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Chapter 1

Design of the Study

1.1. Introduction

Agriculture sector performs the vital function of supplying food stuff to the people in India. More than 60% of her population depends on agriculture for their livelihood. Global awareness on health and environment issues is spreading fast in the recent years. Sustainability in production has become the prime concern in agriculture development organic method of farming is the best option to ensure food air, water and soil around us unpolluted leaving the environment safe for the present and future generation. The agricultural model promoted during the green revolution period was based on the use of high yielding varieties and high close of chemical fertilizers and pesticides. Long term field experiments have made clear the negative impact of continuous use of chemical fertilizers on soil health (Yadav, 2003).

The occurrence of multi-nutrient deficiencies and overall decline in the productivity of soil under intensive fertilizer use has widely reported. Recognizing soil as a dynamic living entity which promotes beneficial biological activities in soil and root zone of plant is central to the organic agriculture. Meeting the domestic food requirement has been the fore most social priority before India since independence, vegetables play a vital role in health and nutrition of people organic farming is today's answer not only for higher and sustained productivity but also for safe nutritious food and it is increasingly demanded by enlighted consumers around the world organically grown agricultural produces fetch a premium in market.

Organic farming is today's answer not only for higher and sustained productivity but also for safe nutritious food and it is increasingly demanded by enlightened consumers around the world organically grown agricultural produces fetch a premium in market. India has a vast potential of manorial resources. Farm yard manure and poultry manure are the most commonly used organic manures by the farmers of Kerala. Poultry manure is a rich source of nutrients especially for vegetable production. Vermi-compost which is produced by chemical dis-interaction of organic matter by earth warm contain higher amount of nutrients hormones and enzymes and has stimulatory effect on plant growth.

Nutrient management in a crop production assumes paramount importance in sustainable agriculture with the advent of green revolution our farming community

with the (advent of green revolution our farming community Repeat) sole aim of maximizing production and profit had been moving away from integrated nutrient management towards in organic fertilizer management. Stagnant crop yields inspite of high yielding varieties and advanced plant protection measures had made a farming community. The policy makers convinced of the importance of organic manures in sustaining soil productivity and quality of agricultural produces. Organic farming is now being advocated globally as a panacea for all the present day problems in the agricultural front.

The paradigm shift towards organic farming is due to many reasons like concern for human health and environment, decreasing productivity of modern farms increasing pests and diseases etc. The prime cost for all these is being attributed to repeated use of chemical fertilizers without the accompaniment of organic manures. This has become more serious income of crops that do not return back organic residues in substantial quantities or in farming practices where all the residues are removed over dependence on chemical fertilizers due to unavailability of organic manures has slowly but definitely resulted in the decline of soil organic matter nutrient imbalance and consequent deterioration of physical chemical and biological functioning of soils in many intensively cropped areas, but sole independence on organic sources to satisfy the full nutrient requirement of a crop warrant enormous quantity of organic manures. The viable alternatives, this is a strategic shift from the present day of chemical based soil fertility management to organic-based integrated nutrient management.

Organic manures contain high percentage of carbon and relatively small percentage of plant nutrients. They have a multi furious role in improving and maintaining soil productivity organic manure serve as a source of nutrients for the plant and a source of either directly through their action as butlery diluents in compacted soils and indirectly when the waste products of animals and micro organisms thriving on organic matter act as cements to bind soil particles together.

The best known organic manure and the one commonly used by farmers in the waste from mixed arable and livestock forming called farm yard manure (FYM) which contains drug, urine and partially rotted straw. Traditionally agricultural practices which are based in year of experience and careful observation have

motivated Kerala farmers in using several products in crop production. Use of panchagavym in crop production is one among traditional practices which has been gaining popularity in recent times. Organic farming can be defined as an approach to agriculture where the aim is to be created integrated, humane environmentally and economically sustainable agriculture production system. Reliance on external inputs such as chemical or organic is reduced as far as possible in organic agriculture in India. The term organic is the best thought of referring to the concept of the farm as 'organisms'.

The role of organic agriculture, whether in farming, processing, distribution or consumption is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human being [international federation of organic farming]. The concept of organic farming is not clear to many concerns. Many people think that traditional agriculture, sustainable agriculture and Jaivakrishiaree organic farming.The organic farming in real sense envisages a comprehensive management approach to improve the health of underlying productivity of soil. The term 'organic' is best thought of as referring not to type of inputs used, but to the concept of farm as an organism. In which, all the components of soil minerals, organic matter, microorganisms, in which all the components of soil minerals, organic matter, microorganisms, insects, plants, animals, and humans, interact to create coherent self-regulating and stable whole.

Benefits of Organic Farming

Food safety

Soil conservation and maintenance of soil fertility

Less pollution of water

Protection of wild life

Increased bio-diversity

Better utilization of animals

Less utilization of external inputs

Pesticide free food

No hormones and antibiotics in animal products

Better product quality

Four Pillars of Organic Farming

1. Organic standards
2. certification
3. Technology packages
4. Market net work

Organic Standards and Certification

The most important aspect in modern era of organic farming is certification programmes which consists of standards (rule) inspection (checking whether rules are implemented) and certification (judgment) only by this certification programme organic farming can be distinguished from other methods of sustainable agriculture. In fact certification in organic agriculture generally refers to independent third party certification. Third party implies it is not only done by either the producer or the buyer. The system includes farming inspector and audit trails. Certificate is valid only if it is done by accredited certifying agency, certification programme vary among countries or regions because of differences in environment, climate and soil and cultural factors. Globally there are more than 60 standards which include if OAM standards CODEX Alimentation commission guidelines.

Technology packages

Conventional practices cannot be followed for growing crops organically. It includes selection of variety, organic, fertilization, biological control of pest diseases and storage etc. some countries have developed package of practice for some selected crops but there is ample scope to feline this package with scientific method and practices.

Market Network

Organic farming has a place where there is a market to accept the product at a higher price. The growing interest in organic farming practice is due to an expectation of higher premium for organically produced goods.

Basic Steps to Organic Farming

1. Conversion of land from conventional management to organic management.

2. Management of the entire surrounding system to ensure biodiversity and sustainability of the eco system.

3. Crop production with the use of alternatives sources of nutrients such as crop rotation, residue management, organic manures and biological inputs.

4. Management of weeds and pests by better management practices, physical and cultural means and by control system.

5. Maintenance of livestock with organic concept and make them an integral part of the entire system.

Organic farming is the process of producing food naturally. This method avoids the use of synthetic chemical fertilizers and genetically modified organisms to influence the growth of crops. The main idea behind organic farming is 'zero impact' on the environment. The motto of the organic farmer is to protect the earth's resources and produce safe, healthy food.

Organic farmers and gardeners grow their crops without the aid of artificial fertilizers and harmful chemical pesticides. Organic ranchers and dairymen raise their livestock free of drugs and animal hormones. Supporters of the organic lifestyle believe that food produced in this manner is of higher quality, tastes better, and possesses higher nutritional value in comparison to food produced by conventional, chemical-based methods. Many developed countries, including the United States and those in Europe, have certification programs to restrict the liberal use of the term "Organic". This has benefited the consumer by ensuring that quality assurance standards have been met and that the source is reliable. The definition of organic varies from place to place but may include things such as a minimum time period that a field is free of chemical use before being used for organic farming.

Organic farming has re-emerged as the outcome of consumer reaction against harmful toxins and the desire for more health and environmental safeguards. This method is a re-implementation of a primitive process followed by our ancestors before

they discovered chemicals that could save time and improve crop quality, but had the unfortunate side effect of ruining our air, water, and soil.

In the USA, the National Organic Program (NOP) provides the most commonly used definitions of organic farming. That said, USDA organic farming standards don't truly cover the maximum in sustainable farming practices.. Some feel that organic farming methods should include sustainable practices, while some argue that sustainability is not a necessary component of organic farming, thus the non-universal acceptance of a clear organic farming definition. Numerous U.S. states, regions and local farmers have additional organic farming standards in place that exceed basic NOP standards. Additionally, other countries have their own established organic farming standards that differ from USA standards

Organic agriculture is a cultivation technique that relies on natural ingredients without the use of synthetic chemicals. Organic farming is the agricultural production systems that avoid or severely limit the use of chemical fertilizer (plant), pesticides, herbicides, plant growth regulators Environmentally sound cultivation is an agricultural cultivation are planned and implemented with due regard to the properties, conditions and environmental sustainability, thus natural resources in the environment can be utilized as possible so that the damage and environmental deterioration can be avoided and resources in order to preserve natural resources and the environment.

The main purpose of organic agriculture is to provide agricultural products, especially food which is safe for the health of producers and consumers and does not damage the environment. Thus a healthy lifestyle has been institutionalized internationally, which requires the assurance that agricultural products should be safe to eat beratribut (food safety attributes), high nutrient content (nutritional attributes) and environmentally friendly (eco-labeling attributes). Consumer preferences such as these cause the world demand for organic agricultural products increased rapidly.

The definition of organic agriculture differs depending on where you sit in the world. The Food and Agriculture Organization of the United Nations offers a distilled explanation that organic agriculture is "a system that relies on ecosystem management rather than external agricultural inputs." The more detailed explanation is that nations,

regions within nations, and private certification bodies set their own definitions with guidance from two global organizations the FAO/WHO Codex Alimentarius Commission and the International Federation of Organic Agriculture Movements (IFOAM).

However, IOFPCL has still not been able to develop and put in place a structured and efficient logistic network of minimum transaction cost. The company has adopted a procedure of making immediate payment in case of small farmers at the time of collection and partial payment as per previously agreed terms to large farmers. This was corroborated by the primary producers during interaction with them.

KADS is a voluntary organization of farmers registered in 2001 under the Charitable Society Act, 1955 of Kerala. The mission of KADS is securing fair price to farm produces by avoiding middlemen, promotion of quality organic produce production, and assistance in sustainable management of natural resources through awareness campaign, promotion and practicing of eco-friendly agriculture.

KADS facilitates marketing through 'farmer's open market' and organic agriculture through assisting in organic certification in collaboration with INDOCERT, which is a certification agency. About 1000 farmers formed into 54 groups are: in C1, C2 and C3 stages of organic certification in about 1800 ha. KADS has currently 1242 member ships.

Production and marketing are promoted on spices like nutmeg, cardamom, pepper, cloves, vanilla, 144 ginger, other spices and condiments, and other crops like cocoa, vegetables, tapioca and other tubers, coconut, areca nut, banana, rubber, coffee ornamental and medicinal plants, planting materials, seeds and seedlings, and dairy products, meat of goat rabbit and poultry, eggs, etc. and inputs like vermin compost, bio-pesticides and value added products. KADS with farmers' participation also facilitates collection, transporting and storage of various produces. It also encourages women's participation in kitchen garden and marketing traditional dishes and popularizing cooking methods through 'Grameena Bhakshanashala' (village food stall).

'Farmers' Open Market' (FOM) sells farm produces directly to the customers realizing fair price to farmers. The FOM is essentially open only to those who are

registered farmers. KADS officials claim that FOM facilitates to realize at least 15-20% higher price than the selling price in alternate market. In addition, KAOS offers 30% extra price on 'organic' produce, the market for which is increasing. In 2008 KAOS is planning to introduce its own logo and label for the organic produces. The organic produces includes Nendran banana, different varieties of plantain, vegetables, paddy, milled rice, cocoa, coconut, and tender coconut.

The quality of natural resources should be maintained and the vitality of the entire agro ecosystem- humans, animals and crops to microorganisms- should be enhanced in a sustainable agricultural system. The emphasis is on the use of renewable resources where there is minimal loss of nutrients, biomass and energy. Waste is nil or minimal (Reijntjes et al, 1992).

The environmental qualities of organic farming methods have been proven extensively and beyond any doubt. Long-term studies in the US and many other countries have shown that even a reversion to organic farming after years of modern high-input chemical farming has shown the resilience of nature to come back to a healthy state. Scores of researches have shown the higher quality of the soil and other natural resources and the low negative impact organic farming has on the environment. Not only has the natural resource base benefited but also the quality of the produce improved. Consumer expectations have been met as regards the standards of nutritive and health values. The ennobling, virtuous way of life that agriculture was once considered to be has been swept away in the global cultural changes that have taken place since the Industrial revolution. Agriculture, once a mode of life, has become a mode of production (Krimsky & Wrubel, 1996).

The industrialization of farming has rendered the traditional values of life redundant. The ownership of land, the freedom to nurture and evolve it to one’s own liking; the intimate, instinctive love, labour and the tremendous satisfaction as the farmer looks at his creation-to the traditional farmer, it meant everything. Income generation was only a fringe benefit. Socially, too, the farmer was among the most respected in a community.

Land ownership and the control of food production put him at the apex of the social pyramid. However, when the objective of human way of life changed its course

from that of subsistence and sustenance to leisure and luxury, agriculture too, changed its colours. Changes in the mode of agricultural production reflect concurrent changes in other aspects of social and cultural life. Thus it becomes imperative to highlight the economic viability of any mode of interaction. As everything has to be assigned a market value, such is the case with organic farming besides an invitation to change to that mode of agricultural production. This is very much so in the case of farmers who are reluctant to step away from the established pattern of sustenance. As the lure of less labour, more production and huge profits veered away almost entire nations from their time tested and enduring way of life, a similar promise has to be kept for winning them over to organic farming.

To be economically viable, farmers should be able to produce enough for self-sufficiency and income and ensure sufficient returns to meet the costs. The yield as well as resource conservation and minimal risks should the measure of the sustainable farm. Organic agriculture is more or less traditional agriculture; at least it is so to India which has a past and where traditions still survive, and to similar other countries. However, a change to organic farming cannot mean a return to the traditional way of life. A few non-conforming individuals may opt for it, but not the majority who want to improve their living standards.

One of the main arguments against organic farming is that it would not meet the food requirements of an ever-increasing population. But a brief look at the era of modern agriculture would show that, in spite of the booming agricultural production, more people die of starvation and malnutrition than before. Inequitable distribution of food rather than insufficient production is the root of the problem. Studies on ecological farming in South India show that ecological farms produce similar levels of output as that of conventional farms (Vander, 1992).Thus ecological agriculture does not put food security at risk in the short term. As ecological farming practices slow soil erosion and the depletion of soil fertility, it safeguards the future food security of the nation. The low dependence on external inputs is likely to reduce the drain on foreign exchange reserves.

1.2. Research Gap and Research Problem

Having understood the goals of organic farming in achieving the twin objectives of growth and sustainability, the next question is regarding feasibility of organic farming in India. Besides the lack of knowledge regarding the ecological significance, advantages offered and more importantly the techniques of organic farming, is there any economic reason behind lukewarm response to organic farming? Expectation of profit may one reason. An entrepreneur will produce only if total revenue is greater than the total cost. The same logic can be applied to organic farming as well. That is, a farmer will adopt organic farming only if total revenue obtained by selling his product is greater than costs of cultivation. To determine clearly the preference of organic farming compared to conventional farming a comparison between total revenue and total cost of the both modes may be necessitated. Result originating from total revenue-total cost analysis may helpful to understand the unfavorable elements in cost structure of organic farming. This understanding may lead to greater popularity of organic farming.

The empirical literature shows that the comparative performance of organic and non-organic practices is inconclusive across regions. The farm-level studies and regional studies in India do not provide lucid information that; which region or state has better potential for organic and non-organic practice and how does performance differs across a To make a conclusive statement for a country as a whole, there is a need to cover maximum regions or states performing both farming practices. The farm-level studies do not provide any macroeconomic variables that affect the organic and nonorganic. Organic farming practices, as anew agricultural strategy the organic farmers faces many problems regarding the conversion of farmland conventional to organic. The Government may take many measures to regulate and promote organic farmers in Kerala for promoting sustainable in Kerala and uplifting of organic farming in Kerala. The present study is an evaluation of the economic impact of organic farming in Kerala through analyzing the productivity and profitability of organic products in Kerala.

1.3. Objectives of the Study

1. To examine trend and pattern of organic farming in Kerala.
2. To analyze the Government initiatives to organic farming in Kerala
3. To evaluate the socio-economic status of the organic farmers in selected districts in Kerala.
4. To analyze the productivity and profitability of organic farms in Kerala
5. To analyze the constraints faced by the organic farmers in selected districts in Kerala.

1.4. Methodology of the Study

As the objective of the study is to understand the economic impact of organic farming in Kerala is through measuring efficiency and functioning of the selected Organic farming units in selected districts in Kerala. Primary and secondary data are used for the study. Primary date collected from the organic farmers in the sample districts in Kerala. Out of 14 districts in Kerala seven districts are rationalized. Those district which are actively involved in the in the promotion of organic farming. As suggested by agronomist of Kerala Agricultural University Thrissur and various NGOs are associated with organic farming in Kerala. Four districts are selected Thiruvananthapuram, Alappuzha, Thrissur, and Wayand fifty organic farmers are selected from each district. The total sample size is Two hundred and Well-structured interview schedule is used to collects information from the farmers. The study has three main components

i) The survey of selected organic farmers in sample district
ii) Discussion with organizers of the organic farming units in Kerala by using well-structured interview schedule.
iii) Locate speech case studies of farming units in the sample area. A structured questionnaire is used to collect the information from the organizers of the farming units to gather the information related to the demand and market behaviour of the organic products.

Questionnaire survey was followed by visit to selected farmers from the organic units. Periodical visit were made to the farm covering on season of agricultural activities in the farming units. The qualitative date collected through direct observation and verification of farm records in available

i) to record the problems faced by organic farmers and the recommendations by them
ii) Assess the profitability productivity and viability of the organic farming units,

The secondary data collected from the books and journals, internets, and other published sources. Along with simple statistical and mathematical tools Time-series analysis and multivariable linear regression model also will be used to analyze collected data. The performance of organic farming is measured through the measuring technical efficiency in production. In addition to this Kruskal-Wallis (K W test), a non-parametric alternative to one way ANOVA was also used to analyse the variables in ordinal level.

1.5. Significance of the Study

The failure of new agricultural strategy in enhancing agricultural production has led to the popularization of sustainable agriculture which is an application of the concept of sustainable development. Enhancing agricultural productivity together with maintenance and improvement of environment and living condition is the main feature of sustainable agriculture policy measures for sustainable agriculture policy measures for sustainable agriculture are dry land farming, rain fed agriculture, rain water harvesting, better crop rotation techniques, conservation agriculture and balanced use of fertilizers and organic forming.

It may be note that all the aforesaid, except organic farming are there in the agricultural front of Kerala. There are many things in common for new agricultural strategy and sustainable agriculture. High degree of pesticides consumption in the agricultural lands of Kerala causes to the harmful effects of environment. These harmful effects of conventional farming leads to negative impact on the human life in the present and future-generations as well. As a protection, the conventional farming method of Kerala disappeared and it gives more attention to the non-conventional

farming method especially like organic farming. In this present study has growing much more importance the present study entitled as "Economic impact of organic farming in Kerala: A Micro level Analysis"

1.6. Definition of Key Concepts

Organic Farmer: A farmer may be defined as 'Organic Farmer' provided he/she adheres to and practices the following three essentialities of organic farming, a farmer who practices mixed farming including food crops, a farmer who ensures the conservation of soil and water and a farmer who conserves the biodiversity of the farmland.

Mulching: Mulching is the process of covering the topsoil with plant material such as leaves, grass, twigs, crop residues, straw etc

Green Manuring: The practice of growing a leguminous plant species for biomass production and incorporation into the soil may be new to most farmers. Nevertheless, this practice can greatly contribute to improvement of soil fertility.

Organic Pest Management: It is a Careful associations and management of plants and animals in order to prevent pest and disease outbreaks.

Intercropping: Growing two annual crops together

Degraded Land: Land may be degraded due to shifting cultivation, overgrazing, over-cultivation or deforestation, salinity after years of intensive irrigation with ground water, or water logging and flooding

1.7. Limitations of the Study

The present study has number of limitations. The unavailability of accurate date and correction information are the serious limitation of the study. And another important limitation is that organic farmers providing in the sample are having incomplete awareness of organic farming methods and techniques. As the study area is limited to four districts of Kerala state, generalization of the findings to the whole country will be a difficult task. This study is based on primary data collected from a small sample of farmers practicing organic farming in different agro-climatic zones of

Kerala state. As most of the information they have given is from their own experience during the various stages of their farming life there may be chances of human bias. Even if the data was cross checked to minimize the error, it is a fact that the results of the study may be apt only for the area where the study had been conducted and this should be considered while generalizing the result in a larger area.

1.8. Scheme of the Study

The first chapter is the introductory chapter. It deals the background of the study; it is a brief overview of organic farming, statement of problem, need and importance of the study, research gap, objectives and definition of key concepts, location of the study, structure of the study and finally limitation of the study. Chapter two deals with review of theoretical and empirical literature survey chapter brings an overview of various studies related to the study area, and the literature relating to the development concepts, theories and models of various organic farming practices, in this chapter also include the various Governmental reviews related to the various agricultural practices in the world and India.

The third chapter deals with data and methodology adopted in the present study This chapter discusses about the sampling frame work and analytical frame work And important key variables used in the study, and how these variables are expected to be related for each other and the conceptual model explains the methodology adopted in the present study. It includes research approaches, research design, formulation of sampling-instruments, data collection and analysis techniques adopted are discussed in this chapter. Fourth chapter discuss the present position of organic farming in India and Kerala chapter deals with an analytical description of origin and scope of organic farming in India and Kerala. Anda comparison of organic and conventional farming, the first objective of the study is to examine the origin and historical aspect of the organic farming in India. Fifth chapter brings an overview of government initiatives on organic farming in Kerala and major constraints faced by the organic farmers Government strategies for promoting organic farming in Kerala is also included in this chapter.

Sixth chapter deals with the analysis of primary data collected from the sample respondents among the various districts of Kerala. This chapter tries to analyze the

third and fourth objectives of the study, this chapter is divided into three parts, first part is dealing with the Socio- Economic status of the organic farmers in Kerala and the part two of this chapter is an examination of performance of the organic farming units in the sample districts. Performance of organic farming is assessed through the measuring the annual farm productivity and technical efficiency of the farming units. And third part deals with the productivity and profitability of selected organic farming units and finally this chapter ends with concluding remarks.

Chapter Seven is an examination of identifying the various problems faced by the organic farmers in Kerala. This chapter includes four case studies of selected organic farms in sample districts. It brings a clear idea about major problems and constraints faced by the organic farmers. This chapter also discusses the various constraints faced by the farmers and these measured through statistical tools.

Final chapter listing out the major findings and enumerate conclusion and useful information's emerging from the research analysis. The recommendations for future research are also included in this chapter.