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Knowledge of organic farming standard practices by paddy farmers

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Abstract

Organic rice farming focuses on sustainability, protecting the environment and improving soil health, offering a better alternative to traditional farming. This study looks at how much farmers and researchers know about organic rice practices. Conducted in 2023–24 in two tehsils of Pune district, it involved interviewing 120 organic rice farmers. Data were collected to address specific goals and analyzed statistically. From the study we finding out the findings in which more than two-fifth (46.67 per cent) of the respondent are belong to medium knowledge about organic paddy cultivation. Through the study we considering the some major statement such as, near about four-fifth (80.00 per cent) of the farmers have knowledge of various government schemes aimed at supporting organic farming, like PM PRANAM and Paramparagat Krishi Vikas Yojana. Close to three-fourths (77.50 per cent) respondent are familiar with storage techniques like using dried leaves from the Bael tree and raw garlic extract. About 73.33 per cent of the respondent are aware of natural farming preparations like NSKE extract, Dashparni, Jivamrut, and Bijamrut, based on their level of knowledge. About 72.50 per cent of them also know about the e-NAM scheme, which is backed by the central government to promote inter-state marketing and cut out middlemen from the market chain. Additionally, 70.00 per cent of the respondent of those surveyed recognize that organic farming practices can lead to increased employment rates within their community. The study highlights key topics such as organic certification, meeting international standard and using organic materials like green manure, farmyard manure and biofertilizers effectively. It explores farmers' knowledge of crop rotation, pest management and weed control, which are essential for organic rice farming. The study also uses examples from around the world to show how traditional and modern methods can help improve rice yields. Results reveal that while some farmers understand nutrient cycling and soil health, others lack knowledge, especially about using organic materials to increase soil organic matter and store carbon. The role of microorganisms in improving nutrients and controlling diseases is also not well understood. Additionally, the cost of organic farming and limited market opportunities make it harder for more farmers to adopt these practices. This study suggests improving farmer education through training programs, demonstration farms, and hands-on learning. It calls for government policies to support organic certification and provide financial help to farmers switching to organic methods. Better teamwork between researchers, policymakers and farmers is key to making organic rice farming more successful. Organic rice farming can improve food security, protect the environment and boost rural livelihoods. Closing knowledge gaps and following organic standards can make organic rice more competitive globally while keeping ecosystems healthy.

Keywords: Knowledge, organic farming

Introduction

The Pune district had 14 Tehsils, out of which 2 tehsils namely Maval and Ambegaon were selected purposively because the majority of farmers practicing organic paddy farming in these tehsils. The selection of organic farmers of the selected two tehsils taken randomly. From each selected tehsil, 60 farmers are selected who are practicing organic rice. In this way a total of 120 respondents were considered for the present study.

Results and Discussion

It is observed from table 1 that about more than two-fifth (46.67 per cent) of the respondent are belong to medium knowledge about organic paddy cultivation, followed by high 28.33 per cent and about one-fourth (25.00 per cent) low level of knowledge respectively. These findings strongly supported by Patel *et al*. (2017) [3] and Chetan (2019) [4].

Table 1: Distribution of respondents according to their overall level of knowledge pertaining to organic farming practices in paddy cultivation

Sr.no	Category	Score	Respondent (N=120)	
			Frequency	Percentage
1	Low	Up to 30	30	25.00
2	Medium	31 to 32	56	46.67
3	High	33 and above	34	28.33
	Total		120	100.00

Table 2: Level of knowledge about organic farming practices by the selected organic paddy farmers

Sr.no	Organic farming practices	Yes	No
1	Summer deep ploughing	77 (64.17)	43 (35.83)
2	For yield enhancement use of FYM, Compost, green manuring, vermi-compost	74 (61.67)	46 (38.33)
3	Bio-insecticide, bio-herbicide, bio-fertilizer, Green manuring crop	66 (55.00)	54 (45.00)
4	To avoid infected seed, sow seed in 25 per cent brine solution.	77 (64.17)	43 (35.83)
5	NSKE, Dash-parni ark, Jiva- amrut, Bija- amrut	72 (60.00)	48 (40.00)
6	Rice straw ash or Bhatur-1 used at nursery stage	88 (73.33)	32 (26.67)
7	For reduce the cost, transplanting spacing at 25 seedling/m^2	81 (67.50)	39 (32.50)
8	After harvesting, immediately plough land to avoid egg and pupa inside the soil	84 (70.00)	36 (30.00)
9	After deep ploughing, destruction of eggs and pupa of insect	78 (65.00)	42 (35.00)
10	Use of traditional method for Storage pest	93 (77.50)	27 (22.50)
Awareness of other activities in organic rice cultivation			
11	Bio-fertilizer are cheaper than Chemical fertilizer	79 (65.83)	41 (34.17)
12	Bio- fertilizer are available for longer period, so that they are used for next crop.	80 (66.67)	40 (33.33)
13	Authentic source of organic inputs	77 (64.17)	43 (35.83)
14	By Organic cultivation, reduce the harmful effect of toxic substance on soil health and human health.	78 (65.00)	42 (35.00)
15	Increase the employment rate in the rural areas.	90 (75.00)	30 (25.00)
16	Taking benefits from different Government schemes.	96 (80.00)	24 (20.00)
17	Awareness about different organic certification agencies and its working process.	79 (65.83)	41 (34.17)
18	Demand and availability of organic rice on e-NAM platform.	87(72.50)	33 (27.50)

Frequency (per centage)

Most (64.17 per cent) organic paddy growers are familiar with organic farming methods, including deep summer ploughing during the fallow season. To boost the yield of their organic crops, they utilize farmyard manure (FYM) and compost. Approximately 61.67 per cent of these farmers have a good understanding of how to apply these organic fertilizers, which plays a crucial role in preserving soil health and promoting soil microbial activity. Around 55.00 per cent of respondents possess knowledge about various biological inputs, including bio-herbicides (such as Bipolaris, Dipel and Collego), bio-insecticides (like NSKE and raw garlic extract) and bio-fertilizers (like *Trichograma*, *Rhizobium*, *Azotobacter*, *Azospirillum*, and blue-green algae).

About three-fifth (60.00 per cent) farmers understand the practice of using a 25 per cent brine solution to treat seeds, which aids in removing damaged seeds and boosts germination rates. Additionally, 73.33 per cent are aware of natural farming preparations like NSKE extract, Dashparni, Jivamrut, and Bijamrut, based on their level of knowledge. Furthermore, 67.50 per cent know about the practice of applying rice straw ash or Bhatura-1 at the nursery stage to enhance silicon levels in seedlings, helping them resist rice stem borer attacks. A significant number of farmers 65.00 per cent are aware of the transplanting technique, which involves planting 25 seedlings per square meter—a method that reduces the overall cost of transplanting. Regarding Integrated Pest Management (IPM), around 65.00 per cent of farmers know about strategies such as light traps, pheromone traps, removing insect eggs and pupae, and adopting cultural, mechanical, and biological methods. Close to three-fourths 77.50 per cent are familiar with storage techniques like using dried leaves from the Bael tree and raw garlic extract. Additionally, most farmers 65.83 per cent understand that biological inputs are more affordable than chemical fertilizers and have a longer period of effectiveness, which is beneficial for the next crop.

Approximately 66.60 per cent of organic paddy growers are informed about this fact. Moreover, 70.00 per cent of those surveyed recognize that organic farming practices can lead to increased employment rates within their community. Close to 80.00 per cent of the farmers have knowledge of various government schemes aimed at supporting organic farming, like PM PRANAM and Paramparagat Krishi Vikas Yojana. However, about 65.83 per cent of the respondents are aware of the role of organic certification agencies, including India Market, the Participatory Guarantee Scheme (PGS), and APEDA under the NPOP project, in marketing organic products.

Table 3: Distribution of respondents according to Relationship between personal characteristics of farmer with Knowledge and Adoption

Sl.no	Independent variable	Dependent variable	
		Knowledge	Adoption
1	Age	-0.085 ^{NS}	-0.071 ^{NS}
2	Education	0.347**	0.209*
3	Family size	-0.164^{NS}	0.158^{NS}
4	Occupation	0.196*	0.200*
5	Experience in organic farming	0.485*	-0.374*
6	Social Participation	0.661**	0.600**
7	Land holding	-0.164 ^{NS}	-0.004^{NS}
8	Annual income	0.215*	-0.275*
9	Market orientation	0.219*	0.198*
10	Risk orientation	0.208*	0.215*

** Significant at 0.01 level of probability
NS= Non-significant
* Significant at 0.05 level of probability

Positive and highly significant correlations with both knowledge and adoption are seen for education and social participation, likely due to better access to information and peer support. Positively and significant correlations with knowledge and adoption with occupation, experience in organic farming, Annual income, Market orientation and Risk orientation and market orientation as these traits encourage farmers to adopt new practices. Age, family size and land holding show non-significant correlations, indicating these factors do not have strong influences on knowledge or adoption of organic farming.

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