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Knowledge level of farmers about organic farming practices

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Abstract

Organic farming is the age old farming system being followed all over the world. The present study was carried out to assess the knowledge level of organic farming in Haveri district. A sample consisting of 160 certified organic farmers (80 men & 80 women) were interviewed through personal interview method. The finding indicated that, majority of the men (88.75 %) & women (90.00 %) had medium level of knowledge. The overall knowledge indices of men (55.10) & women (51.66) which indicated moderate knowledge level of the respondents about organic farming practices. Education, landholding, annual income and livestock possession of men showed significant difference and with respect to women only age and education were positively and significantly related to the knowledge level. They still lack in proper & complete knowledge of organic farming, hence on-campus training programmes, demonstrations & field days can help the farmers in order to practice profitable organic farming.

Keywords: Knowledge, organic farming, livestock, on-campus trainings, demonstrations, field days *etc.*

Introduction

Agriculture in India started from Indus valley civilization era and even before that some parts of Southern India. According to recent statistics, India ranks second in the world in overall farm output. But, the economic contribution of agriculture in India's GDP is steadily declining. Even then, agriculture remains the largest economic sector of the country and plays a significant role in its overall socio-economic development. Therefore development of the country depends on the agricultural development where both men and women shoulder the responsibility of farm work. Farm by-products mainly contribute to the organic farming.

Organic farming is a holistic production management system which favours maximum use of organic materials (crop residues, animal excreta, on and off farm organic wastes, growth regulators, biopesticides *etc.*) and discourages use of synthetically produced agro inputs, for maintaining soil productivity, fertility and pest management under conditions of sustainable natural resources and healthy environment. Organic agriculture is not new to Indians and has been in practice since ancient times. It is dynamic interaction between the soil, the plants, the ecosystem and the environment which primarily aimed at cultivating land and raising crops in such a way as to keep the soil alive and in good health by use of organic waste *i.e.*, crop, animal and farm waste and other biological material along with beneficial microbes. Organic farming offers safe and fresh products without the use of synthetic fertilizers and pesticides (Dalavi, 2010) [3].

Major components of organic farming include organic manures, organic/ biological weed, disease and pest control measures (Integrated pest management, Integrated disease management *etc.*). Organic manures can be the materials such as slurry remains from biogas plant, Farm Yard Manure (FYM), vermicompost, agricultural wastes, green manure, *panchagavya*, *jeevamrut*, *beejamrut*, *sasyamrut*, *amrutpani* *etc.*, The use of these organic manures helps in maintaining the biological balance as well as increases the water holding capacity, physical, chemical and micro biological properties of soil. The weed, disease and pest control measures include the ecto-parasites which comprise of insects like *Trichoderma viridae*, *Bacillus subtilis*, *Trichogramma*, *Lady bird beetle* *etc.*, microbes like *Nuclear Polyhedrosis Virus (NPV)*, *Bacillus thuringiensis (Bt)*, *Nomuraea rileyi*, *protozoans* *etc.*, and pesticides and weedicides of plant origin like *Tobacco*, *Neem*, *Pongamia pinnata (L.)* *etc.*,

Looking to importance of organic farming in farmer's economy the development agencies have come forward for development of organic farming on farmer's fields. In spite of all efforts, there seems to be wide gap between organic farming technology. So, it was thought important to study and compare the level of knowledge of both men and women in organic farming practices.

Materials and Methods

This study was carried out during the year 2017-18 in Haveri district. Since Haveri is one of the pioneer districts to implement the then State Government scheme, "Savayava Bhagya". The Ex-post facto research design was followed to explore the gender wise knowledge about organic farming practices. The total number of samples selected for the investigation were 160 certified organic farmers (80 men and 80 women). The certified organic farmers were selected from four taluks (Haveri, Byadgi, Ranibennur and Hirekerur) of Haveri district. These taluks were selected as there was more number of certified organic farmers in the taluka jurisdiction according to the records of Agricultural department Haveri. In each taluk, two villages were selected. In total 8 villages were finalized as study area and 10 men and 10 women respondents from each village were selected as respondents.

Statements on knowledge about the improved organic farming practices were formulated by referring the package of practice book released by the University of Agricultural Sciences, Dharwad and the experts in the organic farming field. The questions were pre-tested in a non-sample area. Considering the findings of the pilot study, 48 questions to test the knowledge level were finalized for the further study. The data was collected personally with the help of pre-structured interview schedule. A score of one was given to the correct answer and zero to the wrong answer. So, the minimum and maximum scores ranged between 0-48. Further, data collected were statistically analyzed with the help of frequency, percentages, indices, co-relation co-efficient and z-test.

Results and Discussion

Knowledge level of the respondents about organic farming

Knowledge is pre-requisite to the adoption of an innovation. The final decision of farmers to use a new practice is usually the result of their knowledge of the practice and attitude.

Table 1 revealed that, cent per cent of both men and women had knowledge that organic farming considerably decreases the expenses on crop production and about preparation and use of vermin-compost and of farm yard manure, methods of organic pest control, proper selection of good varieties, enemies of earthworms and organic grain storage.

In case of trap crops, almost (98.75 %) men and (91.25 %) women knew the names followed by great majority (95.00 %) men and (87.50 %) women knew about the increase in crop yields after implementation of organic farming, equal number of men and women respondents knew that raw materials for preparing compost are available at farm and processed products have higher demand in the market, men (95.00 %) and women (88.75 %) knew the products grown organically fetch more price. It was also observed that equal per cent (8.75 %) men and (7.50 %) women respondents had the knowledge about meaning and usage NPV and bio-control agents followed by less number of men (5.00 %) and women (1.25 %) knew about the bio-control method to control woolly aphid and none of the respondents knew about main purpose of seed treatment, usage of bio-agents for seed treatment and bio-fertilizers used to grow crops. The overall knowledge index was 55.10 for men and 51.66 for women.

The major reason for knowledge about the practices is that they were very common and easy to understand and follow. Another possible reason for the knowledge might be as they

are cosmopolitan, they tend to share information, it was also observed that have made a social media (Whatsapp) group in which they share any new information about improved agricultural practice they come across. Non-availability of timely training programmes may be a contributing factor in very less knowledge. Another probable reason might be the long distance travel from their dwelling places to the locations where such trainings are being conducted (district headquarters). Similar results were found in research carried out by Jaganathan *et al.* (2012), Raghavendra *et al.* (2016) and Damor and Khadayata (2017) ^[5, 6, 4].

Categorization of the respondents based on their knowledge level

The results in table 2 depicts that, majority (88.75 %) men respondents belonged to medium level of knowledge followed by 8.00 per cent of them belonged to high level category and mere 1.25 per cent of the men respondents belonged to low knowledge level.

It was also observed that majority (90.00 %) women belonged to medium category followed by low (6.25 %) and high (3.75 %) category.

This clearly depicts that the farm men and farm women, possessed average knowledge level with regard to organic farming due to lack of timely and proper training, non-effective utilization of mass media and less extension contact as expressed by them. Results were in line with Jaganathan *et al.* (2012) and Sarvesh *et al.* (2014) ^[5, 7]

Difference in knowledge level among men and women

It is evident from the table 3 that, with respect to knowledge, men and women did not differ significantly. This may be because the farming activities were carried out jointly by men and women of the family irrespective of gender. Women shoulder equal responsibility in farming activities.

Relationship between independent variables and knowledge about organic practices

It was observed from table 4 that, with respect to men respondents, independent variables *i.e.*, education, land holdings, annual income, livestock possession were found to have highly significant relationship with knowledge at one per cent level of probability. Only mass media contact was found to be significant at five per cent level of probability. Whereas age, size of the family, farming experience, organic farming experience and extension contact of men showed no relationship with the level of knowledge about the organic practices. The non significant results could be because of the quick grasping ability of the youngsters and exposure and experience of the older farmers. Another probable reason maybe higher education bestowed the crave for attaining more knowledge and larger land holdings and higher annual income encouraged the farmers to explore new areas.

With respect to women respondents, only age and education were found to be highly significant at one per cent level of probability. While the remaining variables failed to attain the statistical level of significance. This is probably because with the increasing age and education level, their urge to gain concrete knowledge and to prove their competency. The results were in line with Anjali *et al.* (2017) and Borhade *et al.* (2015) ^[1, 2].

Table 1: Knowledge of the respondents about organic farming n = 160

Sl. No.	Statement	Men (n ₁ = 80)	Women (n ₂ = 80)
		F (%)	F (%)
1.	Organic farming is a type of farming system in which crops are grown without the use of chemical inputs	58 (72.50)	56 (70.00)
2.	Helps in improving the soil health and crop productivity	73 (91.25)	69 (86.25)
3.	Protects environment and thus prevents the risk to humans and animals	74 (92.50)	69 (86.25)
4.	Considerably decreases the expenses on crop production	80 (100.00)	80 (100.00)
5.	Improves pH of the soil	20 (25.00)	17 (21.25)
6.	Results in the production of healthy and nutritionally superior products	62 (77.50)	62 (77.50)
7.	Crops grown are more resistant to diseases and pests	46 (57.50)	38 (47.50)
8.	Growing of more than one crop ensures continuous income than relying only on one crop or enterprise	21 (26.25)	16 (20.00)
9.	Products grown organically fetch more price	76 (95.00)	71 (88.75)
10.	Processed products have higher demand and price in the market	76 (95.00)	73 (91.25)
11.	Manure can be prepared from farm leftovers	73 (91.25)	67 (83.75)
12.	Raw materials for preparing vermi-compost are available at farm	63 (78.75)	64 (80.00)
13.	Raw materials for preparing compost are available at farm	76 (95.00)	73 (91.25)
14.	Organically weeds, pests and diseases can be controlled	61 (76.25)	47 (58.75)
15.	Organic weed, pest and disease control measures help in protecting the environment	62 (77.50)	71 (88.75)
16.	Increased demand in developed countries	15 (18.75)	12 (15.00)
17.	Soil testing is a must and procedures for soil testing	71 (88.75)	67 (83.75)
18.	Knowledge about preparation and use of vermi-compost	80 (100.00)	80 (100.00)
19.	Knowledge about preparation and use of Farm Yard Manure	80 (100.00)	80 (100.00)
20.	Knowledge about seed treatment before sowing and seed treatment methods	71 (88.75)	67 (83.75)
21.	Main purpose of seed treatment	-	-
22.	Usage of bio-agents for seed treatment	-	-
23.	Organic pest control methods	80 (100.00)	80 (100.00)
24.	Organic disease control methods	71 (88.75)	67 (83.75)
25.	Suitable crop rotation methods and its purpose	65 (81.25)	51 (63.75)
26.	Proper selection of good varieties	80 (100.00)	80 (100.00)
27.	Improvement in crop yields after adoption of organic farming practices	76 (95.00)	70 (87.50)
28.	Right quantity of compost/acre/year	46 (57.50)	43 (53.75)
29.	Soil type and characteristics of soil/ maintaining soil health card	09 (11.25)	10 (12.50)
30.	Suitable crops based on soil type	18 (22.50)	14 (17.50)
31.	Minimum support price for organic products	09 (11.25)	05 (6.25)
32.	Mixed cropping practice followed	52 (65.50)	53 (66.25)
33.	Time required for formation of vermi-compost	21 (26.25)	16 (20.00)
34.	Enemies of earthworms	80 (100.00)	80 (100.00)
35.	Meaning of vermi-wash	31 (38.75)	34 (42.50)
36.	Usage of Blue-Green Algae	10 (12.50)	07 (8.75)
37.	Meaning and usage of NPV	07 (8.75)	06 (7.50)
38.	Meaning and uses of Azolla	62 (77.50)	59 (73.75)
39.	Bio-control method to control woolly aphid	04 (5.00)	01 (1.25)
40.	Green manure crops	54 (67.50)	41 (51.25)
41.	Bio- control agents	07 (8.75)	06 (7.50)
42.	Bio-fertilizers used to grow crops	-	-
43.	Meaning of Nomuraea rileyi	04 (5.00)	-
44.	Uses of Meta rhyzium	22 (27.50)	01 (1.25)
45.	Organic grain storage	80 (100.00)	80 (100.00)
46.	Names of trap crops	79 (98.75)	73 (91.25)
47.	Information about the incentives given for practicing organic farming	-	-
48.	Subsidy given on organic inputs	-	-
	Overall knowledge index	55.10	51.66

Note: Figures in parentheses indicate percentage

Table 2: Categorization of the respondents based on their knowledge level n = 160

Category	Men (n ₁ = 80)	Women (n ₂ = 80)
	F (%)	F (%)
Low (0-16)	01 (1.25)	5 (6.25)
Medium (17-33)	71 (88.75)	72 (90.00)
High (>33)	08 (10.00)	03 (3.75)

Note: Figures in parentheses indicate percentage

Table 3: Difference in knowledge level among men and women n = 160

Men (n ₁ = 80)	Women (n ₂ = 80)	'z' value
Mean (SD)	Mean (SD)	
26.45 (5.67)	24.80 (5.10)	1.93 NS

Table 4: Relationship between independent variables and knowledge about organic practices n = 160

Sl. No.	Independent variables	Correlation coefficient value	
		Men (n ₁ = 80)	Women (n ₂ = 80)
1	Age	0.009 NS	0.390**
2	Education	0.729**	0.821**
3	Size of the family	0.186 NS	0.119 NS
4	Land holdings	0.338**	0.035 NS
5	Annual income	0.353**	0.037 NS
6	Livestock possession	0.296**	0.063 NS
7	Farming experience	0.038 NS	0.085 NS
8	Organic farming experience	0.167 NS	0.198 NS
9	Mass media contact	0.221*	0.018 NS
10	Extension contact	0.200 NS	0.028 NS

* - significant at 5% level; ** - significant at 1% level, NS - Non Significant

Conclusion

It can be concluded that the respondents had medium level of knowledge regarding organic practices. A strategy for knowledge development or improvement in organic farming for the farmers/ producers, consumers and related government departments, agricultural research institutions would help in spreading of organic farming practices. So, there is lot of scope for increasing the existing level of knowledge through skill based training programmes, demonstrations, field days, exhibitions, camps, social media, radio/TV talks should be organized to increase the know-how of the farmers. Also extension functionaries need to provide the organic farmers and farm women with necessary advice and help in time.

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