

Economic Perspectives of Organic Agriculture: A Review of Literature

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Abstract - Pretty and Ball(2001)¹ articulated that environment was adversely affected by the carbon emission of the agriculture system through the use of synthetic agro chemicals. In the mid 1960s, the Green Revolution ushered in the country aimed to attain self sufficiency in terms of food grains by modern techniques and tools to maximise productivity of food products. With the passage of time, high use of chemical fertilizers & pesticides created complex problem of insect pests & diseases(P. Bttattacharya et. al. 2005)². Joshi(2010)³ pointed out that high use of chemical inputs in agriculture are leading to degradation of soil, water & quality of food products. Rasmuseen et al.(1998)⁴ & Tilman (1998)⁵ conducted experiment based research on long term agrarian conditions in Europe Union & North America, concluded that fertility of soil and level of organic matter has been exploited by intensive agriculture.

Keywords – Organic Agriculture, Green Revolution, Soil, organic matter, economic, fertility.

I. INTRODUCTION

Agriculture sector is central hub for the progress of Punjab and it was the highest share in the central food-grain pool(Statistical Abstract of Punjab 2014). Around 82% of its geographical area under agriculture & 36% of population (census 2011) working in this sector & 99% of agriculture area under irrigation(Statistical Abstract of Punjab, 2014). After the green revolution, although, Punjab has given its best in national food security, but now, agriculture sector has so many challenges like as stagnation in production rate, no profit & exploitation of natural resources & Agriculture sector contribution into Gross State Domestic Product as well as net state income is decreasing(Statistical Abstract of Punjab, 2014).

Key Definitions

Definition of Organic Farming

Definition proposed by Codex, "Organic agriculture is an ecologically balanced production system which maintain agro ecosystem health, including biodiversity, biological cycle & soil biological activities." Lampkin(1994) defines organic agriculture production system which avoids the use of synthetic agrochemicals, pesticides & replace these with crop residues, animal manure, green manure & aspects of biological pest control.

In nutshell, Organic Agriculture is production system that maintains agro-ecosystem with the use of crop residues & animal manure and avoids the use of synthetic fertilizers & provides good quality of food products.⁷

Conventional Farming: Conventional farming refers to farming system which include the use of pesticides, synthetic

chemicals fertilizers & genetically modified organisms & intensive tillage.

Economic Efficiency: it expresses the useful effect achieved in an economic activity, in relation to the requested expenditures, or the efforts of its realization.

Globally Scene of Organic Agriculture

Summarized details of FiBL Survey Report 2017⁸ on Organic Farming are as below:

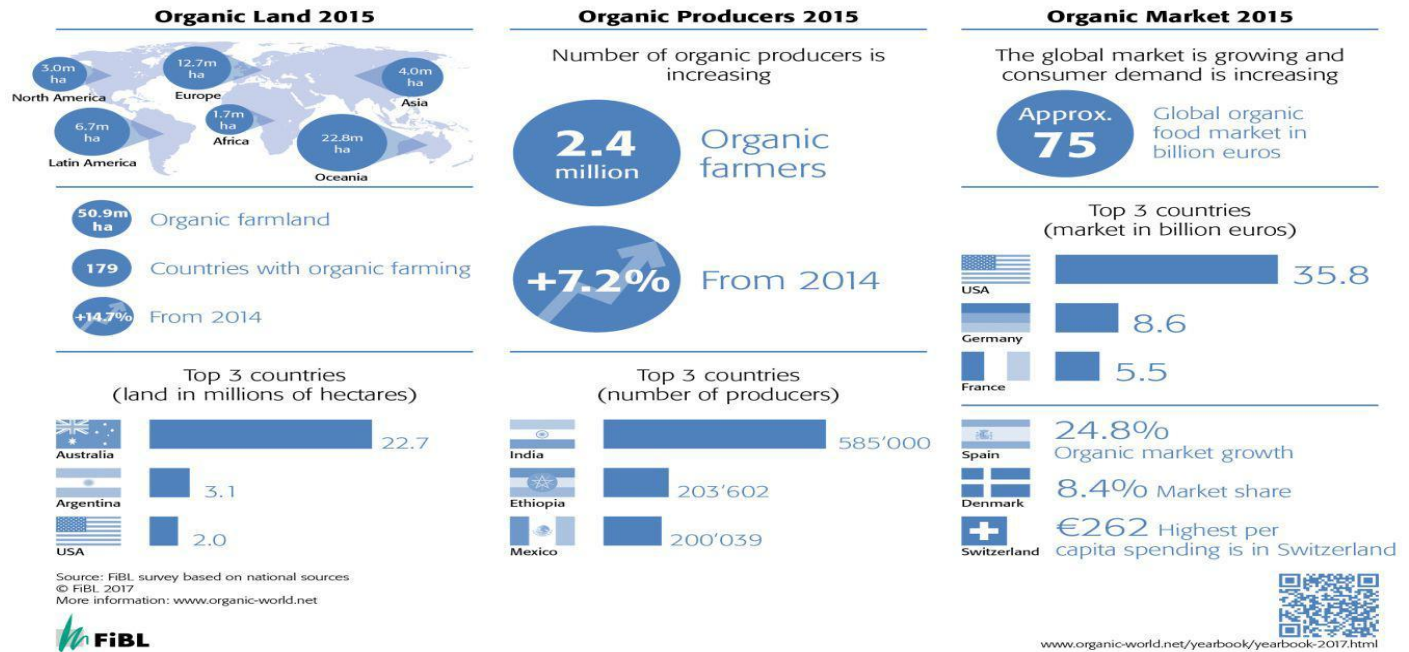
50.9 million hectare under organic culture and 2.4 million producers working in this sector. Oceania has 22.8 million hectare land under organic agriculture and followed by Europe 12.7 million hectare. Latin America, Asia, North America & Africa has 6.7, 4.0, 3.0 and 1.7 million hectare land respectively under OA. 39% of land under Organic Farming under cereals production and 12% under oil crops, 5% textile crops, 4% for dry pulses and 4% vegetables. Europe has had a very constant growth of organic land and followed by Latin America. Australia, Argentina, USA, Spain and china represent 74% of the world's organic agricultural land.

The share of world's organic agricultural land is 1.1 percent. Country with most organic agriculture producers are India (5,85,200) followed by Ethiopia (2,03,602) and Mexico (2,00,039). 84% of the are located in Asia, Africa, Latin America. Global market was estimated to be 81.6 billion US Dollar according to Organic Monitor (Sahota 2017). North America & Europe comprise 90% of organic products revenue. Switzerland has highest annual per capita consumption (262 Euros) and in Denmark(191 Euros)(FiBL-AMI Survey 2017). Highest Share of Organic Food sales is in Switzerland, Denmark and Luxembourg. USA, Germany, France, China, Canada, UK, Italy, Switzerland, Sweden & Spain are ten countries with largest market for organic food.

A production volume of Organic Aquaculture was 400000 metric tons reported in 2015. According data 80% of organic aquaculture production is concentrated in Asia and 20% in

Europe. Largest producer of Aquaculture is China followed by Ireland and Norway.

The World of Organic Agriculture 2015



Source: FiBL Survey 2017. Organic Agriculture in Asia & Indian Status

Asia has 4th rank with 4 million hectare land that comprise 8% of world's organic agricultural land. And .85 million producer (30%) are working. China has 1.6 million hectare land and followed by India (1.6 Million Hectare Land).

India has 9th rank in organic agriculture land in the world. India has 1st position as producer of organic products worldwide.

II. RESEARCH METHODOLOGY

The present study entitled as 'ECONOMIC PERSPECTIVES OF ORGANIC FARMING A STUDY OF LITERATURE REVIEW' is an attempt to understand and document the following three dimensions of organic farming are:

- To check economic efficiency through input output analysis of organic farming.
- Impacts of farming scale level on economic efficiency.

Secondary data was collected through various recently research work and on the basis of observation from a wide range of research works, conclusion was drawn.

III. LITERATURE REVIEW

Reviewing the existing literature play important role to have a clear-cut idea on the problem & very helpful to redefine, analyzing and interpretation of data for drawing meaningful conclusions. With this, an attempt has been made to present

the studies conducted in the field of, "Economic Efficiency of Organic Farming", both at international and national level on various aspects related to organic farming.

Radhukar et al.(1992)⁹ articulated that after using vermicompost, soil fertility level increased in the experiences of organic farming. He concluded that net profit for both the sugarcane & grape crops are high in organic farming.

Ragi thames(1993)¹⁰ concluded that yields were low at initial starting level of organic farming. It had three year transition period for significant improvement. Further he stated that alternative ecological practices were found to be superior to conventional agriculture.

Raganold et. Al. (2001)¹¹ concluded that organic farming systems are less efficient and low level of production than conventional farming system. Organic farming has become one of the fastest growing segments of USA and Europe in 1990s. Combination of both techniques, organic farming and conventional farming, has been successfully adopted at wide scale in Europe. The study results stated that organic agriculture system ranked first in environmental and economic sustainability.

Vangelis Tzouvelekas et al. (2001)¹² conducted a study on cotton farms located in Greece and used Stochastic Production Frontier (SPF) framework. Results showed that organic farms

had low efficiency score vis-à-vis conventional farming. Both farming types were almost equally inefficient.

The Swiss scientist Mader Paul et al., (2002)¹³ articulated that organic yields were on average 20% lower than from conventional farming. But the ecological benefits are more. They concluded that organic farming is a viable alternative to conventional way of farming.

Delate Kathleen et al., (2003)¹⁴ stated that high public demand for organic products help to get premium prices for certified organic farmers. It lures the conventional farmers to switch organic farming. Transition period is three years to achieve the level of production from conventional to organic farming. Hypothesis was tested that organic systems based on locally derived input are capable of providing sufficient yield level and plant production compared with conventional farmers.

Swezey S L et al.,(2004)¹⁵ conducted their study in the USA in the period of 1996-2001 to compare organic, conventional and supervised integrated pest mgt(IPM) for cotton production. Study revealed that yield level was low in organic cotton and profitability level also low due to lack of premium prices for organic cotton.

Anand Raj Daniel et al.,(2005)¹⁶ articulated that yields level of organic cotton were higher and profitability of organic cotton was high than from conventional farming technique. Factor contributed to profitability was that reduction in expenditure on pest control management.

Acs S et al., (2006)¹⁷ developed a dynamic linear programme model to analyses the effect of different limiting factors on the conversion process of farming on a typical arable farm in Netherlands Central Clay Region. The results of the study showed that conversion to organic farming is more profitable and sustainable than staying in conventional farming.

A.G. Wander et al.,(2007)¹⁸ conducted a study in Goias State Brazil during 2004-05 to test the feasibility of organic production of rice, common bean and maize. The benefit cost ratio (BCR) and break even point (BEP) were used to analysis the data. BCR stated that economic performance of each crop would be increased if customers were willing to pay more for organic products.

P.Ramesh et al.,(2010)¹⁹ articulated that organic farming in spite of reduction in crop productivity by 9.2 percent , provided higher net profit to farmers by 22.0 percent compared to conventional farmers. It happened due to availability of premium prices. This study is based on survey that were conducted during 2008-2009 in Maharashtra, Karnataka, Tamil Nadu, Kerala and Uttar Pradesh involving 50 certified organic farmers and 50 conventional farmers. The study results showed that input used as manure has different varieties. Organic farming is economically feasible if farmer get premium price for production.

Kurma Charyulu et al.,(2010)²⁰ developed a study to test economic efficiency among organic & inorganic farming system in four states namely Gujrat, Maharashtra, Punjab and U.P. on four major crops i.e. cotton, Sugarcane, paddy and what. A nonparametric mode Data Envelopment was used for analyzing the efficiency. Results stated that efficiency levels are lower in organic farming compared to conventional farming, relative to their production frontiers.

Singh(2011)²¹ conducted primary research & concluded that organic wheat cultivation is more profitable and reduction in production level may be a serious challenge in term of food security for the nation. Data was collected from Patiala and Faridkot Districts of Punjab. The study was restricted to only wheat crop. Student t-test and Cobb-douglas function were applied for specific study. The results of the study stated that net return is higher in organic farming. Although it has low yield level but it was compensated by the higher price.

J.S.Amarnath (2012)²² conducted a study in Erode district of Tamil Nadu and villages were selected randomly. The Logit Model and Garrett's Ranking techniques were applied to draw conclusion. The result of study showed that net return from organic farming were relatively higher than from conventional farming and increase in quantity of farmyard manure and vermin composite would increase the yield of crops.

B.Gusemi et al.,(2012)²³ articulated that organic farming is an average 90 per cent more profitable on a per hectare basis than from conventional farming especially in grape farming. There are possibilities to return to scale. This study was conducted in Catalonia (Spain) in 2008.

They applied Stochastic Production Frontier (SPF).

Govind Prasad Namdev et al.,(2013)²⁴ articulated that on an average the total cost of cultivation of paddy under organic & inorganic were observed to Rs. 8521/ and Rs. 14324/ respectively. Yield of inorganic paddy was higher than from organic paddy. But the price of organic paddy was relatively higher than inorganic paddy. By this, net income and output ratio were higher in organic farming. This study was conducted in Jabalpur district of M.P.

Manisha Gaur (2016)²⁵ developed a study to analysis the organic farming in India. Secondary data based analysis was presented to assess and evaluate the factors which may facilitate the adoption of organic farming in country. She stated that organic farming is gaining momentum slowly and farmers are feeling ill effects of the conventional farming. By implementing this, we can maintain ecological balance. To some extent, cost of synthetic chemical may be reduced.

IV. CONCLUSION

The preceding review of literature clearly stated that organic farming is at high scale in European countries. India has wide range of soil fertility level due to Himalaya range & it has 1st

position in organic agriculture producer. Results of every study showed that yields of organic crops were low but after transition period of 2-4 years, it contributes significantly. Different varieties of animal manure and crop residues would help to increase soil fertility level, which would lead to high productivity level.

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