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Research Paper

Transition Process from Modern Agriculture to Organic Agriculture in Karnataka – An Empirical Analysis

Economics

KEYWORDS : Organic Agriculture, Transition, Environment, Perennial and Annual Crops

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ABSTRACT

Organic farming is based on organic principles of nature and depends more on inputs produced on farm. Transition is the process of conversion from modern agriculture to organic agriculture. In this context, the present study to understand the transition process and to identify the reasons for the transition from modern agriculture to organic agriculture. The study shows that the conversion from modern to organic farming was different in the case of perennial crops and annual crops. While it was whole farm at a time in the case of perennial crops, it was plot-by-plot in the case of annual crops. The important factor influencing conversion was awareness about the environment.

Introduction

Organic farming systems have attracted increasing attention over the last one decade because they are perceived to offer some solutions to the problems currently besetting the agricultural sector. Organic farming has the potential to provide benefits in terms of environmental protection, conservation of non-renewable resources and improved food quality. India is bestowed with lot of potential to produce all varieties of organic products due to its diverse agro-climatic regions. In several parts of the country, the inherited tradition of organic farming is an added advantage. This holds promise for the organic producers to tap the market, which is growing steadily in the domestic market related to the export market. Organic farming works in harmony with nature rather than against it. This involves using techniques to achieve good crop yields without harming the natural environment or the people who live and work in it.

Review of Literature

Siwar and Hossain (2002) in their study noted that the transition to sustainable agriculture normally requires a series of small, realistic steps. Family economics and personal goals influence how fast or low far participants can go in the transition. It is important to realize that each small decision can make a difference and contribute to advancing the entire system further on the sustainable agriculture continuum. Reddy (2005) concludes that organic farming practices cuts down the production costs, increases the benefit cost ratio and farm income. In the present scenario of Indian agricultural market, reduction in the cost of production and risks in crop failure are relevant considerations of the farmer. During the transition period of farm conversions, capital investments are high on labor, organic matter and farm structure. Therefore, partial conversions of farms shall be either in parts of through integrated farming systems so that farmers are not put to economic constraints in their efforts. Due to poor scientific methodological framework, it is not possible to arrive at clear understanding. Therefore, the present exercise has been taken up for a comprehensive exploration.

Objectives

1. To understand the transition process from modern agriculture to organic agriculture
2. To identify the reasons for the transition from modern agriculture to organic agriculture

Methodology

The present study is largely based on primary data collected from the growers practicing modern farming system and organic farming system in selected districts of Southern Karnataka, India. Mysore and Mandya districts have been selected for the present study. The study covered 50 farmers practicing Organic Farming System. In order to make a comparative study a control group of 50 farmers practicing modern agriculture were selected from the same villages. The criteria for selection of these farmers are that they represent the same characteristic of organic farmers in terms of socio-economic background, geographical location and crops grown.

Results and Discussion

Transition is the process of conversion from conventional agriculture to organic agriculture. After the introduction of all necessary changes, it might take some time before the transition is completed. Conventional farming system depends on external inputs and is market oriented. On the other hand, organic farming is based on organic principles of nature and depends more on inputs produced on farm itself. The production under to organic agriculture need not necessarily for subsistence. The growers may have several objectives in shifting from conventional system of cultivation to organic system. Sample growers were asked about for how long they have been practicing organic farming.

Reasons for Transition from Modern to Organic Agriculture

Information on what made the selected farmers to switch over to organic farming system from modern farming system was gathered. In many cases majority of the farmers reported that transition from modern agriculture to organic agriculture was due to the possibility of producing healthy food, environmental protection and soil fertility management under organic farming system. A detailed analysis of two perennial crops (Coconut and Arecanut) and two annual crops (Paddy and Sugarcane) is presented in table 1.

Table - 1: Crop wise Reasons for transition from modern agriculture system to organic agriculture system

Sl. No	Reasons for transition	Frequency and Percentage			
		Coconut	Arecanut	Paddy	Sugarcane
1	Cost of cultivation is low	7 (24.1)	2 (16.7)	8 (28.6)	10 (35.7)
2	Health	22 (75.9)	9 (75.0)	28 (100.0)	23 (82.1)
3	Employment	16 (55.2)	7 (58.3)	14 (50.0)	15 (53.6)
4	Soil Fertility Management	22 (75.9)	8 (66.7)	20 (71.4)	22 (78.6)
5	Environmental Protection	27 (93.1)	11 (91.6)	16 (57.1)	19 (67.9)
6	Yield	10 (34.5)	3 (25.0)	18 (64.8)	12 (42.9)

Source: Survey Data,

Note: Values within brackets represent percentage to total growers (Percentage don't add to 100 due to multiple response)

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Reasons for Transition in Perennial Crops (Coconut and Arecanut)

Many reasons are expressed by coconut growers for transition from modern agriculture to organic agriculture. According to 93.1 per cent of growers they have shifted as it protects environment (Table 1). In their opinion, by shifting it reduces soil erosion due to chemical uses. It helps in maintaining soil fertility so that there can be sustainable yield in future. For these growers, sustainability of agriculture is important and they are aware that by switching over to organic agriculture soil fertility can be retained. According to some of the growers, by using organic fertilizers the balance in the soil health can be maintained. The other important factor is health consciousness. According to 76 per cent of the coconut growers, they shifted because consumption of organic food will have a positive impact on health and by way of switching over to organic agriculture, they are sure of getting a supply of organic products. Cost of cultivation, employment and yield are the economic reasons for the transition given by the growers. According to 24 per cent of coconut growers, cost of cultivation of coconut under organic agriculture is low. However, 55 per cent of the growers believe that it generates more employment and 34 per cent of them believe that though the yield may be less in the initial years of transition, yield stabilizes and due to this, they have shifted to organic cultivation. However, field data suggested that cost of cultivation is more. However, yield and employment generation are more in the case of coconut.

In the case of Arecanut, 91.6 per cent of the total farmers have shifted from modern agriculture to organic agriculture due to environmental factors like pollution control, sustainability, water management etc. Health (70 per cent) and soil fertility (66.7 per cent) are the other factors that have influenced the farmers to shift from modern agriculture to organic agriculture. Arecanut farmers (58.3 per cent) have also reported that employment opportunity is more in organic agriculture compared to modern agriculture. The data also supported this argument and nine mandays per acre are more in organic agriculture compared to modern agriculture. Only few farmers (16.7 per cent) have reported that they shifted because cost of cultivation is low in organic agriculture compared to modern agriculture. Twenty five per cent of the farmers opined that yield will be stable and high in organic agriculture compared to modern agriculture.

Reasons for Transition in Annual Crops (Paddy and Sugarcane)

In recent years, paddy farmers are practicing organic agriculture due to different reasons. According to selected farmers, more than 70 per cent of the total farmers have shifted from modern agriculture to organic agriculture, in order to maintain soil fertility. According to them, by using cow dung, ash, farmyard manure soil fertility can be maintained for many years. Health is one of the important factors influencing the paddy farmers to shift from modern agriculture to organic agriculture. According to these farmers organic food has positive impact on health and to be sure of the supply of organic food, they shifted to organic agriculture. Paddy farmers also said that organic agriculture creates more employment compared to modern agriculture. Survey results have shown that employment in organic agriculture is more by nine mandays/acre compared to modern agriculture. More than 50 per cent of the total farmers have shifted from modern agriculture to organic agriculture due to employment. Cost of cultivation is high in organic agriculture compared to modern agriculture, because initially more investment is required in organic agriculture. After completion of transition (5 years) gradually cost is decreased in organic agriculture. Nearly 65 per cent of the organic paddy farmers said that they shifted due to higher and stable yield that they are expected under organic agriculture. The results support this and yield under organic farm is more by 1 quintal per acre.

In the case of sugarcane, 82.1 per cent of the total farmers have shifted from modern agriculture to organic agriculture because they believe that it leads to healthy life. More than 65 per cent of the total farmers have transformed from modern agriculture to organic agriculture due to soil fertility maintenance and environmental factors like pollution control, sustainability, water management etc. Sugarcane farmers also opined that organic agriculture creates more employment compared to modern agriculture. Only 36 per cent of the farmers shifted because they think that cost of cultivation is low under organic agriculture. In the case of paddy, more shifts took place due to organic factors than economic factors.

Transition Process

Theoretically three different processes are possible i.e., gradual on the whole farm, full at once on the whole farm and gradual plot by plot. A farm may be converted all at once or parcel by parcel. The process of transition will be more distinct when the difference between starting situation and final situation is substantial. A transition has been considered as completely successful when once the farmers perceive the yield as having stabilized under the new fertility management practices. The process of transition takes minimum of 3 years to maximum of 7 years. All the selected farmers who belong to modern farming system have followed different methods of transition from modern to organic agriculture over the years. According to the scientists and the farmers, the period of transition process depends upon the chemical contamination of the soil it had during the transition process. Non-availability of scientific information on organic farming is a serious handicap for all the farmers. Just by trial and error methods, the farmers have been converting their farming system. Table 2 shows the crop wise methods of transition from modern to organic agriculture.

Table -2: Distribution of Organic Farmers according to Method of Transition Process

Sl. No	Crops	Method of Transition			
		Full at once	Gradual on the whole farm	Gradual plot by plot	Total
1	Coconut	12 (41.4)	13 (44.8)	4 (13.8)	29 (100)
2	Arecanut	6 (50)	5 (41.7)	1 (8.3)	12 (100)
3	Paddy	10 (35.7)	10 (35.7)	8 (28.6)	28 (100)
4	Sugarcane	12 (42.9)	8 (28.6)	8 (28.5)	28 (100)

Source: Survey Data,

Note: Values within brackets represent percentage

Method of Transition Process in Perennial Crops (Coconut and Arecanut)

Out of the total coconut farmers, 41.4 per cent have converted the whole farm at once (Table 2). Use of pesticides was dropped and simultaneously fertilizers were fully replaced by organic manure. 44.8 per cent of farmers using average quantity of fertilizers adopted the gradual transition process for the whole farm. Another 13.8 per cent of farmers have adopted a gradual transition process of plot by plot method. Similarly, 50 per cent of the arecanut farmers have converted whole farm at once and also use of fertilizers and pesticides was dropped. 41.7 per cent of the farmers have converted in gradual transition process for the whole farm. One farmer has adopted a gradual transition process of plot by plot method. One important observation is that majority of perennial crops farmers have converted the whole farm at once. Simultaneously chemical fertilizers and pesticides were fully replaced by organic manure.

Method of Transition Process in Annual Crops (Paddy and Sugarcane)

Table 2 shows that 35.7 per cent farmers have adopted whole farm at once and here also use of fertilizers and pesticides was dropped. Simultaneously fertilizers were fully replaced by organic manure. Out of the total, 35.7 per cent of farmers using average quantity of fertilizers adopted a gradual transition process for the whole farm. Remaining 28.6 per cent of farmers have converted by gradual transition process of plot by plot method. In the case of sugarcane, 42.9 per cent of farmers have

adopted whole farm at once. Gradual on the whole farm method is adopted by 28.6 per cent of farmers. Remaining farmers have adopted a gradual plot-by-plot method. Majority of the farmers are using average quantity of chemical fertilizer and pesticides during the transition process. In the case of annual crops (Paddy and Sugarcane) farmers using average quantity of fertilizers and pesticides, adopted gradually for the whole farm and plot by plot method, because yield is gradually decreased due to drop of chemical fertilizer application at once, this resulted in serious yield decrease at the start of transition. Transition process is more in annual crops compared to perennial crops, because use of chemical fertilizer and pesticides are high in annual crops.

Summary and Conclusion

The study shows that the main reasons for transition can be found in environmental sustainability as well as health and soil fertility management. Crop wise reasons are more are less same, but paddy and sugarcane farmers mainly reported that cost of inputs like chemical fertilizers and pesticides are highly expensive. The important factor influencing conversion was awareness about the environment. It appears that economic reasons are not the influencing factors. Environmentally conscious growers are willing to accept the reduction in yield in the initial stages for the sake of sustainable agriculture. The conversion from modern to organic farming was different in the case of perennial crops and annual crops. While it was whole farm at a time in the case of perennial crops, it was plot-by-plot in the case of annual crops. This was adopted to reduce the effect of yield decrease in the initial stages of conversion. Another important observation of the study is that only those growers who have other sources of income and those who can easily absorb the reduction in yield are converting to organic agriculture. In order to encourage more growers to convert, support is to be provided to absorb the effects of decrease in yield in the initial years. Providing subsidized organic inputs, price support are some of the options.Demand side factors influence the promotion of organic agriculture by creating market; it depends on the perceptions of the consumers and marketing system. An understanding of these factors is important for policy suggestions.

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