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Economic Performance of Organic and Modern Agriculture System in Karnataka – An Empirical Study

KEYWORDS: Organic agriculture, Economic performance, Farm Business Income, Cost

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ABSTRACT *Agriculture is the main source of national income and the performance of the agricultural sector influences the pace of the growth rate of the Indian Economy. Many farmers who adopted organic farming methods early in this period were motivated by reasons relating to the health and safety of their families, consumers, and livestock, and by idealistic convictions about soil and land stewardship. In this context, the present study tries to analyse the economic performance of organic agriculture and modern agriculture systems and compare them. The study revealed that farm business income from organic agriculture is greater than that from modern agriculture in the case of coconut, arecanut, paddy and sugarcane.*

Introduction
Traditionally, the Indian Economy has been considered as the agriculture based economy. Agriculture is the main source of national income and the performance of the agricultural sector influences the pace of the growth rate of the Indian Economy. India is the seventh largest and second most populous country in the world. Agriculture sector has an important role in the economic development of India as a large size of its population lives in rural areas. The Eleventh Five Year Plan (2007-12) witnessed an average annual growth of 3.6 per cent in the gross domestic product (GDP) from agriculture and allied sector against a target of 4.0 per cent. According to Economic Survey 2011-12, agriculture and allied sectors are estimated to achieve a growth rate of 2.5 percent during 2011-12.Agriculture (including allied activities) accounted for 14.1 per cent of the Gross Domestic Product in 2011-12 as compared to 14.2 per cent in 2010-11. The declining share of the agriculture and allied sector in the country's GDP is consistent with normal development trajectory of any economy, but fast agricultural growth remains vital for jobs, incomes, and the food security. The growth target for agriculture in the Twelfth Five Year Plan remains at 4 per cent, as in the Eleventh Five Year Plan.

During the past 20 years, farmers have shown steadily increasing interest in organic farming. Many farmers who adopted organic farming methods early in this period were motivated by reasons relating to the health and safety of their families, consumers, and livestock, and by idealistic convictions about soil and land stewardship. More recently, as costs of chemicals and credit have increased and commodity prices have stagnated, thousands of conventional farmers have begun to search for ways to decrease input costs. These economic pragmatists might deny identification with the organic farming movement, but they are moving in that direction.

Review of literature
Several studies directly compared returns on organic and conventional farms. Lockeretz et al. (1978) compared the economic performance of 14 organic crop/livestock farms in the Midwest with that of 14 conventional farms. The study farms were paired on the basis of physical characteristics and types of farm enterprises. The market value of crops produced per unit area was 11 percent less on the organic farms. But since the cost of production was also less, the net income per unit area was comparable for both systems. A study by Roberts et al. (1979) compared data from 15 organic farms in the western Corn Belt with USDA data on representative conventional farms in the same area. In most cases the net returns were greater on the organic farms. Karemane and Balachandra (2003) observed that a comparison of the costs and returns of the different farming systems reveal that the two modern farming systems, i.e., semi-intensive prawn farming and mixed farming had the highest net returns. However, the benefit-cost ratio, which explains the returns per rupee invested, indicated that paddy/prawn rotation system was the most profitable enterprise.

Objectives of the study
From the review of studies with regard to economic dimensions of organic agriculture, it is noted that only a few studies made comparative analysis. Even these studies attempted to examine this issue for a limited number of annual crops. In this context, the present study tries to analyse the economic performance of organic agriculture and modern agriculture systems and compare them.

Methodology
The present study is 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. Economic performance of any system could be analyzed by analyzing the costs and returns. In this context, the present study, relative economic performance of organic and modern agriculture is analyzed in terms of Farm Business Income (FBI) with two annual crops and two perennial crops.

Results and Discussion:
Farm Business Income (FBI)
Farm Business Income (FBI) is one of the indicators to measure the economic profitability of an agriculture farm. It has been chosen to understand the relative economic profitability of organic farming and modern farming systems in the production of selected crops. FBI is the difference between the gross returns and Cost A_1.

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Farm Business Income = Gross Income – Cost A_1

In this analysis, Cost A_1 is found to be relevant as all the growers are owner cultivators. Gross returns include returns from main products and by-products valued at market price. Cost of cultivation per acre during 2004-05 seasons was calculated for two perennial crops (Coconut and Arecanut) and two annual crops (Paddy and Sugarcane). Cost structure of the annual crops differs from the cost structure of annual crops like paddy and sugarcane. In the case of perennial crops like coconut and arecanut, the costs are spread over the other inter crops grown in the garden. Since the labour requirement is only at particular intervals like at the time of manuring and harvesting, generally the growers who are owning both wetland and garden also draw labour from those who are employed in the cultivation of other annual crops. Due to those differences the costs incurred in the production of annual crops are those that are incurred in the production of that particular crop only. But in the case of perennial crops, they are shared costs. Similarly, perennial costs have more fixed costs and less variable cost in the form of labour. Due to this cost structure of the perennial crops (coconut and areacanut) and annual crops (paddy and sugarcane) is presented separately.

Farm business income under Organic Agriculture System (OFS) and Modern Farming System (MFS) in the production of perennial crops (coconut and areacnut) and Annual crops (Paddy and Sugarcane) are presented in table 1.

Table - 1: Farm Business Income of Perennial and Annual Crops under organic and modern farming system

	Coconut		Arecanut		Paddy		Sugarcane	
Variables	OFS	MFS	OFS	MFS	OFS	MFS	OFS	MFS
Gross Returns	22,596	14,245	33,600	26,370	15,764	14,250	51,428	47,089
Cost A_1	8,579	6,916	15,749	14,382	10,968	9,274	30,225	31,679
Farm Business Income (FBI)	1,4017	7,330	17,851	11,988	4,796	4,976	21,203	15,410

Source: Survey Data

The table 1 indicates that FBI from organic agriculture in the production of coconut, Arecanut and paddy are much higher than that from modern agriculture, though there are differences in Cost A_1.

In the cease of coconut FBI under organic farming is double than that from modern cultivation. The difference is mainly due to larger difference in gross returns. Gross returns from coconut is Rs.22,596 under organic agriculture and Rs.14,245 under modern agriculture. Gross returns are higher due to higher yield and higher price received. Cost A_1 under organic farming system is higher by Rs.1,663 per acre. In the case of Arecanut the cost difference is RS.1367 per acre. However, FBI from Arecanut under organic farming is higher by Rs.5863 per acre compared to FBI under modern farming system. The larger variation in the FBI could be observed in the production of Sugarcane, which is a commercial crop.

In the production of Paddy, FBI under organic farming is marginally lower i.e., by Rs.180. Cost A_1 under organic agriculture is higher by Rs.1694 per acre. However a gross return is higher by Rs.1514 per acre. But in the case of sugarcane, FBI from organic cultivation is higher by Rs.5, 793 per acre. In the case of sugarcane, cost of cultivation under organic cultivation is relatively low. It is lower by Rs.1, 454 per acre. Gross returns are higher under organic agriculture.

The data clearly shows that organic agriculture is economically profitable. It has double advantage to the grower; it provides greater returns to the growers at present and ensures the sustainability of these returns in future by protecting the fertility of the soil.

Summary and Conclusion

Organic agriculture is economically profitable compared to modern agriculture. The study revealed that farm business income from organic agriculture is greater than that from modern agriculture in the case of coconut, arecanut, paddy and sugarcane. It was observed that in the case of perennial crops (Coconut and Arecanut), cost of cultivation under organic farming is more compared to modern cultivation. This is due to higher cost of purchasing organic inputs and depreciation charges on agricultural implements owned by organic farmers. But net returns from organic farming is more because yield per acre and price per unit of organically produced acreanut and coconut are higher. In the case of annual crops (Paddy and Sugarcane) less difference in yield could be observed. In the case of Paddy, net returns from organic agriculture is marginally low due to higher cost of cultivation. In the case of sugarcane more difference could be observed in the price per unit and gross returns per acre. Though average yield under organic farming is more, the variation in yield is also more. Variation in yield is more under organic agriculture in the case of Coconut and Areacnut. But in the case of Paddy and Sugarcane the variation in yield under organic farming is less. It has been observed that cost of cultivation under organic farming is more in the present context, though the Farm Business Income from organic agriculture is more due to higher yield and price. It is mainly due to the purchase of organic manure by the growers. Efforts should be made to encourage farmers to keep livestock to produce on farm organic inputs in order to reduce the cost of organic manures.

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