Chapter: IV

Evaluation of Organic Farming
## Evaluation of Organic Farming

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“Organic Farming is not only added value for the farmer, but also a good investment for the future”.

- United Nations Environment Programme (UNEP)

4.1 Introduction:

The present chapter evaluates the benefits of Organic Sugarcane Farming (OSF) and Conventional Sugarcane Farming (CSF) in terms of average and percentage basis of analysed primary data. The benefits of organic sugarcane farming and conventional sugarcane farming by cultivation the land under sugarcane crop of two districts viz. Jalgaon and Pune from 2004-05 to 2013-14 are studied. The evaluation is made between the two types of farming in terms of land preparation cost, seed cost, plantation cost, inter-cultivation and weeding cost, irrigation cost, total cost of cultivation, yields, price, cost of production per tonne, total revenue and net returns or profits.

4.2 Land Preparation Cost:

The land preparation cost is lower by 35 percent in Organic Sugarcane Farming (OSF) than the land preparation cost in Conventional Sugarcane Farming (CSF) during the ten years. It is observed Rs 13,202 in OSF and Rs 20,205 in CSF. This cost is lower in organic sugarcane farming due to 36.36 percent. Organic sugarcane farmers are growing sugarcane crop continuously for three years, 18.18 percent organic sugarcane farmers are growing crop continuously for ten years and 9.9 percent farmers grow their crop upto five years. So the land preparation cost is required after every three, five and ten years in OSF. But this cost is required after every two years for conventional sugarcane growers because conventional sugarcane farmers cultivate their crop continuously for two years.

4.3 Seed Cost:

It is observed that Organic Sugarcane Farming (OSF) reduces the seed cost by 33 percent than the Conventional Sugarcane Farming (CSF). The seed cost in organic sugarcane farming is Rs 11,808 and Rs 17,664 under conventional sugarcane farming. This cost is lower in organic sugarcane farming because most of the organic sugarcane farmers are continuously growing sugarcane crop for ten, five and three years. That is why seed cost is required
after ten, five and three years. But conventional sugarcane farmers are spending such cost after every two years because they are continuously cultivating sugarcane crop for two years.

4.4 Plantation Cost:

The plantation cost is lower in organic sugarcane farming by 51 percent than the plantation cost in conventional sugarcane farming. This is Rs 5,993 and Rs 12,276 respectively in organic sugarcane farming and conventional sugarcane farming. It is lower in organic sugarcane farming due to 36.36 percent organic sugarcane farmers are growing sugarcane crop continuously for three years, 18.18 percent organic sugarcane farmers are growing crop continuously for ten years and 9.9 percent farmers grown their crop upto five years. So seed cost is required after every three, five and ten years in OSF. But the plantation cost is needed after every two years for conventional sugarcane growers because they cultivate sugarcane crop continuously for only two years.

4.5 Inter-cultivation and weeding Cost:

Table no. 3.34 indicates that inter-cultivation and weeding cost is higher in Conventional Sugarcane Farming (CSF) by 8 percent than Organic Sugarcane Farming (OSF), which is Rs 43,890 in CSF and Rs 40,352 in OSF. It means OSF required less cost for inter-cultivation and weeding practices. The important reason behind it that organic sugarcane farmers are taking inter-crop in sugarcane crop and it is considered as source of income or organic manures. As well as organic sugarcane farmers are also considered weed is a part of organic fertilizer but conventional sugarcane farmers said that weed is enemy of crop so that they spend more for weeding practices.

4.6 Irrigation Cost:

- World Bank (2003) study indicated that the demand for water for sugarcane irrigation has led to an increase in the number of wells in the Jalgaon. The excessive sucking of water from these wells has led to declining of water table by more than 4 meters over the past decade in several places in the districts of Jalgaon, Ahmednagar and Aurangabad. This has significantly caused the number of wells going dry over the years, as a result decreased sugarcane productivity in recent years in the state.
The irrigation cost is lower by 11 percent in Organic Sugarcane Farming (OSF) than the Conventional Sugarcane Farming (CSF). This is Rs 42,232 in OSF and Rs 47,282 in CSF. It means requirement of water is less in organic sugarcane farming for sugarcane crop than the requirement of water in conventional sugarcane farming. This is because of water holding capacity of land improved under organic sugarcane farming. So that sugarcane crop requires water after every 12-15 days under OSF than after every 8 days in CSF.

4.7 Yield or Production:

- John (1994) reviewed the various field experiments conducted on organic farming and examined that the yields that were the same or slightly below than conventional farms.²

- Kshirsagar (2008) has revealed that organic farming is a system of farm management to create an eco-system which can achieve sustainable productivity without the use of external inputs like chemo-synthetic fertilizers and pesticides.³

- Anderson (1994) examined different research studies conducted on organic farming in USA. They concluded that the lower yields on organic farms contrasted with conventional farms were balanced by lower production costs.⁴

It is observed that organic sugarcane farmers receive only one percent lower yield as compared to the yield received by conventional sugarcane farmers. The yield is received 529 tonnes in Organic Sugarcane Farming (OSF) and 532 tonnes in Conventional Sugarcane Farming (CSF) during the 10 years period by cultivating the same acres of land. But yield sustainability is higher in organic sugarcane farming than conventional sugarcane farming because yield gap is lower in OSF while cultivating second, third and fourth crop.

4.8 Price:

- Halpin (2005) said that if price premiums are not received then organic farms generally have lower financial returns.⁵
Premium price is most important factor in Organic Sugarcane Farming (OSF) because it increases the profit of organic sugarcane farmers. In developed countries like USA, UK and Australia premium price is available for all organic products. But country like India premium price is rarely available for organic products. This price is higher by 25 to 30 percent for organic products than the price of conventionally grown products.

The present study shows that in organic sugarcane farming only 4.2 percent farmers receive premium price due to they are selling their sugarcane to juice shop and all organic sugarcane farmers are selling their sugarcane crop to traditional sugar factories and receive same price as given to conventional sugarcane farmers.

4.9 Total cost of Cultivation:

It could be seen from table no. 3.40 that total cost of cultivation is lower in organic sugarcane farming by 33 percent than conventional sugarcane farming. That was Rs. 189,152 in organic sugarcane farming and Rs. 280,702 in conventional sugarcane farming. This is 33 percent lower in organic sugarcane farming because land preparation cost, seed cost, plantation cost, inter-cultivation and wedding cost, fertilizer cost and irrigation cost is lower in organic sugarcane farming than conventional sugarcane farming.

4.10 Cost of Production (per tonne):

- Venkateshwarlu (2007) revealed the observation of comparative study on economics of crop production under Organic Farming System (OFS) and Inorganic Farming System (IFS) the production cost was gradually declining in OFS. Further, it is not easy to assign economic values for soil health, reduced pollution and improved resilience and reduced greenhouse gas emissions.²

The study reveals that cost of production (per tonne) is lower in organic sugarcane farming by 30 percent than cost of production per tonne in conventional sugarcane farming. This is Rs 3,789 in organic sugarcane farming and Rs 5,426 in Conventional Sugarcane Farming (CSF). It is lower in Organic Sugarcane Farming (OSF) due to total cost of cultivation is lower in OSF by 33 percent.
4.11 Total Revenue:

The total revenue is higher in Organic Sugarcane Farming (OSF) by 1.4 percent than Conventional Sugarcane Farming (CSF). It is Rs 958,889 and Rs 944,868 respectively in Organic Sugarcane Farming and Conventional Sugarcane Farming (CSF). Total revenue is higher in OSF because 4 percent organic sugarcane farmers receive premium price, which is higher by 50 percent than conventional sugarcane product.

4.12 Net Returns or Profits:

- According to Nemes N. (2009), in the majority of cases, organic systems are more profitable than non-organic systems. There are wide variations among yields and production costs, but either higher market price and premiums, or lower production costs, or the combination of these two generally result in higher relative profit in organic agriculture in developed countries.\(^7\)

- According to Wynen (1988), Lampkin and Padel (1994), Offermann and Nieberg (2000) because of the lower input costs and price premiums received, organic farms have similar or higher financial returns.\(^8\)

- Charyulu D. and Biswas S. (2010) study concluded that the cultivation of sugarcane was more profitable under organic farming than conventional farming. Therefore, the major benefit under organic sugarcane cultivation was the crop can thrive for more than three years without any yield loss. So, organic farmers can significantly reduce their seeds and sowing costs and reap more benefits.\(^9\)

- According to Fantilanan (1990), organic farming is a matter of giving back to nature what we take from it. It is safe, inexpensive, profitable and sensible.\(^10\)

During the ten years observation it is showed that the net returns is higher in Organic Sugarcane Farming (OSF) by 12 percent as compared to Conventional Sugarcane Farming (CSF). It is Rs 769,567 in organic sugarcane farming and Rs 687,855 in conventional sugarcane farming. This is higher because cost of cultivation is lower in organic sugarcane farming by 33 percent
due to land preparation cost, seed cost, plantation cost, inter-cultivation and wedding cost, fertilizer cost and irrigation cost is lower in organic sugarcane farming.

4.13 Labour Cost:

Labour costs are an important input in the production process in industrial sector as well as in farming sector. Generally, it is said that organic farming is labour intensive because it uses more labour for different cultivation practises than conventional farming.

- UNDP study (1992) showed that labour requirements to be high on some organic farms, especially on plantations, as well as on those organic farms where labour-intensive methods were used, such as composting. In cases with a high opportunity cost for labour (such as on plantations), higher total costs in the organic projects were seen. In some cases, labour and total costs were lower on private organic farms.\(^{11}\)

- Werf (1993) found that median labour used on the seven Indian organic farms was lower than on the non-organic farms.\(^{12}\)

- Wynen (1994) found that both in the cereal-livestock and dairy sectors, labour requirements on organic and non-organic establishments were not different.\(^{13}\)

The present study observed that the requirement of labour is less by 15 percent in organic sugarcane farming than conventional sugarcane farming. The labour cost is Rs 54,156 and Rs 63,652 respectively in Organic Sugarcane Farming (OSF) and Conventional Sugarcane Farming (CSF). It is lower in organic sugarcane farming because it uses less labour for plantation, inter-cultivation and weeding practises.

The notable thing is that organic sugarcane farmers consider weed is fertilizer for crop, so they avoid more weeding practices and leads to reduce weeding cost. Whereas, conventional sugarcane farmers say that weed is enemy of crop and doing more weeding practices as a result they spend higher cost for weeding practices than organic sugarcane farmers.
4.14 Lease Revenue:

During the ten years observation it is shown that lease revenue is same for both the farmers like organic sugarcane farmers and conventional sugarcane farmers. That is Rs 169,700 for cultivating the same acres of land. The lease revenue is decided for per acre of land after three of four years and determined on the basis of type of land that is irrigated or barren. The increasing trend is observed in lease revenue from 7.01 percent to 12.37 percent during ten years.

4.15 Opportunity Cost:

The higher opportunity cost is observed in organic sugarcane farming than conventional sugarcane farming during the ten years period by cultivating land under sugarcane crop at different regions in the study area. This cost is calculated on the basis of net income received by organic sugarcane farmers (from sugarcane crop and inter-crops) and conventional sugarcane farmers from sugarcane crop from 2004-05 to 2013-14. The total net income received by Organic Sugarcane Farmers (OSF) were Rs 9190238 and Rs 7566413 by Conventional Sugarcane Farmers (CSF) from 2004-05 to 2013-14. The opportunity cost was higher by Rs 83115 in 2004-05 and Rs 274823 in 2013-2014 in organic sugarcane farming. Therefore, the overall opportunity cost was Rs 1623825 in organic sugarcane farming for the ten years period.

4.16 Economic Benefits:

- World Bank (2003) study indicated that in Maharashtra about 80 percent of water is utilized for agriculture and more than 60 percent of it is utilized for the sugarcane crop alone. Meanwhile, cultivation of organic sugarcane is not only important for saving water and power but it also provides economic benefits to the farmers in terms of reduced cost of cultivation, increase profits and also gives sustainable productivity.¹⁴

The study showed that Organic Sugarcane Farming (OSF) gives many economic benefits in terms of reduce the cost of cultivation or production due to it incurs less cost for land preparation, seed, plantation, inter-cultivation, wedding, irrigation and increases the profits of organic sugarcane farmers. Instead of these benefits, organic farming also gives many economic benefits to the farmers, consumers and even to the society. These benefits are as follows:
• Benefits to the Farmers:

The various reports indicated that organic farming gives many benefits to the farmers in terms of enhance the soil fertility, conserves water, through increasing the water holding capacity of the soil and enhance sustained biodiversity through its holistic nature, organic farming integrates wild biodiversity, agro-biodiversity and soil conservation. Organic farming gives the sustainable yield; reduce the total cost of cultivation, mentions the health of soil and increase the net returns or profits of the farmers. It also reduces the dependant of the farmers on the market for purchasing expensive and mostly imported external inputs like fertilizers and pesticides for controlling pest and diseases. In addition, Organic production helps to make farms more resilient to climate change, mainly due to its water retention efficiency, resilience to extreme weather events and lower risk of complete crop failure.

• Benefits to the Consumers:

Organic food helps to protect the most valuable consumer’s health. Eating a healthy diet rich in antioxidants, vitamins and minerals is a solid investment in preventive care. Preventing disease is much more cost efficient than treating disease. It is reported that there are more than 500 additives in foodstuffs permitted for use, some of which may negative human health and natural effects such as hydrogenated fats can increase the risk of heart disease; phosphoric acid can deplete calcium in bones; Mono Sodium Glutamate (MSG) can cause dizziness, headaches, and asthma. Pesticides have potential to cause undesirable side effects. These include adverse effects on workers, consumers, community health and safety, groundwater, surface waters, and non-target wildlife organisms. In addition, pesticide use raises concerns about the persistence and accumulation of pesticides in food chains quite distant from the original point of use, and about the role of certain pesticides in causing reproductive failure and endocrine system abnormalities in both wildlife and humans and other species that are not their intended target. Thus, organic foods can play an important role in keeping people healthy.

• Benefits to the Society:

The benefits of organic farming are widespread and important to multiple sectors of the society. It has a significant role to play in addressing one of the world’s biggest and most urgent challenges, namely climate change. Climate
change mitigation and adaptation and inherent beneficial characteristics of organic production must be taken seriously by the society. Organic production has well established practices that simultaneously mitigate climate change, build resilient farming systems, reduce poverty and improve food security. Organic production emits much lower levels of greenhouse gases (GHG), and quickly, affordably and effectively sequestrates carbon in the soil.¹⁵

Organic farming reduces greenhouse gases, especially nitrous dioxide, as no chemical nitrogenous fertilizers are used and nutrient losses are minimized. It stores carbon in soil and plant biomass by building organic matter, encouraging agro-forestry and forbidding the clearance of primary ecosystems. It minimizes energy consumption by 30-70 percent per unit of land by eliminating the energy required to manufacture synthetic fertilizers, fossil based fuels and by using internal farm inputs, thus reducing fuel used for transportation. Organic farming practices protect water quality by using biological forms of fertilizers that release nutrients slowly, reducing nitrate leaching into ground and surface waters. Many climate change scientists and policy experts recognize that organic farming helps mitigate the threat of global warming by sequestering carbon and reducing greenhouse gas emissions from energy-intensive chemical fertilizers.

Organic production, on the other hand is reported to have minimum impact on the environmental balance and ecosystems and protecting the health of people, farm workers, local communities and all the way through to consumers. By using waste residues for compost and mulch, by reviving soil fertility through good farming practices, organic productions would also highly contribute too much better water management practices and the preservation of a unique but fragile biodiversity. Research has shown that organic farming contributes to cleaner water by using biological fertilizers that release nutrients slowly, build soil organic matter, increase soil water-holding capacity and reduce leaching of nitrates into groundwater.¹⁶

4.17 Summary:

The present chapter evaluated the benefits of organic sugarcane farming and conventional sugarcane farming in terms of land preparation cost, seed cost, plantation cost, inter-cultivation and weeding cost, irrigation cost, total cost of production, yields, price, cost of production per tonne, total revenue and profits. The chapter showed that organic sugarcane farming gives many economic
benefits in the forms of lower land preparation cost, seed cost, plantation cost, inter-cultivation and weeding cost, irrigation cost, labour cost, required less cost of cultivation, cost of production per acre and increased the net returns or profits of organic sugarcane farmers.
References:


