

TOWARDS A NEW GENERATION OF AGRICULTURAL SYSTEM: ORGANIC FARMING AS A PARADIGM OF SUSTAINABILITY

N.RAJA, Ph.D. Research Scholar
Department of Civil & Structural Engineering
Annamalai University, Annamalai Nagar-608 002

Dr. B. YASODHA JAGADEESWARI
Assistant Professor
PG & Research Department of Economics
Holy Cross College (Autonomous), Tiruchirappalli – 620 002

Abstract

Population growth and climate change challenge our food and farming systems and provide arguments for an increased intensification of agriculture. A promising option is eco-functional intensification through organic farming, an approach based on using and enhancing natural resources and processes to secure and improve agricultural productivity, while minimizing negative environmental impacts. A new strategy of promoting eco friendly farming is through the modification of the present systems of farming in the area of soil nutrient restoration to encourage the use of organic materials, termed organic farming. Although organic farming is an important topic for society, at the Indian level there have been few achievements so far. Despite its constant increase, the demand for organic food in India is outweighing the development of this sector. Organic farming is a production system that sustains the health of soils, ecosystems and the people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic farming combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. The desire for a sustainable agriculture is universal, yet agreement on how to progress towards it remains elusive. Sustainability is considered in relation to organic farming a sector growing rapidly in many countries. The study identified individuals focusing on specific sectors encompassing the whole of India.

Key words: Organic farming, food system, smart farming, sustainable development, economic growth, etc.

1. Introduction

“Organic agriculture, a holistic system that focuses on improvement of soil health, use of local inputs and relatively high intensity use of local labour, is a admirable fit for dry lands in many ways and the dry land offer many benefits that would make it relatively easy to implement.”

- Bharat Ratna Dr.A.P.J. Abdul Kalam

India is one of the agricultural based nations and India's agriculture sector continues to be the lifeline of its people and a key factor in the economy's overall productivity. Agricultural development strategy therefore need to be geared towards increasing the productivity of land under cultivation, with reduced cost, higher efficiency use of inputs with little or no harm to both human

and the environment. Human inventiveness has produced well over 100000 new chemicals which have never before been part of the terrestrial environment. Some, such as substances containing heavy metals and 'persistent organic pollutants', have been known to be dangerous for many years already, while fears have been raised about many others recently. For most of these chemicals, however, we simply do not know how they pass through the environment, whether they are accumulated, dispersed or transformed, and how they affect living organisms at different concentrations. Meeting the food security agenda using current agricultural production techniques cannot be achieved without serious degradation to the environment, including soil degradation, loss of biodiversity and climate change. Organic farming is seen as a solution to the challenge of sustainable food production, as it provides more nutritious food, with less or no pesticide residues and lower use of inputs. The growing attention towards aspects of health connected with food consumption places organic products in a privileged position. In this context, organic produce is found at the highest end of the top-quality products. This paper focuses on sustainable agriculture, although there is still no consensus on this more specific aspect of sustainability. Some have argued that organic farming and sustainable agriculture are synonymous; others regard them as separate concepts that should not be equated. The relationship between organic agricultural systems and agricultural sustainability is therefore examined in this paper. Women in the agriculture are gaining importance in India in the wake of economic liberalization and globalization. The increasing presence of women in the agriculture sector has changed the demographic characteristics of business and economic growth of the country. Despite all the social hurdles, many women have become successful in their career. These successful women have made name and wealth for themselves with their hard work, diligence, competence and will power. This study highlights such successful women organic farmers in Tamil Nadu who have created a niche for themselves in the competitive business world.

2. Objectives of the study

This paper analyses the dynamics of structural transformation of the Indian agricultural economy and major drivers of transformation, giving an overview of the achievements of organic farming and climate-smart agriculture and the future prospects in Indian agriculture, finally identifying the key policy issues and strategies to accelerate sustainable broad-based growth in the agriculture sector in the country and highlights the most successful women organic farmers.

3. Methods and materials

The paper is descriptive study in nature. This paper is based on secondary data, primarily through literature, study of journals, articles and textual analysis, and websites. Overall, this research explores the sustainable development of organic farming and successful women organic farmers in

Tamil Nadu. Qualitative research approaches and procedures have been applied to explore pertinent information for this study.

4. The choice of organic farming

Organic farming is an alternative to conventional agricultural systems for the aspects related to both the management of the farm and the production system. Organic farming or bio, to use the name with which it is known in Italy, has as its main objective not the achievement of high levels of production but maintaining and increasing levels of organic matter in soils. Thus, organic farming reduces the intake of synthetic fertilizers, herbicides, pesticides and pathogens. Only manual, mechanical and thermal practices are permitted for weed control. Wildlife species, considered crop parasites, can be controlled through biotechnology measures or natural insecticides. This organic production method thus plays a dual function: the first responds to the demand from consumers for healthy and safe food; the second towards the public good, through a contribution to the protection of the environment, animal welfare and rural development.

5. The holistic vision of organic agriculture

Organic agriculture integrates well a number of important issues through its holistic vision and systemic approach, addressing simultaneously a range of economic, social, political and environmental issues. As such, organic agriculture offers solutions, both direct and indirect, to achieving the often intertwined MDGs. For example, when crop diversity is increased, both women and men have more diversified and equal roles. As a result, women are empowered and self-confident, and are therefore more likely to attain education and send their children to school. The more diversified diets bring better nutrition and reduce the risk of mortality and illness for themselves and their children. A higher diversity of organic food consumption results in better management of childhood illnesses, thus contributing to a reduction in child mortality. Organic agriculture not only provides benefits at the individual farm scale, but also at higher scales. For example, at the community level it promotes erosion control, reduces surface runoff, increases soil fertility and biodiversity, and reduces the use of toxic chemicals. It provides downstream communities with a cleaner, healthier and more-abundant water supply and neighboring communities with all the advantages of a healthier, less-polluted environment. This is not only an improvement for human health, but also for the fauna and flora associated with the on-farm and off-farm environment.

6. Principles of organic agriculture

Principle of health: Organic agriculture should sustain and enhance the health of soil, plant, animal and human as one and indivisible.

Principle of ecology: Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

Principle of fairness: Organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

Principle of care: Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

These principles provide organic farming with a platform for ensuring the health of environment for sustainable development, even though the sustainable development of mankind is not directly specified in the principles.

7. Organic farming in Tamil Nadu

Organic methods will tone up the skills of the farmers. Another reason for the perceptible desire to switch to biodynamic farming was the reverential outlook of the farmers towards cows and cow dung. Biodynamic farming will also help reduce concern on the health front. Initially the cost of production may be higher than conventional farming. Maximum production with minimum cost attributed to its success, organic farming technique is fast gaining popularity in the district owing to various reasons, primarily because of maximum production with minimum cost for producing unpolluted farm produces. The concept of organic farming in horticulture started taking roots and attained considerable momentum 10 years ago. However, most of the farmers were initially reluctant of adopting this practice because of poor yield in the beginning stage. But the huge demand for organically grown fruits, vegetables and food grains from the public changed the outlook of the agriculturists. After the National Horticulture Mission was launched, it was quite easy for the officials to promote the component organic farming for perennial and non-perennial fruit crops. Organic farming system has been designed to enhance biological diversity within the system, increase the soil biological activity, maintain long-term fertility, recycle the plant and animal waste, rely on the renewable sources in locally organized system and to promote healthy use of soil, water and air and minimize all forms of pollution.

8. Successful women organic farmers in Tamil Nadu

Welcome to modern day India a growing hub of opportunities waiting to be grabbed, a diverse mishmash of agriculture industry, an open stage for all genders to take control of, and a marginally more open minded community that welcomes change. It has been, however, a struggle for some women to break the shackles to aim big, take the plunge, and realize their dreams. Some get lost in oblivion, some are held back by fear and pressure, some lack conviction, some do not get the support they need, and then there are some who, despite all of the above, make it through to the top. The most interesting and awe inspiring stories of women who made a choice, stuck to it, and set an example for us to follow:

Palaniammal Muthu: Palaniammal Muthu, the matriarch who runs a 7.8 acre farm at Thenkadai Kurichy, Kulithalai taluk, Karur district with her eldest son Arivuazhagan. They have managed to script a success story in farming by adapting traditional agriculture and eco friendly organic techniques to modern technology. They use solar panels to supply the electricity required to pump the water for the farm. Visitors could spend the whole day in the verdant surroundings, sipping the sweetish water from an endless supply of tender coconuts, listening to the mother-son duo recount their tryst with agriculture. Palaniammal has overseen the calving of at least 500 cows in her 40 years as a farmer, and now, still sprightly in her late sixties, is already on to other value added farming practices such as vermin composting and maintaining a small pond of fresh water fishes. They were following a mixed organic and chemical fertilizer based farming system earlier. Now they have gone completely organic, because of its long-term benefits. The Koundampatti farm has 450 coconut trees, inter-cropped with casuarina, curry leaf, lemon and wild jasmine. In the centre, is a pond with around 2.5 tonnes of 'kendai (rohu),' 'katla' (Bengal carp) and 'jilapi' (Tilapia). She has cultivated banana, okra, brinjal, tomato, tapioca, turmeric, watermelon and drumstick, among other crops, organically over the past two years on 60 acres of leased lands.

Vidya Guhaan: Vidya Guhaan and her husband Guhaan, a progressive farming couple from Kundadam block, are proving that organic farming can give good yields. Enriching the soil before sowing, using organic fertilizers such as panchakavya, and going for crop rotations can help get rich yield. The couple has raised crops such as cauliflower, tomato, beetroot, broad beans, ladies finger and chilli in their farm near Koduvai. A mixture of sunn hemp, grains and cereals is used to treat the soil before sowing. During the growth period, panchakavya is applied. For combating pests, a diluted mixture of turmeric, aloe vera and chilli are sprayed. They have established direct linkages with market chains in Chennai that supply organic vegetables in the retail sector.

Meenakshi: Meenakshi, who runs a 13 acre farm at Nagarkoodal village, Dharmapuri district with her husband Umesh Chandrasekar. Meenakshi is an architect, who specializes in low cost housing and Umesh is a mechanical engineer. Growing up in Mumbai, Umesh and Meenakshi

felt that working in rural areas alone would be sensible and meaningful. Umesh and Meenakshi live in a house designed by Meenakshi. They use solar panels for lighting and a smokeless choola for cooking. In 1992, they invested in 12 acres of land in interior Dharmapuri. In 1996 they invested in an acre and half of land, which had some irrigation. By 1999, the community around were gradually moving from curiosity to conviction that they too could do away with chemical inputs on their land. Meenakshi and Umesh had successfully grown, using organic methods only, reasonable quantities of paddy, ragi, wheat, green-gram, tuvar dal, black-gram, turmeric, coriander, bananas, etc. Cow pea is grown as intercrop and groundnut is grown as single crop. Fodder and green manure crops include sesbania, subabul and glyricidia, timber such as teak and fruit trees like papaya, citrus and guava are also grown. Seedlings are produced in the farm nursery. Straw for the cattle is bought from outside. Compost is produced on the farm itself. Solar pump set helps irrigation. Pest control measures include: ash and buttermilk, neem extract application, cow's urine, chilli leaves affected with virus, ground to powder and mixed with cow urine and applied for viral disease on black gram.

Navaneetham: Navaneetham, representative of the Poorivakkam Women's Self-Help Group from Tiruvallur, recapped a success story in organic farming in the district. The SHG was instrumental in turning a 1.50 acre field awash with chemical fertilizers into a fertile ground with organic compost and herbal vermin wash for the cultivation of fragrant jasmine varieties. The SHG team has been practicing organic farming for the past three years. Poorivakkam flowers are already famous in Koyambedu and Kothwalchavadi market areas. Earlier there used to be a strong smell of chemicals and the plants used to wither owing to an inherent dryness caused by the pesticides. In the organic farm, this practice of spraying water has been totally dispensed with.

9. Conclusion

Food and nutritional security is therefore a serious global concern. Neither conventional farming with inorganic alone nor organic farming only with the use organic input can face this challenge. The major learning from this study of women in the agriculture sector they managed to survive and succeed in this cut throat competition with their hard work, diligence and perseverance. They are the four most successful women organic farmers of the country. Organic farming has doubled the crop yield and increased women farmers' profit margins, helping relieve their previous debts. For this reason, and given their higher perceived quality, Indian organic produce is found at the highest end of the top quality products that India has to offer. The Indian organic sector is the fruit of the indispensable interconnection between culture, tradition and environment. An environmentally sustainable system of agriculture like organic farming will be able to maintain a stable resource balance, avoid over exploitation of renewable resource, conserving inherent soil nutritional quality and soil health, and biodiversity. It will lead us to sustainable agriculture and create a sustainable lifestyle for generations to come.

10. Reference

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