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Research Article

Conversion Trends towards Organic Cultivation of Paddy

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ABSTRACT

Organic food might be in fashion among the more health conscious consumers but the appetite for it is not increasing rapidly. A minimum period of three years is required as a conversion period for organic cultivation. Keeping the above fact in mind, a sample of 150 farmers from six villages namely Siwan and Kangthali from Siwan, Kachchwa and Kunjpura from Karnal, Seonsar and Kamoda from Pehowa block were selected randomly. The statistical analysis, such as percentage, frequency, correlation coefficient and multiple regression analysis were applied to draw the meaningful conclusions. The study revealed that only 12.00 per cent respondents were growing organic paddy for more than last three years and that also on a small scale. The study shown that mean knowledge and adoption score increase with the increase in years of organic paddy farming practice. The study also depicted that among farmers growing organic paddy for more than three years, 38.89 per cent of farmers belong to Kaithal district. Whereas, 35.94 per cent farmers who have grown organic paddy for first time belong to Karnal district. The correlation analysis revealed that exposure to training (r=.258), knowledge (r=.538) and adoption (r=.595) of the respondents had a highly significant relationship at 0.01 level of probability with number of years of organic paddy farming. Further, study implied that independent variables explained the variation to the extent of 53.00 per cent. It was observed that farmers were aware about organic farming at large and really interested to follow it, but the main constraint in conversion was the lack of enough resources.

Key Words: Conversion, Organic paddy farming, Knowledge, Adoption and correlation

INTRODUCTION

In recent years, organic agriculture is gaining a considerable importance. The popularity of organic farming is gradually increasing and now is practiced in most of the countries. The market for organic products is growing world-wide, and the demand for organic food is steadily increasing both in developed and developing countries, with nearly annual average growth rate of more than 20 per cent. By using chemical fertilizers and pesticides, we had solved our short term goals but available

evidences suggest that gains from the green revolution are being eroded and the state is now facing a serious ecological threat. In the wake of increasing awareness of adverse effect of agrochemicals on food quality and associated health problem, the consumer preferences are increasing towards organic food [1]. India can withdraw high burden of fertilizer subsidies by transforming to organic farming in a systematic manner. The concept of organic farming is not something alien to India. In fact, the first scientific approach to organic farming can be quoted back to the Vedas of the 'later vedic period', the essence of which is to live in partnership with, rather than exploit nature [2]. Organic farming looks like a promising approach and is not only a farming without chemicals, it is also about the environment, agricultural traditions, traditional seeds, animal welfare, farming communities, sensible energy use, soil and water conservation etc. It is not beneficial for farmers alone but can also be a lucrative career option for entrepreneurs. The organic farming system is an important step for marching ahead towards sustainable agriculture. The International Competence Centre for Organic Agriculture(ICCOA) estimated that in India, nearly 1.5% of cultivated crops would be tagged as 'organically produced', and about 2.5% of the global market will be held by India, for exporting organic products [3].

Organic food might be in fashion among the more health conscious consumers but the appetite for it is not increasing rapidly. Development, promotion and management of appropriate technologies of organic farming have been viewed as major priorities to ameliorate the problems of present agriculture and of natural resource degradation. This results in multiple benefits such as ensuring food security, enhancing viability of farming and restoring ecological balance. The strategy of organic farming is to protect and sustain the livelihoods of resource poor farmers who are experiencing production constraints due to excessive use of off-farm production inputs in addition to problems created by soil erosion and moisture stress. Thus organic farming helps in raising income and employment for farmers through improvement in agricultural productivity and sustainability in agricultural production. Development of organic agriculture is now embraced by the mainstream and shows great promise commercially, socially and environmentally [4]. Anonymous [5] elaborated the ill effects on health due to chemical applications, as experienced by the farmers and their families, is one of the reasons given by farmers for their conversion to organic practices. Anonymous [6] reported that initially organic rice farmers had difficulty in sustaining their livelihoods.

MATERIAL AND METHODS:

Out of 21 districts of Haryana state, three districts viz., Kaithal, Karnal and Kurukshetra were purposively selected since these districts have maximum area as well as production under rice. Siwan, Karnal and Pehowa blocks were randomly selected from Kaithal, Karnal and Kurukshetra districts, respectively. From each selected block, two villages were selected randomly, and thus Siwan and Kangthali from Siwan, Kachchwa and Kunjpura from Karnal, Seonsar and Kamoda from the Pehowa block were selected, randomly. Further, from each village, 25 farmers were selected randomly and thereby a total number of 150 farmer respondents were interviewed. The filled up interview schedules were systematically recorded on master sheets and frequency tables were prepared and the data were analyzed keeping the objectives of the study in view. The statistical analysis, such as percentage, frequency, correlation coefficient and multiple regression analysis were applied to draw the meaningful conclusions.

RESULTS AND DISCUSSION:

a) Adoption level of farmers with respect to number of years of organic paddy farming: It is evident from Table 1 that 42.67 per cent had commenced growing organic paddy (1st year) followed by

27.33 per cent (1-2 years) and 18.00 per cent (2-3 years). Only 12.00 per cent respondents were growing organic paddy for more than last three years, though on a small scale. With regard to conversion period, [7] had mentioned that the establishment of an organic management system and building of soil fertility requires an interim period, in which the whole farm including the livestock is converted into organic. A period of three years is required as a conversion period for organic cultivation. Similar views were expressed by anonymous [5]. Organic agriculture is in progress as the area 'in conversion' is increasing [8] however, the pace of conversion to organic is much slow than expected [9].Already there has been much research on the importance of different factors influencing farmers' decisions to convert to organic production. As most of these researches were undertaken in developed countries, many of the elaborated factors do only apply for developing countries. Subsidies paid to farmers for the conversion to organic agriculture are a major factor in European countries and Switzerland [10, 11]. Other important incentives in developed countries are the market access and consumer demand in the country [12]. Anonymous [13] stated that the conditions favouring a conversion to organic agriculture in developing countries are very different from those in developed countries, especially with regard to the policy environment and in particular with regard to subsidies for conversion to organic agriculture, access to markets, a strong domestic demand for organic products, farmers' financial resources, appropriate training facilities, and access to extension services are of utmost importance. In recent years, a few research studies on important factors for the conversion to organic agriculture in developing countries have been published in international literature [14; 15; 16). Most of the studies had a focus on farmers' personal and farm characteristics as determinants of conversion to organic farming. To our knowledge the studies of anonymous [14] on farmers in Bangladesh and studies of anonymous [17] on rice farmers in Thailand are among few published so far in international journals which included a broad range of farmers' attitudes and motives as well. Organic production comes along with high entry costs, especially higher labour requirements that often cannot be met by household resources, the need for increased knowledge and training, substantial certification costs and sometimes the need to purchase expensive organic inputs are needed. A programme for organic agriculture in these areas must be fully supported by the full compensation both in cash and kind to the farmers in the event of the loss of production they would suffer till it reaches the levels of the days prior to the adoption of organic farming. A transparent, quick and efficient delivery system for such assistance, perhaps by keeping the government bureaucracy at a distance should also be in place beforehand.

b) Mean knowledge and adoption score: It is clear from Table 2 that mean knowledge and adoption score increase with the increase in years of organic paddy farming practice. The farmers growing paddy for more than three years possessed 60.55 mean knowledge and 53.88 mean adoption score. It clearly means that farmers knowledge and adoption score increases as farmers may get familiar with continuous practices of organic paddy farming.

c) District wise distribution of farmers with respect to no of years: The Table 3 depicts that among farmers growing organic paddy for more than three years, 38.89 per cent of farmers belong to Kaithal district. Whereas, 35.94 per cent farmers who have grown organic paddy for first time belong to Karnal district.

d) Relationship between farmers' independent variables and number of years of organic paddy farming practices:

i) **Correlation analysis:** To establish association between the background variables of the respondents and number of years of organic paddy farming practices, the correlation coefficient was computed, the data in this regard have been presented in the Table 4. The correlation analysis revealed that exposure to training (r=.258), knowledge (r=.538) and adoption (r=.595) of the respondents had a highly significant relationship at 0.01 level of probability with number of years of organic paddy farming. It implies that training exposure increases with the increase in years of organic paddy farming. This may be because of the complexity of organic farming practices and farmers may felt the need of further training based on their previous year experience or problem they may have faced in organic paddy cultivation. Further the continuous organic cultivation enriches their knowledge and ultimately adoption of organic paddy farming practices. The study showed a positive and significant correlation between herd size (r=0.213). The probable reason of this relation may be that organic manures are needed to recharge and enrich soils and livestock is the main source of farm yard manure that is processed with earthworms for better use of organic manures. Further vermiwash and panchgavya (made from five products of cow) are used as nutrient supplier as well as to control pests and diseases. The study also showed a positive and significant correlation of management orientation (r=0.182), scientific orientation (r=0.206), attitude towards improved technology (r=0.194), socio-economic status (r=0.185) and economic motivation (r=0.211) with number of years of organic paddy farming practices at 0.01 level of probability. Further the study had shown significant but negative correlation of extension participation (r=-0.212) and risk preference (r=-0.181) with number of years of organic paddy farming practices at 0.01 level of probability. Extension participation is generally known to propel the adoption process. In this study though it had significant coefficient value, the sign was negative. It indicates that as the public extension system had not played much role in dissemination of organic paddy, the flow of information and guidance were not available in sufficient quantum and regularity from public extension system. Deployment of organic paddy farming in Haryana has been private oriented and dealer driven. Private input dealers distribute and disseminate organic inputs; therefore, farmers prefer them for seeking information. The findings of positive and significant relationship with attitudes towards improved technology are in agreement with the findings in sustainability practices [18, 19]. Anonymous [20, 21] revealed that economic motivation had significant and positive correlation with the adoption. Risk orientation had shown positive and significant correlation with adoption. This is because, organic paddy farmers in the area dared to take risks of uncertainty and crop yield loss during and after conversion period. However, other remaining factors like age, education, land holding, information seeking behavior, mass media exposure innovativeness and Cosmo politeness were showing non-significant relationship with the number of years of organic paddy farming.

ii) Regression analysis: A multiple regression analysis was done to see the influence of independent variables on number of years of organic paddy farming. The predictive power of each multiple regression was estimated by working out the value of co-efficient of determination (R^2). To test the statistical significant of the regression co-efficient 't' value were also calculated. The multiple regression analysis was done to determine the extent of contribution of independent variables to the number of years of organic paddy farming which was taken as a dependent variable. Table 5 clearly indicated that all the independent variables together contributed 53.00 per cent variation in the number of years of organic paddy farming. This implies that these independent variables explained the variation to the extent of 53.00 per cent. The regression coefficient of adoption was highly

significant whereas regression coefficient of extension participation was highly but negatively significant at 0.01 level of probability. Herd size, exposure to training, innovativeness, attitude towards improved technology and knowledge were significant whereas, land holding and risk preference were negatively significant at 0.05 level of probability. It means the above said variables contributed to the variation in the knowledge level of organic paddy growers. Though 53.00 per cent variation was explained by these variables, yet it would be worthwhile to look for some more variables comprising personality traits of the farmers, so that a higher level of variation in the adoption of organic paddy farming practices could be explained. The remaining variables were not found to have the prediction values up to the mark of significant level.

CONCLUSION:

It was observed that farmers of the state were aware about organic farming at large and are really interested to follow it, but the main constraint in conversion were lack of enough resources to follow this practice. There is a need for all stakeholders to work together. Farmers' organization may be an essential part of a sound organic farming strategy. Regular awareness and training programmes for organic farming were required. Flow of credit to agriculture by kisan credit card (KCC), self help group (SHG)-banking linkage programme, farm income insurance scheme (FIIS) may be developed, especially for organic farming. The Government may provide start-up funding as subsidy for a broad scale farmer conversion programme through kinds, i.e. inputs of organic in nature. Organic food products may be integrated into public procurement, such as in schools, hospitals, etc., through the requirement of at least a certain percentage of organic foods. Public domain research with adequate funding for sustainable agriculture is urgently necessary in Haryana. The Haryana Government may set up an Organic Agricultural Research Institute (OARI) teaching, research and extension of organic practices and transfer of organic technologies to farmers.

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LIST OF TABLES

Table no. 1: Adoption level of farmers with respect to number of years of organic paddy farming n=150

Sr. No.	Conversion year	Number of farmers	Percentage of farmers
1	> 3 years	18	**12.00**
2	2-3 years	27	**18.00**
3	1-2 years	41	**27.33**
4	< 1 year	64	**42.67**

Table no. 2: Mean knowledge and adoption score with respect to number of years of organic paddy farming n=150

No of Years	Knowledge Score range	Knowledge Mean score	Adoption Score range	Adoption Mean score
> 3 years	47-70	60.55	38-68	53.38
2-3 years	36-65	53.66	32-60	47.70
1-2 years	33-65	50.26	24-60	42.12
< 1 year	22-63	43.42	16-53	35.62

Table no. 3: District wise distribution of farmers with respect to no of years

No of Years	No of farmers	District wise number of farmers (percentage)		
		Karnal	Kurukshetra	Kaithal
> 3 years	18	6 (33.33)	5(27.78)	7(38.89)
2-3 years	27	11(40.74)	11(40.74)	5(18.52)
1-2 years	41	10(24.39)	16(39.02)	15(36.59)
< 1 year	64	23(35.94)	19(29.69)	22(34.38)

***** Figures in the parenthesis are percentage

Table no. 4: Relationship between farmers' independent variables and number of years of organic paddy farming practices n=150

Characteristics	Correlation coefficient (r)
Age	0.015
Education	0.034
Land Holding	-0.118
Herd Size	0.213*
Information seeking Behavior	-0.039
Mass Media exposure	0.027
Exposure to Training	0.358**
Extension Participation	-0.212*
Innovativeness	-0.006
Management Orientation	0.182*
Scientific Orientation	0.206*
Attitude towards improved technology	0.194*
Cosmopoliteness	0.079
Socio economic status	0.185*
Economic Motivation	0.211*
Risk Preference	-0.181*
Knowledge	0.538**
Adoption	0.595**

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

Table no. 5: Regression analysis of farmers' independent variables with number of years of organic paddy farming n=150

Characteristics	**Regression Coefficients**	**'t'-value**
Age	0.046	1.839
Education	0.053	0.457
Land Holding	-0.025*	-2.437
Herd Size	0.077*	2.102
Information seeking Behavior	-0.023	-0.345
Mass Media exposure	-0.053	-1.033
Exposure to Training	0.121*	1.946
Extension Participation	-0.113**	-2.767
Innovativeness	0.083*	1.969
Management Orientation	-0.065	-0.812
Scientific Orientation	0.112	0.854
Attitude towards improved technology	0.165*	2.223
Cosmopoliteness	-0.004	-0.032
Socio economic status	0.005	0.059
Economic Motivation	0.018	0.262
Risk Preference	-0.047*	-1.986
Knowledge	0.021*	2.178
Adoption Score	0.11**	3.532

R^2 = 0.53

* Significant at 5 % level of significance

**Significant at 1 % level of significance

LIST OF FIGURES

Fig. 1: Adoption level of farmers with respect to no. of years of organic paddy