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Chapter 8
Findings and Policy Recommendations

8.1 Introduction

The unsustainability of modern agricultural practices have led farming communities the world over to look for alternatives. The majority of these alternatives indicate a return to traditional, eco-friendly practices; organic farming is one among them. Organic farming over the last few decades has proved to be successful; but the differences in culture, ecology and geographical factors necessitate adoption of situation-specific principles and techniques. The farmers of Kerala, as elsewhere are experimenting on this. Some have succeeded, others are in the process of evolution and yet others have failed but new options are being tested out. Organic farming is an alternative agricultural method that relies on ecosystem's management and emphasizes soil health as the foundation of successful crop production. As organic farming helps to avoid the dumping of agro-chemicals and gives us residue free food, safe environment, importance of organic farming is increasing day by day. The demand for organic food is also growing fast in India and so most of the states in India are trying to convert a remarkable portion of their cultivated areas into organic farming. In order to make the state organically green the government of Kerala state also came forward with a new policy on organic farming in 2008 with the help of the Kerala State Biodiversity Board, with a mission of converting Kerala's agriculture into "Completely Organic" within next five years.

Reacting to this innovative policy and action plan of the state government to revitalize the state agriculture, several concerns were aired, like food security, food safety, and the right of the state government to formulate a policy on a state subject and its relevance, etc. Several government and non-government agencies, farmers, agricultural scientists, ecologists, naturalists, politicians, and other stakeholders started debating on the topic and made the situation more ambiguous by presenting evidences in *support of* or *against* organic farming. The state government's approach and undue haste was also criticized. In this context, the present study was formulated specific objectives are detailed below.

1. To examine trend and pattern of organic farming in Kerala
2. To analyze the Government initiatives to organic farming in Kerala
3. To analyze the productivity and profitability of organic farms in Kerala

4. To analyze the constraints faced by the organic farmers in selected districts in Kerala

The methodology adopted survey research design was adopted for the study. Thiruvananthapuram, Thrissur, Alapuzha, and Wayanad districts of Kerala state were taken purposively as the study area after analyzing the reports of successful organic farming efforts in these districts. A survey approach was followed for data collection. A sample of 200 organic farmers was randomly selected from the four districts. In addition, five organic farming units were analyzed from these districts to study in productivity and profitability of organic farming. A discussion with agricultural experts officials associated with promotion of organic farming was also interviewed to understand the existing status and the various strategies for promotion of organic farming in Kerala. The data collected were analyzed with the help of statistical tools.

8.2. Trend and Pattern of Organic Farming in Kerala

The production of food grains has increased four folds from 50.82 mt in 1950-51 to 212.05 mt on 2003-2004. Organic farming appears to be one of the options for sustainability. Organic agriculture in India starts in 1900 onwards. The year 2000 is very important year for India on the field of organic farming. There are four major events during the year 2000. The planning commission constituted (2000) a steering group on agriculture which identified organic farming as a national challenge and suggested it should be taken in the form of a project as major thrust area of 10th plan. The group recommended organic farming in rain fed areas and in the areas where the consumption of agro chemicals is low or negligible.

The National Agriculture policy (2000) recommended promotion of traditional knowledge of agriculture relating to organic farming and it's scientific up gradation. The Department of Agriculture and co-operation (DAC) and Ministry of agriculture constituted (2000) a task force in organic farming. The ministry of commerce launched the National Organic Programme in April 2000 and Agricultural and Processed Food Products Export Development Authority (APEDA) is implementing the National Programme for Organic Production (NPOP).

India exported 135 organic products under 18 categories. The total volume was 44,476 tons realizing over US Dollar 125 million. The overall growth of organic food exports was 50.5% over the previous year. Around 60% of the country's organic products were exported to the Economic Union, 8% to Japan and the rest to Canada, Australia and East Asian countries, India ranked 33rd in terms of total land under organic cultivation, and 88th in terms of ratio of agriculture land under organic crops to total farming areas. The market potential for organic product in the metros is Rs. 1462 crores, out of this 562 is available from modern retail. Market potential for India is estimated at Rs. 2300 crores. Delhi and Bangalore are top two cities in terms of market potential.

The consumers express very high demand for organic products. It is found that consumer is ready to pay only 57% more for items at a regular consumption, while organic products are available at a premium of 15 to 20%. The market for organic products can be developed at 2 levels. The first one is Niche market which can be developed by creating awareness about certified organic branding and selling through special stores. The second level is mass market. The gain in promoting organic food in mass market is enormous. The agriculture and allied sectors in India provide employment to 65% of the workers and accounts for 30% of the national income and India have concerned much more than any other nations of the world as agriculture is the source of livelihood of our people and it is the foundation of the economic development of the country. The area under cultivation cannot be increased and the present 140 million hectares will have to meet the future increases in such demands. There is a strong reason for decline in cultivated area because of urbanization and industrialization, which in turn will export much pressure on the existing cropped area.

The organic products are available in the domestic market are rice, tea coffee pulses and vegetables. Wholesalers, traders, super markets and own shops are the major channels in the domestic markets which are mainly in the metropolitan cities, and accounts for only 75% of total organic production. The policy of ministry of Agriculture seeks to promote technically sound economically viable, environmentally Non-degrading and socially acceptance use of natural resources in favor of organic agriculture. The policy seeks to promote organic farming for strengthening rural

economy, promoting value addition accelerating growth of Agro business and securing fair standard of living for the farmers and agricultural workers and their families.

During the 10th plan the Department of Agriculture and Co-operation (DAC) Ministry of Agriculture has launched a new central sector scheme. The 10th five year plan emphasizes encouragement to organic farming with the use of organic waste integrated pest management and integrated Nutrient management. Even 9th five year plan had emphasized the promotion of organic products with the use of organic and bio inputs for the promotion of sustainable agriculture. High price expectations, delayed delivery quality restrictions, lack of production, high cost of inputs, lack of certification, huge expense on certification marketing networks are some of the constraints in market6ing organic products internationally and domestic market, government does not provide any incentive to organic production. Most of the organic market oriented programs are an arrangement between trading companies and farmers in which the companies are clearly dominant which puts farmers at a disadvantage. Experts say that providing opportunities for the strengthening of farmers associations and NGO could help for the promotion of organic agriculture. Besides, the most efficient way to do this is by inviting the private sector to provide marketing services and even required investment for organic farming.

As per consolidated organic statistics for the year 2020-21 provided by the national programme for organic production (NPOP), Kerala belongs to 11th position to compare with other state in India. Madhya Pradesh belongs to the first position with 1637730 Ha areas under organic cultivation. Kerala has organic cultivation 48364.18 ha; it is comparatively low with comparing other states like Maharashtra (371722.62 ha;), Rajasthan (298686.29 ha;).The area under cultivation of organic farming in Kerala, it shows decreasing and increasing trends in area under cultivation, in 2015-16the total area under cultivation was 44788.50 ha; and it is decreased in 2016-17 and 2017-18 area under which 43701.88 ha; and 34160.14 ha; respectively. Kerala belong to the 14th position in the case of area under cultivation. The total area under the organic cultivation was 48364 ha; out of that 45070 ha is farm area and the remaining is organic area under wild cultivation i.e (3293 ha).

The total farm production is 27850 million tones. Export is the one of the best indicator to access the economic performance of organic farming Kerala attained 4th position in state wise organic exports with export of 8610.66 million tons in 2020.Under group marketing, 10-15 Self Help Groups (SHGs), numbering about 250-300 farmers, come together under the banner of Swasarya Karshaka Samithi (SKS) and trade their produce collectively. This helps the farmers to have a good volume thereby being in a better position to negotiate with the wholesalers in order to 'optimise their returns'.

8.3. Government Intervention and Organic Farming in Kerala

In fact, the different government institutions have a good access the each corner of the social system. A proper institutional mechanism is an important component of any development process or program. Different institutions of the network have its own role in the mobilization various resources, proper implementation of the program, monitoring and evaluation of the program etc. The six major institutions that had been identified though the study like government, NGOs, certifying/exporting agencies, farmers' groups, educational institutions and family found to be having its own relevance in the recent organic agricultural development of the state. Family & homesteads and farmers groups acted as pivotal institutions in exerting a major influence on adoption and spread of organic farming. Educational institutions like school had played their role in generating interest on organic agriculture in the young minds.

8.4. Production and Productivity of Organic Farmers in Kerala

Seven general indicators are used to analyze the socio-economic status of the sample respondents are age, annual income, sex, size of family, economic status, education, employment. Out of 200 sample farmers, 10.5 % of the sample respondents are belong to the age group varies 20-35. It is a clear indication for educated youth are not self-encouraging in organic farming.36% percentage of the sample respondents are belong to the age group of 35-50 i.e. productive age group, under this age group farmers are experienced and they are more capable organic farmers. Out of the respondents, 38 % of the sample respondents are belongs to the age group of 50-65 they are very prominent supporters to organic farming,15.5 % of the sample

respondents are belong to the age group of above 65 years, they are the nominal farmers because their unhealthy situations may not be contribute to organic farming in Kerala.

Income of the individual and family are the prime indicator of the socio-economic status of the individuals, Out of 200 sample organic farmers 24% of the sample respondents are belongs to the lower income group. 25.5 % of the sample respondents are belongs to the average income group and 8.5% of the sample respondents are belonging to the higher income group. Male female proportion among the sample respondents are another factor to access the socio economic status of the sample respondents, a proportionate proportion of the male female participation means that the women has a equality in employment. 74% of the sample respondents are male farmers and only 26% percentage of the sample respondents are females. It clearly indicates that participation of females in the organic farming is low among the selected sample districts.

Size of the family is an another important factor to access the socio-economic status of the resppondents, on the basis of the number of family members family is divided in to three i.e. Nuclear family,small familyand large family. 77 (38.5%) of sample repondents having nuclear fmily , it understood that earnersof the family is either one or two.majority of the family having single earner.42% of the responents having small family the number of dependence in the samll family is comaparitively low to comapare with nuclear and large family. 20% of the sample respondents having large family consists of more than 8 members.It is clearly understood that family income of the large families is comapritively high in large families.

Economic status of the sample respondent is an another factor to access the socio economic status of the sample respondents. The term economic status means that better linig condition without burden. out of 200 sample repondents 112 (56%)respondnts are belong to Above Poverty Line (APL) and 88 (44%) of sample respondents arebelogs to below poverty line on the basis of their actual status of their ration card. One serious issue identfied by the researcher during the survey process, that is real position regarding their economic status was entirely differnet from the actual position. The criteria behind that the amniities enjoyed by the sample respondents .Out of two hundred sample responndents 131 (65.5%) of the sample

respondents are belongs to the lower income group an only 69 (34.5%) of the sample respondents are belongs to the higher income group. Education is an another important criteria for evaluating the socio economic status of the sample respondents. Out of 200 samples 22% of the sample respondents are illetrates and 27.5% of the sample respondents are completed primary education. The number of people havingeducation at matriculation and Pre-degree level is 13% and 6% respectively.2.5% of the sample repondents havingthe education level above the graduation among the sample respondnts. Educational wise classifation of the sample respondents are explaine with the help of trend lines .

The indicators used to access the socio economic background of the people are engaged in agricultural related activities that is status of farm land, area under cultivation, allied agricultural activities of the farmers, water source, method of irrigation, use of agricultural machinery. Out of 200 sample respondent's 144 (72%) farmers having Own land and 5% of the organic farmers are farming at lease land.6.5% of the sample respondents are use land for partially lease. 12.5% of the sample respondents are farming under small holder organizations.

According to the size of the farm land area under cultivatio divided into three category farmers with cultivating area one hectare, in between one hectare to two hectare and finally above three hectare. 55.5% of the sample are cultivating below one hectare. In distirict wise analysis it is clear that in Thiruvananthapuram district out of 50 farmers 27 farmers (54%) are cultivating below one hectare.Significantly the number of farmers cultivating below one hectare in three sample districts are higher than 50% expet wayanad district. 31.5% of the sample respondents are cutivating the area in between one hectare to two hectare. only 13% of the sample respondents are cultivating the farm land above two hectares.In wayanad district nearly 26% of the sample respondents are cultivating more than two hectares. Out of two hundred sample farmers 72 (36%) of the sample farmers are engaged in cattle rearing.Most of the farmers who have cattle also keep poultry and goat for alternative Inccome.Only Seven organic farmers are not entered in other agricutural activities. All the farmers depends mainly on the seasonal rains as their primary water source for the farmland. In addition the farmers depends on well in water scared areas. 39% of the sample repondents are used well as other source of water. Farmers used other natural

resources for water like well, pond, canal, River etc.In addition borewell are also used bythe farmers.Out of the 200 hundred sample respondents 132 (66%) of the respondents are fully encouraged with organic farming. The perception towards the other form of farming is traditional 41 farmers (20%), and partially organic 16 farmers (8%).The farmers do not encourage partially organic methods because partially organic methods may not fulfil ethics of farming.

The 38% of the sample respondents use their own farm resources as various inputs for farming and 62 % of the sample respondents depends resources outside the farm as farm resources. The 46 (23%) of the sample respondnts are shifted to organic farming due to high price of the organic produts in the domestic and foriegn market. 39 (19.5%) of the sample respondents are converted to organic farming because of these farming pratcice will reduce the environmental pollution. 21% of the sample respondents are shifted to organic farming due to the demand for organic products in domestic market. One of the highlight is only 9% of the sample respondents are moved to organic farming through the export promotion of organic farming.

8.5. Productivity and Profitability of Organic Farming

The farm 1 experience loss in agricultural production of Rs.21892/-, but the farmer expressed that the level of profitability of organic farming is increasing in diminishing manner in the beginning stage then it shows a steady growth in outputs from the period 2014-2019. The ago climatic condition of the south zone reflect the steady output of this region. The farm 2 belongs to the Alapuzha district Which Covers 3hectare, the major crops cultivated in the farm are Arecanut, Coconut, paddy and pepper measuring the productivity of the farm is in Adverse profit because the farmer is experiencing normal profit. Total input cost includes cost of own labour and own rent the farmers only obtaining the normal profit from the organic farming.

The Total factor productivity of the farm 3 from the period 2014 to 2019 shows the positive trends. The annual factor productivity of the farm shows a study growth from 2014-15 (1.95) and 2015-16. 2016-17, 2017-18 and 2018-19 and the total factor productivity of the farm was 2.71, 2.32 and 2.92. It is a clear indication of the farm is experiencing in profit recognition. The total factor productivity of the farm shows overall normal profit from the year 2014-15 to 2018-2019. The total factor

productivity of the firm is (1.09) in 2014-15, 2015-16 (1.2), 2016-17 (1.86) the farm experiences the steady productivity rate and 2017-18 and 2018-2019 where farm earns profit.

8.6. Constraints Faced by the Organic Farmers in Kerala

Statistical results from primary data show that the observed K value of 200 organic farmers' perceptions towards their constraints that are 551.542 is high. As the computed P value is less than the significant level at one percent P<0.01) that can be predicted that the influence of the constraints to the promotion of organic farming is according to famers perception. Certification constraints and Economic constraints are also the main constraints with Mean ranks (915.407 and 883.86) so it can be concluded that marketing certification and economic constraints are the most severe constraints faced by the organic farmers. Technological and ecological constraints were severe constraints to compare rest of the constraints. Among the social constraints lack of group initiative in organic farming, poor quality produces due to negative externalities, Debate about the relevance and need of organic farming, liability to produce organic food for all. The *p*-value is less than 0.01 it is indicated that social constraints are different from each other. The pair wise comparison of the social constraints with mean of ranks. It is understood that inability to produce enough organic food was the most severe constraint faced by the sample organic farmers

Lack of interest to gain more information, lack of concern about organic farming, fear of profit and loss, personal interest of the organic farmers are considered as the personal constraints faced by the organic farmers, Kruskal -Wallis statistic for personal constraints P- value is less than 0.01, it shows the significant difference among the personal constraints. Out of four sub constraints declining the personal interest due to inability to make sufficient farm resources was the most severe personal constraint with Mean rank (672.378), fear of loss in farming due to low output was the another major constraint in farming.

Technological constraints are sub divided in to four categories, shortage of quality planting material (Disease free), Lack of information, Non availability of organic inputs, Lack of unique package practices. Organic farming materials re locale-specific and mainly use the locally available materials .The Technological

intervention in the field of organic farming may improve the status of organic farming in Kerala. Technological backup is the real impediment in the progress of organic farming movement.

The main ecological constraints faced by the organic farmers are requirement of long period to get positive response from the agro system was the most severe ecological constraint. The main economic constraints are initial low price for the produce (Mean rank (276.345), high input cost (Mean rank 350.22) lack of government financial support (Mean rank 358.47) and initial yield of losses (620.00). It is concluded that the single most economic constraint faced by the organic farmers to promote organic farming was initial yield losses in the first few years from the period of conversion to conventional farmland to organic farm land.

It is inferred that in the analysis of different factors related to certification constraints was associated with higher cost of organic certification process with mean rank (479.187) and the duration for certification process with men rank (457.625) these two constraints are the major certification constraints faced by the sample farmers. Climatic changes, erratic rains, unavailability of labour& exorbitant wage rate, especially for paddy cultivation. Being part of a collective farm restricts innovations and adaptation of different techniques. Conversion of paddy fields to other crops such leads to fragmentation of paddy fields and break in nutrient flow. Silt blockage due to construction of roads and dams. Industrial pollution affects river water and thus paddy-prawn cultivation. Lack of market/consumer awareness regarding organic produce is the various constraints faced by the organic farmers in Kerala.

8.7. Summary of Findings

The results of study of different aspects of extent of adoption exhibits the most of the organic farmers were no so innovative in complete adoption in relevant technologies. In correlation analysis a strong positive correlation between the experience in organic farming and extent of adoption of organic farming technologies (r=0.869). It is reflected that experience in organic farming is more there will be an increased chance in the adoption of different innovative technologies. Local communities are the most effective innovators in organic farming, group approach in

organic farming would encourage the quantum of output. It was understood that the institutional network that could make positive impact on organic farming. The constraints are the real paradigms of the organic farming development in Kerala. Economic and marketing constraints had a crucial role in creating obstacles to promotion of organic farming. Lack of domestic organic market was the serious concern and the organic farmers are forced to produce for international markets. The economic constraints are the most severe factors hindering to the small and marginal organic farmers. The productivity of the selected farms shows a nominal profit trends, during the flood season the productivity of the farm declined, Majority of the farmers are in conversion period. During the conversion period Technical efficiency of the selected farm shows a decline trend.

8.8. Policy Implications and Recommendations

The government has a crucial role to strengthening and promoting Organic agriculture in Kerala. They are many policies formulated by the central and state government to encourage organic farmers in Kerala. These policies and programmes are only achieved through the proper implementations at grass root level

(1). Government should take initiatives to arrange various awareness programmes for both for the producer and consumer of organic goods in Kerala. It helps to improve the position of organic farming in Kerala. The proper awareness of organic goods leads to adequate markets to organic products.

(2). Government agricultural institutions should encourage development of model organic plots with institutional support from the bottom level to provide adequate support to organic farmers in Kerala.

(3). Government should Provide healthy and sound financial support to organic farmers during transition period to sustain in Organic agriculture. Assuring availability of quality organic manure at reasonable prices is necessary. Development and maintenance of organic manure sources within the farm. Proper institutional mechanism is an important component of any development process and programme. So the government provides subsidies and interest free loans to organic farmers to

support them. Rural credit helps to farmers to sustain in organic farming. It should be promoted.

(4). Guilds of skilled and experienced organic farming experts to guide new entrance to organic farming in Kerala. Therefore Institutional arrangement is necessary from the part of local self-governments of Kerala.

(5). Establishing local markets for organic products without intervention of the middle man will enhance the marketability of organic products in Kerala. Farmer societies can provide these facilities to organic farmers in Kerala. Financing of organic products through micro financing it will enhance their accessibility to finance.

(6). Processing of organic produce as a key area of development where government can intervene and establish processing centers.

(7). Grading and marketing of organic products are the major constraints faced by the organic farmers in Kerala.

(8). Establishment of public warehouses for storage of organic produce using organic methods will enhance the profitability of organic farming in Kerala.

(9). Price of the organic products to the producers are low to compare the product price in the market so the government Assurance of better prices for organic products to farmers for promoting organic farmers in Kerala.

(10). Restrain trends of large-scale commercialization of organic produce may resolve through the establishment of marketing societies in Kerala through the support of local self-governments.

(11). Creation of networks of organic farmers to facilitate exchange of ideas, technology, inputs and experience. Creating adequate infrastructure for establishing organic input making bio-fertilizer units will be fruitful. Food quality testing labs, grading and packaging facilities and creating marketing channels for promoting organic farming in Kerala are essential.

(12). Education and training programs need to be organized for farmers will enhance the knowledge level of organic cultivators in Kerala. Therefore, awareness programmes will improve their knowledge on agriculture.

(13). Organizing workshops and seminars to achieve consensus among different stakeholders will improve the awareness of organic farming in Kerala

(14). Educating and training organic farmers will increase the profitability of organic farming in Kerala

(15). Creating infrastructure for establishing organic input production centers. Grading and packaging food parks for export quality. Cold chains and supply chains for assured marketing of organic produce. The government and all the stakeholders have a key role to play in promoting organic farming in Kerala. Concerted group farming actions need to be taking up in area which less organic farming. Organic farming needs to be taken forward as it has a great promise for the future generations.

8.9. Areas of Further Research

Organic farming is an alternative agricultural method that relies on the environment sustainability and ensuring the quality of food. In the present study is a micro level to measuring the economic impact of organic farming in Kerala. The study reveals the major constraints and problems faced by the organic farmers. The economic impact of productivity and profitability of selected farm is also measured. Organic agriculture is a multifaceted concept. There may be variations in spending of the governments and farmers due to difference in productivity and profitability. The variation of Productivity and profitability with comparison of conventional agriculture is a further research area.