CHAPTER- 3

Environmental and Economic Benefits of Organic Farming : In Kolhapur District

3.1 Introduction :-

In India agriculture and allied sectors provides employment to 65 percent of the workers and accounts for 23 percent of the national income. The area under cultivation has declined continuously because of urbanization and industrialization. Science and technology have helped India to increase agricultural production from the natural resources like land. But this achievement has been at the cost of nature and environment, which support the human life. We in India have to be concerned much more than any other nations of the World as agriculture is the sources of livelihood of two-third of our population. Fifty years before, people lived in different surrounding. Now, the most fundamental resources like land, water and air supporting the human life have degrade to such an extent that they now constitute a threat to the livelihood of millions of people in the country. Ecological and environmental effects have been highly publicized all over the world . It is true that the developed countries are to a great extent responsible for degradation of environment. India has equally contributed in the degradation of ecology. However, the poorer countries including India cannot delay or ignore the need to take the remedial measure.

Organically cultivated soil are relatively better attend to withstand water tress and nutrition loss. Their potential to counter soil degradation is high and several arid areas have reveled that organic farming may help to combat desertification. India which has some areas of semi arid and arid nature can benefit from the experiment. The national productivity of many

cereal crops, Millets, Oilseeds, pulses and horticultural crops continues to be one of the lowest in the World in spite of the Green Revolution. The fertilizers and pesticides consumption has increased manifold but this trend has not been reflected in the crop productivity to that extent. The countries farming sector has started showing indications of reversing the rising productivity as against the increasing trends of output use. Thus, the unsustainability of Indian agriculture has been caused by the modern farming methods which have affected the production resources and the environment.

3.2 Progress of Organic Farming In The World And India: -

Organic farming has spread roughly in 100 countries. It is estimated that about 24 million hectors are under organic farming in the world and Australia is the leading country at present in this area. Australia, Finland, USA, Germany, China, France, Norway, Switzerland and many countries have started organic farming in the World. India is among those many countries, which are lagging behind, in organic agriculture. Area under organic farming in India is reported to be 41,000 hector compared to 10,500,000 hectors in Australia. Most of the countries lagging behind in adoption of organic farming are from Asia and Africa. But now - a- day's awareness about the organic farming is increasing in India. Consequently, area organic framings increasing India.

India needs to adopt organic framing on a large scale because the conventional Methods of farming have caused damage to ecology. This method of farming adopted by India and other countries is inherently self destructive and unsustainable. The them of the consumer welfare has become central in the economic activities in the developed countries of the World. The Indian agriculture switched over to the conventional system of

the production on the advent of Green Revolution in the 1970's. The change was in the National interest, which suffered setback because of country's over dependence on the foreign food source. The national need was so much that all the attention was focused on increasing the agricultural production.

3.3 Organic And Inorganic Farming System: -

Agriculture is carried out mainly through their types of farming system, namely, Natural farming system, organic farming system and inorganic farming system. Characterized by the different types of inputs and agricultural management practices used for cultivation of land and production of crops. Therefore, the chemical or inorganic farming system based on hi-tech advances in agriculture has been developed and implemented: this is embodied in the Green Revolutions strategy of external, purchased, costly high - yielding varieties and hybrid seeds of crop, high doses of chemical fertilizers, pesticides, energy intensive, costly farm machinery, energised well irrigation etc, all of which boost-up production an income of the farmers sustainability in the short run. Agricultural growth and development under IFS in the form of Green Revolution is quite remarkable to move and push the country from sever food shortage and crisis of the past to self-sufficiency, to food surplus and food security for the time being.

It is found that inorganic farming system over the years burns the soil organic matter and micro organism rendering soil lifeless and infertile spoiling the soil structure and soil health, depleting fertility, this has resulted in stagnant and declining yield, production and income of crops. The chemical inputs in inorganic farming system are costly and it lead to contamination and pollution of soil, water, air, atmosphere, plants and crops. The damage caused through agro-chemical pollution to environment and

human health, directly and through the human food chain and sustainable agriculture and food security is irreparable. In many case, over 90 percent of organic production of vegetable, food grains, fruits, milk, etc, produced under inorganic farming system- contain poisonous agro-chemicals residues harmful and unsuitable for consumption.

As such, there is a strong feeling world over that the solution of this problem and ills of inorganic farming system now lies in organic farming. Organic framings system is modified form of NFS and IFS. The organic framings system is carried out through internal farm and home produces, low- cost, natural organic, biological input and cultural and mechanical method and agricultural practices to increase agricultural production in place of the inorganic method. The organic farming system has designed for creating eco-friendly and pollution free environment, ecological balance and micro-environment suitable for sound health and growth of soil micro-flora, plants, animals and the vast human race who consume the farm products.

India backed by legacy of organic farming has a great potential to make a mark in the international and national market and there is an urgent need to promote organic farming in order to increase export. However, there is no pertinent research work done and knowledge available on economic of production and marketing of organic produce- Vis- a vis inorganic produce in general and for the produce of hills in particular.

3.4 Organic Inputs For Organic Farming And Sustainable Agricultural System :-

In India, at present, in addition to food grain output of above 200 million tones, more than 350 million tones of organic matter in the form of biological wastes of cereal and legume plants such as straw an stubbles and

another more than one billion tones of annual and perennial crop plants are produced per annum. These biological wastes considered as a bane can be a boon to increase soil fertility for sustainable agriculture. This plant biomass may be utilized as such or after proper bioconversion through the low cost bioconversion plants into organic manures. The left- over of biogas production using animal, poultry and other and extra organic wastage is another rich resources for enhancement of soil productivity and soil health. In addition to this, there is a very large area under forests, other tree plantations and grasslands in India. The forest litter, twigs and leaves of the trees and green and dry grass from this huge landmass, aquatics and other weeds, urban and rural solid wastes, agro-industries, bio-products etc, are also available for use as organic inputs. Some farmers in U.S.A. and other developed countries are following organic farming on their large farms by using various bacterial, fungi and parasites in place of labour intensive organic manures. Farmers in India can also use these organic inputs in addition to organic manures for OFS and sustainable agriculture.

Besides, there are many other important and common organic inputs rich in nutrition and readily available for soil, soil Micro -organisms and crops which can be used in sufficient quantity of OFS and sustainable agriculture to ensure food security. These include organic Farm yield Manure (FYM), rural compost, urban compost, other organic manures made by municipal corporations from domestic and industrial wastes, sewage and sludge, leguminous green manures and biological nitrogen fixation, concentrate organic manures like oil cakes, blood meal, meat meal, horn, hoof and fish meals, vermicompost where earthworms the "Master Builders" of top soil are multiplied and used to make rich valuable organic manure, various types of biofertilizers and biopesticides are available in the market.

3.5 Benefits From Globalization of Trade, WTO and Export of Organic Production :-

Globalization of agricultural trade and signing by India of the WTO agreement have thrown upon the international market for the export of organic production. Indian farmers can penetrate the growing global market for organic products. The international trade center has shown that due to globalization of trade and WTO activities, demand for organic in the international market has gone up and over 100 countries including India are producing organic products and beverage in large commercial quantities. The organic food movement is gaining ground on a large scale due to the health consciousness of people in U.S.A. and Europe. In the U.S.A. the retail sales of organic produce have touched $ 7.8 billion during 2000 itself, Today one out of every four American buys organic food. Besides U.S.A., Japan, Austrialia, U.K., Switzerland, Sweden, Denmark, Austria, Scotland, Finland and many other nations are big buyers of organic products. At present the world trade of organic food products is about US $ 25 billion. It is increasing at 10 percent every year. The largest trader in the U.K. predicts that the organic market World over will increase from that of the present U.S. $ 25 billion to more than U.S. $ 100 billion over the next 10 years with the U.S.A., Japan and Europe .

The entries northern hemisphere is covered by snow in winter forcing these countries to import large quantities of food stuff from other nations. India, having most suitable agro climatic conditions for organic farming, can become a big producer and exporter of organic products targeting these countries. People in some countries even want to wear clothes made from organic cotton. Therefore, several countries are interested in buying organic

cotton, the annual demand for which is around more than 15 million bales. As the organically produced coloured cotton lint sells at premium prices, countries such as Egypt, Israel, Greece, Peru, Turkey, U.S.A., Austrilia, Latin American countries, India etc, have taken up its cultivation on a large scale to conquer international market. India in Particular has the advantage in exporting organic pepper, sliced ginner, turmeric, basmati rice, lentil, gram, peas, sugar, fruits jam, pickles, fresh vegetables, etc, in the global market.

However, buyers of organic products in the largest market of U.S.A., Europe and such other countries are very much aware and conscious of purity and quality of organic products to the world markets only by producing quality organic products. International markets particularly U.S.A. and European union accept organic products only if the farms have the required organic certification and the products meet their quality standard. The Farmers have to submit their organic plans including abandoning of chemical fertilizers and pesticides for obtaining such certification to an accredited public or private agency like Agriculture and Processed Export Development Authority (APEDA) Spices Board, Agricultural Universities etc. Who will provide the guidelines and certification for the exact and correct OFS ? The U.S.A. and the European Union have already developed the quality standards and norms for all products. India has at present evolved standards only for horticultural crops on the lines of the European Union. These standards for other organic crops and products should also be developed to encourage organic farming.

The Government policy in India should be aimed at boosting organic farming on a large scale for export of organic products. The potential of organic farming is very vast. The Government of India should set up an

Organic Agricultural Research Institute (OARI) with its all India network and centers in different states. The proposed OARI should conduct research and provide extension services, training extension skills, education etc, with respect to organic farming, OFS, Agro-ecosystem, biodiversity method of making improved FYM, compost, vermiculture, biological control of harmful insects and other pests, protected cultivation under playhouses, site-specific technologies for precision organic farming technologies for precision organic farming management, processing and marketing to compete in the world markets for producing enough at low -cost in agriculture.

Green Revolution took place in 1960-70 in India farmers were using inorganic factors for increasing product. Organic farming is increasing In India with respect to all world due to negative effects of Green Revolution and modern agriculture techniques. In Kerala and Tamilnadu organic farming is cultivating in more proportion than other states in India. The farmers of Maharashtra are doing the organic farming and this proportion is increasing in Maharashtra. Agricultural experts, Agricultural organizations and Government are trying to increase the area of organic farming. The area is more in Kolhapur district rather than other districts in Maharashtra. That is why the researcher has selected Kolhapur district for the study of organic farming. They will look the answers to the question management of organic farming ? What is the science of organic farming ? What is the expenditure of organic farming ? What is the income from organic farming ? For the study of all above questions, researcher has selected the topic of organic farming in Kolhapur district. The information to collected with the help of questionnaire from the farmers.

Among the 12 talukas organic farming doing by farmers in 9 talukas in Kolhapur District. The information of talukas respondents is given in following table .

Table No. 3.1

Information of Talkuas and Respondents in Kolhapur

Sr.No	Name of Taluka	Total No. of Farmers engaged in O.F	No of Sample Selected For Study
1	Kagal	6	3
2	Karveer	4	2
3	Radhanagari	4	2
4	Hatkanangale	6	3
5	Gadhinglaj	4	2
6	Ajara	6	3
7	Shirol	4	2
8	Bhuadargad	4	2
9	Shahuwadi	2	1
	Total	**40**	**20**

In Kolhapur district there are 12 talukas. But organic farming is done by the farmers only in 9 talukas and the proportion of organic farming to other types of farming is very less. Only 40 farmers were doing the organic farming among 9 talukas. That the researcher has selected the 50 percent samples for the study. It means we have taken the 20 samples for the study of organic farming out of 40 farmers. This details about the organic farming of farmers has been given in details as follows.

3.6 Individual Information of Respondents :-

Individual information of respondents contains village, taluka, caste education, size of family etc. Individual information of farmers of organic farming given as follows

3.6.1 Sampling in Talukas :-

There are 12 talukas in Kolhapur district. Among the 12 talukas organic farming done by farmers is only 9 talukas. In Kagal, Karveer, Ajara and Hatkangagle taluka the proportion of organic farming is more. Where as in Shirol, Bhudargad, Radhanagari, etc, talukas the proportion of organic farming is very less. While studying about the organic farming in kolhapur district there was the regional balance in cultivation organic farming.

3.6.2 Caste of Respondents :-

While studying about the organic farming it seems that farmers were from different castes like Maratha, Muslim, Jain, Ligayat and Brahamin etc. Among all the farmers of various castes the farmers belonging to the caste of Maratha were maximum in the organic farming. Their proportion in 20 farmers was 55 percent. Where as 3 and 4 farmers who were belonging to Jain and Lingayat caste, respectively were doing the organic farming. One farmer was belonging from brahamin and one from other caste.

3.6.3 Educational of Level Respondents :-

The information of respondents about education is given in following table.

Table No. 3.2

Educational Level of Farmers

Sr.No	Educational level	Respondents No.	% in total
1	Primary	1	5
2	Secondary	12	60
3	Higher Secondary	2	10
4	Graduation	5	25
5	Other	0	0
	Total	**20**	**100**

Source :- Field Work

Others :- Post graduation, Engineering , M.B.A, B.Sc Agriculture, I.T.I, Dipolma, etc.

Above table shows that farmers of organic farming have taken educational like primary , secondary, higher secondary, gradation and other etc. Among all the farmers majority of farmers were 60 percent farmers secondary educational followed by graduation. The level of primary education was minimum and it was about 5 percent. It seems from above table that the farmers who are doing the organic farming were 100 percent educated. It means that organic farming is done by the educated farmers, and education makes the organic farming a success.

3.6.4 Family Size of Respondents :-

Out of 20 farmers 17 farmers were living in joint families and their proportion was 85 percent. Where as, 3 farmers were living in divided families and their proportion was 15 percent. The information about the size of families is explained with the help of following table.

Dorugade Santram Dattu, with organic sugarcane,
At :–Karambali, Tal :–Gadhinglaj,
Dist:- Kolapur.

Newade Annasaheb Sidram, his father and son,
with organic papaya,
At :-Badyachiwadi,Tal:- Gadhinglaj, Dist:-Kolhapur.

Table No. 3.3

Sexwise Distribution of Farmers

Size	Male(1)		Female (2)		Children (3)	
	Respondent	%	Respondent	%	Respondent	%
1-3	12	60	14	70	9	45
4-6	6	30	4	20	7	35
7-10	1	5	2	10	2	10
Above 10	1	5	0	0	0	10
Total	**20**	**100**	**20**	**100**	**20**	**100**

Source :- Field work

Above table shows that there is a different structure of families of respondents. In first column there are 12 families which have the 1 to 3 number of male and their proportion is 60 percent. Where as there are two families which have more than 7-10 and above 10 number of male and their proportion is 5 percent. In Column No.2 there were 14 families who have 1to 3 number of female and their proportion is 70 percent. As well as there were 2 families who have 7 to 10 female with 10 percent. In Column No. 3 there were 9 families who have 1 to 3 number of children and their proportion is 45 percent. As well as there were 2 families who have 7-10 number of children and their proportion is 10 percent. It means that the farmers who were doing the organic farming, the size of their families was medium. The proportion of male, female and children our of total population is given in following table.

Table No. 3.4

Structure of Families of Farmers.

Sr.No		Quantity	%
1	Male	70	33.98
2	Female	69	33.49
3	Children	67	32.53
	Total	**206**	**100**

Source : Field work

Above table shows the total structure of families. Out of 206 total number of population there were 70 number of male, 69 number of female and 67 number of children.

3.7 Occupation of Respondents :-

The farmers are doing organic farming as their main occupation as well as sub occupation. The information of both occupation is given below.

3.7.1 Main Occupation of Respondents :-

The structure of main occupation is explained with the help of following table.

Table No 3.5

Occupational Structure

	Agriculture	Agricultural Labour	Self Employment	Service	Others
Respondents	19	0	1	0	0
%	95	0	5	0	0
Min.	1	0	1	0	0
Max.	19	0	1	0	0

Source :- Field work

Others :- Political Leader, Non-agricultural Labour, Agricultural Expert etc.

Above shows that agricultural labour, self employment, service and others etc, are the main occupation of the respondents. Among the various occupation 19 respondent's main occupation was agriculture and their proportion was 95 percent. Where as one respondent's main occupation was self employment and his proportion was 5 percent among all the occupations. But there is no one farmer who's main occupation was agricultural labour, services and others etc.

3.7.2 Sub Occupation Of Respondents :-

Information about the sub- Occupation of respondents is explained in following table.

Table No. 3.6

Structure of Sub-Occupation of Farmers

		Milk Production	Poultry	Shop	Others
Yes	Respondents	12	0	3	4
	%	60	0	15	20
No	Respondents	8	20	17	16
	%	40	100	85	80
Total	**Respondents**	**20**	**20**	**20**	**20**
	%	**100**	**100**	**100**	**100**

Source :- Field work

Others :- Service, Labour, Business etc.

We can notice from the above table that generally milk production, poultry, shop and others sub occupation were done by the respondents. Among 20 respondents 12 respondents were doing milk production as a sub occupation and its proportion is 60 percent, which is the maximum. Where as 3 and 4 farmers have shop and others occupations and there proportion

was 15 and 20 percent, respectively. But no farmers was doing poultry as sub occupation. It means maximum farmers were doing milk production as a sub-occupation.

3.8 Size of Land Holdings :-

The information of land and structure of land of respondents is explained with the help of following table.

Table No. 3.7

Area Under Cultivation (In Acre)

Sr.No	Land	Acre	%
1	Arid Land	30.75	11.47
2	Cultivated land	237.75	88.54
	Total land size	**268.5**	**100.00**

Source : - Field work

Above table shows the structure of total land holding. 268.5 Acre is total area of land of the farmers. The size of cultivated area is 237.75 Acre. Out of total land area its proportion is 88.54 percent. Which is the summation of cultivated land of 20 farmers. Where as the arid area is 30.75 acre its proportion is 11.47 percent . It means out of 268.50 acres of arid land is very less compared to cultivated land area.

3.9 Organic Farm Size :-

The structure of Organic farming is explained in following table.

Table No. 3.8

Organic Farm Cultivation (In Acre)

Sr.No.	Land	Acre	%
1	Irrigated land	125	86.50
2	Dry land	19.5	13.50
	Total organic land	**144.5**	**100.00**

Source :- Field work

Above table shows that out of 268.5 acre of total land holding, organic land holding is 144.5 acre, out of total organic land the irrigated land area is 125 acre and its proportion was 86.5 percent out of 144.5 acre area. Where as the dry land was 19.5 acre and its proportion was 13.50 percent. It means irrigating organic farming is done on a large proportion rather than dry organic farming. The proportion of irrigated organic land is more because of availability of irrigation facilities. But maximum farmers of organic farming were medium farmers except few big farmers.

3.10 Year Of Starting Organic Farming :-

In the study it seems that generally all respondents have started there organic farming between 1991-2004. Only one person has started his organic farming at the time of his father i.e. since 20 year back. From the above information we can say that the organic farming in Kolhapur District has recent years. Maximum farmers are doing the organic farming on irrigate land .

3.11 Sources of Information For Organic Farming :-

The farmers who are doing the organic farming, get the information from various sources. These sources are agricultural expert, Government, Friends, organisation, relatives, television, news papers , journals and study tours etc. The sources have explained in the following table .

Table No. 3.9

Sources of Information to Organic Farming

		Study Tour	Government	Journal	Friends	Organisation	Relative	Television	News paper	Agricultural expert
Yes	Respondent	4	4	4	0	6	0	2	8	16
	%	20	20	25	0	30	0	10	40	80
No	Respondent	16	16	15	20	14	20	18	12	4
	%	80	80	75	100	70	100	90	60	20
Total	**Respondent**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
	%	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source :- Field work

Savekar Vijay Dasharath with his organic Wheat ,At:-Uttur,
Tal:-Ajara,Dist:- Kolhapur.

Korane Hindurao Balwant with organic tree of mango,
At:-Phulewadi,Dist:-Kolhapur.

From the above table shows that the information about organic farming is given by many sources. Out of 20 farmers 16 farmers got the information from the agricultural experts. The proportion of them is 80 percent, which is maximum among other sources. Where as study tour, government, newspapers, journals, agricultural organisation and television supply the information about the organic farming to the farmers which is negligible. But no one farmers had got the information from friends and relatives. It means agriculture expert is a powerful sources for information of organic farming. Agricultural experts should give their articles in news papers and journals. Government also should supply the information about organic farming to farmers through free booklets.

3.12 Comparative Production :-

Comparative Production of Various Crops is illustrated in the following table.

Table No. 3.10

Comparative Production of Various Crops Before and After Organic Farming.

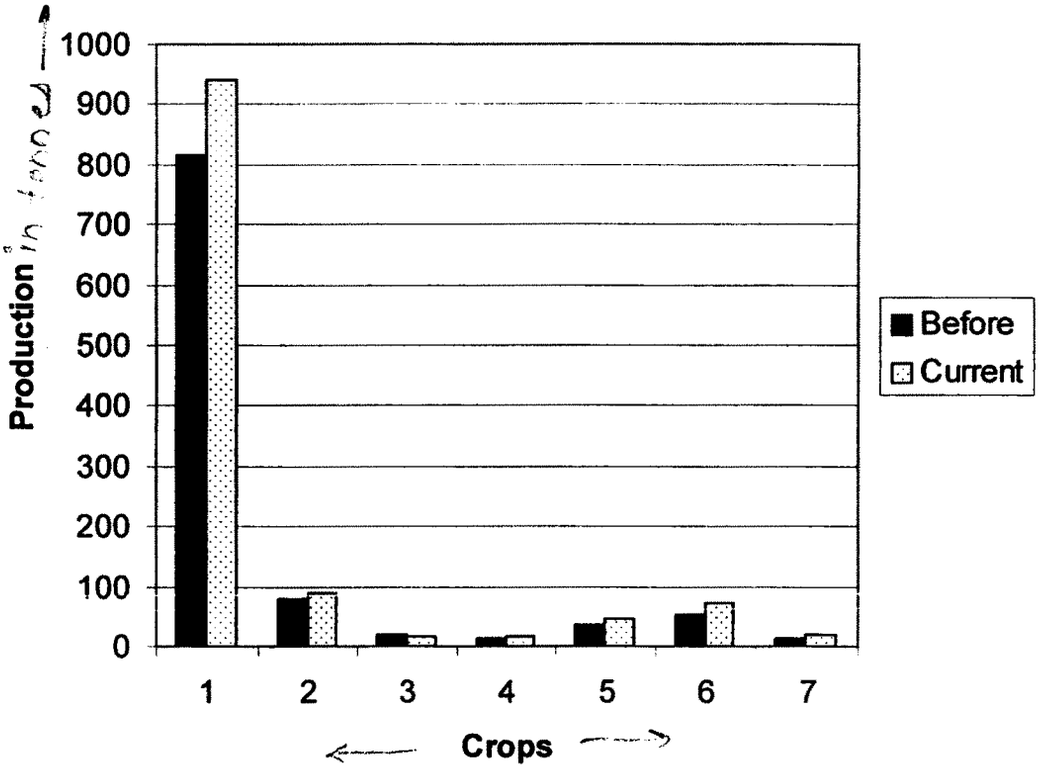
Sr. No	Crops	Before	Current	Growth Rate	C.V (Current)
1	Sugarcane (Tonns)	817	942	15.29	650.20
2	Rice (Qt)	78	88	12.83	45.09
3	Jawar (Qt)	20	15	-25	11.25
4	Groundnut(Qt)	14	18	28.58	7.78
5	Wheat (Qt)	35	45	28.58	30.62
6	Soyabin (Qt)	51	74	45	34.86
7	Others (Qt)	14	21	50	5.32

Source :- Field Work

Other :- Chillie, Gram, Banana, Flowers, Fruits etc.

Graph No. 3.1

Comparative Production of Various Crops



1.Sugarcane 2. Rice 3.Jawar 4.Groundnut
5.Wheat 6. Soyabin 7. Others

Above table and multiple bar diagram shows difference between current output in organic farming and output before the organic farming. This output is summation of output of all respondents. In case of sugarcane the output before the organic farming was 817 tonnes and the growth is 15.29 percent as compared with the output before the organic farming. In the case of rice, the output before the organic farming was 78 Qt. and current output in organic farming is 88 Qt. Thus, output increased by 12.83 percent. Where as there is slight difference between output of groundnut and wheat, but the growth rate is as 28.58 percent. The growth rate in out of soyabin and

other out put is 45 and 55 percent, receptively. But in case of Jawar, output decreased by 25 percent. Among all the current output in organic farming, the highest output is sugarcane. The current output of rice is less as compared to sugarcane. But the lowest current output in organic farming is of groundnut. The output of sugarcane is the highest because it gets availability of water, suitable nature of soil and environment etc.

3.13 Comparative Cost In Various Crops :-

Comparative Cost regarding the various crops in one year and per acre is explained in the following table.

Table No. 3.11

Comparative Cost on Various Crops

(In Rs. Per Acre)

Sr.No	Crops	Before	In Organic Farming (Current)	Growth Rate
1	Sugarcane	77400	33900	- 56.21
2	Rice	14500	11000	- 24.14
3	Soyabin	11500	6100	- 47.95
4	Groundnut	4000	2450	- 38.75
5	Others	10600	6600	- 37.74
	Total	**118000**	**60050**	

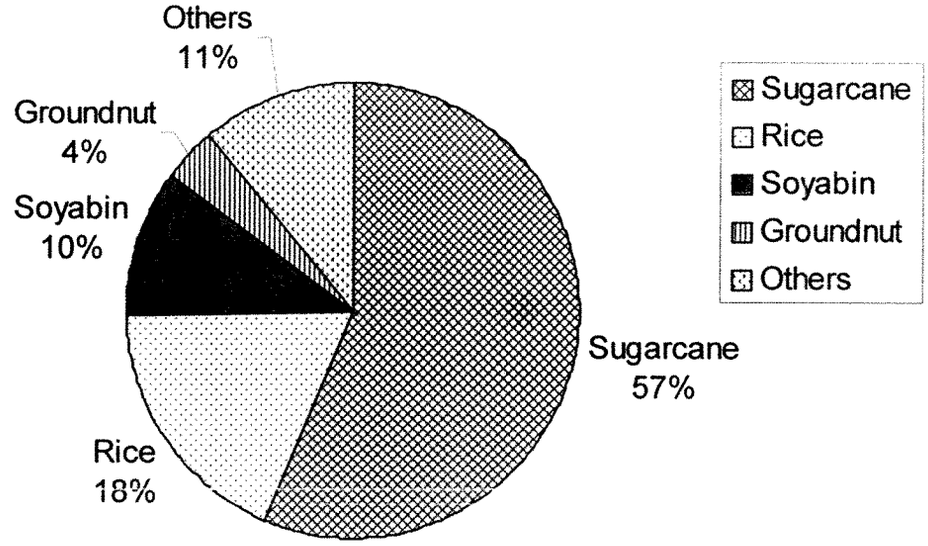
Source :- Field Work

Other :- Fruits, Flowers, Chilie, banana, Gram etc

Graph No. 3.2

Current Cost on Various Crops

2005-2006



Above table and pie-chart shows the difference in cost of each crop before organic farming and after organic farming from various crops. These costs are the summation of all crops of farmers. Before the organic farming the cost of sugarcane was Rs. 77,400 and after organic farming it was Rs. 33,900. The cost on sugarcane is reduced by 56.21 percent. In the case of soyabin cost also reduced by 47.95 percent . Where as the cost on rice, groundnut, and other receptively reduced 24.14, 38.75 and 37.74 percent respectively. The cost of organic farming reduced because the expenditure on fertilizers , seeds, labour, pesticides etc, was very less.

The above pie chart shows that the cost on sugarcane is highest and it is 56.46 percent. Because sugarcane is the major crop in Kolhapur district. Where as the cost of groundnut is lowest and it is 4.08 percent, out of total cost.

The coefficient of correlation between cost of sugarcane and cost of rice is - 0.15. It means the relation between these two factors is weak negative. As well as the coefficient of correlation between cost of sugarcane and cost of soyabin is - 0.12. It means the relation between these two variable is also weak negative.

3.14 Comparative Income of Various Crops :-

Income of various crops in traditional farming methods and in organic farming in study area of land in a year is given in the following table.

Table No. 3.12

Comparative Income of Various Crops (Rs)

Sr. No	Crops	Before	Current	Growth rate
1	Sugarcane	886000	1213000	36.90
2	Rice	54500	70000	36.90
3	Soyabin	39000	48200	23.59
4	Groundnut	225000	28000	24.45
5	Other	598000	87000	46.83
	Total	**1802500**	**1446200**	

Source :- Field work

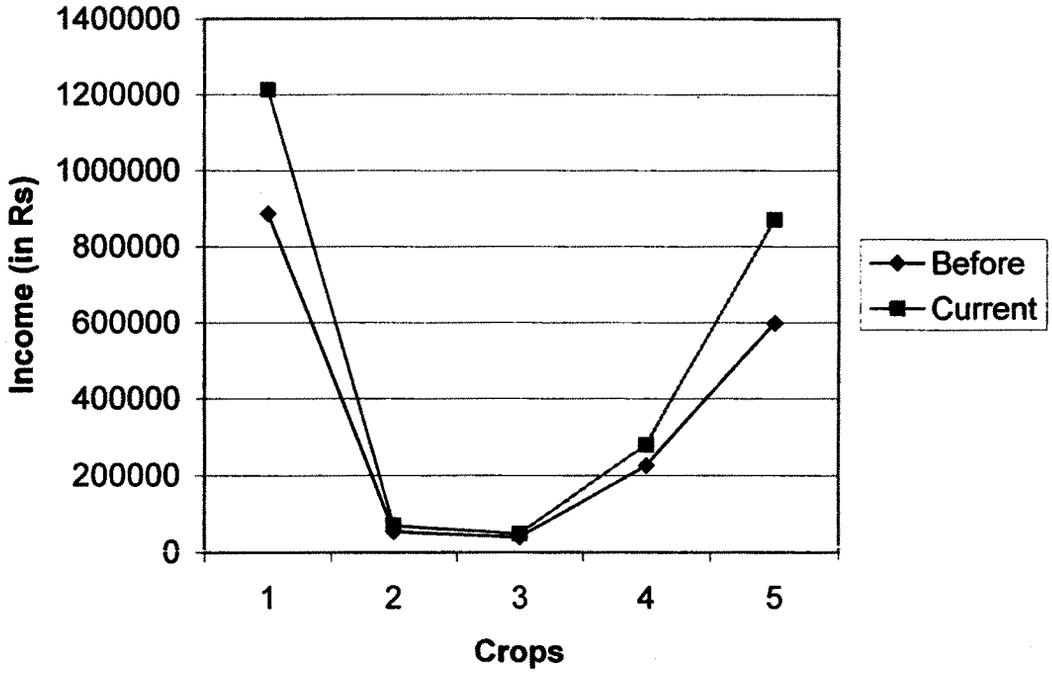
Other :- Fruits, Flowers, Vegetable etc.

**Patil Annasaheb Balasaheb and his family,
with organic smoot gourd,At:-Narande,
Tal:-Hatkanangale,Dist:-Kolapur.**

**Chogule Rangrao Mahadev and his son ,with Organic Brinjal ,
At:-Bhuyewadi,Dist:-Kolhapur.**

Graph No. 3.3

Comparative Income of Various Crops (In Rs)



The difference between the income of various crops is explained in the above table. The range graph is also drawn with the help of above table, which is shown as below.

Keeping the same size of land the difference between income of various is explained in the above table. The income of various crops is the summation of the income of all farmers. The income of other crops before the organic farming was Rs. 59,800 and now the current income in organic farming Rs. 87,000. It is increased by 46.83 percent. Where as income of sugarcane before the organic farming was Rs. 88,600 and current income is Rs. 12,13,000 which is increased by 36.90 percent. The growth rate of income in rice and sugarcane is 36.90 percent. The growth rate of income of

soyabin and groundnut is nearly same, which is 23.59 and 24.45 percent, respectively. The income of sugarcane is increasing at a higher level and the income of rice has increased by lower level. Range graph also explains the difference of income.

If we see the correlation among the various variables, the coefficient of correlation between income of sugarcane and income of other crops is 0.99. It means the relation between these two variables is strong positive. As well as the coefficient of correlation between current income of rice and current income of other crops is - 0.56. It means the relation between these two variables is moderate negative.

3.15 Diversification In Production :-

How the farmers take various crops in organic farming is explained in the following table.

Table No. 3.13

Application of Organic Farming Technique to Various Crops

		Sugarcane	Soyabin	Rice	Banana	Maize	Jawar	Ground nut	Other
Yes	Respondents	19	6	8	1	4	1	6	10
	%	95	30	40	5	20	5	30	50
No	Respondents	1	14	12	19	16	19	14	10
	%	5	70	60	95	80	95	70	50
Total	**Respondents**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
	%	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Sources :- Field work

Other :- Wheat, Flowers, Fruits, Vegetable, Gram, etc.

From the above table it seems that among 20 framers 19 farmers were taking the crop of sugarcane and their proportion is 95 percent, out of 20 farmers. As well as, there were 10 farmers who took other crops in organic

farming and their proportion was 50 percent, out of 20 farmers. Where as there were only 2 farmer who took the crop of Jawar and banana and their proportion was 5 percent. It means most of the farmers took the crop of sugarcane and minimum farmers who took the crop of jawar and bananas. The proportion of sugarcane among the all crops is higher because the availability of irrigation facility, suitable soil ,suitable environment and more income.

3.16 Lack of Optimum Price For Organic Product :-

Out of 20 farmers, 8 farmers told that people get the optimum prices for organic product because those people who want organic and qualitative product, they pay the higher prices for organic product. Out of 20 farmers, 12 farmers told that they can't get optimum prices for organic production, because there is no awareness among the consumers about organic production and no market mechanism for organic production.

3.17 Cost of Input Used In Organic Farming :-

In organic farming the farmers occurs the cost on various factors which is explained in following table.

Table No. 3.14

Cost of Input in Organic Farming (In Rs)

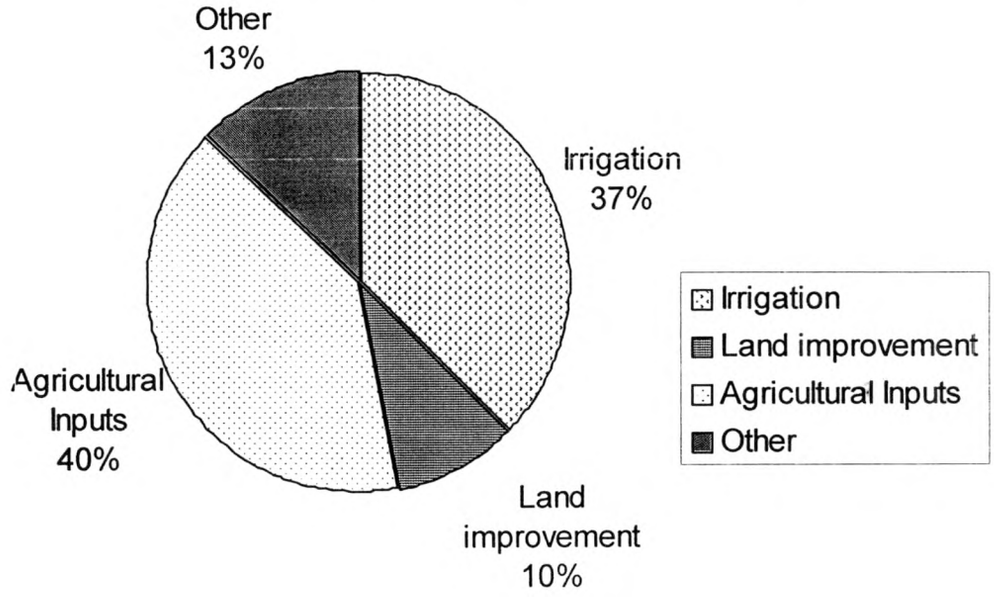
Sr. No	Factors	Cost	%
1	Irrigation	92600	37.46
2	Land improvement	23500	9.51
3	Agricultural Inputs	99600	4.30
4	Others	31500	12.74
	Total	**247200**	**100**

Source : - Field Work

Other :- Transportation, For Information, Vehicle etc.

Graph No 3.4

Cost of Inputs In Organic Farming



In above table we can observe that in organic farming farmers spend on various factors like irrigation, Land improvement, agricultural inputs and other etc. These costs are the summation of the cost of various factors of respondents. The cost on agricultural inputs was 40.30 among all cost. Where as the cost on land improvement is 9.51 percent, which is the lowest cost. It means mostly farmers spend higher amount on irrigation and agricultural inputs. The coefficient of correlation of current income is organic farming and current cost in organic farming is 0.56. It means the relation between these two variables is moderate positive correlation.

Among the 20 farmers, about 17 farmers, expressed their view that the cost of organic farming is very less as compared with other methods of

farming, as only 2 farmers told that this cost is equal to other methods of farming.

Among the 20 farmers, about 18 farmers, expressed their views that the cost of organic farming is decreasing instead of increasing.

Among the 20 farmers all farmers make the cost on permanent factors like, pipeline, dugging the well, Water machine, tube wells, flatters the land, improve the fertility etc.

Out of 20 farmers, 16 farmers expressed their views that the organic farming require less water than other methods of agriculture farming and their proportion out of all farmers was 80 percent. But 4 farmers told that the water requirement in this farming is equal to other methods of farming.

3.17.1 Cost On Fertilizers

The cost on fertilizers before and after the organic farming explain with help of following table

Table No. 3.15

Comparative Cost on Fertilizers (In Rs.)

Current	Before	Growth rate
22000	61700	-64.35

Source - Field Work

Above table shows the cost on fertilizers before the organic farming and after the organic farming. This cost is summation of cost of all farmers. The cost before the organic farming on fertilizers was Rs. 61,700 and after organic farming it was Rs. 22,000 and it decreased by 64.35 percent. This cost is decreasing tremendously, because the prices of inorganic fertilizer is very high and on the other hand cost of organic fertilizer is very low. Each farmer can also make organic fertilizers at his farm with farm husk grass etc.

Out of 20 respondents, 10 respondents [50 percent] produced the compost fertilizer.

3.18 Information about The Various Animals :-

Information of various animals with the farmers is given in following table.

Table No. 3.16

Animals With Sample Farmers

Sr. No.	Animals	No.	%
1.	Buffaloes	140	65.6
2.	Redaku	6	2.8
3.	Cow	40	18.7
4.	Bull	23	10.7
5.	Goat	0	0
6.	Others	5	2.2
	Total	**214**	**100**

Source: – Field work

Other: – Horse, Hens, Pigs, Sheeps etc.

Above table shows various types of animals and various quantities of animals. These number of animals are summation of animals of all respondents. The respondents were having 140 buffaloes out of 214 animals, whose proportion is 65.6 percent. This is highest number of animals. Where as the respondents have only 5 other animals is only 2.2 percent. But the average number of animal to each respondent were 11animals. It means the farmers were having many animals in organic farming and these were kept for fertilizers.

3.19 Quality and Productivity of Organic Farming :-

Among the 20 farmers, 19 farmers told that the output and productivity in organic farming definitely increased. The proportion of these farmers is 95 percent.

Morever, out of 20 farmers, all farmers expressed their views that the quality of organic production is more than the product in other methods like inorganic farming.

3.20 Comparative Investment In Various Factors: -

The investment in various factors before and after organic farming is illustrated in the following table.

Table No. 3.17

Difference in Investment Before and After Organic Farming

(In Rs.)

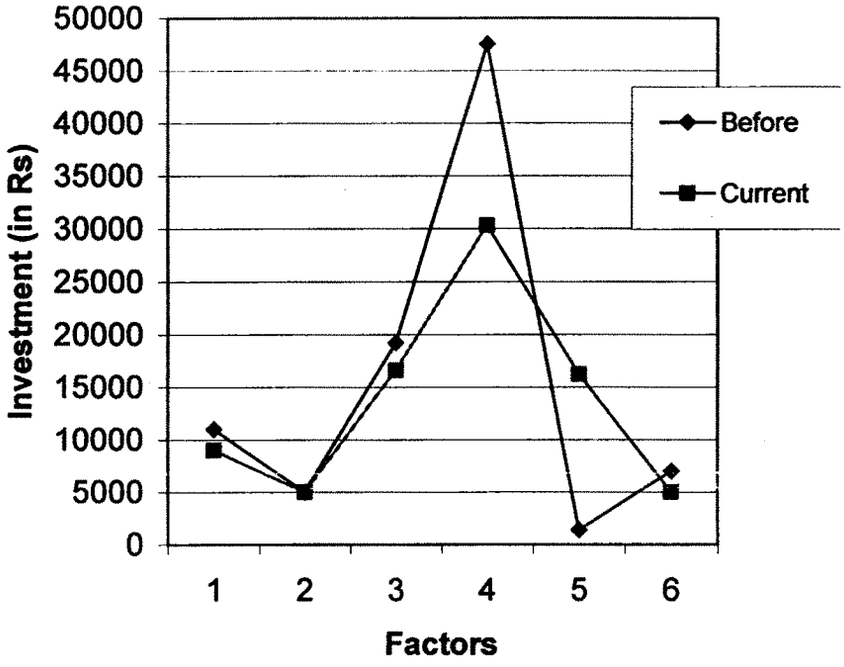
Sr. No.	Factors	Before	Current	Growth Rate
1.	Land Improvement	11000	9000	-18.19
2.	Land Purchasing	5000	5000	0
3.	Irrgiation	19200	16600	-13.55
4.	Fertilizers	47500	30300	-36.21
5.	Labour	1350	16200	20
6.	Other	7000	5000	-28.58
	Total	**103200**	**82100**	

Source : – Field work

Other : – Vehicle, Water Machine, Transportation etc.

Graph No. 3.5

Difference In Investment Before and After Organic Farming (in Rs)



1.Land improvement 2.Land Purchasing 3.Irrigation

4. Fertilizers 5.Labour 6.Others

Above table and line graph shows the difference in investment before and after the organic farming. The investment in fertilizers was before the organic farming Rs. 47,500 and after the organic farming it is 30,300, which is reduced by 36.21 percent. The rate of reduction in investment of other factors was greater among all the factors. Where as the rate of reducing the investment in irrigation was very slow, which is 13.55 percent. The investment in labour before the organic farming was Rs. 13,500 and now in

organic farming it is Rs. 16200. Thus, it was increased by 20 percent. The average investment in organic farming was decreased by 20.45 percent. It means the investment in organic farming is less than other methods.

If we think about the co-efficient of correlation among the investment in various factors, it seems that co-efficient of correlation between investment in irrigation and investment in fertilizers is - 0.008. It means the relation between two variables is weak negative. As well as the coefficient of correlation between investment in labour and investment in irrigation is - 0.34 and it is a moderate negative correlation. Where as the co-efficient of correlation between investment in fertilizers and investment in other factors is - 0.50. It means the relation between investment in fertilizers and investment in other factors is moderate negative correlation.

3.21 Seeds For Organic Farming :-

While cultivating organic farming farmers purchase the seeds from market as well as they use domestic seeds, which is helpful to reduce the expenditure of organic farming and it produces the qualitative product.

Among the 20 farmers, 12 farmers expressed their views that the cost of organic farming was reduced. Their proportion is 60 percent, out of 20 farmer. Where as among the 20 farmers, 5 farmers, it means 25 percent farmers explained that the cost of organic farming is equal to other methods of farming. But 3 farmers told that the cost of organic farming is increasing rather than other methods of farming. Generally, we recognized that the cost of organic farming is reducing than other methods of farming.

3.22 Loan For Organic Farming:-

Out of 20 farmers, 10 farmers had taken loan for organic farming from various sources and their proportion is 50 percent. This is explained with the help of the following table.

Table No. 3.18

Amount and Sources of Loan (In Rs.)

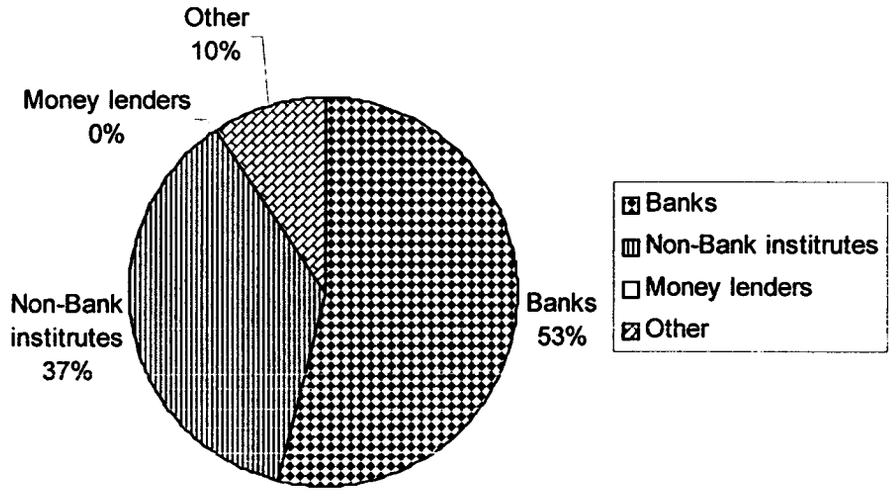
Sr. No.	Sources of Loan	Amount	%
1.	Banks	480000	53.93
2.	Non-Bank institrutes	325000	36.51
3.	Money lenders	0	0
4.	Other	85000	9.56
	Total	**890000**	**100**

Source ;– Field work

Other ;– Relatives, Friends etc.

Graph No. 3.6

Sources Of Loan For Organic Farming



Patil Amar Pandurang with Organic Bananas and Mangoes,
At:-Sarawade,Tal:-Radhanagari,Dist:-Kolhapur.

Chogule Bhanudas Maruti and his brother with Organic Groundnut,
At;-Bhuyewadi,Tal:-Karveer,Dist:- Kolhapur.

Above table and pie chart shows that the farmers took loan from banks, non-bank financial institutions and others, for organic farming. The loan is taken by farmers every year and it is a summation of the loans of all farmers. Above all farmers took the loan from banks for organic farming, which is Rs. 48,0000 and this is maximum amount among all sources of loan and its proportion is 53.93 percent. After that non-banking financial institutions also supplied the loans for farmers for organic farming which is Rs. 3,25,000 and its proportion to total amount of loan is 36.51 percent. Farmers also took the loan from other sources of loan for organic farming, which is Rs. 85,000, which is also minimum amount of loan among all sources of loan 9.56 percent. No farmer took the loan from traders and money lenders for organic farming. It means among all sources of loan banks all playing an important role to give the loans for organic farming rather than other sources of loan.

3.23 Difficulties in Organic Farming :-

While cultivating the organic farming farmers faces many difficulties which are explained in detailed in the following table.

Table No. 3.13

Nature of Difficulties in Organic Farming

		Capital	Disease Control	Labour	Output Decrease	Marketing	Information	Others
Yes	Resp.	6	3	6	0	18	10	1
	%	30	15	30	0	20	50	5
No	Resp.	14	17	14	20	2	10	19
	%	70	85	70	100	10	50	95
Total	**Resp.**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
	%	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source; – Field work

Other ;– Transportation, No-cooperation of people, lack of optimum price etc.

While cultivating the organic farming farmers faced many problems in organic farming like, capital, disease control, availability of labour, decrease in output, lack of marketing, information and others.

Above table shows that 18 farmers, out of 20 farmers are faced the problem of marketing and their proportion was 90 percent. After that 10 farmers faced the problem of information and its proportion to all farmers was 50 percent. Where as only one farmer faced the other problem. Its proportion out of all farmers was 5 percent. But no farmer of organic farming faced the problem of decrease in output. The 6 farmers, out of 20 farmers faced the problem of availability of labour. Its proportion is 30 percent on the basis of above explanation this shows that while cultivating organic farming, mostly farmers faced the problem of marketing and information. To control that problems government should use the media and news papers to give the information of organic farming. Government also show the ideal plots of organic farming to the farmers. Government should organic the lectures of agricultural expert, seminars and create the awareness in the minds of consumer about the organic product. Government should also organize the exhibition and create the separate marketing mechanism for organic product with optimum price. Government should also create the export facilities for organic product.

Among the 20 farmers, only 3 farmers expressed their views that the government gave them the subsidy for organic farming and their proportion was 15 percent. But 17 farmers, out of 20 farmers told that government did not give them the subsidy for organic farming and their proportion is 85

percent. It means government does not give the subsidy for extension of organic farming except 2 or 3 cases.

Farmers of organic farming has some expectations from government. They told that government should give the optimum prices for organic product. Government should create the separate market mechanism for organic product. Government should supply. The export facility for organic product. Government should give the loans in lower rate of interest for organic farming. Government should show the ideal farms of organic farming for other farmers. It should also give the information about the organic farming by televisions, radio, news papers and journals etc. Government should also organize seminars, workshop and lecture on organic farming.

3.24 Organic Farming in Future:-

Among the 20 farmers, 19 farmers will continue the organic farming in future too. Because the lowest cost of organic farming, conservation of soil fertility, No pollution, creation of poison less product, qualitative product, price premium, surplus in product and ecofriendly farming method, etc, and their proportion is 95 percent.

3.25 Members of Agricultural Organizations:-

Out of 20 farmers, 8 farmers were the members of agricultural organization and their proportion was 40 percent. This agricultural organization helps the farmers to solve their various problems. The organization organizes the seminars, workshops etc. The organization gives the information about organic farming to the farmers. On the basis of above information we can say that all farmers should become the members of agricultural organization.

3.26 Study Tours of Farmers:-

Among the 20 farmers, 17 farmers went to the study tours for the organic farming. Their proportion was 85 percent. Maximum farmers went for study tour in Maharashtra state at various places like Bedakihad, Khede in Ajara Taluka, Nashik, Dapoli, Rahuri, Niphal, Vengurla, Pune, Kagal, Amravati, Sangli etc. Some farmers went for study tour in other states in India like, Belguam, Banglore, Madhya Pradesh, Chattishgad, Rajastan, Mysore, Jalgaon etc. Where as some farmers went for the study tour for organic farming in foreign countries like, Israel, Japan and Switzerland.

3.27 Conclusion :-

On the basis of all above information we can say that organic farming is the best Ayurvedic solution on some major problems. Organic farming improves the fertility of soil and increases the productivity. It improves the quality of food, as a result it increases the efficiency. Organic farming has the lowest cost of production. It is very simple science; there is no need to purchase the inputs from market. We may take from the farm and use them in farm. Illiterate farmers can also do all things in his farm in a very simple manner and at a lowest cost. That is why all the farmers must be able to use the organic farming. We can achieve the sustainable development with the help of organic farming.

In inorganic farming the production increases in short run. But in long run the production decreases due to decrease in fertility of soil. The product of inorganic farming do not have any quality, it contains some proportion of poison. Consequently, the working efficiency of persons decreases. As a result the production decreases and productivity also. All these factors cause

to the decrease of National product and consequently, our economic development will become stagnant.

On the other organic production contains vitamins and protons. It is poison less production and it has quality. As a result working efficiency of workers increases rather than before. Consequently, he produces more and increases his productivity. As a result national income increases continuously. In this way we can achieve sustainable development, sustainable agriculture by organic farming.