

Determinant factors of organic farming adoption in the selected northern agro-climatic zones of Karnataka

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■ **ABSTRACT** : The organic farming can help small family farms to survive, increase farm productivity, repair decades of environmental damage and lead to sustainable agriculture and improved food security. The present study was conducted in the three selected agro-climatic zones of Northern Karnataka with the objective to study the determinant factors of organic farming with the total sample size on 150 farm women. The main reasons to adopt organic farming by cent per cent of the farmers of all three zones were, reduced degradation of soil, ensured sustainability of agricultural production, reduced cost of cultivation, human health concern and steady yields. The adoption of organic farming has led to the improved socio-economic status and quality life of the farmers. This call for farmers' sensitization and encouragement to adopt organic farming that will not only cater for food and nutritional security but also to quality life of farming families and sound management of the environment.

■ **KEY WORDS** : Organic farming, Socio-demographic characteristics, Socio-economic status, Organic farming practices

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Organic farming is practiced in India since thousands of years. In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides etc. were obtained from plant and animal products. Organic farming was the backbone of the Indian economy and cow was worshipped (and till today done so) as a Goddess. As per the documented evidence, organic manure in India started long back in 1900 by Sir Albert Howard, British Agronomist in a local village in North India. The major states involved in organic farming in India are Gujarat, Kerala, Karnataka, Uttarakhand, Sikkim, Rajasthan, Maharashtra, Tamil Nadu, Madhya Pradesh and Himachal Pradesh. Sikkim and Pondicherry have declared their state as 100% organic state (Chandrashekar, 2010). Farmers often use organic manure as a source of nutrients that are readily available either in their own farm or in their locality. With the sizable acreage under naturally organic/default organic cultivation, India has tremendous potential to grow crops organically and emerge as a major supplier of organic

products in the world's organic market. Technologies have been developed to produce large quantities of nutrient-rich manure/compost. There are specific biofertilizers for cereals, millets, pulses and oilseeds that offer a great scope to further reduce the gap between nutrient demand and supply. Considering all these reasons, there is no doubt that organic agriculture is in many ways a preferable pattern for developing agriculture, especially the in countries like India. Keeping these points in view, a modest attempt has been made in the present investigation with the following objectives:

-To study the socio-demographic characteristics of the organic farmers of selected agro-climatic zones of Northern Karnataka and to study the determinant factors of organic farming adoption by the selected farmer and to know the organic farming practices followed by them.

Kalamkar (2006) studied the progress, possibilities and constraints of organic farming in India and revealed that organic farming systems have attracted increasing attention world over due to wide adverse effects of conventional

agricultural practices on human diet, environment and sustainability of agricultural production. ‘State government’s support’ was the most predominant motivation factor for the adoption of organic farming in Bhopal, Sehore and Raisan districts of Central Madhya Pradesh (Ramesh *et al.*, 2007). Murthy *et al.* (2008) studied the organic farming practitioners and their perception in Dakshin Kannada and Udupi districts of coastal Karnataka. The main reasons expressed by the organic farmers for adoption were increased pest and disease infestation through chemical fertilizers, loss of soil characters, less profit in chemical farming and health hazard. According to Adesope *et al.* (2012), the main determinants of organic farming adoption in Nigeria were, ‘organic farming practices have high social value’, ‘are inexpensive’ and are natural farm of farming’.

RESEARCH METHODS

Keeping in view of the objectives, three villages viz., Hirehandigol from Northern Dry Zone (zone -3), Ammangi from Northern Transitional Zone (zone-8) and Kamadhenu from Northern Hilly Zone (zone-9) were selected for the present study. Fifty farm women involved in organic farming from each village were selected for collecting the required information for the study. Thus, the total sample of the study comprised of 300 farm women. Pre-structured questionnaire with personal interview method was the research tool used to collect the required information from the sample under the study. Percentages were computed to analyse the data.

RESEARCH FINDINGS AND DISCUSSION

The results of the present study are discussed as below:

Socio-demographic characteristics of the organic farming families of agro-climatic zones of northern Karnataka:

The socio-demographic characteristics of the selected respondents are depicted in Table 1. The mean age of the selected organic farm women in all the zones ranged from

Table 1: Socio demographic characteristics of the organic farmers of agro-climatic zones of northern Karnataka (n=150)			
Socio-demographic characteristics	NDZ (n=50)	NTZ (n=50)	NTZ (n=50)
Age			
Young (< 40 years)	13 (26.00)	18 (36.00)	10 (20.00)
Middle (40-47 years)	22 (44.00)	18 (36.00)	23 (46.0)
Old (> 47 years)	15 (30.00)	14 (28.00)	17 (34.00)
Mean	43	41	44
Caste			
Upper caste	50 (100)	42 (84.00)	50 (100)
OBC	-	08 (16.00)	-
Dalits	-	-	-

Table 1: Contd.....

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Education			
Illiterate	-	-	-
Functional literate	-	-	-
Primary School	-	03 (06.00)	-
Middle School	37 (74.00)	35 (70.00)	50 (100)
High School	13 (26.00)	12 (24.00)	-
Marital status			
Married	50 (100)	50 (100)	50 (100)
Education of the respondent’s husband			
Illiterate	-	-	-
Functional literate	-	-	-
Primary School	-	-	-
Middle School	-	02 (04.00)	11 (22.00)
High School	30 (60.00)	30 (60.00)	33 (66.00)
Pre university	20 (40.00)	18 (36.00)	06 (12.00)
Occupation			
Main occupation			
Agriculture	50 (100)	50 (100)	50 (100)
Subsidiary occupation			
Agricultural labourers	-	12 (24.00)	38 (76.00)
Horticulture	06 (12.00)	-	12 (24.00)
Others	-	-	-
Family size			
Small (upto 5 members)	02 (04.00)	15 (30.00)	23 (46.00)
Medium (6-10 members)	37 (74.00)	33 (66.00)	27 (54.00)
Big (>10 members)	12 (24.00)	02 (04.00)	-
Mean	08	05	05
Possession of land holdings			
Marginal (>2.5 acres)	-	02 (4.00)	10 (20.00)
Small (2.51 to 5 acres)	03 (6.00)	10 (20.00)	33 (66.00)
Medium (5.01-10 acres)	04 (8.00)	18 (36.00)	07 (14.00)
Large (> 10 acres)	43 (86)	20 (40.00)	-
Mean	22	12	6
Annual income			
Low (<Rs. 2,202,60/-)	02 (04.00)	15 (30.00)	47 (94)
Medium (Rs. 2,202,60/- to 396604/-)	23 (46.00)	18 (36.00)	03 (06.00)
High (Rs. 3,96,604/-)	25 (50.00)	17 (34.00)	-
Mean	4,44,780	300,633	2,21,600
Farming experience of the respondent’s husband			
< 7 years	13 (26.00)	13 (26.00)	07 (14.00)
7-13 years	17 (34.00)	15 (30.00)	23 (46.00)
> 13 years	20 (40.00)	22 (44.00)	20 (40.00)
Mean	20	18	21
Livestock possession			
No animals	-	-	-
1 animal	12 (24.00)	17 (34.00)	37 (74.00)
2-3 animals	30 (60.00)	25 (50.00)	13 (26.00)
4 or more animals	08(16.00)	08 (16.00)	-
Mean	03	02	0.260

Figures in the parenthesis indicate percentage)

41-44 years and it was found to be in the category of middle age group. With respect to caste, majority of the organic farm women belonged to upper caste. Educational level of the respondent and her counterpart, is important for acquisition, comprehension and acceptance of information about the improved farming. With respect to educational level of the selected organic farm women under the study, majority of the organic farm women were literate with formal education up to higher standard. Majority of the organic farm women's counterparts studied up to Middle School and one third of them studied up to Pre-University. The main occupation of the cent per cent of the selected respondents was agriculture. More than one third (33.33%) of the organic farm women were working as agricultural labourers. About 12 per cent of the organic farming families had horticulture and either employment or business as their subsidiary occupation, respectively. Irrespective of the agro-climatic zones, majority of the organic farming families (64.67%) had medium size family with 6-10 members followed by small family size of up to five members (26.67% and 20.67%, respectively). The mean family size of the organic farming families was six *i.e* medium family. Size of the land holding is an important component of socio-economic status. The respondents of three agro-climatic zones differed significantly from each other in respect of this variable. The mean land holdings of organic farming families (22 acres) from NDZ was higher than organic farming families of NTZ (12 acres each). The organic farming families of NHZ possessed least land holdings *viz.*, six and five, respectively among all the three agro-climatic zones. In NDZ and NHZ, complete land holding was being cultivated under organic farming. However, the organic farmers of NTZ had converted 50 per cent of their land holdings to organic farming.

Average annual income of the organic (Rs. 4,44,780/-) farming families from NDZ was comparatively higher than other two agro-climatic zones. The average annual income of the organic farming families of NTZ was Rs. 3,00,633/-. The average annual income of the organic farming families of NHZ was lower compared to other two agro-climatic zones *i.e.*, (Rs. 221,600/-) which was identified as medium and low income categories. The average farming experience of the organic farm women's counterparts was 20 years. This yielded the finding that farming experience encouraged the organic farming. On an average, the organic farming families possessed two animals. Possession of cow was the main component of the organic farming. The possession of cattle at home is an advantageous condition for organic farming. Cultivation of fodder was the major constraint in rearing of animals. Since, the organic respondents from NDZ had larger size of land holding, they could afford to cultivate

fodder crops and hence they could maintain 2-3 animals. In case of respondents from the other two zones, only one or two animals were found and they grew forage crops along the bunds.

Type of house is a component determining the respondent's socio-economic status. The housing conditions of the selected respondents of in different zones varied. It was interesting to know that irrespective of the agro-climatic zones, very few households had pucca houses *i.e.*, about 16 per cent of the organic farming families had pucca houses. However, majority of them in NDZ and NTZ were residing in partially pucca houses and in NTZ, none of them were residing in pucca houses.

Socio-economic status of the farming families:

The socio-economic status scale as per Agarwal (2005) was used to assess the socio-economic status of the selected farming families. It comprised of components related to occupation, land holding, caste, education, socio-political participation, possessions and housing conditions. The findings of the present study revealed that slightly higher percentage of the organic farmers (56%) belonged to upper middle class in NDZ (40%) and NTZ (12%), while, cent per cent of the organic farming families belonged to lower middle socio-economic status in NHZ. About 32 per cent of them had medium socio-economic status. Only two per cent were found to have high socio-economic status. One fourth of the sample belonged to low socio-economic status (Table 2).

Socio-economic status	NDZ (n=50)	NTZ (n=50)	NHZ (n=50)
Upper high (>76)	-	-	-
High (61-75)	-	-	-
Upper middle (46-60)	28 (56.00)	14 (28.00)	-
Lower middle (31-45)	22 (44.00)	36 (72.00)	50 (100)
Poor (16-30)	-	-	-
Very poor (<16)	-	-	-

(Figures in the parenthesis indicate percentage)

Reasons for adoption of organic farming:

The main reasons to adopt the organic farming by cent per cent of the farmers of all three zones were reduced degradation of soil, ensured sustainability of agricultural production, reduced cost of cultivation, human health concern and steady yields. 'Improved family economic condition' was also one of the reasons to adopt organic farming by farmers of NDZ and NHZ. In NTZ, government project on organic farming was going on during the period of data collection. As a result, the selected respondents were also the beneficiaries of this project. Hence, 'State Government initiative' was the main reason to adopt the

organic farming by the selected farmers of NTZ (Table 3).

Particulars	NDZ (n=50)	NTZ (n=50)	NHZ (n=50)
Organic farming experience			
Less than 5 years	-	50 (100)	-
More than 5 years	50 (100)	-	50 (100)
Source of irrigation (bore well)	19(38.00)	11(22.00)	02(4.00)
Organic certification of the farm	50(100)	-	-
Motivational factors			
Friend	-	-	-
Neighbour	-	-	-
Extension agent	-	-	-
Another organic farmer	-	-	-
UAS scientist	-	-	-
State Government project	-	50 (100)	-
NGO	50 (100)	50 (100)	50 (100)
Reasons			
Reduces degradation of soil	50 (100)	50 (100)	50 (100)
Ensure sustainability of agricultural production	50 (100)	50 (100)	50 (100)
Reduces cost of cultivation	50 (100)	50 (100)	50 (100)
Human health concern	50 (100)	50 (100)	50 (100)
Improved family economic conditions	50 (100)	-	50 (100)
State Government initiative	-	50 (100))	-
Steady yields	50 (100)	50 (100)	50 (100)

(Figures in the parenthesis indicate percentage)

Organic farming practices followed:

Irrespective of the agro-climatic zones, farm yard manure, sheep/goat manure, green manure and bio fertilizers were the common manures used by the organic farmers. However, half of the selected sample (50%) were using jeevamrutha. About 14.66 per cent per cent and 7.33 per cent of the organic farmers were using vermi compost and bio digester, respectively. A meagre percentage of the respondents (9.33%) were using biogas slurry. However, poultry manure was not used in the present study area as the poultry was not maintained by any of the organic farmers. Irrespective of the agro-climatic zones, use of neem oil spray, erection of bird pegs, use of trap crops and *Trichoderma* were some of the pests and disease management practices adopted by cent per cent of the organic farmers. Half percentage of the selected sample (51.33%) followed by 16.66 per cent and eight per cent of the organic farmers used the spray of jeevamrutha, fermented butter milk and cow urine, respectively for the pest and disease management of the crops. The manual weeding, summer ploughing, crop management and inter cultivation were the common practices employed by the organic farmers of all three zones for management of weeds (Table 4).

Table 4 : Organic farming practices followed by the selected organic farmers of the northern agro-climatic zones of Karnataka (n=150)

Particulars	NDZ (n=50)	NTZ (n=50)	NHZ (n=50)
Organic manure			
Farm yard manure	50 (100)	50 (100)	50 (100)
Compost	-	-	-
Vermicompost	12 (24.00)	08 (16.00)	02 (4.00)
Sheep/Goat manure	50 (100)	50 (100)	50 (100)
Green manure	50 (100)	50 (100)	50 (100)
Poultry manure	-	-	-
Bio digester	02 (4.00)	09 (18.00)	-
Jeevamrutha	20 (40.00)	07 (14.00)	50 (100)
Bio fertilizers	50(100)	50(100)	50(100)
Biogas slurry	12 (24.00)	02 (4.00)	-
Pest and disease management practices			
Neem oil spray	50(100)	50(100)	50(100)
Jeevamrutha	20 (40.00)	07 (14.00)	50 (100)
Fermented butter milk	11(22.00)	14(28.00)	-
Erection of bird pegs	50(100)	50(100)	50(100)
Use of trap crops	50(100)	50(100)	50(100)
<i>Trichoderma</i>	50(100)	50(100)	50(100)
Cow urine	-	12(24)	-
Weed management practices			
Manual weeding	50(100)	50(100)	50(100)
Summer ploughing	50(100)	50(100)	50(100)
Crop management	50(100)	50(100)	50(100)
Inter cultivation	50(100)	50(100)	50(100)
Mulching	-	-	-

(Figures in the parenthesis indicate percentage)

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