IMPACT OF NFSM ON CHANGE IN KNOWLEDGE LEVEL OF BENEFICIARY AND NON-BENEFICIARY FARMERS ABOUT RECOMMENDED PACKAGE OF PRACTICES OF CHICKPEA

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ABSTRACT

National Food Security Mission (NFSM) is a centrally sponsored scheme launched in 2007-08, with mission aims to increasing the productivity at the individual farmers through the adoption of improved technologies and farming practices. To assess the effectiveness of the NFSM-pluses in Rajasthan state the chickpea crop is select for this study because India is the single largest producer of chickpea in the world and it is called as 'King of Pulses'.The study was conducted in two Agro-climatic zones of the Rajasthan state i.e. Ic (Hyper arid partial irrigated) and zone IIIa (Semi-arid eastern plains). From these zones 120 Beneficiary Farmers (BFs) and 120 Non-beneficiary Farmers (NBFs) were selected randomly from selected village. Thus, total sample size of 240 respondents. The findings of study shows that majority of beneficiary farmers (46.67%) and non-beneficiary farmers (40 per cent) had medium knowledge level about recommended package of practices of chickpea. According to practice wise extent of knowledge it was found that both BFs and NBFs possessed maximum knowledge level for practice like "Time of sowing" with (91.53 MPS & 74.03 MPS) and assigned first rank while last rank order assigned for the practices like "Physiological aspects" (59.50MPS), "Plant protection measures" (42.25 MPS) and "Weed management" due to lack of knowledge, its complexity and risky application to the crop. The comparative data related to extent level of knowledge between BFs and NBFs show significance difference in all packages of practice of chickpea cultivation except the 'Irrigation Management' show good impact of NFSM on change in knowledge level of beneficiary farmers of both Agro-climatic zones. The value of rank correlation (r_s) was 0.61 which shows positive rank correlation between beneficiary and non-beneficiary farmer's knowledge level.

Keywords: *NFSM, chickpea, Knowledge, BFs, NBFs, impact*

INTRODUCTION

India is the largest producer of pulses in the world, both in quantity and variety. Pulses are the primary source of protein for the poor and the vegetarian population of India.

National Food Security Mission is a centrally sponsored scheme launched in Rabi 2007-08, with an objective to increase the production of rice, wheat, and pulses by 10, 8, and 2 million tonnes, respectively by the end of the Eleventh Plan (2011-12). The mission also aims at increasing the productivity at the individual farm level, creation of employment opportunities and enhancing farm level economy to restore confidence amongst the farmers through the adoption of improved technologies and farming practices. The NFSM-pulses is one of the componentselected for study

purpose because pulses play an important nutritional role in the diet of millions of people in the developing countries.

India is the single largest producer of chickpea in the world, accounting for 69.21% (11.229 million tonne) of the total production under chickpea. Australia is the second leading country over the world in 12.35% share (Source: http://www.fao.org>india 2019).

During 2021-22 chickpea production of India was 13.75 million tonnes from an average of 10.91 million ha with a productivity 12.6 q/ha. Chickpea solely contributes nearly 50% of the Indian pulses production. The Global Chickpea market grew from $13.93 billion in 2022 to $ 14.9 billion in 2023 at a compound annual growth rate (CAGR) of 7.0%. During 2021 India's share in global Export of chickpea was 5.87% (Source: www.iipr.icar.gov.in/chickpea-crop).

To assess the effectiveness of the NFSM-pluses in Rajasthan state the chickpea crop is select for this study because India is the single largest producer of chickpea in the world and it is called as 'King of Pulses'. Chickpea solely contributes nearly 50% of the Indian pulses production. The Rajasthan state also a leading producer of pulse in India. Rajasthan state is having the first rank in the area (2463000 ha) and production (2657000 tonnes) of chickpea in India (Anonymous 2019-20). Chickpea is a legume crop s a rich source of plant-based protein, dietary fiber, vitamins and minerals, chickpeas may offer a variety of health benefits. Chickpea has a divers consumption pattern in the Indian market. The food products of chickpea includes eaten raw as a fresh vegetable (immature green grain), mature grain, flour of mature grain (besan), roasted grain, flour of roasted grain (shattu), split grain or pulse (dal), snakes (namkeens), baked products and many type of sweets from besan etc.

Chickpea is a popular legume crop among farmers due to their ability to fix nitrogen in the soil, which helps to improve soil fertility and reduce the need for synthetic fertilizers. They are typically grown as a rain-fed crop during the winter season and are harvested in the summer months. The central & state Government have started a number of rural and agricultural development programmes but the end users i.e. farmers must have the basic knowledge about the development programmes so that they may take the full use of these programmes.

Based on above facts a study on entitled "Impact of NFSM on change in knowledge level of beneficiary and non-beneficiary farmers about recommended package of practices of Chickpea in Agro-climatic Zone Ic & IIIa of Rajasthan" was carried out in Rajasthan state to know how far objectives of NFSM were achieved and what are the outcomes. Therefore, the specific objectives were framed the study on effect of NFSM.

OBJECTIVE

To know the impact of NFSM on change in knowledge level of beneficiary and non-beneficiary farmers about recommended Package of practices of chickpea

METHODOLOGY

The study was conducted in two Agro-climatic zones of the Rajasthan state *i.e.* Ic (Hyper arid partial irrigated) and zone IIIa (Semi-arid eastern plains). From these selected zones, Churu district from zone Ic and Ajmer district from zone IIIa was selected on the basis of maximum area and maximum number of NFSM-Chickpea beneficiaries. From

each selected district 2 Panchayat Samiti were selected & 3 villages from each Panchayat Samiti were selected purposively where maximum NFSM programme conducted during last years. From prepared list, 10 farmers named as Beneficiary Farmers (BFs) from each selected village were selected by using simple random sampling technique. Similarly, 10 farmers named as Non-beneficiary Farmers (NBFs) of NFSM were also selected randomly from each adjacent areas of each selected village. Thus, 120 BFs and 120 NBFs respondents were taken for the study by making a sample size of 240 respondents.

To measures the extent knowledge level of respondents, a knowledge test developed by investigator for the study. Eleven major packages of practices of chickpea production technology were included in knowledge test. Each selected practices was further divided into several questions to find out the existing knowledge of respondents about recommended package of practices of chickpea. One score was assigned to each correct answer. The responses obtained from the respondents were counted and converted into mean per cent score. The knowledge index for each respondent was calculated by using the following formula.

$$KI = \frac{K}{P} \times 100$$

Where,

KI = Knowledge index

K = Knowledge score obtained

P = Possible maximum score

To determine the extent of knowledge, mean per cent score for each sub-practice was worked out and ranked accordingly.

$$\text{Extent of knowledge} = \frac{\text{Total score obtained by respondents}}{\text{Maximum possible obtainable score}} \times 100$$

Where,

MPS = Mean per cent score

The data on a well-prepared interview schedule were collected by personal interview method by the investigator himself. The data so collected were classified, tabulated and analyzed statistically, which led to the following findings:

RESULTS AND DISCUSSION

1. **Extent of knowledge level of beneficiary and non- beneficiary farmers about recommended package of practices of chickpea**

Table1 : Distribution of beneficiary and non-beneficiary farmers according to their knowledge level of about recommended package of practices of chickpea (n=240)

Sr. No.	Category	BFs (n₁=120)		Category	NBFs (n₂=120)	
		F	**%**		**F**	**%**
1	**Low** (Below 41.67 score)	34	28.33	Low (Below 31.60 score)	39	32.50
2	**Medium** (From 41.67 to 64.18 score)	56	46.67	Medium (From 31.60 to 52.80)	48	40.00
3	**High** (Above 64.18 score)	30	25.00	High (Above 52.80 score)	33	27.50
	Mean = 52.93, SD = 11.26			Mean = 42.20, SD = 10.60		

The data in Table 1 revealed that majority of beneficiary farmers (46.67%) had medium knowledge, whereas 28.33 per cent and 25.00 per cent beneficiary farmers were having low and high knowledge level about recommended package of practices of chickpea. While in case of non-beneficiary farmers (40.00%) had medium knowledge level, whereas 32.50 per cent and 27.50 per cent non-beneficiary farmers were having low and high knowledge level about recommended package of practices of chickpea, respectively.

These results are in line with findings of Dhayal and Mehta (2018), Rajbhar *et al.* (2018), Momin *et al.* (2021) and Rajan *et al.* (2021).

2. **Practice wise knowledge level of Beneficiary & Non-beneficiary farmers about recommended package of practices of Chickpea in terms of MPS**

The knowledge level of beneficiary and non-beneficiary respondents about improved package of practices was measured in terms of MPS. As many as eleven practices were included to assess the knowledge of respondents as given in Table 2.

Table 2: Practice wise extent knowledge level of beneficiary and non-beneficiary farmers about recommended package of practices of chickpea (n=240)

Sr. No.	Package of practices	BF (n₁ = 120)		NBF (n₂ = 120)	
		MPS	**Rank**	**MPS**	**Rank**
1	**Soil treatment and field preparation**	71.20	IX	60.37	VIII
2	**High yielding varieties**	76.67	V	60.50	VII
3	**Seed treatment**	79.50	IV	59.00	IX
4	**Time of sowing**	91.53	I	74.03	I
5	**Recommended seed rate & spacing**	90.56	II	66.39	IV
6	**Manures & fertilizer application**	83.81	III	61.31	VI
7	**Irrigation management**	74.58	VI	73.75	II
8	**Weed management**	74.29	VIII	64.29	V
9	**Plant protection measures**	66.67	X	42.50	XI
10	**Physiological aspects**	59.50	XI	52.67	X
11	**Harvesting**	74.38	VII	67.71	III
	Overall	76.61		62.05	

MPS= Mean Percentage Score

* = Significant at 5% level

$r_s = 0.61$

$t = 2.30$

Incase of non-beneficiary farmers knowledge were reported with regard to practices like "Irrigation management", "Harvesting", "Weed management", "Recommended seed rate & spacing", "High yielding varieties", "Field preparation", "Seed treatment", "Manure and fertilizer application" and "Physiological aspects" with 73.25, 66.88, 66.31, 65.00, 62.25, 61.11, 59.00, 56.43 and 52.50 MPS, respectively.

An effort was also made to find out the rank order correlation between knowledge levels of both categories i.e. beneficiary and non-beneficiary farmers about recommended practices of Chickpea. The value of rank correlation (r_s) was 0.61 which shows positive correlation between beneficiary and non-beneficiary farmer's knowledge level, the significance of r_s was tested by "t" test and it was observed that "t" calculated value (2.30) was higher than its table value. This leads to conclusion that there is correlation in ranking of knowledge possessed by beneficiary and non-beneficiary farmers with respect to recommended package of practices of Chickpea.

It was concluded from the findings that mostly beneficiary famers were having high knowledge about time of sowing, recommended seed rate, seed treatment and manures & fertilizers application due to their farming experience, timely training received, social participation, regular mass media exposure & extension contact helped them to change their knowledge about Chickpea cultivation.

These findings are confirmed with the findings of Vinaya et al. (2019); Parihar and Sharma (2021); Tankodara et al. (2021); Rai et al. (2021) and Khajuria et al. (2021).

Impact of NFSM on changes in level of knowledge of beneficiary and non-beneficiary farmers about recommended package of practices of chickpea

H_0: There is no significant difference in the level of knowledge of beneficiary and non-beneficiary farmers about recommended package of practices of chickpea.

H_1: There is a significant difference in the level of knowledge of beneficiary and non-beneficiary farmers about recommended package of practices of chickpea.

Table 3: Comparison of extent of knowledge level between beneficiary and Non-beneficiary respondents about recommended package of practices of chickpea (n = 240)

Sr. No.	Package of practice	BF (n$_1$ = 120)		NBF (n$_2$ = 120)		'Z' value
		Mean	SD	Mean	SD	
1	**Soil treatment and field preparation**	6.41	1.57	5.49	1.53	4.86**
2	**High Yielding Varieties**	7.67	1.87	6.05	1.13	8.40**
3	**Seed Treatment**	3.98	0.74	2.95	0.78	10.48**
4	**Time of Sowing**	5.49	0.67	4.44	1.17	8.55**
5	**Recommended Seed Rate & spacing**	2.72	0.45	1.99	0.77	8.87**
6	**Manure & Fertilizer Application**	5.87	1.81	4.29	1.29	7.76**
7	**Irrigation Management**	2.98	0.74	2.95	0.78	0.34[NS]
8	**Weed Management**	5.20	0.86	4.50	1.26	5.04**
9	**Plant Protection Measures**	6.67	1.87	4.25	1.20	11.92**
10	**Physiological aspects**	2.98	0.74	2.63	1.22	2.63**
11	**Harvesting**	2.98	0.74	2.71	0.51	3.19**
	Overall	52.93	11.26	42.20	10.60	6.52**

*Significant at 5% level,   **Significant at 1% level of significance,   NS= Non-Significant

The comparative data related to extent level of knowledge between beneficiary and non-beneficiary farmers incorporated in Table 3 shows that calculated 'Z' value was higher than the tabulated value at 5 per cent level of significance in all package of practices of chickpea cultivation except the 'Irrigation Management'. This calls for rejection of null hypothesis and acceptance of alternative hypothesis leading to conclusion that there is significant difference in knowledge level of beneficiary and non-beneficiary respondents with regard to all practices of chickpea cultivation except the "Irrigation management" practice i.e. found Non-significant. In other words, there is no similarity between the extent

of knowledge of beneficiary and non-beneficiary farmers regarding Chickpea cultivation practices.

The higher level of knowledge among the beneficiary in comparison to non-beneficiary respondents, may be because of the reason that the NFSM demonstrations were conducted as per guideline of allotment on the fields of beneficiary farmers only by Agriculture department and they have also been provided necessary critical inputs with necessary guidance, training and printed literatures related to farming technologies time to time by the extension functionaries working in the area along with scientists and SMSs of KVKs. This might have resulted in higher level of knowledge of beneficiary farmers than that of non-beneficiary farmers.

CONCLUSION

It can be concluded that majority (46.67%) of beneficiary farmers had medium knowledge level while in case non-beneficiary farmers only 40.00 per cent majority of had medium knowledge level about recommended package of practices of chickpea. NFSM beneficiary & non-beneficiary farmers possessed maximum knowledge level with (91.53 MPS & 74.03 MPS) ranked first regarding "Time of sowing". The knowledge level of beneficiary farmers about some practices like, Plant protection measures, Weed management and Physiological aspects were less due to lack of knowledge and its proper application, complexity & risky to crop damage. The comparative data related to extent level of knowledge of both beneficiary and non-beneficiary respondents shows significance difference in all package of practices of chickpea cultivation except the 'Irrigation Management' which show positive impact of NFSM on change in knowledge level of beneficiary farmers of Chickpea.

CONFLICT OF INTEREST

All authors declare that they have no conflict of interest

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