

A Relevance and Distribution Efficiency of Seed Minikits of Pulses in Rajasthan

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All India Study Coordinated by
Agricultural Development and Rural Transformation Centre,
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Foreword

India plays a very important role by its contribution in world food production. It accounts for 10.24 percent of total world's total cereals production (rank third next to China and USA) and 21.75 percent of world's total pulses production (rank first) in 2016. India's size in terms of food consumers is also many times larger than the average size of the rest of the countries, except China, and accounts for 16.7 percent of the world's food consumers. Another important dimension of food security in India is that a large number of rural households in India are food grain producers, a fact which has got positive implications for food access. Food and nutrition security has remained one of the top priorities of policy planners in post-Independence India. Improving the food security is an issue of considerable importance for the developing countries like India where millions of people suffer from hunger and malnutrition. Due to deep-rooted poverty, rapidly growing population, low agricultural productivity and resultant food and nutritional insecurity during early independence periods, country had to give high priority to make our population food secure which would in turn mean economic growth and reduce poverty. India made significant advances towards achieving its goals of rapid agricultural growth, improving food security, and reducing rural poverty during last four decades. The introduction of Borlaug new seed-fertilizer technology during the mid sixties led to large increases in the yield levels of wheat, rice and later oilseeds and cotton. Food grains production has increased more than five times from 50.82 million tonnes (mt) in 1950-51 to about 291.95 mt in 2019-20. However, despite the impressive growth and development, India is still home to the largest number of poor people of the world and accounts for about one-fifth of the world's poor. Rural poverty and food insecurity at household level remain pronounced, despite pervasive government interventions. Food availability and price stability, which are considered as a good measure of food security till 1970, were achieved through green revolution and Public Distribution System (PDS), however the chronic food security which is primary associated with poverty, still persisted in the country. In addition to this, per capita per day availability of food grains in India is almost stagnant during last decade. In order to combat the challenge of deficit food availability in the country, the Government of India launched National Food Security Mission (NFSM) in 2007-08 with an objective to escalate production of rice, wheat and pulses by 10, 8, and 2 million tonnes, respectively by the end of 11TH FYP. After achieving the goal of increasing foodgrains production by 20 million tonnes during XIth Plan period, new targets have been set to produce additional 25 million tonnes of foodgrains by 2016-17. Generating employment opportunities was also a key objective. The NFSM target was to enhance farm profitability so that the farming community retains its confidence in farming activity.

NFSM-Pulses is one of the components of the centrally sponsored scheme of NFSM and is under implementation since *Rabi* 2007-08. This component has undergone a number of changes since its inception and finally has taken the shape

of sole centrally sponsored scheme on pulses. Accelerated Pulses Production Programme (under NFSM) is another step forward for vigorous implementation of the pulse development under the NFSM-Pulses. The latest released / pre-release varieties/ hybrids not older than 10 years are popularized through distribution of seed minikits free of cost to the farmers. The required leaflets on cultural practices are to be kept in the seed Minikits along with Rhizobium / PSB culture wherever it is required in the respective seed packet of Minikits. The purpose is to ensure, that the identified farmer is capable of raising the crop with care & diligence such that the plot serves as a good demonstration to other farmers. As the programme is under progress for last three to four years, it is required to see the various aspects of implementation of this programme. How efficiently the distribution of seeds is taking place. It is required to check whether the scheme is relevant and useful from the viewpoint of farmers. It is also important to examine whether seed minikits have any significant impact on productivity and how much area is being cropped under such seeds. With this view, the Directorate of Economic and Statistics, Ministry of Agriculture, Government of India assigned us a study on “A Relevance and Distribution Efficiency of Seed Minikits of Pulses in Rajasthan”. Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, Bangalore, Karnataka has coordinated this all India study.

The study is based on secondary and primary level data. The primary survey data were obtained for the agriculture year 2019-20 from total 300 selected pulse growers from two districts (Bundi and Nagaur) of Rajasthan State. The results of study show that seed minikit programme has helped the selected farmers in raising their crop yield and income from crop cultivation. On the basis of the findings, relevant policy suggestions have been made.

I am thankful to authors and their research team for putting in a lot of efforts to complete this excellent piece of work. I also thank the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India for the unstinted cooperation and support. I hope this report will be useful for those who are interested in understanding the seed minikit programme in Rajasthan.

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We have benefited immensely from various scholars and officials from different government departments while carrying out this study. At the outset, we would like to thank **Prof. Shirish Kulkarni**, Vice Chancellor of our University and Chairman, AERC Governing Body as well as Dr. Mahesh Pathak, former Honorary Advisor of our Centre for their constant encouragement and support for undertaking such research activity at the Centre.

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Contents

<i>Foreword</i>	<i>iii</i>
<i>Acknowledgements</i>	<i>v</i>
<i>List of Tables</i>	<i>ix</i>
<i>List of Figures</i>	<i>xi</i>
<i>List of Maps</i>	<i>xi</i>
<i>List of Annexures</i>	<i>xi</i>
<i>List of Abbreviations</i>	<i>xii</i>
<i>Executive Summary</i>	<i>xiii</i>

Chapter I	Introduction	1
------------------	---------------------	----------

- 1.1 Introduction
 - 1.1.1 Importance of Pulses
 - 1.1.2 Growth in Production of Pulses
 - 1.1.3 Policies for Pulses Development
 - 1.1.3.1 National Food Security Mission
 - 1.1.3.2 Seed Mini-kits Programme
- 1.2 Need for the study
- 1.3 Objectives and Scope of the study
- 1.4 Data and Methodology
- 1.6 Organization of the Report

Chapter II	Production of Pulses in Rajasthan	23
-------------------	--	-----------

- 2.1 Introduction
- 2.2 Area and Production of Major crops in the State
- 2.3 Pulse Production in Rajasthan – District Level Analysis
- 2.4 Area, Production and Yield of Pulses in Rajasthan – District Level Analysis
- 2.5 Share of Pulse at District level in district Gross Cropped Area
- 2.6 Share of Individual Pulses in Major districts in Total Pulses in Rajasthan
- 2.7 District wise distribution of Seed Minikit in Rajasthan
- 2.8 Summary of the Chapter

Chapter III	Household Characteristics, Cropping Pattern and Value of Output of Beneficiary Farmers	43
	3.1 Socio-economic Characteristics of the beneficiary Farmers	
	3.2 Characteristics of Operational Holdings	
	3.3 Sources of Irrigation	
	3.4 Cropping Pattern	
	3.5 Production, Cost and Returns by Farm Size	
	3.6 Summary of the Chapter	
Chapter IV	Efficiency of Seed Minikit of Pulses in Rajasthan	53
	4.1 Productivity comparison between Beneficiary and Non-Beneficiary	
	4.2 Production Cost comparison between Beneficiary and Non-Beneficiary	
	4.3 Distribution of Seed Minikits – Socio economic comparisons	
	4.4 Efficiency in Distribution and Usage of Seed Minikits	
	4.5 Awareness about the scheme	
	4.6 Farmers perceptions about Seed Minikits	
	4.7 Summary of the Chapter	
Chapter V	Conclusion and Policy Suggestions	71
	5.1 Main Findings from Secondary data	
	5.2 Main Findings from Field Survey data	
	5.3 Conclusions and Policy Suggestions	
	References	79
	Annexure I & II	83
	Appendix I & II	85

List of Tables

Table No.	Title	Page
1.1	Production of Food grains in India (1950-51 to 2018-19)	03
1.2	Decade-wise rate of Growth in Area, Production and Productivity of Foodgrains in India	05
1.3	Decade-wise rate of Growth in Area, Production & Productivity of Pulses in India	07
1.4	Area, Production and Yield of Pulses in India (TE 2006-07 & TE 2016-17)	09
1.5	Target and Achievement of NFSM during XI Plan period	12
1.6	Target fixed for XII th Plan period under NFSM	13
1.7	Area, Production and Yield of Total Pulses in India during 2017-18	15
1.8	Cropwise Seasonwise Area and Production of Pulses in India (2017-18)	15
1.9	Crop-wise Distribution of Seed-Minikits (2016-17 to 2018-19)	16
1.10	State-wise distribution of Seed Minikit (2016-17 to 2017-18)	16
1.11	Agency–Wise distribution of Seed Minikits (2016-17 & 2017-18)	17
1.12	Selected districts in Rajasthan	21
1.13	Number of Villages covered in selected districts of Rajasthan	21
2.1	Area and Production of Major crops in the State	24
2.2	Growth rate in area & yield rate of major crops in the state (%)	26
2.3	District wise Geographical, Cultivable and Pulses Crop Area in Rajasthan	28
2.4	District wise Production and Yield of Pulses Crop Area in Rajasthan (2016-17)	30
2.5	Area and Production of Major Crops at districts level in State (TE 2006-07)	31
2.6	Area and production of major crops at districts level in State (TE 2016-17)	33
2.7	Growth rate in Area and production of major crops at districts level	35
2.8	Share of Individual Pulses in Major districts in Total Pulses in Rajasthan	38
2.9	District wise distribution of Seed Minikit in the State (Nos)	39
3.1	Demographic Profile of the Selected Farmers (% of hhs)	44
3.2	Characteristics of Operational Holdings (acres per household)	45

3.3	Source of Irrigation of Net Operated Area (%)	45
3.4	Cropping pattern (Irrigated Crops) of Selected Farmers	46
3.5	Cropping pattern (Unirrigated Crops) of Selected Farmers	47
3.6	Cropping Pattern of Selected Farmers	47
3.7	Value of Output, Cost and Net Returns (aggregate of all crops)	51
4.1	Number of Seed Minikit distributed among Selected Farmers	53
4.2	Productivity and net returns from pulses with and without Seed-minikits	54
4.3	Item-wise Cost details of Black Gram	56
4.4	Item-wise Cost details of Green Gram	57
4.5	Item-wise Cost details of Lentil	58
4.6	Item-wise Cost details of Bengal Gram	59
4.7	Use of human labour by activities (man days per ha.)	60
4.8	Method of Sowing followed by Selected Households in reference year (%)	61
4.9	Distribution of Seed Minikit (Numbers)	61
4.10	Documents Submitted to Avail Seed Minikit (Numbers)	61
4.11	Criteria for Farmer Selection	61
4.12	Financial details of Seed Minikit	62
4.13	Awareness of distribution of Seed Minikit (%)	62
4.14	Details of Seed Minikit provided for Pulses Crop 2018-19	63
4.15	Details of Seed Minikit provided for Cereals or Oilseeds Crop 2018-19	64
4.16	Content of the Seed Minikit (%)	64
4.17	Seed purchased by the farmer for the reference year through seed minikits	64
4.18	Seed Purchased by the farmer from other sources in the reference year	65
4.19	Marketing Channels through which Pulses sold by the Selected Households	65
4.20	Farmers Opinion regarding distribution of Seed Minikit for the reference year (%)	66
4.21	Farmers Opinion regarding Quantity of Seed Supplied in Seed Minikit	66
4.22	Farmers Opinion regarding Quality of Seed supplied in Seed Minikit	66
4.23	Farmers Opinion regarding timeliness of distribution of Seed Minikit (%)	67
4.24	Major Problems faced by Farmers in Availing Seed Minikit (%)	67
4.25	Measures to Improve the Effectiveness of the Scheme (%)	67

List of Figures

Figure No.	Figure	Page
1.1	Growth in Area under Pulses in India	08
1.2	Growth in Production of Pulses in India	08
1.3	Multistage Sampling Method	19
2.1	Districtwise Share of Area under Pulses to Cultivable Area	27
2.2	Districtwise Share in Total Area under Pulses in Rajasthan	29
2.3	Districtwise Production of Pulses in Rajasthan (2016-17)	29
2.4	Districtwise Share in Area under Pulses to State Total & District GCA in Rajasthan (2016-17)	37
2.5	Distribution of Seed Minikits (2017-18 & 2018-19)	41
2.6	Cropwise Seed distributed by Seed Minikits (2017-18 & 2018-19)	41
3.1	Cropping Pattern (Overall) of Selected Households	49
3.2	Cropping Pattern (Irrigated) of Selected Households	49
3.3	Cropping Pattern (Rainfed) of Selected Households	50

List of Map

Map No.	Maps	Page
1.1	Location Map of Study Area in Rajasthan, India	19

List of Appendix

App No.	Appendix	Page
A1	Distribution of Net Irrigated Area as per Source (%)	83
A2	Details on Number of Crop failures (%)	84
A3	Net Price Obtained (All output Rs./quintal)	84
A-I	Comments on the Draft Report received	85
A-II	Action taken by the authors based on the comments received	86

List of Abbreviations

A	Area
AFCL	Agricultural Finance Corporation Limited
AGR	Annual Growth Rate
Av.	Average
CAGR	Compound Annual Growth Rate
FAO	Food and Agriculture Organization
GCA	Gross Cropped Area
GDP	Gross Domestic Product
GOI	Government of India
GOR	Government of Rajasthan
GSDP	Gross State Domestic Product
ha	Hectare
HH/hh	Household
HIL	Hindustan Insecticides Limited
IFAD	International Fund for Agricultural Development
IFFCO	Indian Farmers Fertilizer Co-operative Ltd.
IFFDC	Indian Farm Forestry Development Co-operative Limited
IFPRI	International Food Policy Research Institute
INM	Integrated Nutrient Management
IPM	Integrated Pest Management
ISOPOM	Integrated Scheme on Oilseeds, Pulses, Oil palm and Maize
kg	kilograms
KRIBHCO	Krishak Bharti Co-operative Ltd
mha	Million hectares
mt	Metric Tonnes
NA	Not Available
NAFED	National Agriculture Marketing Federation Ltd
NCA	Net Cropped Area
NFHS	National Family Health Survey
NFSM	National Food Security Mission
NHM	National Horticultural Mission
NIA	Net Irrigated Area
NPK	Nitrogen (N), Phosphorus (P), and Potassium (K)
NOA	Net Operated Area
NSA	Net Sown Area
NSC	National Seed Corporation
NSDP	Net State Domestic Product
NSS	National Sample Survey
OBC	Other Backward Classes
P	Production
PPP	- Purchase Power Parity
PDS	Public Distribution System
RKVY	Rashtriya Krishi Vikas Yojana
SC	Scheduled Caste
ST	Scheduled Tribe
TE	Triennium Endings
USA	United States of America
Y	Yield

Executive Summary

A Relevance and Distribution Efficiency of Seed Minikits of Pulses in Rajasthan

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1. Introduction:

India plays a very important role by its contribution in world food production. It accounts for 10.24 percent of total world's total cereals production (rank third next to China and USA) and 21.75 percent of world's total pulses production (rank first) in 2016. India's size in terms of food consumers is also many times larger than the average size of the rest of the countries, except China, and accounts for 16.7 percent of the world's food consumers. Another important dimension of food security in India is that a large number of rural households in India are food grain producers, a fact which has got positive implications for food access. India has made significant advances towards achieving its goals of rapid agricultural growth, improving food security, and reducing rural poverty during last six decades. Food grains production has increased more than five times from 50.82 million tonnes (mt) in 1950-51 to about 291.95 mt in 2019-20. Except first decade when production growth was mostly driven by area growth, yield growth was instrumental in increase in production of food grains during all other decades. The stagnant growth of food grains production during 1990-01 to 2006-07 was partly contributed by the stagnant if not declining in area but largely by the decline or stagnant yield rate. Nevertheless, there have been signs of improvement during the recent years, specifically after 2007-08. The significant and reverse turn in agricultural production occurred mainly due to the implementation of important programs, such as Rashtriya Krishi Vikas Yojana, National Food Security Mission, National Horticultural Mission (NHM), various sub-schemes and substantial increase in the state agricultural outlay on agriculture.

Pulses are an important commodity group of crops that provide high quality protein complementing cereal proteins for pre-dominantly substantial vegetarian population of the country. Probably no other country as like India produces and consumes as varied array of pulses. India is global leader in terms of production and consumption of pulses. India is leading importer of pulses because production of pulse/ legume crops has been stagnant over the years although situation has slightly changed in the recent past. Consequent upon this, there is widening gap between demand and supply/availability of Pulses. About 20 per cent of the total pulses demand is met by imports only. Although this crop group is more important from the nutritional point of view, there has not any significant increase in area and production as well as per capita availability during 1953-54 to 2009-10, however, significant growth in area and production has been recorded during the last ten years (i.e. 2010-2011 to 2019-20), in which area growth was instrumental followed by yield improvement.

With the increase in infrastructural and irrigation facilities/resources, the pulses get the marginalized treatment pushing them to another poor and marginal land piece. The technical change in pulse crops is also slow compared to superior cereals and other cash crops as it compete with resources, research and infrastructure. The share of area under pulses in total food grains was recorded the highest in 2017-18 (23.5 per cent), while share of pulses production in total food grains production was estimated to be 8.9 per cent in 2017-18 which was much lower than share of around 17 per cent recorded during 1950-1960. While during TE 2006-07 to TE 2016-17, the production of pulses had increased by 39 per cent, mainly due to significant increase in productivity growth (22 per cent) with support of area growth by 14 per cent over base year. The per capita availability of pulses per day has increased to 494.1

gram in 2018 from 436 gram per day in 2006, which is still lower than record availability of 510 gram/day in 1991.

NFSM-Pulses is one of the components of the centrally sponsored scheme of NFSM and is under implementation since Rabi 2007-08. This component has undergone a number of changes since its inception and finally has taken the shape of sole centrally sponsored scheme on pulses. Accelerated Pulses Production Programme (under NFSM) is another step forward for vigorous implementation of the pulse development under the NFSM-Pulses. Seed Minikits are meant for introduction and popularization of latest released /pre released varieties /hybrids not older than 10 years among the farmers free of cost. National and state seed producing agencies supply minikits to State Government for distribution amongst farmers. Allocation of minikits is made to all farmers in contiguous area of at least 25 hectares. The size of minikits is 16 kg of gram, 8 kg seed of lentil and 4 kg each for moong, urad and pigeon pea. This quantity is sufficient to plant 0.2 ha. In addition, under this package, some state governments (Karnataka) is also providing, a pamphlet regarding package of practice (POP) and phosphate solubilizing bacteria (PSB) culture of 100 grams per packet per mini kit to pulse farmers.

Madhya Pradesh accounts for the one forth of area and almost one third of production of pulses of our country. Rajasthan is the second largest producer of the pulses accounting around 13 per cent in national pulses production with about 18 per cent share in area. almost two third pulses production in rabi season and rest in kharif season. Gram accounted the highest share of about 45 per cent in total pulses production followed by Tur (around 17 per cent) and Urad (14 per cent). The Statewise distribution of seed minikits together during two years period (2016-17 and 2017-18) indicate that Rajasthan, Uttar Pradesh, Andhra Pradesh and Madhya Pradesh together accounts for 52 per cent of total seed distributed. The seed distribution agencies were NSC, NAFED, HIL, KRIBHCO and IFFDC.

2. Need for and Objectives of the Study

The latest released / pre-release varieties/ hybrids not older than 10 years are popularized through distribution of seed minikits free of cost to the farmers. The required leaflets on cultural practices are to be kept in the seed Minikits along with Rhizobium / PSB culture wherever it is required in the respective seed packet of Minikits. The purpose is to ensure, that the identified farmer is capable of raising the crop with care & diligence such that the plot serves as a good demonstration to other farmers. As the programme is under progress for last three to four years, it is required to see the various aspects of implementation of this programme. How efficiently the distribution of seeds is taking place. We need to check whether the scheme is relevant and useful from the viewpoint of farmers. It is also important to examine whether seed minikits have any significant impact on productivity and how much area is being cropped under such seeds. Therefore, keeping the importance in mind, the present study is proposed to examine the need, application, pertinence and efficiency in distribution of seed minikits. The NFSM is extended to 12th Five Year Plan due to its success in achieving the targeted goal of production enhancement. It is essential to evaluate and measure the extent to which the programme and approach has stood up to the expectations. The study enlightens the policy makers to incorporate necessary corrections to make the programme more effective and successful.

3. Data and Methodology

The study is based on secondary and primary level data. The secondary data on area, production and productivity of pulse crops and related parameters were collected from various published sources. The primary data were collected from the state of Rajasthan. For the selection of sample in each state, two districts were selected, one irrigated and one dry

land based on highest seed minikits distributed during the reference period of 2017-18 and 2018-19. Accordingly, Bundi (irrigated) and Nagaur (Rainfed) district were selected. From each selected district, a sample of 100 seed minikit beneficiary farmers and 50 control group pulse growing farmers were selected using random sampling method. In this way a total number of 200 beneficiaries and 100 non beneficiaries were selected in Rajasthan state. Lentil and Urad seed minikits beneficiaries were selected from Bundi district and Gram and Moong beneficiaries were selected from Nagaur district.

Table 1: Selected districts in Rajasthan

Sr. No.	Crops (Season)	Bundi			Nagaur		
		Beneficiary	Non Beneficiary	Total	Beneficiary	Non Beneficiary	Total
A	Urad (kharif)	40	20	60	-	-	-
B	Moong (kharif)	-	-	-	88	47	135
C	Gram (Rabi)	-	-	-	12	03	15
D	Lentil (Rabi)	60	30	90	-	-	-
	All Total	100	50	150	100	50	150

3. Main Findings from Secondary data

- Rajasthan State accounts for about 6.9 per cent of total food grains production of country during 2017-18 from 14.24 mha area having 11.16 per cent share in national coverage under foodgrains. It is important to note the low coverage of food grains under irrigation in Rajasthan (35.9 per cent) as compared to 53.1 per cent of area coverage under irrigation at national level (2014-15). In case of pulses production, state of Rajasthan holds second position after Madhya Pradesh and accounts for 13.4 per cent in total national pulses stock having 17.8 per cent of national area under pulses (5.33 mha), while lower area under coverage (21 per cent) resulted in low level of productivity of pulses of 635 kg/ha as compared to 841 kg/ha at national level.
- The share of the cultivable area to total geographical area was about 75 per cent which is almost same during the two period points, i.e. TE 2006-7 and TE 2016-17. While share of the area under pulses to total cultivable area has increased from 13.4 per cent to almost 17 per cent during the corresponding two period points. Thus over the period of one decade, area under pulses has increased by 3.6 per cent points. Bundi, Pali, Ajmer and Tonk district has registered the significant increase in share of area under pulses to cultivable area during two points period.
- Nagaur district is the largest producer of pulses (12.41%) followed Bikaner (11.61%), Churu (7.49%), Ajmer (6.55%), Pali and Jaipur (6 % each), while Bundi contributes about 3 per cent share in state pulses production during 2016-17.
- The three top most districts having more than 11 per cent share each in total area at the State are Churu (14.3%), Nagaur (12.4%) and Bikaner (11.3%). The data on district-wise share in area under pulses at district gross cropped area indicate that five topmost pulses growing districts were Churu having about 56 per cent of gross cropped area under pulses, followed by Nagaur (43 per cent), Ajmer (40%), Pali (40%) and Bikaner (35%).
- During kharif seasons, two pulse crop minikits viz. Green gram and Black Gram were distributed to the farmers under this scheme. The highest number of minikits of both kharif pulse crops together for both years were distributed in Nagaur district (22.3% of total minikits) followed by Ajmer (8.42%), Jodhapur (8.23%), Jaipur (8.18%), Pali (7.71%), Tonk (6.38%), and Jalore (6.18%). These seven districts accounts for two third of seed minikits distributed of moong and urad together.
- While in case of rabi pulses (Bengal Gram and Lentil), the highest number of minikits of both rabi pulse crops together for both years were distributed in Bundi district (13.35% of total minikits) followed by Bhilwara 7.95%), Bharatpur (7.21%), Bikaner (7.10%), Tonk

(6.78%), Sikar (6.68%), and Pratagarh (6.09%). These seven districts accounts for 55 per cent of total seed minikits distributed.

Table 2: District wise Production and Yield of Pulses Crop Area in Rajasthan (2016-17)

Sr. No.	District	Area		Production		Yield (kg/ha)
		ha	% to total	tonnes	% to total	
1	Ajmer	288470	5.02	223848	6.55	776
2	Alwar	13494	0.23	19706	0.58	1460
3	Banswara	26818	0.47	23870	0.70	890
4	Baran	58012	1.01	58515	1.71	1009
5	Barmer	331394	5.77	32577	0.95	98
6	Bharatpur	5540	0.10	6843	0.20	1235
7	Bhilwara	143237	2.49	98925	2.89	691
8	Bikaner	651351	11.34	396747	11.61	609
9	Bundi	130977	2.28	99470	2.91	759
10	Chittorgarh	17055	0.30	15172	0.44	890
11	Churu	821843	14.30	255968	7.49	311
12	Dausa	14893	0.26	21990	0.64	1477
13	Dholpur	1973	0.03	2072	0.06	1050
14	Dungarpur	25363	0.44	23923	0.70	943
15	Ganganagar	180762	3.15	146083	4.27	808
16	Hanumangarh	255864	4.45	130943	3.83	512
17	Jaipur	227532	3.96	205994	6.03	905
18	Jaisalmer	211077	3.67	157656	4.61	747
19	Jalore	156803	2.73	65276	1.91	416
20	Jhalawar	69295	1.21	61567	1.80	888
21	Jhunjhunu	144965	2.52	129889	3.80	896
22	Jodhpur	406565	7.08	168451	4.93	414
23	Karauli	9197	0.16	14025	0.41	1525
24	Kota	57015	0.99	54247	1.59	951
25	Nagaur	710530	12.37	424153	12.41	597
26	Pali	354922	6.18	207753	6.08	585
27	Pratapgarh	28751	0.50	38530	1.13	1340
28	Rajsamand	3121	0.05	2242	0.07	718
29	Sawai Madhopur	49045	0.85	53215	1.56	1085
30	Sikar	120659	2.10	106815	3.12	885
31	Sirohi	15711	0.27	7900	0.23	503
32	Tonk	191694	3.34	143934	4.21	751
33	Udaipur	21634	0.38	20399	0.60	943
	Raj State	5745562	100.00	3418698	100.00	595

4. Main Findings from Field Survey data

- The average size of the household was estimated to be 6 persons, while marginal land group households found to be the smallest (5.63) and the large group land holders had the largest family size (6.68).
- As per the specification and selection of beneficiary of the scheme (women criteria), three forth of the total respondents were women. The age range of more than 80 per cent of total selected household respondent was 30-60 years while around 9 per cent were from young group (less than 30 years) and rest were from above 60 age group (11%), while across the groups, near about same trend was observed.
- In case of education status, majority of the respondents were found to be to be illiterate (56.67%). Around one third of the total household respondents were educated mostly up to the SSC level. This indicate the lower education status of the respondents in Rajasthan in general, women in particular. Around 60 percent of total family members were engaged in farming and average farming experience was estimated to be about 25 years.
- At overall level, about 49 per cent households were from other backward classes group followed by about 38 per cent from SC, about 10 percent from ST and rest were from

open category. Among the selected marginal land holders group, about 69 per cent households together belonged to SC and ST category.

- Majority of households have agriculture as a main occupation while agriculture labour and allied was subsidiary occupation. The average income from agriculture and allied activities is recorded to be Rs. 118383/- while same was Rs. 35597/- from non-agricultural sources.
- The average operational land holding of the selected household was about 6.11 acre having 40 percent land under irrigation (net) at overall level. Across land size groups, 71 percent of land of marginal farmers was under irrigation, followed by 45 per cent land of small, 41 per cent land of medium and 29 per cent of land of large farm group has irrigation facility. Thus, more the land, less the area under irrigated and vice versa. Same the case of cropping intensity wherein highest cropping intensity was recorded by marginal farmers and the lowest was in case of large farmer, with average cropping intensity of 138 per cent.
- The average rental value of land was observed to be Rs. 6000/- for irrigated land in Bundi district while Rs. 2500/- per acre in rainfed areas of Naguar district. While most of land leased in land was on share cropping basis.
- The topmost source of the irrigation was groundwater (dug-well and bore-well) irrigating more than 80 per cent of total irrigated land at overall level. The average water charges rates prevailing in the study area was Rs. 3125/- per acre water.
- The marginal farmers had more than 81 per cent of total land under irrigation followed by small, medium and large farm size category farmers with 53 per cent of total gross cropped area was under irrigation. At overall level, one fifth of cropped area was under irrigation covered by pulses crops, while across land size groups, same was highest in marginal group (35 percent) and the lowest was in large size farm group (9 per cent). Under rainfed condition, 30 per cent of total cropped area was under pulses of which moong was major pulse crop.
- At overall level, the major crops grown by the selected households were mung, urad, bajra, rapeseed mustard, wheat and gram. Pulse crops accounted for half of the cropped area of the selected households. The share of rainfed pulse area in gross cropped area was around 30 per cent while same was around 20 per cent irrigated land holders. Oilseed crops were mostly grown by the irrigated land holders.
- The value of output, cost and net returns by the farm size of selected households indicate that production per acre of all crops on average was reported to be the highest in case of marginal farmers and the lowest yield rate was realised by large farmer group. While among rainfed and irrigated condition crop production, marginal farmers have realised highest crop yield, however, large farmers group recorded highest yield under rainfed condition. The value of main output and cost of production per acre was estimated to be highest in case of marginal farmers and the lowest in case of medium group farmers. The net return realised by the selected farmer households was recorded to be highest for marginal land holders and lowest for large size land holders. Thus, it has been proved again that the marginal farmers reap the highest yield as well as returns, which may be due to small size of holdings and more involvement of family labours in crop cultivation. While gross farm income per household as expected was the highest in large land size group and lowest was in marginal size group.
- It was observed that on an average, in all four selected pulse crops, cost of cultivation per acre of beneficiary households was estimated to be lower than the non-beneficiary households, must be because of lower cost of seed to some extent (due to partial share of seed minikit). While net returns per acre was reported higher in beneficiary group in cultivation of black gram and green gram only. Thus, kharif pulse crops cultivation found to be more profitable for beneficiary farmers than non-beneficiary farmers. Despite of the fact that quality seed was provided through seed minikits program, not much improvement in productivity level of these selected crops is reported by beneficiary farmers. While at overall level, almost 12 percent of total lentil beneficiary farmers had

reported crop failure (with level of production less than 1 quintal/acre), of which largest share was of marginal lentil farmers whose income was severally affected. Also around 13 per cent of total urad beneficiary farmers and 40 per cent non beneficiary urad farmers reported crop failure wherein share of medium farmers from beneficiary group while marginal and small farmers from non-beneficiary group was the highest.

- Rainfed pulse crops grown by the farmers in Naguar district (green gram (kharif season) and gram (rabi season)) were relatively more stable in crop productivity (except one case in gram of large land holder). As mentioned in Chapter I, the crop failure was the main problem in estimation of value of output and net returns. Around 18 per cent of beneficiary households and 8 per cent of non beneficiary households at overall level had realised production less than one quintal in acre of which some of them did not reap any harvest. The productivity level of kharif pulse crops grown by beneficiary farmers was marginally higher than that of non-beneficiary group, while opposite the case of rabi crops where higher productivity was reported by non-beneficiary group. Purchase of the green gram by the government at minimum support prices in Naguar district has helped the farmers to recover the cost of production and profit margin on crop cultivation.
- The per quintal cost of production of kharif crops (mung and urad) was estimated lower in case of beneficiary farmers (Rs. 3382 and Rs. 2060/- per quintal) than non-beneficiary farmers while opposite picture was estimated in case of rabi crops (lentil and gram). The net price received (for main produce in market/village) by the farmers across the group of farmers was almost same in all crops, which ranges from Rs.3400-5000 per quintal in lentil, Rs. 2700-5000 per quintal in urad, Rs. 4000-6975 per quintal in case of mung and Rs. 4200 -5000 per quintal in case of gram. Thus, on an average, selected farmers have realised the net return of Rs. 9000-10000 per acre in cultivation of pulse crops. However, not much effect of seed minikit was reported as supplied quantity was much less than requirement and thus, farmers had to procure seed from the market or other sources.
- The three operations together (harvesting and threshing, labor and land preparation) accounts for around 78 per cent of total cost of cultivation of Black gram and Green gram, while in case of lentil, corresponding figure was 70-72 percent. In case of bengal gram, low harvesting cost by non beneficiary farmers put total to around 51 per cent as compared to 75 percent share reported by beneficiary farmers. Higher seed share in cost of cultivation was reported by non-beneficiary households than its counterpart.
- The labour use of pattern of the selected sample households indicate that the major labour using activities were weeding, sowing, application of plant protection, fertiliser and manures, and bagging, which accounted for the major share in labour use, which was relatively higher in case of non-beneficiary households than beneficiary households.
- As labour operations like land preparation, harvesting and threshing were done by using machine labour and therefore human labour use was reported to be lower. While all the sowing was done by adopting line sowing method.
- The minikits were distributed only through agriculture department by following the stipulated procedure of selection and distribution of minikits.
- Adhaar card was the main and only document was produced by the sample beneficiary for availing the benefit and used by the issuing authority to validate the claim as beneficiary.
- The highest share was of women beneficiary in total followed by the beneficiary from small and marginal famers and then from SC/ST category.
- The subsidies rate of the seed minikit was Rs. 184 per kit of Bengal gram (16 kg), Rs. 45 per kit of Green gram (4 kg) ; Rs. 50 per each kit of lentil (8 kg) and Black gram (4 kg). No amount was reimbursed as amount charged was token amount from farmers which must be 10 per cent of total cost of seed.
- All the selected households had received the information about the seed minikit programme from the agriculture officer of the taluk/district and none of the other source of information was reported.

- The size of minikits was 16 kg of gram, 8 kg seed of lentil and 4 kg each for moong and urad. This quantity is sufficient to plant 0.2 ha. While area covered under particular pulse and oilseed crop was reported to be more than same which indicate farmers have used the home grown retained or seed purchased from market or from villagers have used. Thus, seed provided is inadequate in nature and need to scale up the quantity of seed.
- Some farmers have retained the seeds for next sowing season.
- The selected farmers households did not receive the any other seed minikit of any other crop.
- With seed minikit, no other input such as fertiliser or any culture was provided.
- The two main channels for marketing of pulses utilised by the selected famers were sale to merchant or prearranged contract and sell at APMC market.
- All sample household opined that seed distribution programme is advantageous and noted the yield and quality difference in same.
- However, all of them were also opined that seed distributed was insufficient and at least seed should cover 0.32 ha (0.79 acre) area compared to 0.2 ha (0.49 acre) under present scheme
- Also, most of the selected households were satisfied with the quality of seed provided to them and timely distribution of same.
- The major problem faced by farmers in availing the seed minikit was less quantity of seed minikit.
- In order to overcome these problems, sample households have given suggestions, such as more supply of seed, suitable variety suitable to local condition and seed should be given to all farmers.
- While survey, it was reported that no demonstration/ training was given to selected beneficiary households on how to use the minikit as well as on package of practises

4. Conclusion and Policy Suggestions

The seed distribution programme has found to be advantageous in terms of availability of cheap seed. However, seed distributed was insufficient quantity as well not much difference in productivity was reported. The policy implications emerged out of the study is as follows:

- The government should ensure timely availability of adequate quantity of quality seed by taking into account the actual requirement of seed in particular area.
- Bottom-up approach should be used in implementation of the scheme.
- Seed minikits should be provided only to farmers those have attended the training on same. Demonstration should be given before distributing the Seed minikit
- State Agriculture Universities should try to develop the seed varieties suitable to local conditions.
- The awareness level about the scheme and need of Seed Replacement Rate needs to increased/raised through agricultural extensions programmes.
- Procurement of output by Government Agencies would certainly help in increasing area under pulses.