Research Note

Indian Journal of Extension Education
Vol. 59, No. 1 (January–March), 2023, (158-161)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Knowledge of Farmers About Farm Pond Covered Under Krishi Bhagya Yojane in Karnataka

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ARTICLE INFO

Keywords: Krishi Bhagya Yojane, Farm Pond, Knowledge, Farmers, Rainfall

http://doi.org/10.48165/IJEE.2023.59134

Conflict of Interest: None

ABSTRACT

The study was undertaken in Shivamogga and Uttara Kannada districts of Karnataka on 80 farmers during 2020-21 to assess the farmers' knowledge about farm ponds as part of the Krishi Bhagya Yojane (KBY). The primary data on farmers' knowledge about farm ponds under Krishi Bhagya Yojane was acquired by employing schedule developed for it. All the farmers had knowledge of KBY as a 'scheme for storing runoff water', 'funded by Government of Karnataka' and 'Raitha Samparka Kendra as contact office'. Large majority the farmers (98.75%) had knowledge about 'farm pond, polythene sheet, diesel engine and sprinkler set components' and 86.25 per cent of farmers had knowledge about 'polythene sheet to prevent percolation'. 97.50% of farmers had knowledge about 'subsidy given for all the farmers' and majority of farmers (87.50%) had knowledge about subsidy given for 'dugout of farm pond. Knowledge was positively significant with education, economic motivation and area under commercial agriculture, extension contact, mass media exposure, cropping intensity and area under irrigation. 48.70 per cent of variation in knowledge was explained by all the independent variables selected for the study.

INTRODUCTION

The majority of India's population lives in villages, and more than half of them rely on agriculture directly or indirectly, with water scarcity being one of the most serious challenges to cultivation (Deshmukh, 2016). Rainfed agriculture accounts for 55 per cent of the net area sown as the yearly rainfall ranges from 400 mm to more than 1200 mm, depending on location and time (Mallapur, 2018).

The occurrence of high intensity rainfall events in low to medium rainfall rain-fed locations is relatively low, i.e., only for a brief period of time. As a result, rain water management is required to boost water efficiency (Arya et al., 2020). Since the initial era of independence, chances of upscaling the existing conditions of rural farming sections have been attempted in order to provide a solution that allows rain-fed cultivation to progress toward sustainable farming (Shoba et al., 2018). Karnataka is important from an agricultural standpoint, possessing a rich arable area amounting to 19 million hectares from which 15 million hectares are rainfed based cultivation. To counter the adverse effects of drought prone regions as well as enhancing farming livelihood, strong emphasis must be placed on water usage in strategic and efficient manner through the ventures of water-harvesting (Rathod, 2014). The system of harvesting additional runoff water emerging from the rainwaters in dugout ponds followed by recycling via sprinkler or drip irrigation to yield supplementary irrigation to crops sown in kharif or pre-Rabi seasons has been validated to be most beneficial monsoon mitigation technology (Yadav et al., 2020). The knowledge levels of agro-ecological principles and hydrological cycle among the majority of farmers is very high and on the basis of *high consensus with high importance*, there is a need for synergy between surface and

Received 02-12-2022; Accepted 20-12-2022

aquifer storage to attain sustainable water policy and practices in sustainable manner (Gupta et al, 2021). The assignments are about amassing runoff water from the farm field and then store it for irrigation in dry spell (Oraon et al., 2020). Accompanied by this notion, the state government of Karnataka launched the forerunner initiative, "Krishi Bhagya Yojane" (KBY), as a critical stride toward establishing state's rainfed farmers' sustainability. On 14 February 2014, the KBY was introduced in five key dry land zones comprising 23 districts. The fundamental goal is to utilize the harvested waters in farm ponds towards irrigation of rainfed crops through sprayers system along with polyethylene sheets thus checking losses in farm ponds due to percolation (Hyalij, 2017). In 2014-15, it was determined to implement on 9 lakh hectares of land in order to boost agricultural output and farmer revenue. The fundamental goal of the technique is to use harvested water in farm ponds to offer lifesaving protective irrigation for rain-fed crops via spray irrigation system; polyethylene sheets are given to reduce water percolation losses in farm ponds.

METHODOLOGY

The research was conducted in Shivamogga and Uttara Kannada districts of the state of Karnataka during 2020-21. Two talukas in each district were chosen depending on the population of agricultural pond beneficiaries. 10 farmers whose landholding was less than 5 acres and 10 farmers whose landholding was equal to or more than 5 acres were selected. The total sample size was 80 respondents selected using purposive random sampling approach. Their responses were given in terms of frequency and percentage.

Farmers' knowledge of farm ponds and their components under KBY was defined as the amount of accurate information known to the beneficiaries regarding the KBY (Sab, 2018). Shoba et al., (2018), assess respondents' knowledge of agricultural ponds and their components under KBY. For this objective, 23 item lists were created, and each practise was presented in the form of questions to elicit responses from responders. The questions had multiple choice responses and covered various parts of the farm pond and KBY. Scoring was conducted by allotting '1' to each correct answer and '0' for each wrong answer. The aggregate of the correct answer scores for a specific farmer demonstrates the farmers' knowledge about the farm pond and its components under KBY. The standard formula was used to compute the knowledge score based on the knowledge index.

$$\text{Knowledge index (\%)} = \frac{\text{Knowledge score obtained}}{\text{Maximum obtainable knowledge score}} \times 100$$

The variables selected were found to be worthy of concern for the investigation based on the substantial review of literature under the supervision of expert's consultance and guidance. Correlation analysis was used to measure the association of independent variables to knowledge of farmers towards KBY followed by linear regression analysis to determine respective benefaction of the chosen independent variables and their cumulative effect on knowledge of farmers towards KBY scheme.

RESULTS AND DISCUSSION

Extent of knowledge of farmer about farm ponds and its components under KBY

The results of Table 1 revealed that all the farmers had full knowledge on components like 'scheme for storing runoff water', 'funded by Government of Karnataka', 'coverage is entire Karnataka', 'beneficiaries are all farmers', 'RSK is the contact office' under "General aspect of the scheme" where in "Components under KBY" large majority of farmers (98.75%) had knowledge about 'farm pond, polythene sheet, diesel engine and sprinkler set' followed by a smaller number of the farmers (35.00%) had knowledge about 'Thickness of the polythene sheet is 300 microns. It further revealed under "Subsidy given under KBY" component, large majority (97.50%) of farmers had knowledge about 'subsidy given for all the farmers' similarly all the farmers (100.00%) had knowledge about 'lowest portion of farm area is suitable for farm pond construction' under "Design and dimension" component and all the farmers had cent per cent knowledge about 'storing runoff water is the main purpose', 'farm pond utilization is for protective irrigation, drinking water for animals' under components "Storage and utilization". Desai (2007); Deshmukh (2016) and Rao et al., (2017) conducted a study in Dharwad, Marathwada and Anantapur found that majority of farmers (91.45%) had knowledge about farm pond, majority (95.80%) of farmers had knowledge about subsidy given to farmer and smaller number of farmers had knowledge on thickness of polythene sheet respectively, which were quite analogous to this study. The data on knowledge index of farmers implies that farmers are aware about physical structures and less about Government subsidies. They were giving more priority to get farm ponds where they are less concerned about other components such as irrigation set, polythene sheet, etc. Shwetha (2009) in Dharwad & Nagendra (2015) in Guntur found that knowledge index of farmers of "general aspects of the scheme" (91.12%) and "subsidy given under KBY" (70.90 %) respectively, these discoveries of the investigation were quite analogous to this study.

Association and contribution of independent variables to knowledge of farmers towards KBY

The Knowledge was positively significant with education, trainings undergone, economic motivation and area under commercial agriculture of the farmers at one per cent level of significance whereas extension contact, mass media exposure, cropping intensity and area under irrigation were positively significant at five per cent level. Training and economic motivation acts as a driving force for an individual affecting its behavior by molding the surrounding environment leading towards the path of achieving incremental earnings. By virtue of poor economic condition of farmers, they were unable to construct farm pond structures. Hence, they took benefit of scheme. This made them to express good knowledge about the scheme. Similarly, the farmers having large area under commercial crops are stepping forward to take benefits of Government schemes and they had good knowledge about the schemes. Farmers growing commercial crop indicate their

Table 1. Extent of knowledge of farmers about farm pond and its components under KBY

S.No.	Statements	Percentage	Knowledge index
I	General aspect of the scheme		
1.	Start of the year	78.75	94.00
2.	Funded by Government of Karnataka	100.00	
3.	All regions of Karnataka are covered	100.00	
4.	All the farmers are beneficiaries	100.00	
5.	Raitha Samparka Kendra is the contact office	100.00	
6.	Goal is to conserve the rain water and use for protective irrigation	97.50	
7.	Scheme for storing runoff rain water	100.00	
II	Components under KBY		
1.	Farm pond, polythene sheet, diesel engine and sprinkler set	98.75	77.00
2.	The diesel engine of 5HP	83.75	
3.	Irrigation set for 1.5 Ha	81.25	
4.	Thickness of polythene sheet is 300 microns	35.00	
5.	Polythene sheet is to prevent percolation	86.25	
III	Subsidy given under KBY		
1.	All the farmers	97.50	70.50
2.	Construction of farm pond (General- 80%: SC/ST- 90%)	87.50	
3.	Diesel engine (General- 50%: SC/ST- 90%)	72.50	
4.	Sprinkler set (General- 90%: SC/ST-90%)	66.25	
5.	Polythene sheet (General- 80%: SC/ST-90%)	42.50	
IV	Design and dimension		
1.	The maximum size of farm pond is 21×21×3 meters	61.25	82.18
2.	Lowest portion of farm area is suitable for farm pond construction	100.00	
3.	Capacity, shape and dimension are criterions of farm pond construction	88.75	
4.	Rain fall, drainage and infiltration capacity are criterions for selection of site	78.75	
V	Storage and utilization		
1.	Storing runoff water is the main purpose	100.00	100.00
	Farm pond utilization is for - protective irrigation, drinking water for animals	100.00	
	Overall		84.75

Table 2. Association and contribution of independent variables to knowledge of farmers towards KBY

S.No.	Independent Variables	'r' Value	Regression coefficient	Standard error	't' Value
1	Age	-0.103^{NS}	-0.005	0.015	-0.370^{NS}
2	Education	0.227**	0.184	0.131	1.401*
3	Size of the Land holding	0.048^{NS}	0.001	0.020	0.061^{NS}
4	Extension contact	0.097*	0.065	0.033	1.964*
5	Social participation	0.191^{NS}	0.035	0.069	0.504^{NS}
6	Mass media exposure	0.122*	0.033	0.092	0.355^{NS}
7	Trainings undergone	0.559**	0.892	0.123	0.980**
8	Economic motivation	0.530**	0.047	0.023	0.958**
9	Cropping intensity	0.193*	0.071	0.073	0.871**
10	Area under commercial agriculture	0.600**	0.825	0.105	0.886*
11	Area under irrigation	0.164*	0.427	0.202	2.120*

R^2 = 0.887, F = 8.654**, ** - Significant at 1 per cent, * - Significant at 5 per cent ^{NS} - Non-significant

aspirations to high economic returns. The commercial crops growing farmers require more water for their crops hence they adopted farm pond and this may be reason behind knowledge about farm pond and its components under KBY.

All of the studied independent variables contributed towards causing variations in the knowledge of the farmers by the margin of 88% and the F-value at 8.654 to be significant at 1 per cent level of significance validates these contributions made by the variables. It is inferred that trainings undergone, economic motivation and cropping intensity contributed significantly towards the variation in knowledge of the farmers. Hence, these three variables could be considered as the predictors of variation in the knowledge of the farmers about farm pond and its components under KBY. The results are similar with those reported by Shoba et al., (2018) & Sidram (2020).

CONCLUSION

The variables viz. trainings undergone, economic motivation, cropping intensity had greatest impact on knowledge of farmer about farm pond under KBY. Hence efforts need to be concentrated towards

strengthening them by providing suitable educational programmes. Department should initiate awareness campaign on subsidy availability on "Polythene sheet", "Sprinkler set" under KBY among beneficiaries. Farm ponds were used for protective irrigation at limited scale; the department should provide proper guidelines and also form farm pond user groups to educate on effective use of farm pond to enhance cropping intensity and productivity. The findings of the investigation can be useful towards policy formulation for better implementation of the concerned programme. Further investigation can be carried out for the scheme implemented in other target areas covered under the concerned scheme.

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