CHAPTER:1

INTRODUCTION

Organic farming is modern and a sustainable form of agriculture that provide consumer fresh natural farm product. Organic farming work in synchronization with nature rather then against it. This objective is achieved by using technique to improve crop yields without harming the natural environment as well as people who live work in it. Organic agriculture offers an exclusive amalgamation of environment-friendly practices, which require low external inputs, thereby contributing to increase food availability. Organic farming has very strong positive influence especially on birds/ insects.

India is one of the agriculture based nation with more than 58 of the population out of 11.50 million, pertaining to agricultural sector. Before the 1960, in India only organic farming practice was followed without chemical fertilizers and pesticides. During late 1960s, there was threaten food security due to population rise and frequent draughts. Government of India had collaborated with USA and ford food organisations for reforming farming practices by adding chemical products for cultivation, diseases and weed management. There was increase in production and productivity in chemical or conventional farming and our country was able to satisfy partly the food security. After 30 to 40 years, production and productivity reduced drastically with abnormal inputs costs and the farming sector turned to be unfavourable occupation to all concerned. Soil degradation, more diseases, uncontrollable weeds, high water consumption, unfavourable price and with several natural and manmade issues, conventional farming turned to be unworthy for farmers.

The high doses of pesticides which increased from 24.32 thousand tons in 1970-75 to 75 thousand tons in 1990-91 have been having an adverse impact on aquatic life, plants and

animals. Time and again, animal deaths and human deaths as well, have been reported due to the excessive use of fertilizers.

To escape from the harmful effects of chemicals, the concept of organic farming was emerged. Organic farming seems to be appropriate as it considers the important aspects like sustainable natural resources and environment. It is a production system, which favours maximum use of organic materials like crop residues, FYM, compost, green manure, oil cakes, bio-fertilizers, bio-pesticides, bio gas slurry, microbial products like *Azotobacter, Trichoderma, pseudomonax, Beauveria, Blue green algae, Azolla, Bacillus* spp, etc., have increased the yield and also play an important role in minimising the harmful effects of pesticides and herbicides. Organic farming is a practical proposition for sustainable agriculture if adequate attention is paid to this issue. There is urgent need to involve more and more scientist to identify the thrust area of research for the development of eco-friendly production technology.

Organic farming is defined as a production of system which largely excludes or avoids the use of fertilizers, pesticides, growth regulators etc. and relies mainly on the organic sources to maintain soil health, supply plant nutrients and minimise insects, weeds and other pests. It was felt that organic farming may solve all the problems and has been considered as one of the best options for protecting/sustaining soil health and is gaining lot of importance in present day agriculture.

India holds a unique position among 172 countries practising organic agriculture: it has 6,50,000 organic producers, 699 processors, 699 exporters and 7,20,000 hectares under cultivation, But, with merely 0.4 percent of total agricultural land under organic cultivation, the industry has a long journey ahead.

India produced around 1.35 million MT (2015-2016) of certified organic product which includes all varieties of food products. The production is not limited to the edible sector but also produces organic cotton fibre, functional food products etc. as per the latest available cross-country statistics, in the year 2015, India ranked first in terms of the member of organic producers among over 170 countries and 9th in terms of the area under organic agriculture. India ranked 11th in organic product exports in 2015.

According to the world of organic agriculture report, in organic agriculture, more than 30 percent of world's organic producers are in India but they are marginal farmers sharing only 2.59 per cent of total area under organic cultivation. India has the largest number of organic producers in the world.

Objectives:

- To analyse the economic performance of organic farms.
- To determine the critical factors for success in evaluation of organic agriculture.
- To study the interest of farmers for organic farming.

CHAPTER:2

REVIEW OF LITERATURE

Yadav *et al* concluded a study on the effect of organic farming practices on wheat. A field experiment was concluded during winter season. Application of 120:60:40 recorded significantly higher no. of shoots, plant height and grain and straw yield. In situ decomposition of rice straw + pressmud @10 t/ha + PSM (Phosphorous solubilizing mycorrhiza) was best among different organic treatments.

Adhikari conducted a study to compare the yield and economics of organic and inorganic carrot production and its profit volume in Chitwan district of Nepal. He used face to face interview method to collect the primary information from randomly selected organic and inorganic carrot producers. Among the cost components, per unit cost on female labour and organic fertilizers were found to be higher in organic production system whereas higher per unit cost on seed, tillage operation and male labour were found in inorganic production system. He revealed that adoption of organic production system was economically profitable than inorganic system.

Adhikari (2011) conducted a study on the economics of organic rice production in Chitwan district of Nepal. The information was collected by interview method from randomly selected farmers From the study, the average productivity of organic rice was found 3.15 Mt/ha. The result revealed that organic farming is more cost effective than conventional farming.

Urfi *et al* (2011) conducted a study to compare the cost and profit analysis of organic and conventional farming in Hungary. The objective of the analysis was to compare the organic and the conventional farming on the basis of primer database and modelling at the location of Hortobagy that is well-known organic farming region in Hungary. 20 model variations were worked out for the conventional and 20 for the organic farming situation. According to results

there is no significant difference considering the costs per hectare in the two modelled farming methods, although the structures of production costs show huge deviations. The cost per production unit is typically higher in organic than inorganic farming.

Ram *et al* (2011) conducted a study on the effect of organic manures and biofertilizers on basmati rice under organic farming of rice-wheat cropping system. Results revealed that cumulative effects of farmyard manure (FYM) and green manure (GM) were more effective than their direct and residual effects and GM was significantly superior to FYM for increasing productivity, nutrient uptake and grain quality, gross and net returns of rice in rice-wheat cropping system. Combination of FYM+GM+B (biofertilizer) was effective for higher productivity.

Abud-soud *et al* (2012) conducted an experiment to study the comparison among different compost sources and rates for cucumber production under unheated plastic house. The field experiment was conducted two autumn seasons of 2011/ and 2012 at EL-bossily farm Egypt to utilise and investigate the effect of different source of compost (vermicompost of cattle manure + vegetable and fruit waste + shred newspaper fababean compost) combined with different compost rates 2,4 and 6m per standard greenhouse on cucumber growth and yield unheeded single span plastic house data reversed that using the vermicompost recorded higher value of vegetable growth yield and number of fruits per plant followed by using cattle manure compost.

Dawari *et al* (2012) conducted a study on the effect of the combination of organic material and bio-fertilizer on production grain quality, nutrient uptake and economic inorganic farming of wheat. The experiment has 6 treatment consisted of a farmyard manure (FYM), vermicompost (VC), FYM + rice residues (RR), VC + RR, FYM +RR + bio-fertilizers (B),

VC+RR+B and control. Result indicates that combination of FYM+RR+B and VC+RR+B result in the higher increase growth and yield.

Seufert *et al* (2012) conducted a study compare the yield of organic and conventional agriculture. Use a meta analysis to examine the relative yield performance of organic farming system globally. The available data show that, overall organic yield are typically lower than conventional yield. But those yield differences are highly contextual, depending on systema and site characteristics and range from 5% lower organic yield 13% lower yield (when best organic practices are used), to 34% lower yield (when the conventional and organic system are most comparable). Under certain condition that is with good management practices, particular crop type and growing condition and growing condition-organic systems can thus nearly match conventional yields, whereas under others it at present cannot.

Bilalis *et al* (2013) conducted a study to compare maize and tomato production under Mediterranean conditions. Maize (Zea mays L.) and tomato (Solanum Lycopersicon L.) are two important crops in Mediterranean countries. The objective of the study was to evaluate the difference and similarities in energy flow between conventional and organic tomato and maize crop. The result indicates that the total energy input in the conventional system was higher than in organic system and for individual crop was 25.90% and 29.34% higher for tomato and maize respectively than the organic system. In the maize crop human labour has little input on total energy use both in organic and conventional system. In addition, and input in maize production has corresponding to 11.44% of total energy requirement concerning the pesticide input there was significant difference between organic and conventional system. In both crops the pesticide energy input was higher in conventional production as compared to organic system. More irrigation inputs were 13 to 23% of total energy use in organic system and 12 to 20%

in the conventional system. In both crops the energy output and energy productivity were also higher in conventional production compared to organic system, our study show that the adoption of organic culture system could reduce energy inputs.

Pujari *et al* (2013) conducted a study on insect pest management in organic agriculture. In organic farming, insect pest poses the major challenges since genetically modified crop and synthetic pesticides are not permitted for use in organic production system. The underlying principle of integrated pest management (IPM) in organic system of cultivation involves the application of ecologically sound practices. The key strategies of IPM of organic farming are the selection of resistance varieties, planting trap crops, following crop rotation, conservation of biological agents and soil quality management.

Sudhir (2013) conducted a study to compare the economy of organic versus chemical farming for three crops in Andhra Pradesh, India. The present study compare the economy of organic farmers (N=350) and chemical farmers (N=200) for three crops, paddy, red gram and groundnut in the state of Andhra Pradesh, a south eastern costal state of India. It first found that organic farmers are earning a gross income of 5%, 10% and 7% more compared to the chemical farmers of paddy, red gram and groundnut, respectively and with the lower input costs the profit earned by the organic farmers are hired by 37%, 33% and 59% for selected crops respectively. Organic farming is generally more profitable in terms of financial cost and returns the chemical farming in respective of the crop or the size of farm. The analysis of farmers perception of organic farming reveals that electronic media (television) is the prime motivator for farmers to adapt organic practices, farmers believe that organic farming improves soil fertility and their profit in long run.

Surekha *et al* (2013) evaluate that the organic and conventional rice production system for productivity, profitability, grain quality and soil health, considering the importance of organic farming and growing demand for organically produced food. Field studies were conducted for five years on a black clay soil at a directorate of rise research, Hyderabad. Two main plots treatment with and without plant protection, four sub plot treatment viz, control 100% inorganic; 100% organic; and 50% inorganic+ 50% organic were imposed. They concluded that benefit cost ratio was less with organic in the initial years and improved later in organic by fifth year.

Mancini (2013) conducted a study on conventional, organic and polyculture farming practiced: material intensity of Italian crops and food stuffs. Result shows that material efficiency of organic crops and food stuffs is higher than that of conventional agriculture and this result suggest that low input farming system should be promoted in order to gain material efficiency and derive agricultural system towards productive and sustainable pathway.

Azam (2015) conducted a study to examine the influence of socio-demographic factors in adoption of organic farming practices. The study was conducted with 160 small and marginal organic and conventional farmers. It revealed that educational attainment, age of the farmers, and gender has positively influenced. However, family size and land ownership did not influence much. Organic farming creates atmosphere to face various challenges of marginal and small farmers.

Amadou Binta and Barbier (2015) reported the economic and environmental performances of organic farming system: A case study of horticulture sector in Niayes region of Senegal. Semi structured questionnaires were used to collect primary data on

organic and conventional farming system. Data was collected through semi-structured interviews with experts, head of farmer's organisations and focus group discussions. Their result indicates the organic farming system will be economically more attractive to farmers compared with conventional farming system.

ISSAKA B *et al* (2016) conducted an experiment to study the comparative analysis of productivity among organic and non-organic farms in west Mampursi District of Ghana. The study revealed that there is productivity difference among organic and conventional crop farms. More importantly the study revealed that organic agriculture has a potential.

Bhushan (2017) conducted a study on problems and prospects of organic farming in samastipur district Bihar with randomly selected 135 families and 100 farmers of village Sri Chandpur Kothiya. The main issue was regarding the problem of certification. There is no facility for farmers organic production certification and in absence of proper certification of their product farmers are not getting actual price of their product.

Musyoka *et al* (2017) conducted a study on the effect of organic and conventional farming system on nitrogen use efficiency of potato, maize and vegetable in the central highland of Kenya. The study was conducted during three cropping seasons at chuka and at Thika, Kenya. Synthetic N-based fertilizer and cattle manure were applied at 22itrogen 5 kg N/ ha/ yr for cow -high and at 50kg N/ ha/ yr/ for the conv-low. Composts and other organic inputs were applied at Similar N rates for Org-High and Org-Low. Nitrogen uptake efficiency of potato was highest in Cow-Low and Org-low at Thika and lowest in Org-low at Chuka site where late blight disease affected potato performance.

Thongney *et al* (2018) conducted a study to examine the effect of different level of vermicompost and FYM on the quality parameter of cucumber intercropping with

citrus based agroforestry system. A field study was carried out at the experimental field of forest nursery and research centre, College of forestry , SHUATS , **Prayagraj** , india during June to Sept 2018. The experiment was laid out in RBD with 9 treatments replicated thrice on different levels of vermicompost and FYM organic manure.

Kumar *et al* (2018) conducted an experiment to study the effect of different level of FYM and vermicompost on the yield and quality of maize. The experiment was laid out in Randomized Block Design having 9 treatment. Each treatment was replicated three times, making a total of 27 plots. Benefits-cost ratio was higher for T8 followed for T4. Treatment T8 is superior for vermicompost application and T4 was superior for FYM treatments.

Hanglem *et al* (2019) conducted a study on the constraints faced by the organic farmers of Manipur state, India. The study revealed that economic constraints were perceived highest followed by institutional and policy aspects, infrastructural and situatinal aspects and managerial constraints. It is suggested that government should establish organic input agencies, assured market for organic produce , setting up of policies to assure remunerative price to improve organic cultivation in Manipur.

Deshmukh and Ghagare (2019) conducted a study on the economic of organic and inorganic farming in **Satara** District Maharashtra. The major objectives of this is to find out (1) the area, production and productivity of organic and inorganic farming (2) to examine the relative economics of selected crops under organic and inorganic farming system. The data was collected from randomly selected 400 farmers and three crops namely jowar sugarcane and turmeric. The result revealed that overall productivity of jowar sugarcane and

turmeric was higher in organic then inorganic farming system and the price of organic turmeric and jowar is higher then inorganic in the market.

Dhonde *et al* (2019) conducted a study on the effect of organic manures on yield, quality and uptake of onion. The result revealed that the treatment of 50% N through FYM+50% N through vermicompost was recorded for higher yield, quality and uptake of nutrients in onion than rest of the treatment

CHAPTER:3

MATERIAL AND METHOD

The quality of any research is judged on the basis of its methodology approach. It is the way to systematically solve the research problem. It explain not only the steps adopted by a researcher

in studying the research problem but also the logic behind them. The methodological frame work adopted for the study has been discussed under following headings.

3.1 Location of work

In order to achieve the stipulated objectives, the survey of different village will taken from Horj gandher , Arian wala , chota tiwana , District Fazilka , State Punjab (India) on 17 octobar 2022 and 18 octobar 2022 during 2022-2023.

3.2 Question Asked from Farmers

The primary information was collected from farmer with the help of specially designed questions through personal interview method.

1.Name of farmer

(a) Age

(b) Gender

2.Land ownership

(a) Total land

(b) Land under organic farming

3. Type of cropping

4. crop rotation

5. Land preparation cost

6. Source of seed

7. Type of seed (Treated or Non trated)

8. Sowing cost

9. Type of fertilizer

10. Weed control

11. Harvesting cost

12. Labour

13. Limit

14. Crop yield

15. Net profit

16. Reason for organic farming

17. problem

3.3 Sampling design of study

District	Block	village	No of farmer	Grand total
Fazilka	Abohar	Horj gandher	(organic)	2
Fazilka	Abohar	Arainwala	(organic)	1
Fazilka	Abohar	Chota tivana	(organic)	1
				4

3.4 Analysis of data

The collected data was analysis with the help of simple mathematics such as addition, subtract, multiplication, division, average, and percentage.

CHAPTER-4

RESULT AND DISCUSSION

In this study the profitability of organic farming system was analyse from three different villages under fazilka . The data was collected from the farmers through personal interview. The data collected from these farmers are

4.1 Land of farmers

Land under organic farming and total land for cultivation

Farmers	Land of farmers	
	Total land	Land under organic farming (in acres)
F1	35	16
F2	25	15 (1year ago)
F3	8	2 (1year ago)
F4	20	2

In analyse table show that (F1) Ajay rai from Horj gandher and(F2) satpal singh from Horj gandher has highest land under organic farming (35 and 25 acres respectively) but Farmer F3 has lowest acres of land under organic farming (2 acres) out of total land (8 acres) . Mostly the farmers are small land holders due to farmers does not adopt organic farming system because of high risk of yield and also there is not existence of local organic market.

4.2 Showing, harvesting and threshing cost

On analyse the data from table 4.2 show that (F1) Ajay rai can grow wheat in 35 acres in which organic wheat grown in 16 acres. He spent high cost then other farmers on sowing (4000 per acre) and harvesting (4500 per acre) but satpal singh sown cost (2500 per acre) which is lower cost F1 but harvesting (6000-7000 per acre) . Adhikari (2009) conducted a study on the economic of organic rice production. He also concluded that organic farming was more cost effective then inorganic farming system.

Table 4.2 Total cost on sowing, on harvesting (in Rs.) per acre

Farmers	Sowing cost (in Rs)/acre/year	Harvesting cost (in Rs.)/acre/year
F1	7000	9000
F2	4000	7000
F3	6000	7000
F4	5000	10,000

4.3 Labour cost

The labour higher by F1 and F2 are not permanent and the mostly the labour is donr by family member.

4.4 Net profit

On analyse the data from table 4.4 shows that the farmer satpal singh from Horj gandher (50,000 per acre/year) and Rajinder kumar from chota tivana (35,000 per

acre/year) obtain higher net returns from organic farming than other farmers where Surinder Kumar from arain wala obtain lowest net return (15,000 per acre/year) then other farmers.

Table 4.4 Total profit to organic farmers from organic farming

Farmers	Net profit (in Rs. Per acre/year)
F1	45000
F2	50000
F3	15000
F4	35000

CHAPTER-5

CONCLUSION

The village around Abohar (Fazilka) of the Punjab state is also associated with organic farming system. The study reveals that organic farmers are generally more of net returns per unit area than conventional farmers. This due to low cost of cultivation, expenses and high net returns per unit area but organic farming is Labour Intensive system.

The organic farmers think that conventional farming system is not profitable. The following are the reason that show no interest of organic farmers in conventional farming system

- Higher use of chemical fertilizers, herbicides, insecticides and pesticides
- Health hazards.
- Higher cost of cultivation
- Reduce fertility of soil
- Environmental pollution and water pollution
- Lower price of the produce

The analyse of the collected data from the organic farmers also shown that organic farmers are generally more of the profit per unit area as compare to conventional farmers. On the basis of this study , it suggested that farmers.

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