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RESEARCH PAPER

Knowledge about national food security mission and its impact among the beneficiaries in Belagavi district

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Abstract: The present research was carried during 2019-20 to study the knowledge of farmers about the National Food Security Mission. The farmers who were the beneficiaries of the scheme were identified in consultation with RSK field functionaries, thus forming the sample size of 140 beneficiaries. The primary data about the knowledge of beneficiaries about the scheme and impact of the scheme was collected with the help of schedule developed for the study. The knowledge of the beneficiaries about the scheme and its interventions was studied under three aspects namely; general information about NFSM, subsidy under NFSM, interventions by NFSM. And crop wise impact of the scheme on farm productivity was studied. The results of the study revealed that highest percentage change in productivity was observed in case of jowar and the least change was observed lentil. Paired 't' test results showed significant difference was observed in productivity. The results further depicted that large majority of the beneficiaries had knowledge about benefits received under the scheme, crops covered under the scheme and helpfulness of the scheme. However the beneficiaries did not possess any knowledge about number of beneficiaries being selected for the farm mechanization assistance. The overall distribution of the beneficiaries based on their knowledge index indicated that the beneficiaries had highest knowledge index under the general information. Furthermore the study revealed that more than half of the beneficiaries had low overall knowledge about the scheme.

Key words: Farm productivity, Knowledge, Food security

Introduction

A major proportion of Indian population relies on agriculture for their livelihood. Despite the fact Indian economy was encountering difficulty in supplying the demanding population. Dev and Sharma (2010) indicated that 1/3rd of the population are being faced with extreme poverty. They further noted that half of the Indian children were malnourished. 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 at the beginning of 11th Five Year Plan (FYP). The mission adopted twofold strategy to bridge the demand-supply gap. First strategy was to expand area, and the second was to bridge the productivity gap between potential and existing yield of food crops.

The National Food Security Mission (NFSM) is in operation in 27 states of the country including Karnataka. National Food Security Mission-Rice (NFSM-Rice) and National Food Security Mission-Pulses (NFSM-Pulses) were implemented in Karnataka during 11th FYP that are also being continued during the 12th plan. Rice was covered in 7 districts during all the five years of 11th FYP under the NFSM programme. While Pulses were covered in 13 districts in the beginning two years of 11th Plan and later extended to entire state (30 districts). Though wheat was covered under the NFSM programme in many wheat producing states, Karnataka has not taken up any intervention for the Wheat crop as it is grown in negligible area in the state. The main objectives of the scheme are; to increase the production of rice, wheat, pulses and coarse cereals through area expansion and productivity enhancement in a sustainable manner in the identified districts of the country, restore the soil fertility and productivity at the individual farm level and to enhance the farm level economy and confidence amongst the farmers.

To achieve the above objectives, the Mission adopted following strategies as such: Focus on low productivity and high potential districts, implement cropping system centric interventions and Agro-climatic zone wise planning and cluster approach for crop productivity enhancement. The mission also concentrated on pulse production through utilization of rice fallow, rice bunds and intercropping of pulses with coarse cereals, oilseeds and commercial crops (sugarcane, cotton, jute). They adopted promotion and extension of improved technologies and close monitoring of flow of funds to ensure timely reach of interventions to the target beneficiaries. The integration of various proposed interventions and targets with the district plan of each identified district and constant monitoring and concurrent evaluation by the implementing agencies for assessing the impact of the interventions for a result oriented approach was followed.

Objectives of the study were to assess the knowledge of beneficiaries about the scheme, and to measure the impact of National Food Security Mission on farm productivity.

Material and methods

The study was carried in Belgavi district of North Karnataka purposively during 2019-20. Two taluks were selected based on the availability of the rice growing NFSM beneficiaries and from each taluk two villages were chosen and from each village 35 respondents were purposively selected. Hence the sample was 140 and the responses of the beneficiaries were expressed in frequency and percentage.

Impact of NFSM on farm productivity was studied by considering productivity of crops before and after implementation of NFSM. Area expansion in cropped area after

intervention of scheme is noted. The primary data about productivity of these enterprises were collected by using the schedule developed for the study. Data collected was subjected to statistical analysis by using 'paired t- test'.

Knowledge of farmers about the National Food Security Mission is defined as the quantum of accurate information known to the beneficiaries about the NFSM. A teacher made test as suggested by Anastasi (1961) was employed to measure the knowledge of the respondents about the scheme.

The important interventions of the programme namely seed distribution, seed minikits, field demonstration, farm mechanization, micro-nutrients and plant protection equipments, front line demonstrations were introduced under the National Food Security Mission.

For this purpose lists of 27 items was developed and each practice was administered in the form of questions to obtain the response from respondents. The items were in the form of questions with yes or no answers. The questions and answers pertaining to knowledge test were carefully designed in consultation with experts and concerned programme specialist. The answers were quantified by giving one score to positive response and zero score to the negative response. The summation of scores of the positive answers for a particular respondent indicates knowledge of the farmers about the scheme.

Knowledge score based on the knowledge index was computed with the help of following formula.

$$\text{Knowledge Index} = \frac{\text{Knowledge score obtained}}{\text{Maximum obtainable knowledge score}} \times 100$$

The respondents' categorization was done by using mean and standard deviation

Sl. No.	Category	Score range
1	Low	Below (Mean – 0.425 SD)
2	Medium	Between (Mean $\pm$ 0.425 SD)
3	High	Above (Mean + 0.425 SD)

Results and discussion

Data presented in the Table 1 indicated that as high as 47.52% change was observed in case of jowar followed by potato (17.40%), sugarcane (13.25%), soya bean (11.98%), groundnut (9.51%), vegetables (9.25%), paddy (7.99%). And the least change was observed lentil (0.72%). It implies that there is huge demand for paddy in the district and with interventions provided under the scheme it had positive and significant effect on the productivity.

Paired 't' test results depicted that significant difference was observed in productivity in sugarcane, soya bean and potato at 1 per cent level of significance. The difference was significant at five per cent level in case of paddy, groundnut, lentil, vegetables whereas, in jowar the results were non-significant.

Table 1. Crop wise impact of NFSN on farm productivity n=140

Sl. No.	Crops	Productivity (qtls/ac)		Percentage change	Paired t-value
		Before NFSM	After NFSM		
1.	Paddy(n=140)	28.38	30.65	7.99	0.067*
2.	Sugarcane(n=135)	32.90	37.26	13.25	0.008^{NS}
3.	Soya bean(n=70)	14.94	16.73	11.98	0.049*
4.	Groundnut(n=47)	19.77	21.65	9.51	0.070*
5.	Lentil(n=76)	13.99	14.09	0.72	0.837**
6.	Jowar(n=56)	3.22	4.75	47.52	3.07**
7.	Potato (n=49)	79.84	93.73	17.40	0.046*
8.	Veg (n=14)	85.18	93.06	9.25	0.058*

**-Significant at 1 per cent
*-Significant at 5 per cent
NS-Non-significant

The findings of the study are in line with the findings of Jagyanseni N. (2014). She reported that there was increase in the productivity of wheat and pulses. However in terms of acreage none of the crops had significant growth. There was positive and significant compound growth rate.

Knowledge about various aspects of the programme was worked out and results were presented in Table 2.

I. General information about NFSM

Majority of the beneficiaries had the knowledge about helpfulness of the programme and benefits received under the scheme (84.57%), crops covered under the programme (73.57%) and commercial crops (68.57%). Whereas, 40.00 per cent of the beneficiaries had knowledge about the criteria for the selection of beneficiaries under the programme. Very few of the beneficiaries had knowledge about the start of the year of the programme. The results also reveal that 47 per cent of the beneficiaries had knowledge about the main purpose of the scheme. Almost equal number of beneficiaries had knowledge of type of assistance provided under the scheme and the purpose of organization of on farm trails.

From the above findings it is clear that the majority of the beneficiaries had the knowledge about the crops covered under the scheme and assistance by the scheme. This may due to the fact that many of the individuals had the contact with the RSKs and agricultural officers.

II. Subsidy given under NFSM

Further analysis of the table showed that about 62 per cent of the beneficiaries had knowledge of subsidy for nutrient management. About 11 per cent of the beneficiaries had knowledge about the costs provided for rice hybrids, and the financial assistance for plant protection measures, while 6.43 per cent of beneficiaries knew about financial assistance for the beneficiaries of 2 ha land followed by cost provided for pulses (3.57%). The beneficiaries did not possess any knowledge about number of beneficiaries being selected for farm mechanization assistance.

It clearly implies that the beneficiaries did not have knowledge about the subsidies provided under the scheme. This might be due to the reason that the subsidy component

Table 2. Distribution of beneficiaries with respect to knowledge about the scheme n=140

Aspects of NFSM	Frequency	%
I General information about NFSM		
Year of start of the programme	2	1.42
Crops covered under the scheme	103	73.57
Commercial crops	96	68.57
Criteria for selection of beneficiaries	56	40.00
Helpfulness of the programme	90	64.28
Benefits received	118	84.28
Main purpose of the scheme	66	47.13
Assistance by the scheme	40	28.57
Organization of on-farm trails	38	27.14
II Subsidy under NFSM		
Rice hybrids	16	11.43
Pulses	5	3.57
Nutrient management	87	62.14
Financial assistance provided for plant protection measures	16	11.43
Financial assistance provided for beneficiaries of 2 ha land	9	6.43
III Interventions by NFSM		
Demonstrations conducted for cereals	46	32.86
Demonstrations conducted for commercial crops	36	25.71
Distribution of certified seeds	56	40.00
Seed production activity	7	5.00
Distribution of micronutrients, Integrated Nutrient Management, Integrated Pest Management.	64	45.71
Promotion of usage farm machineries	43	30.71
Training activities	33	23.57
Stipend is provided per training	17	12.14
Intervention under the scheme for commercial crops	22	15.71
IRM (Insecticide Resistant Management), advisory services and crop wise services provided	13	9.29

%=percentage

under the NFSM is very vast and the subsidies provided under the scheme vary according to the crops and because of this it is difficult for the beneficiaries to know about all the aspects of the subsidies given under NFSM.

III. Interventions

The results indicated that about 46 per cent of the beneficiaries had knowledge about the distribution of micronutrients, integrated nutrient management and integrated pest management, followed by distribution of certified seeds by the scheme. It was also observed nearly 31 per cent of beneficiaries knew about promotion of usage of the farm machineries.

The extent of knowledge about the training activities under the scheme was noted among 23.57 per cent of the beneficiaries and 12.14 per cent of the beneficiaries had the knowledge about stipend provided for the training.

Furthermore the results revealed that only nearly one fourth of the beneficiaries had knowledge about the interventions under the scheme for commercial crops. About nine per cent of the beneficiaries had knowledge about the IRM (Insecticide Resistant Management), advisory services and crop wise services provided under the scheme. Only five per cent of the beneficiaries knew about the seed production activity.

This might be due to the reason that many beneficiaries did not attend any training programs or demonstration activities, or meetings carried out by NFSM. It is important to educate the beneficiaries about the benefits of the interventions carried under the scheme.

Distribution of knowledge of beneficiaries about overall components of the scheme is presented in the Table 3.

From the table it is clear that more than half of the beneficiaries had low knowledge about the scheme. And almost equal number of beneficiaries had medium and high knowledge about the scheme. Hence the Department of Agriculture should organize different extension activities for the beneficiaries for the better knowledge and utilization of the benefits of the scheme.

The findings were in line with the findings of study carried by Vikram Singh (2017). He reported that the majority of the beneficiaries belonged to low knowledge group.

To determine the relationship of selected independent variables with the dependent variable, the correlation analysis was worked out and the results are presented in the Table 4.

Table 3. Distribution of beneficiaries with respect to overall knowledge about NFSM n=140

Category	Frequency	Percentage
Low (< 17.23)	74	52.86
Medium(17.23 – 35.45)	34	24.28
High (> 35.45)	32	22.86
Mean: 26.34	SD: 21.43	

Table 4. Relationship between independent variables and knowledge of the beneficiaries about NFSM n=140

Independent Variables	'r' Value
Age	-0.827**
Education	0.503**
Land holding	0.009^{NS}
Extension contact	0.328*
Social participation	0.131*
Mass media exposure	0.529**
Cropping pattern	0.034^{NS}
Extension participation	0.497**

Multiple regression analysis was carried out to ascertain the extent of contribution made by the independent variables, and to identify the variables which contributed significantly towards the variation in knowledge of the beneficiaries. The analysis is presented in Table 6.

About 73.00 per cent of the variation in knowledge of beneficiaries was explained by all the independent variables selected for the study. Further from the analysis the social participation, extension participation (1.00%), land holding and cropping pattern at (5.00%) contributed significantly towards

Table 5. Relationship between independent variables and farm productivity n=140

Variables	Crops						
	Paddy	Sugarcane	Soya bean	Jowar	Lentil	Groundnut	Potato
Land holding	0.340*	0.359*	0.196*	0.021^{NS}	0.106*	0.361*	0.116*
Extension contact	0.221*	0.618**	0.692**	0.772**	0.080^{NS}	0.174*	0.058^{NS}
Social participation	0.630**	0.582**	0.025^{NS}	0.497**	0.541**	0.139*	0.178*
Mass media exposure	0.918*	0.720**	0.154*	0.732**	0.141*	0.178*	0.181*
Cropping intensity	0.005^{NS}	0.0036^{NS}	0.199*	0.182*	0.119*	0.275*	0.152*
Extension participation	0.98**	0.88**	0.382*	0.196*	0.110*	0.224*	0.872**

**-Significant at 1 per cent *-Significant at 5 per cent NS–Non-significant

The table showed that the education, mass media exposure and extension participation were positive and significantly related to knowledge. Age had negative but significant relationship with knowledge of beneficiaries. It implies that the older beneficiaries did not have enough knowledge about the scheme. As age advances the enthusiasm and eagerness will be reduced..Whereas the land holding and cropping pattern were found to be non-significant. The extension contact and social participation were found to have positive and were significant at 5 per cent level of significance. This might be due to the fact that SHGs, Gram sabha, zilla panchayat, farmers union, taluk panchayat and youth clubs were working at the grass root level and were providing the beneficiaries with the necessary help.

The findings are in line with the findings of Ramdhan G. (2014). He reported that the age, social participation and extension contact had positive and significant effect on the knowledge of the beneficiaries. Whereas education and extension participation were found to be highly significant.

Table 5 shows the relation of the independent variables with the farm productivity. From the table it is clear that land holding had positive and significant effect on the farm productivity in all crops except for jowar. The extension contact had positive and highly significant effect in case of sugarcane and soyabean productivity. Whereas it was found to be significant at 5 per cent level in case of paddy and groundnut. And the results were insignificant in lentil and potato. Social participation was found significant in all crops except soya bean. Mass media exposure and extension participation were significant in all the crops. Whereas the effect of cropping intensity was significant in all the crops except in paddy and sugarcane the results were insignificant.

Table 6. Multiple Linear Regression of independent variable with knowledge of the beneficiaries about NFSM scheme n=140

Independent variables	Regression coefficient	Standard error	't' Value
Age	-6.71	0.73	-9.22*
Education	10.27	6.13	1.68**
Land holding	1.22	1.70	0.72**
Extension contact	6.49	3.32	0.96**
Social participation	8.84	3.26	0.31*
Mass media exposure	1.93	3.85	0.59**
Cropping pattern	0.17	0.20	0.24*
Extension participation	7.83	2.88	2.72**

$R^2 = 0.73$ F = 44.85**

the variation in knowledge of beneficiaries. The F value of 44.85 at five per cent level of significance indicates that all the independent variables summed together exert significant influence on the knowledge of beneficiaries.

Conclusion

The results of the study revealed that highest percentage change in productivity was observed in case of jowar and the least change was observed lentil. Paired 't' test results showed significant difference was observed in productivity. The results further depicted that large majority of the beneficiaries had knowledge about benefits received under the scheme, crops covered under the scheme and helpfulness of the scheme. However the beneficiaries did not possess any knowledge about number of beneficiaries being selected for the farm mechanization assistance. The overall distribution of the beneficiaries based on their knowledge index indicated that the beneficiaries had highest knowledge index under the general information. Furthermore the study revealed that more than half of the beneficiaries had low overall knowledge about the scheme.

References

Agustine R, Widi T S M and Putra A R S, 2019, Evaluation of farmer knowledge level on artificial insemination program and cow's pregnancy in Central Java and Yogyakarta Provinces, *IOP Conf. Series: Earth and Environmental Science,* 387/1/012088.

Ahmed A T and Tadeusz F, 2016, The knowledge level of farmers towards agricultural extension in Lublin province-Poland, *International Journal of Agricultural Extension and Rural Development Studies,* 3(1): 21-29.

Akash N V, Luqman M, Xu S, Yu W, Zeeshan M M, 2017, Farmer field school's training on knowledge level of citrus growers regarding improved production practices, *Ciência Rural, Santa Maria*, v. 47: 10

Anastasi A, 1961, *Psychological Testing*. The McMillan Co., New York.

Anupam J, Mahesh C, Sushil K S, 2019, Knowledge test development for dairy Farmers to measure Knowledge level about scientific Dairy Farming Practices. *Indian Journal of Veterinary Sciences and Biotechnology,* 14(4): 67-71.

David S, and Chirstopher A, 2011, Farmer knowledge as an early indicator of IPM adoption: a case study from cocoa farmer field schools in Ghana, *Journal of Sustainable Development in Africa*, 13(4)

Jagyanseni Nayak, 2014, Impact assessment of National Food Security Mission among small and marginal farmers of Uttar Pradesh, *M.Sc. (Agri.) Thesis,* IARI, New Delhi.

Ramdhan Ghaswa, 2018, Impact of National Food Security Mission with Special Reference to Recommended Pulse Interventions in Bikaner District of Rajasthan, *Ph.D Thesis, Dept. Ext. Edu*. College of Agriculture Swami Keshwanand Rajasthan Agril. Univ. Bikaner.

Vikram Singh, 2017, A study on impact of National Food Security Mission on productivity and income among the chickpea beneficiaries in Bemetara and Mungeli district of Chhattisgarh, *M.Sc. (Agri), Thesis*, Indira Gandhi Krishi Vishwavidyalaya, Raipur.