) | Chandur Railway | Amravati | Nov-19 |
| 44 | Sawanga Vithoba (2746804013533184) | Chandur Railway | Amravati | Nov-19 |
| 45 | Shendurjana Kh. (2746804014533357) | Dhamangaon Railway | Amravati | Nov-19 |
| 46 | Shirajgaon Korde (2746804013533194) | Chandur Railway | Amravati | Jan-20 |
| 47 | Songaon(533209) (2746804013533209) | Chandur Railway | Amravati | Nov-19 |
| 48 | Talegaon Dashasar (2746804014533368) | Dhamangaon Railway | Amravati | Dec-19 |
| 49 | Taroda(533304) (2746804014533304) | Dhamangaon Railway | Amravati | Jun-20 |
| 50 | Tembhurni (2746804013533189) | Chandur Railway | Amravati | Jul-20 |
| 51 | Tiwra (2746804014533348) | Dhamangaon Railway | Amravati | Dec-19 |
| 52 | Tuljapur(533195) (2746804013533195) | Chandur Railway | Amravati | Dec-19 |
| 53 | Warud Bagaji (2746804014533281) | Dhamangaon Railway | Amravati | Nov-19 |
| 54 | Wathoda Bk. (2746804014533274) | Dhamangaon Railway | Amravati | Feb-20 |
| 55 | Zada (2746804014533329) | Dhamangaon Railway | Amravati | Dec-19 |
| 56 | Adgaon(532331) (2746804006532331) | Morshi | Amravati | Feb-20 |
| 57 | Dadhi (2746804010532818) | Bhatkuli | Amravati | Feb-20 |
| 58 | Devra (2746804009532600) | Amravati | Amravati | Feb-20 |
| 59 | Devri (2746804009532599) | Amravati | Amravati | Feb-20 |
| 60 | Dhawalsari (2746804012533026) | Nandgaon-Khandeshwar | Amravati | Dec-19 |
| 61 | Digargavhan (2746804009532628) | Amravati | Amravati | Nov-19 |
| 62 | Jalaka (2746804009532657) | Amravati | Amravati | Nov-19 |
| 63 | Kapustalani (2746804009532629) | Amravati | Amravati | Feb-20 |
| 64 | Loni(533020) (2746804012533020) | Nandgaon-Khandeshwar | Amravati | Feb-20 |
| 65 | Malegaon(532565) (2746804008532565) | Teosa | Amravati | Nov-19 |
| 66 | Malegaon(532630) (2746804009532630) | Amravati | Amravati | Oct-20 |
| 67 | Mozari(532501) (2746804008532501) | Teosa | Amravati | Nov-19 |
| 68 | Shendola Bk. (2746804008532512) | Teosa | Amravati | Nov-19 |
| 69 | Takli Bk. (2746804012533011) | Nandgaon-Khandeshwar | Amravati | Jan-20 |
| 70 | Talegaon Thakur (2746804008532529) | Teosa | Amravati | Nov-19 |
| 71 | Achalpur (M Cl) (2750304004802685) | Achalpur | Amravati | Feb-20 |
| 72 | Alampur(532034) (2746804005532034) | Chandurbazar | Amravati | Oct-20 |
| 73 | Ambapati (2746804002531703) | Chikhaldara | Amravati | Sep-20 |
| 74 | Barhanpur(532181) (2746804005532181) | Chandurbazar | Amravati | Feb-20 |
| 75 | Belaj (2746804005532131) | Chandurbazar | Amravati | Nov-19 |
| 76 | Belkheda(532072) (2746804005532072) | Chandurbazar | Amravati | Feb-20 |
| 77 | Belora(532186) (2746804005532186) | Chandurbazar | Amravati | Dec-19 |
| 78 | Chichkheda (2746804002531701) | Chikhaldara | Amravati | Oct-20 |
| 79 | Dewari (2746804004531914) | Achalpur | Amravati | Feb-20 |
| 80 | Dhamangaon(531856) (2746804004531856) | Achalpur | Amravati | Feb-20 |
| 81 | Jambli (2746804002531702) | Chikhaldara | Amravati | Feb-20 |

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| 82 | Jawla (2746804005532180) | Chandurbazar | Amravati | Nov-19 |
| 83 | Kalhodi (2746804005532035) | Chandurbazar | Amravati | Dec-19 |
| 84 | Khambora (2746804004531933) | Achalpur | Amravati | Feb-20 |
| 85 | Khel Mahal (Karajgaon) (2746804005532033) | Chandurbazar | Amravati | Dec-19 |
| 86 | Lakhanwadi(532047) (2746804005532047) | Chandurbazar | Amravati | Nov-19 |
| 87 | Ratanpur (2746804005532027) | Chandurbazar | Amravati | Sep-20 |
| 88 | Sarfapur (2746804005532036) | Chandurbazar | Amravati | Nov-19 |
| 89 | Sirajgaon Ardak (2746804005532136) | Chandurbazar | Amravati | Dec-19 |
| 90 | Somwarkheda (2746804002531710) | Chikhaldara | Amravati | Oct-20 |
| 91 | Tuljapur Gadhi (2746804005532133) | Chandurbazar | Amravati | Nov-19 |
| 92 | Vastapur (2746804002531698) | Chikhaldara | Amravati | Jan-20 |
| 93 | Wani(532071) (2746804005532071) | Chandurbazar | Amravati | Jan-20 |
| 94 | Ajangaon(534962) (2748404024534962) | Katol | Nagpur | Jun-20 |
| 95 | Bhidhnur (2748404023534878) | Narkhed | Nagpur | Feb-20 |
| 96 | Chikhali (Masod) (2748404024535090) | Katol | Nagpur | Nov-19 |
| 97 | Digras (Bk) (2748404024534938) | Katol | Nagpur | Feb-20 |
| 98 | Dorli (Bhandwalkar) (2748404024534928) | Katol | Nagpur | Dec-19 |
| 99 | Dorli (Bk) (2748404024534966) | Katol | Nagpur | Feb-20 |
| 100 | Gharatwada (2748404024535024) | Katol | Nagpur | Feb-20 |
| 101 | Harankhuri (2748404024534939) | Katol | Nagpur | Mar-20 |
| 102 | Kalambha (2748404024534932) | Katol | Nagpur | Nov-19 |
| 103 | Khandala (Kh)(535016) (2748404024535016) | Katol | Nagpur | Dec-19 |
| 104 | Khapa(534899) (2748404023534899) | Narkhed | Nagpur | Feb-20 |
| 105 | Khapari (Kh) (2748404024534972) | Katol | Nagpur | Nov-19 |
| 106 | Kondhasaoli (2748404024534973) | Katol | Nagpur | Dec-19 |
| 107 | Kotwalbardi (2748404024534978) | Katol | Nagpur | Nov-19 |
| 108 | Ladgaon(535027) (2748404024535027) | Katol | Nagpur | Feb-20 |
| 109 | Lakholi (2748404024534958) | Katol | Nagpur | Mar-20 |
| 110 | Malegaon(534954) (2748404024534954) | Katol | Nagpur | Mar-20 |
| 111 | Masod (2748404024535091) | Katol | Nagpur | Nov-19 |
| 112 | Mendhepathar(534970) (2748404024534970) | Katol | Nagpur | Nov-19 |
| 113 | Mendki (2748404024534925) | Katol | Nagpur | Feb-20 |
| 114 | Mhaskhapra (2748404024534953) | Katol | Nagpur | Mar-20 |
| 115 | Mohkhedi(534933) (2748404024534933) | Katol | Nagpur | Mar-20 |
| 116 | Mukani (2748404024534911) | Katol | Nagpur | Feb-20 |
| 117 | Murti (2748404024535048) | Katol | Nagpur | Nov-19 |
| 118 | Panwadi(534940) (2748404024534940) | Katol | Nagpur | Sep-20 |
| 119 | Parsodi(535028) (2748404024535028) | Katol | Nagpur | Feb-20 |
| 120 | Raulgaon (2748404024534977) | Katol | Nagpur | Nov-19 |
| 121 | Ridhora(535022) (2748404024535022) | Katol | Nagpur | Feb-20 |
| 122 | Sawanga (Lohari) (2748404023534904) | Narkhed | Nagpur | Jan-20 |
| 123 | Shindi (Umari) (2748404023534859) | Narkhed | Nagpur | Jan-20 |
| 124 | Sonoli(534915) (2748404024534915) | Katol | Nagpur | Nov-19 |

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| 125 | Umari(534858) (2748404023534858) | Narkhed | Nagpur | Mar-20 |
| 126 | Walni (2748404024535035) | Katol | Nagpur | Dec-19 |
| 127 | Wandli (Kh) (2748404024534931) | Katol | Nagpur | Nov-19 |
| 128 | Yenwa (2748404024534934) | Katol | Nagpur | Jan-20 |
| 129 | Ambazari(535980) (2748404033535980) | Hingna | Nagpur | Dec-19 |
| 130 | Ashta (2748404031535964) | Nagpur (Rural) | Nagpur | Feb-20 |
| 131 | Bajargaon (2748404031535819) | Nagpur (Rural) | Nagpur | Nov-19 |
| 132 | Bela (2748404034536262) | Umred | Nagpur | Feb-20 |
| 133 | Chargaon(536249) (2748404034536249) | Umred | Nagpur | Feb-20 |
| 134 | Daheli (2748404031535956) | Nagpur (Rural) | Nagpur | Feb-20 |
| 135 | Degma kh (2748404033536060) | Hingna | Nagpur | Nov-19 |
| 136 | Dhamana (2748404031535874) | Nagpur (Rural) | Nagpur | Feb-20 |
| 137 | Dhanoli(535991) (2748404033535991) | Hingna | Nagpur | Sep-20 |
| 138 | Gumgaon(536076) (2748404033536076) | Hingna | Nagpur | Nov-19 |
| 139 | Junewani(536061) (2748404033536061) | Hingna | Nagpur | Feb-20 |
| 140 | Kalamana(536275) (2748404034536275) | Umred | Nagpur | Feb-20 |
| 141 | Kanholibara (2748404033536013) | Hingna | Nagpur | Nov-19 |
| 142 | Kavdas (2748404033535990) | Hingna | Nagpur | Nov-19 |
| 143 | Khairi(535816) (2748404031535816) | Nagpur (Rural) | Nagpur | Jun-20 |
| 144 | Kinhi(536009) (2748404033536009) | Hingna | Nagpur | Dec-19 |
| 145 | Kotewada (2748404033536074) | Hingna | Nagpur | Nov-19 |
| 146 | Mandavghorad (2748404033536058) | Hingna | Nagpur | Jun-20 |
| 147 | Mangli(536051) (2748404033536051) | Hingna | Nagpur | Jun-20 |
| 148 | Mohgaon(536050) (2748404033536050) | Hingna | Nagpur | Feb-20 |
| 149 | Neri(536034) (2748404033536034) | Hingna | Nagpur | Nov-19 |
| 150 | Pendhari(536004) (2748404033536004) | Hingna | Nagpur | Jul-20 |
| 151 | Pethkaldongari (2748404031535833) | Nagpur (Rural) | Nagpur | Nov-19 |
| 152 | Satgaon (Vena Nagar) (N.V.) (2748404033536099) | Hingna | Nagpur | Feb-20 |
| 153 | Satnavari (2748404031535825) | Nagpur (Rural) | Nagpur | Feb-20 |
| 154 | Sawali(536017) (2748404033536017) | Hingna | Nagpur | Nov-19 |
| 155 | Shivmadka (2748404033536072) | Hingna | Nagpur | Oct-20 |
| 156 | Sirpur(535814) (2748404031535814) | Nagpur (Rural) | Nagpur | Feb-20 |
| 157 | Vyahad (2748404031535835) | Nagpur (Rural) | Nagpur | Dec-19 |
| 158 | Wadgaon(536260) (2748404034536260) | Umred | Nagpur | Feb-20 |
| 159 | Wagdara(536084) (2750504033536084) | Hingna | Nagpur | Nov-19 |
| 160 | Borada (G) (2748404027535440) | Parseoni | Nagpur | Jun-20 |
| 161 | Bori (singori) (2748404027535449) | Parseoni | Nagpur | Dec-19 |
| 162 | Chacher (2748404029535628) | Mauda | Nagpur | Feb-20 |
| 163 | Dudhala(535613) (2748404029535613) | Mauda | Nagpur | Feb-20 |
| 164 | Hiwara (Gahu) (2748404027535445) | Parseoni | Nagpur | Dec-19 |
| 165 | Indora(535659) (2748404029535659) | Mauda | Nagpur | Mar-20 |
| 166 | Kandri (CT)(535453) (2748404027535453) | Parseoni | Nagpur | Nov-19 |
| 167 | Kanhan (Pipri) (CT) (2748404027535452) | Parseoni | Nagpur | Dec-19 |

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| 168 | Khandala (Ghatate) (2748404027535447) | Parseoni | Nagpur | Dec-19 |
| 169 | Nagardhan (2748404028535595) | Ramtek | Nagpur | Sep-20 |
| 170 | Nilaj (2748404027535448) | Parseoni | Nagpur | Nov-19 |
| 171 | Nisatkheda (2748404029535629) | Mauda | Nagpur | Oct-20 |
| 172 | Rajoli(535620) (2748404029535620) | Mauda | Nagpur | Nov-19 |
| 173 | Rewaral (2748404029535643) | Mauda | Nagpur | Nov-19 |
| 174 | Wirshi (2748404029535642) | Mauda | Nagpur | Feb-20 |
| 175 | Yerla (Dhote) (2748404024534935) | Katol | Nagpur | Dec-19 |
| 176 | Yesamba (2748404027535422) | Parseoni | Nagpur | Dec-19 |
| 177 | Ambazari (2749804017533708) | Arvi | Wardha | Dec-19 |
| 178 | Ambikapur(533430) (2749804015533430) | Ashti | Wardha | Nov-19 |
| 179 | Arvi (M Cl) (2750404017802694) | Arvi | Wardha | Nov-19 |
| 180 | Bedhona (2749804017533702) | Arvi | Wardha | Nov-19 |
| 181 | Belhara (2749804017533675) | Arvi | Wardha | Nov-19 |
| 182 | Brahmanwada(533637) (2749804016533637) | Karanja | Wardha | Dec-19 |
| 183 | Chopan (2749804016533640) | Karanja | Wardha | Dec-19 |
| 184 | Dahegaon Mustafa (2749804017533716) | Arvi | Wardha | Nov-19 |
| 185 | Dahegaon( Gondi) (2749804017533786) | Arvi | Wardha | Nov-19 |
| 186 | Danapur (2749804016533643) | Karanja | Wardha | Nov-19 |
| 187 | Delwadi (2749804015533428) | Ashti | Wardha | Nov-19 |
| 188 | Deurwada (2749804017533729) | Arvi | Wardha | Nov-19 |
| 189 | Fefarwada (2749804016533641) | Karanja | Wardha | Mar-20 |
| 190 | Husenpur(533860) (2749804017533860) | Arvi | Wardha | Dec-19 |
| 191 | Jalgaon (2749804017533657) | Arvi | Wardha | Nov-19 |
| 192 | Jolwadi (2749804015533424) | Ashti | Wardha | Nov-19 |
| 193 | Khairwada (2749804016533646) | Karanja | Wardha | Nov-19 |
| 194 | Khambit (2749804015533429) | Ashti | Wardha | Dec-19 |
| 195 | Kharangana (2749804017533787) | Arvi | Wardha | Nov-19 |
| 196 | Kinhala(533461) (2749804015533461) | Ashti | Wardha | Nov-19 |
| 197 | Kurzadi(534097) (2750404019534097) | Wardha | Wardha | Dec-19 |
| 198 | Mahadapur (2749804016533644) | Karanja | Wardha | Dec-19 |
| 199 | Morangana(533796) (2749804017533796) | Arvi | Wardha | Nov-19 |
| 200 | Natala (2749804017533809) | Arvi | Wardha | Feb-20 |
| 201 | Nijampur (2749804017533862) | Arvi | Wardha | Dec-19 |
| 202 | Pachegaon (2749804017533744) | Arvi | Wardha | Dec-19 |
| 203 | Pachod(533671) (2749804017533671) | Arvi | Wardha | Nov-19 |
| 204 | Pachod(533849) (2750404017533849) | Arvi | Wardha | Jun-20 |
| 205 | Panjara Bothali (2749804017533817) | Arvi | Wardha | Nov-19 |
| 206 | Panjara Gondi (2749804016533639) | Karanja | Wardha | Feb-20 |
| 207 | Pilapur (2749804015533426) | Ashti | Wardha | Dec-19 |
| 208 | Pimpalgaon(533812) (2749804017533812) | Arvi | Wardha | Dec-19 |
| 209 | Pimpalkhuta (2749804017533775) | Arvi | Wardha | Nov-19 |
| 210 | Rasulabad (2749804017533871) | Arvi | Wardha | Dec-19 |

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| 211 | Rohana (2749804017533835) | Arvi | Wardha | Nov-19 |
| 212 | Saldara (2749804017533833) | Arvi | Wardha | Feb-20 |
| 213 | Sorta (2749804017533865) | Arvi | Wardha | Nov-19 |
| 214 | Virul (2749804017533852) | Arvi | Wardha | Nov-19 |
| 215 | Wadala(533864) (2749804017533864) | Arvi | Wardha | Dec-19 |
| 216 | Wadhona(533703) (2750404017533703) | Arvi | Wardha | Nov-19 |
| 217 | Ajanadevi (2749804016533577) | Karanja | Wardha | Dec-19 |
| 218 | Ajandoh (2749804016533613) | Karanja | Wardha | Nov-19 |
| 219 | Antargaon(533954) (2749804018533954) | Seloo | Wardha | Nov-19 |
| 220 | Bangadapur (2749804016533627) | Karanja | Wardha | Nov-19 |
| 221 | Bhiwapur(533625) (2749804016533625) | Karanja | Wardha | Nov-19 |
| 222 | Bihadi (2749804016533575) | Karanja | Wardha | Feb-20 |
| 223 | Borgaon (Dhole) (2749804016533549) | Karanja | Wardha | Nov-19 |
| 224 | Botona (2749804016533540) | Karanja | Wardha | Feb-20 |
| 225 | Chamala (2749804015533453) | Ashti | Wardha | Feb-20 |
| 226 | Dahegaon (Gosai) (2749804018534010) | Seloo | Wardha | Nov-19 |
| 227 | Dhamangaon(533890) (2749804018533890) | Seloo | Wardha | Nov-19 |
| 228 | Dhamkund (2749804016533566) | Karanja | Wardha | Mar-20 |
| 229 | Helodi (2749804018534019) | Seloo | Wardha | Dec-19 |
| 230 | Hetikundi (2749804016533609) | Karanja | Wardha | Sep-20 |
| 231 | Hingni (2749804018533889) | Seloo | Wardha | Nov-19 |
| 232 | Hiwara(533952) (2750404018533952) | Seloo | Wardha | Dec-19 |
| 233 | Junapani (2749804016533552) | Karanja | Wardha | Mar-20 |
| 234 | Kajali (2749804016533617) | Karanja | Wardha | Jul-20 |
| 235 | Kakada (2749804016533570) | Karanja | Wardha | Nov-19 |
| 236 | Kannamwar Gram (2749804016533622) | Karanja | Wardha | Nov-19 |
| 237 | Malegaon Kali (2749804016533558) | Karanja | Wardha | Nov-19 |
| 238 | Met Hiraji (2749804016533632) | Karanja | Wardha | Nov-19 |
| 239 | Morshi (2750404016533585) | Karanja | Wardha | Nov-19 |
| 240 | Nara (2749804016533578) | Karanja | Wardha | Nov-19 |
| 241 | Narsingpur(533561) (2749804016533561) | Karanja | Wardha | Feb-20 |
| 242 | Pardi(533539) (2749804016533539) | Karanja | Wardha | Feb-20 |
| 243 | Parsodi(533571) (2749804016533571) | Karanja | Wardha | Feb-20 |
| 244 | Ragadgaon (2749804016533563) | Karanja | Wardha | Feb-20 |
| 245 | Rahati (2749804016533619) | Karanja | Wardha | Feb-20 |
| 246 | Rajani(533548) (2749804016533548) | Karanja | Wardha | Mar-20 |
| 247 | Sawali Bk. (2749804016533547) | Karanja | Wardha | Feb-20 |
| 248 | Sindi Vihiri (2749804016533635) | Karanja | Wardha | Feb-20 |
| 249 | Takali (2749804018533927) | Seloo | Wardha | Nov-19 |
| 250 | Taroda(533569) (2749804016533569) | Karanja | Wardha | Nov-19 |
| 251 | Thanegaon (2749804016533583) | Karanja | Wardha | Nov-19 |
| 252 | Tuljapur(534027) (2749804018534027) | Seloo | Wardha | Sep-20 |
| 253 | Wadgaon(533936) (2749804018533936) | Seloo | Wardha | Nov-19 |

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| 254 | Wanarvihira (2749804018533887) | Seloo | Wardha | Oct-20 |
| 255 | Zadshi (2749804018533931) | Seloo | Wardha | Nov-19 |
| 256 | Nagazari (2749804016533618) | Karanja | Wardha | Dec-19 |
| 257 | Amaji Majara (2749804019534045) | Wardha | Wardha | Sep-20 |
| 258 | Amgaon(533883) (2749804018533883) | Seloo | Wardha | Nov-19 |
| 259 | Charmandal (2749804018534006) | Seloo | Wardha | Feb-20 |
| 260 | Dhotra(534164) (2749804019534164) | Wardha | Wardha | Dec-19 |
| 261 | Gaimukh (2749804018533913) | Seloo | Wardha | Feb-20 |
| 262 | Ghorad (2749804018533909) | Seloo | Wardha | Dec-19 |
| 263 | Jamani(533935) (2749804018533935) | Seloo | Wardha | Nov-19 |
| 264 | Jungad (2749804018533902) | Seloo | Wardha | Feb-20 |
| 265 | Junona(534023) (2749804018534023) | Seloo | Wardha | Feb-20 |
| 266 | Kamthi(534046) (2749804019534046) | Wardha | Wardha | Sep-20 |
| 267 | Khapri(533903) (2749804018533903) | Seloo | Wardha | Feb-20 |
| 268 | Malegaon Theka (2749804017533785) | Arvi | Wardha | Feb-20 |
| 269 | Nachangaon (2749804020534209) | Deoli | Wardha | Feb-20 |
| 270 | Nagthana (2749804019534180) | Wardha | Wardha | Nov-19 |
| 271 | Pipri (CT) (2749804019534191) | Wardha | Wardha | Sep-20 |
| 272 | Pulgaon (M Cl) (2750404020802697) | Deoli | Wardha | Dec-19 |
| 273 | Rotha (2749804019534179) | Wardha | Wardha | Nov-19 |
| 274 | Seloo (2749804018533971) | Seloo | Wardha | Mar-20 |
| 275 | Yeli(533942) (2749804018533942) | Seloo | Wardha | Oct-20 |

**राष्ट्रीय कृषि विकास योजनेअंतर्गत**
**विदर्भ व मराठवाडा विभागात दुध उत्पादन वाढीसाठी**
**राबवावयाचा विशेष प्रकल्प "महादुध".**
**अंमलबजावणीच्या मार्गदर्शक सुचना**

संदर्भ:- १. शासन निर्णय क्रं.एमएलके-२०१६/प्र.क्र.२७/पदुम ८, मंत्रालय, मुंबई-३२, दि. १७/१०/२०१६.
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३.शासन निर्णय क्रं.एमएलके-२०१७/प्र.क्र.४६/पदुम ४,मंत्रालय,मुंबई-३२, दि. ०९/०५/२०१७.
४.शासन निर्णय क्रं.एमएलके-२०१७/प्र.क्र.११३/पदुम ४, मंत्रालय, मुंबई-३२, दि. २१/०७/२०१७.

जा.क्र. एफवायपी १२(१७)/सीआर- /आरकेव्हिवाय/प.सं-६, पुणे-७ दि. ०९/०८/२०१७.

उपरोक्त विषयावरील संदर्भिय शासन निर्णयांचे अवलोकन करावे. प्रस्तुत योजनेची अंमलबजावणी योग्य रितीने होण्यासाठी सविस्तर मार्गदर्शक सुचना निर्गमित करण्यात येत आहेत.

राष्ट्रीय कृषी विकास योजनेमधून विदर्भ व मराठवाडा विभागामध्ये दुध उत्पादन वाढीसाठी विशेष प्रकल्प महाराष्ट्र शासन व राष्ट्रीय दुग्धविकास मंडळ यांचे संयुक्त विद्यमाने मंजूर झाला असून विदर्भातील नागपूर, वर्धा, अकोला, अमरावती, चंद्रपूर, यवतमाळ, बुलढाणा आणि मराठवाडा विभागातील नांदेड, लातूर, उस्मानाबाद, जालना अशा एकूण ११ जिल्ह्यांमध्ये सदर प्रकल्पाची अंमलबजावणी करावयाची आहे. प्रकल्पामध्ये दोन मुख्य उद्दिष्ठे आहेत. **(अ)** पशुधनाची उत्पादन क्षमता, उत्पादकता वाढविणे, **(ब)** उत्पादित होणा-या दुधाचे संकलन विपणन करणे.

**(अ) पशुधनाची उत्पादन क्षमता, उत्पादकता वाढविणे:-** या उद्दिष्ठांमध्ये खालील बाबींचा समावेश आहे.

१. शेतक-यांच्या दारात कृत्रिम रेतन सुविधा पुरविणे:-
सध्याच्या राष्ट्रीय कृषी विकास योजनेची **'शेतकऱ्यांच्या दारात गायी / म्हशींमध्ये विभाग, स्वयंसेवी संस्था व सेवादात्यांमार्फत १००% कृत्रिम रेतनाच्या सुविधा उपलब्ध करून देणे"** या योजनेतुनच ११ जिल्ह्यांमध्ये स्वयंसेवी संस्थांच्या माध्यमातून / सेवादात्यांमार्फत कृत्रिम रेतनाच्या सुविधा उपलब्ध करून देण्यात येणार आहेत. या कार्यक्रमासाठी या प्रकल्पामध्ये स्वतंत्र निधी मंजूर केलेला नाही.

२. संतुलीत आहार मार्गदर्शन सुविधा (Ration Balancing Programme) :- सदरची बाब राष्ट्रीय दुग्धविकास मंडळ यांचे मार्फत राबविण्यात येणार आहे.

२. वैरण विकास कार्यक्रमः- या बाबीमध्ये बहुवार्षिक वैरण पिकांची लागवड, मुरघास व चाफकटर वाटप करावयाचे आहे.

३. गुणवत्तापूर्ण पशुखाद्य व पशुखाद्य पुरके - २५% अनुदानावर पशुखाद्य व मिनरल मिक्चर वाटप करण्यात येणार आहे.

४. ग्राम पातळीवरील पशुवैद्यकिय सेवा – या बाबीखाली गोचीड, गोमाशा निर्मूलन, वंध्यत्व निदान व उपचार शिबीरे, लसीकरण इत्यादी बाबींची अमंलबजावणी करावयाची आहे.

५. दुधाळ जनावरे वाटप – या बाबीखाली २५% अनुदानावर दुधाळ गायींचे वाटप करावयाचे आहे.

**(ब) दूध संकलन प्रक्रीया व वितरण व्यवस्था –**

राष्ट्रीय दुग्धविकास मंडळ मार्फत कार्यवाही करण्यात येत आहे. सध्या दूध संकलन सुरु आहे.

उपरोक्त **"अ" व "ब"** मध्ये नमूद बांबीची ११ जिल्ह्यांतील निवडलेल्या ३०२३ गावांमध्ये या प्रकल्पाची अंमलबजावणी करावयाची आहे.

उपरोक्त संदर्भिय शासन निर्णय क्र. ४ अन्वये, सद्यःस्थितीमध्ये वरील पैकी ३ बाबींची अंमलबजावणी करणेसाठी प्रशासकीय मान्यता प्राप्त झाली आहे. त्या बाबी/घटक खालील प्रमाणे आहेत :-

१. गुणवत्तापूर्ण पशुखाद्य व पशुखाद्य पुरके
२. वैरण विकास कार्यक्रम.
३. ग्राम पातळीवरील पशुवैद्यकिय सेवा

११ जिल्ह्यांतील ३०२३ गावांमध्ये वरील तीन बाबी/घटक राबवावयाचे आहेत. यासाठी उपरोक्त शासन निर्णय क्र. ४ चे काटेकोरपणे पालन करावयाचे आहे. तसेच या बाबी राबविणेसाठी खालील प्रमाणे मार्गदर्शक सूचना निर्गमित करण्यात येत आहेत.

**१) गुणवत्तापूर्ण पशुखाद्य व पशुखाद्य पुरके पुरवठा :-**

गुणवत्तापूर्ण ISI mark milk ration पशुखाद्यामुळे दुग्धोत्पादनात निश्चित वाढ होते तसेच पशुखाद्य पुरके म्हणजेच Mineral Mixture पशु आहारामध्ये समोवश केल्यास उत्पादकता वाढून उत्पादनामध्ये सातत्यही राहते. म्हणून पशुखाद्य व पशुखाद्य पुरके यांचा वापर सर्वत्र होण्यासाठी २५% अनुदानावर पशुखाद्य व पशुखाद्य पुरकांचा पुरवठा करावयाचा आहे.

❖ **गुणवत्तापूर्ण पशुखाद्य पुरवठा** (Cattle feed) - प्रती जनावर ३ कि.ग्रॅ./ दिन या प्रमाणे १८० दिवस = एकूण ५४० कि.ग्रॅ पशुखाद्य एका दुधाळ जनावरासाठी प्रती पशुपालक दोन गाय/ किंवा म्हैस या मर्यादेत ISI mark पशुखाद्य देय असेल. प्रत्येक लाभार्थी पशुपालकांच्या दोन गायी/म्हशी करीता पशुखाद्य अनुदान अनुज्ञेय असेल.

पशुखाद्य पुरवठा प्रथम पशुपालकांनी खरेदी करुन २५% अनुदानाची रक्कम अधिकतम मर्यादा प्रती किलो रु.६/- या प्रमाणे एकूण २५ टक्के खर्च अनुदान मर्यादा रु.१८/- प्रतिदिन प्रति जनावर. पशुखाद्य देयके सक्षम प्राधिका-याने पडताळणी करुन अनुदान रक्कम थेट लाभार्थींच्या बँक खात्यात जमा करावयाचे आहे.

❖ **पशुखाद्य पुरके** (Mineral Mixture) - प्रती जनावर २.५ कि.ग्रॅ./ महिना या प्रमाणे १२ महिन्यासाठी = एकूण ३० कि.ग्रॅ पशुखाद्य पुरके (Mineral Mixture) एका दुधाळ जनावरासाठी प्रती पशुपालक दोन गाय/ किंवा म्हैस या मर्यादेत ISI mark Mineral Mixture देय असेल. प्रत्येक लाभार्थी पशुपालकांच्या दोन गायी/म्हशी करीता Mineral Mixture राष्ट्रीय दुग्धविकास मंडळ व इतर नामांकित संस्थेचे अनुज्ञेय असेल.

पशुखाद्य **पुरके** प्रथम पशुपालकांनी खरेदी करुन २५% अनुदानाची रक्कम अधिकतम रू. ३७५/- एका दुधाळ जनावरासाठी मर्यादेत. पशुखाद्य **पुरके** देयके सक्षम प्राधिका-याने पडताळणी करुन अनुदान रक्कम लाभार्थींच्या बँक खात्यात जमा करावयाची आहे.

गुणवत्तापूर्ण पशुखाद्य व पशुखाद्य पुरके पुरवठा बाबतचे उदिष्ट प्रपत्र "**अ**" मध्ये दिले आहे.

**२) वैरण विकास कार्यक्रम :-**

या घटकाखाली उपलब्ध निधी मधून खालील बाबींचा खर्च करावयाचा आहे.

**(अ)** बहुवार्षीक वैरण पिकाची लागवड :-

१००% अनुदानावर बहुवार्षीक चारा पिके लागवड उदा:- DHN6, DHN10, इत्यादी ०.४० हेक्टर (१ एकर) क्षेत्रावर लागवड प्रती लाभार्थी रुपये ४८००/-चे बियाणे/ठोंबे, रु.४८००/- लागवड / मशागत, रु.२४००/-इतर खर्च असे एकूण रुपये १२०००/- प्रती लाभार्थी अनुदान देय आहे. बहुवार्षीक बियाणे/ठोंबे शासकीय प्रक्षेत्र, पशुधन विकास मंडळ, मेंढी व शेळी विकास महामंडळ, कृषी विद्यापीठ, यांचेकडून त्यांचे निर्धारीत दराने लाभार्थीने खरेदी करावयाचे आहे.

**(ब)** मूरघास :-

वैरणीची साठवणूक मूरघासमध्ये करणेसाठी प्रती लाभार्थी ५०० किलो क्षमतेच्या उत्तम गुणात्मक दर्जा असलेल्या १० सायलेज बॅग ६०% अनुदानावर देय आहे. अनुदान अधिकतम मर्यादा रु.३६००/-आहे. याद्वारे एक वेळी ५ मे.टन मूरघास निर्माण करता येईल. लाभार्थ्याला मुरघास टाके किंवा मुरघास बॅग पध्दतीने मूरघास निर्माण करता येईल. या बाबीमध्ये एकूण होणा-या खर्चामध्ये ६०% अनुदान व ४०% लाभार्थी हिस्सा असे प्रमाण आहे.

**(क)** विद्युत चलीत कडबाकुट्टी यंत्र पुरवठा :-

५०% अनुदानावर २ एचपी विद्युत चलीत कडबाकुट्टी यंत्राचा पुरवठा करावयाचा असून अधिकतम अनुदान मर्यादा रु.८०००/-प्रती लाभार्थी आहे.

वरील तीनही बाबींचा लाभ शक्यतो एकाच लाभार्थीस द्यायचा आहे, जर यापूर्वी लाभार्थीने मूरघास अथवा विद्युत चलीत कडबाकुट्टी यंत्र लाभ घेतला असला तरी ती बाब वगळून लाभ द्यावा. अशा लाभार्थींना लाभ देताना शिल्लक राहणारे मूरघास युनीट किंवा विद्युत चलीत कडबाकुट्टी यंत्र इतर लाभार्थींस देण्यात यावे.

वरील अ, ब, क या बाबी थेट लाभ हस्तांतर DBT प्रत्यक्ष लाभार्थींच्या खात्यात अनुदान जमा करणे पध्दतीने करावयाच्या आहेत.

**(ड)** वैरण विकास विषयक प्रशिक्षण:- प्रकल्पांतर्गत ३०,००० पशुपालकांना एक दिवसाचे प्रशिक्षण द्यावयाचे आहे. यामध्ये वैरण उत्पादनाचे महत्व, दुधाळ जनावरांचे व्यवस्थापन, अनुवंशिक सुधारणा पशुआहार, रोग नियंत्रण, उत्पादन वाढीचे कौशल्य, व्यावसायिकता इत्यादी विषयांचा समावेश करावा.

प्रती लाभार्थी प्रशिक्षण खर्च रु.२५०/-आहे. सदरचे प्रशिक्षण साठी मान्यताप्राप्त अनुभवी, प्रशिक्षित स्वंयसेवी संस्थेची मदत घेण्यास हरकत नाही.
वैरण विकास कार्यक्रमाचे जिल्हानिहाय उद्दिष्ट प्रपत्र"**ब**" मध्ये दर्शविण्यात आलेले आहे.

**३) ग्राम पातळीवरील पशुवैद्यकीय सेवा :**

या घटकांतर्गत ३ प्रमूख बाबींचा समावेश आहे.

**अ)** रोग प्रतिबंधक लसीकरण :

विविध रोग प्रतिबंधक लसीकरण हा कार्यक्रम निवडलेल्या गावामध्ये पशुवैद्यकीय दवाखान्यामार्फत नियमित होणा-या लसीकरण मोहिमेतूनच करावयाचा आहे. या लसीकरण कार्यक्रमासाठी या प्रकल्पामध्ये स्वतंत्र निधी मंजूर केलेला नाही. निवडलेल्या गावांमध्ये प्राधान्याने HS, BQ, FMD रोगप्रतिबंधक लसीकरण नियमित कार्यक्रमा मधून राबविण्यात यावा.

**ब)** गोचिड गोमाशा निर्मुलन :

कामधेनू दत्तक ग्राम योजनेच्या धर्तीवर गावामध्ये गोचिड गोमाशा निर्मुलनासाठी औषध फवारणी करावयाची आहे. मोहिम स्वरूपात हा कार्यक्रम राबवायचा असून यासाठीची अत्यावश्यक औषधे खात्याच्या दरकरारानुसार व वित्तीय अधिकाराबाबत दक्षता घेवून खरेदी करावयाची आहेत .

**क)** वंध्यत्व निदान व उपचार शिबीरे :

प्रकल्पांतर्गत निवडलेल्या गावामध्ये वंध्यत्व निदान व उपचार शिबीरे आयोजित करून अंमलबजावणी करावयाची आहे. यासाठी गावामधील तसेच वाडयावस्त्रीवरील वंध्यत्व असणा-या जनावरांची माहिती संकलीत करावी. गावांमध्ये शिबीरांचे नियोजन करावे. पशुपालन शिबीरामध्ये जनावरे घेवून येण्याबाबत सूचना द्याव्यात. पशुप्रजनन शास्त्रातील अनुभवी पशुवैद्यकांकडून अशा जनावरांची तपासणी करून घ्यावी. आवश्यक उपचार करावेत. तपासणीमध्ये निघालेले निष्कर्ष आणि केलेल्या उपचारांच्या नोंदी नोंदवहीत घ्याव्यात. पुढील उपचार कधी करणार आहेत याबाबत तसेच घ्यावयाची दक्षता याबाबत पशुपालकांस मार्गदर्शन करावे. विहीत कालावधीमध्ये पाठपूरावा करावा. वंध्यत्व असणा-या जनावरांची गर्भधारणा होईपर्यंत पाठपूरावा करावा. वंध्यत्व निदान व उपचार शिबीरांसाठी आवश्यक असणारी औषधे खात्याच्या दरकरारा मधुन घेणेत यावीत. यामध्ये प्रतिजैवके, जंतनाशके, गर्भाशयात सोडावयाची औषधे, हार्मोन्स इंजेक्शन इत्यादींचा समावेश करावा. तसेच गरजेनुसार पुरेसे स्पष्टीकरण नमूद करून दरकराराखेरीज विहित पध्दतीचा अवलंब करून इत्तर औषधे घेणेस हरकत नाही.

ग्राम पातळीवरील पशुवैद्यकीय सेवा बाबींचे जिल्हा निहाय उद्दीष्ट "**क**" मध्ये दर्शविण्यांत आले आहे.

प्रकल्प ११ जिल्हयातील ३०२३ गावामध्ये राबवायचा असून मदर डेअरी फ्रूट अँड व्हेजिटेबल च्या दूध संकलन मार्गावरील सभासद शेतक-याना या प्रकल्पामध्ये प्राधान्य देण्यांत यावे. केंद्र शासनाच्या मार्गदर्शक सुचनानुसार लाभार्थ्यांपैकी १६ टक्के अनुसूचित जाती प्रवर्गाचे व ८ टक्के अनुसूचित जमाती

प्रवर्गाचे लाभार्थी निवडण्यात यावेत. तसेच एकुण लाभार्थ्यांपैकी ३० टक्के महिलांना व ३ टक्के अपंग यांना प्राधान्याने लाभ देण्यात यावा. लाभार्थीने विहीत नमुन्यातील अर्ज (अर्जाचा नमुना सोबत जोडला आहे) स्वयं साक्षांकीत करून कागदपत्रांसह नजीकच्या पशुवैद्यकीय दवाखाना प्रमुखाच्या शिफारशीने पशुधन विकास अधिकारी (विस्तार) यांचेकडे सादर करावा. पशुधन विकास अधिकारी (विस्तार) यांनी अर्जाची नोंदणी योजनेच्या नोंदवहीत करून अर्जाची छाननी करावी. तदनंतर अर्ज जिल्हा पशुसंवर्धन उपायुक्त कार्यालयाकडे सादर करावेत. जिल्हा पशुसंवर्धन उपायुक्त कार्यालयाने जिल्हयासाठी प्राप्त झालेल्या उद्दीष्टानुसार निवडलेल्या गावापर्यंत लाभ कसा पोहोचवीता येईल याचे नियोजन करून संपूर्ण प्रस्ताव शासनाने गठीत केलेल्या निवड समितीसमोर सादर करावा. लाभार्थीची निवड झालेनंतर संबंधित लाभार्थीस लेखी कळविण्यांत यावे. तसेच संबंधित पशुधन विकास अधिकारी (विस्तार) व संबंधित दवाखाना प्रमुख यांनांही लाभार्थी निवड यादी योजना अंमलबजावणीसाठी देण्यांत यावी.

या प्रकल्पाच्या अंमलबजावणी करणेकरिता वरील सुचना व्यतिरिक्त संदर्भिय शासन निर्णय व राष्ट्रीय पशुधन अभियान यांच्या मार्गदर्शक सूचना लागू आहेत. त्याचे काटेकोरपणे पालन करावे. संबंधित जिल्हयांचे जिल्हा पशुसंवर्धन उपआयुक्त यांनी सदर प्रकल्पांतर्गत बाबनिहाय आर्थिक व भौत्तिक साध्याचा अहवाल दरमहा सादर करावा.

तसेच, प्रकल्प अमंलबजावणी करीता राष्ट्रीय दुग्धविकास मंडळ यांच्याकडून निवडलेल्या गांवाची यादी प्राप्त करून घ्यावी.

योजना अंमलबजावणी बाबत प्रादेशिक पशुसंवर्धन सहआयुक्त यांनी आवश्यक मार्गदर्शन करून योजनेचे सनियंत्रण करावे.

**आयुक्त पशुसंवर्धन,**
**महाराष्ट्र राज्य, पुणे ६७**

प्रति,

१. जिल्हा पशुसंवर्धन उपआयुक्त (एकुण ११ जिल्हे)
२. जिल्हा पशुसंवर्धन अधिकारी, जिल्हा परिषद, (एकुण ११ जिल्हे)
३. प्रादेशिक पशुसंवर्धन सहआुक्त (एकुण ७ विभाग)
४. मुख्य कार्यकारी अधिकारी, महाराष्ट्र पशुधन विकास मंडळ, अकोला
५. विभाग प्रमुख, राष्ट्रीय दुग्धविकास मंडळ, मुंबई.
६. प्रकल्प संचालक, विदर्भ व मराठवाडा विभागामध्ये दुध उत्पादन वाढीसाठी विशेष प्रकल्प "महादुध".

प्रतः- मा. सचिव (पदुम), महाराष्ट्र शासन, मंत्रालय, मुंबई ३२ यांना माहितीस्तव सादर.

**राष्ट्रीय कृषि विकास योजने अंतर्गत विदर्भ व मराठवाडा विभागात दूध उत्पादन वाढीसाठी राबवावयाच्या विशेष प्रकल्पांतर्गत संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे तसेच, दुधाळ देशी गायी / म्हशींचे वाटप करणे या बाबींस प्रशासकीय मंजूरी प्रदान करणेबाबत.**

**महाराष्ट्र शासन**
**कृषि, पशुसंवर्धन, दुग्ध व्यवसाय विकास व मत्स्यव्यवसाय विभाग,**
**शासन निर्णय क्र. एमएलके-२०१७/प्र.क्र.११३/पदुम-४,**
**मादाम कामा रोड, हुतात्मा राजगुरू चौक,**
**मंत्रालय विस्तार, मुंबई-४०००३२.**
**दिनांक : २८ डिसेंबर, २०१८.**

**वाचा :-** १) कृषि, पशुसंवर्धन, दुग्ध व्यवसाय विकास व मत्स्यव्यवसाय विभाग,शासन निर्णय क्रमांक एमएलके २०१६/प्र.क्र.२७/पदुम ८,दिनांक १७ ऑक्टोबर, २०१६.

२) शासन निर्णय क्रमांक एमएलके २०१६/प्र.क्र.२७/पदुम ८,दि. २१ जानेवारी, २०१७.

३) शासन पूरक पत्र क्रमांक एमएलके २०१६/प्र.क्र.४६/पदुम ४,दि. ९ मे, २०१७.

४) राष्ट्रीय कृषि विकास योजना कक्ष यांचे पत्र क्र.राकृवि-०३१७/प्र.क्र.१४/राकृवियो कक्ष दि.९ जून, २०१७ अन्वये दि. २५ मे, २०१७ रोजी पार पडलेल्या राज्यस्तरीय प्रकल्प मंजुरी समिती सभेचे निर्गमित केलेले इतिवृत्त.

५) नियोजन विभागाचा शासन निर्णय क्र.डीसीटी-२३१६/प्र.क्र.१३३/का-१४१७, दि.५ डिसेंबर, २०१६

६) नियोजन विभागाचा शासन निर्णय क्र. क्र.डीसीटी-२३१६/प्र.क्र.१३३/का-१४१७, दि.३ मार्च, २०१७

७) कृषि, पशुसंवर्धन, दुग्ध व्यवसाय विकास व मत्स्यव्यवसाय विभाग,शासन निर्णय क्र. एमएलके-२०१७/प्र.क्र.११३/पदुम-४, दि.२१.०७.२०१७

८) केंद्र शासनाचे पत्र एफ नं. १-१५ /२०१७ -राकृवियो, कृषि भवन नवी दिल्ली, दि.०१.१०.२०१८

**प्रस्तावना :**

राज्यातील विदर्भ व मराठवाडा विभागात दुग्धोत्पादन वाढविण्यासाठी राष्ट्रीय कृषि विकास योजनेंतर्गत राष्ट्रीय दुग्ध विकास मंडळाच्या सहकार्याने विशेष प्रकल्प राबविण्याच्या अनुषंगाने दि.२५.५.२०१७ रोजी पार पडलेल्या राज्यस्तरीय प्रकल्प मंजूरी समितीच्या सभेमध्ये या प्रकल्पास तत्वत: मान्यता (Partial Sanction) प्रदान करुन प्रकल्पांतर्गत संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे (Ration Balancing Advisory Services) तसेच, दुधाळ देशी गायी / म्हशीचे वाटप (Animal Induction) या दोन घटकांच्या अनुषंगाने केंद्र शासनाच्या पशुसंवर्धन विभागाचे अभिप्राय प्राप्त करुन घेण्याचे निर्देश समितीने दिलेले आहेत.

त्या अनुषंगाने संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे तसेच, दुधाळ देशी गायी / म्हशीचे वाटप या दोन घटकांच्या समावेशासह प्रकल्प अहवाल केंद्र शासनाच्या अभिप्रायार्थ सादर करण्यात आला होता. केंद्र शासनाने वाचा - ८ येथील दि.०१.१०.२०१८ पत्रान्वये सदरचे दोन घटक विशेष प्रकल्पांतर्गत राबविण्यास मान्यता प्रदान केलेली आहे.

त्या अनुषंगाने राष्ट्रीय कृषि विकास योजने अंतर्गत विदर्भ व मराठवाडा विभागात दूध उत्पादन वाढीसाठी राबवावयाच्या विशेष प्रकल्पांतर्गत संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे तसेच, दुधाळ देशी गायी / म्हशींचे वाटप करणे या बाबींच्या अंमलबजावणीस शासनाची प्रशासकीय मंजूरी प्रदान करण्याचे बाब शासनाच्या विचाराधीन होती. त्यानुषंगाने, खालीलप्रमाणे शासन निर्णय निर्गमित करण्यात येत आहे.

**शासन निर्णय :**

राष्ट्रीय कृषि विकास योजनेंतर्गत विदर्भ व मराठवाडा विभागात दुग्धोत्पादन वाढविण्यासाठी विशेष प्रकल्पाची अंमलबजावणी करणे या प्रकल्पांतर्गत संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे तसेच, दुधाळ देशी गायी / म्हशीचे वाटप याबाबींच्या अंमलबजावणीस याद्वारे, शासनाची प्रशासकीय मान्यता प्रदान करण्यात येत आहे. तसेच, या दोन घटकांसाठी येणारा एकूण खर्च रु. ४५.४४ कोटी यास वित्तीय मान्यता देखील प्रदान करण्यात येत आहे. या दोन्ही घटकांची अंमलबजावणी राष्ट्रीय कृषि विकास योजनेंतर्गत उपलब्ध होणाऱ्या निधीच्या अधीन राहून, राष्ट्रीय दुग्ध विकास मंडळाच्या सहकार्याने सन २०१८-१९ व २०१९-२० या दोन वर्षाच्या कालावधीमध्ये करण्यात यावी.

सदर प्रकल्पांतर्गत समाविष्ट करण्यात आलेल्या खालील दोन्ही घटकांवर खर्च करतांना नाबार्ड सहाय्यीत Dairy Entrepreneurship Development Scheme- DEDS योजनेचे मापदंड (Cost Norms), राष्ट्रीय कृषि विकास योजनेच्या मार्गदर्शक सुचना विचारात घेऊन करण्यात यावा.

**प्रकल्पाचे आर्थिक निकष-** या प्रकल्पांतर्गत समविष्ट विविध घटक व त्यांच्या अंमलबजावणीसाठी निधी उपलब्धतेचा तपशिल खालीलप्रमाणे आहे.

१. **Ration Balancing Advisory Services-**

| **A . Capital investment for 3000 Local Resource Persons & 60 Technical officers** | | | | | |
|---|---|---|---|---|---|
| **Sr. No.** | **Items** | **Physical target** | **Unit Cost (Rs.)** | **Period** | **Requirement of funds for 16 months (Rs. In Lakh)** |
| 1 | Tablet with accessories to Local resource person | 3060 | 7,000/- | | 214.20 |
| 2 | Printer & accessories to LDO officers | 60 | 7,000/- | | 4.20 |
| 3 | LCD projector with accessories to LDO office | 60 | 20,000/- | | 12.00 |
| 4 | Data management & communication charges to LRP for 16 months @ Rs. 150 / Month | 3060 | 150/- | 16 months | 73.44 |

| | | | | | |
|---|---|---|---|---|---|
| 5 | Local resource person meeting expenses for 16 months (2 meeting/month; total 32 meetings) | 3000 | 25/- | 16 months | 12.00 |
| 6 | Honorium to Local Recourse Person | 3000 | 2,000/- | 16 months | 960.00 |
| 7 | Village awareness programmes & project publicity in 3000 villages | 3000 | 5,000/- | 0 | 150.00 |
| 8 | Training of Local resource person(10 days training for 3000 LRP & 60 TO) @ Rs.250/person/ day | 3060 | 250/- | 10 days | 76.50 |
| **Total** | | | | | **Rs. 1502.34** |

| **B. Ration Balancing Programme Kit** | | | |
|---|---|---|---|
| | **Physical target** | **Unit cost (Rs.)** | **Requirement of funds for 16 months (in lakhs)** |
| **RBP - KIT for 3000 LRPs** | | | |
| weighing balance -5 kg for 3000 LRPs | 3000 | 420 | 12.60 |
| weighing balance for LRPs -25 kg for 3000 LRPs | 3000 | 495 | 14.85 |
| 2 Tag applicator/ LRP | 3000 | 416 | 24.96 |
| measuring tape | 3000 | 134 | 4.02 |
| Information Booklet | 3000 | 50 | 1.50 |
| ready reakner | 3000 | 2 | 0.06 |
| Cap | 3000 | 95 | 2.85 |
| t-shirt | 3000 | 300 | 9.00 |
| Tagging @Rs. 8 for 1691750 milch animals | As per milch animal population | 8 | 135.34 |
| Leather bag | 3000 | 650 | 19.50 |
| Administrative charges approxm. For 60 TO Rs. 48633 one time | 60 | | 29.18 |
| **Total** | | | **253.86** |
| **Total A+B (RKVY Share)** | | | **1756.20** |

या घटकांतर्गत ज्या वस्तु / उपकरणे GEM पोर्टलवर उपलब्ध असतील त्यांची खरेदी सदर पोर्टलव्दारेच करण्यात यावी.

**ब) दुधाळ देशी गायी / म्हशींचे वाटप (Animal Induction) -**

विदर्भ व मराठवाडा विभागात दुध उत्पादन वाढीसाठी राबवावयाच्या विशेष प्रकल्पांतर्गत प्रति लाभार्थी एक दुधाळ देशी गाय / म्हैस वाटप या बाबीअंतर्गत नाबार्ड सहाय्यीत DEDS योजनेच्या मापदंडानुसार (Cost Norms) एकूण १६,४०० लाभार्थ्यांना १६,४०० दुधाळ देशी गाय / म्हैस वाटप करावयाचे असून, (सर्वसाधारण लाभार्थ्यांना २५ % अनुदान आणि अनुसूचित जाती व जमातीच्या लाभार्थ्यांना ३३.३३% अनुदान) सदर बाबीसाठी राकृवियो अंतर्गत रु. २७.८८ कोटी निधी पुढील १६ महिन्यात उपलब्ध करुन देण्यास मान्यता प्रदान करण्यात येत आहे.

सदरचा प्रकल्प विदर्भ विभागातील अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर तसेच, मराठवाडा विभागातील लातूर, नांदेड, जालना व उस्मानाबाद या एकूण ११ जिल्हयांमधील २,९३६ गावांमध्ये राबविण्यात यावा.

या विशेष दुग्ध प्रकल्पांतर्गत संतुलित पशुखाद्य सल्ला व मार्गदर्शन सेवा पुरविणे या घटकांची अंमलबजावणी राष्ट्रीय दुग्ध विकास मंडळाने करावयाची आहे. तर, दुधाळ जनावरांचे वाटप या घटकांची अंमलबजावणी संबंधित जिल्हयाचे जिल्हा पशुसंवर्धन उपायुक्त यांनी करावयाची आहे.

**या प्रकल्पाच्या अंमलबजावणीसाठी वाचा-७ येथील शासन निर्णयात नमुद करण्यात करण्यात आलेल्या इतर बाबी जसे की थेट लाभ हस्तांतरण, प्रकल्पांतर्गत लाभार्थ्यांना द्यावयाच्या वस्तुचे तांत्रिक निकष, प्रकल्पांतर्गत लाभार्थी निवड, लाभार्थी निवड समिती व इतर अनुषंगीक सूचना यात कोणताही बदल करण्यात आलेला नसून त्या जशाच्या तशाच्य लागू राहतील.**

या प्रकल्पाच्या यशस्वी अंमलबजावणीकरीता आवश्यक त्या सविस्तर मार्गदर्शक सुचना आयुक्त पशुसंवर्धन, महाराष्ट्र राज्य, पुणे यांनी त्यांच्या स्तरावरुन सर्व संबंधितांना तात्काळ निर्गमित कराव्यात.

सदरचा शासन निर्णय महाराष्ट्र शासनाच्या www.maharashtra.gov.in या संकेतस्थळावर उपलब्ध असून, त्याचा संगणक सांकेतांक २०१८१२२८१६०४४५८६०१ असा आहे. हा शासन निर्णय डीजिटल स्वाक्षरीने साक्षांकित करून काढण्यात येत आहे.

**महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने,**

Anoop Kumar

Digitally signed by Anoop Kumar
DN: c=IN, o=Government Of Maharashtra, ou=Agriculture and ADF Department, postalCode=400032, st=Maharashtra, 2.5.4.20=257f78acf3ca20d9e91d7a73a76aa0240463e4aafdd4d13de68918dc20bad8e6, serialNumber=1c2ee608849bdb812849b6c8878f95607059b530ff717c8e39c09d06b394e02b, cn=Anoop Kumar
Date: 2018.12.28 16:13:57 +05'30'

**(अनूप कुमार)**
**शासनाचे प्रधान सचिव**

**प्रत:-**

१. मा. राज्यपाल, महाराष्ट्र राज्य, यांचे प्रधान सचिव.

२. मा. मुख्यमंत्री, महाराष्ट्र राज्य, यांचे प्रधान सचिव.
३. मा.मंत्री (पदुम) यांचे खाजगी सचिव
४. मा. राज्यमंत्री (पदुम) यांचे खाजगी सचिव
५. सचिव (कृषि), कृषि व पदुम विभाग, मंत्रालय, मुंबई ३२.
६. आयुक्त पशुसंवर्धन, महाराष्ट्र राज्य, औंध, पुणे ६७
७. आयुक्त दुग्धव्यवसाय विकास, महाराष्ट्र राज्य, वरळी, मुंबई.
८. आयुक्त कृषि, महाराष्ट्र राज्य, मध्यवर्ती इमारत, पुणे.
९. विभागीय आयुक्त, नागपुर, अमरावती व औरंगाबाद
१०. जिल्हाधिकारी, अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर, लातूर, नांदेड, जालना व उस्मानाबाद
११. प्रकल्प संचालक, विदर्भ मराठवाडा विशेष दुग्ध प्रकल्प, नागपूर
१२. मुख्य कार्यकारी अधिकारी, जिल्हा परिषद, अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर, लातूर, नांदेड, जालना व उस्मानाबाद
१३. मुख्य कार्यकारी अधिकारी, महाराष्ट्र पशुधन विकास मंडळ, अकोला.
१४. क्षेत्रीय प्रमुख (पश्चिम विभाग), राष्ट्रीय दुग्ध विकास मंडळ, पश्चिम द्रुतगती महामार्ग, गोरेगाव (पू) मुंबई.
१५. प्रादेशिक सहआयुक्त पशुसंवर्धन, नागपूर, अमरावती, औरंगाबाद व लातूर विभाग
१६. प्रादेशिक दुग्धव्यवसाय विकास अधिकारी, नागपूर, अमरावती, औरंगाबाद व लातूर विभाग
१७. जिल्हा पशुसंवर्धन उपायुक्त, अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर, लातूर, नांदेड, जालना व उस्मानाबाद
१८. जिल्हा पशुसंवर्धन अधिकारी, जिल्हा परिषद, अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर, लातूर, नांदेड, जालना व उस्मानाबाद
१९.जिल्हा दुग्धव्यवसाय विकास अधिकारी, अकोला, अमरावती, बुलडाणा, वर्धा, नागपूर, यवतमाळ, चंद्रपूर, लातूर, नांदेड, जालना व उस्मानाबाद
२०. निवडनस्ती / पदुम-४