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Review

Organic farming, sustainable agriculture and green marketing for fostering green economy

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Organic farming is universally known to be a specialized form of farming practices, involving selected application of organic substrates such as manures, crop residues, green manuring crops, earthworm casts (vermiculture), etc., to enrich soil with adequate plant nutrients, and provide good soil structure and soil health with the aim of creating a sustainable form of farming system. Broadly, the aim of organic farming is: to create integrated, humane, environmentally and economically sustainable production systems, which maximize reliance on farm-derived renewable and natural resources to lend support to the management of ecological and biological processes and interactions, so as to provide acceptable levels of crop, livestock and human nutrition, protection from pests and diseases, and an appropriate return from the deployment of the human and other resources. There are several benefits of organic farming vis-à-vis conventional farming systems. Organic farming, among other things, promotes recycling of organic wastes, use of renewable energy and application of system-worthy low-cost and appropriate technologies using mostly the local farm-based resources. Organic farming has of late emerged as a potential alternative for meeting food security, maintaining soil fertility and increasing soil carbon pool. Organic agriculture has come a long way from a tiny, disorganized, idealistic fringe movement. Twenty-five years ago, some may have thought it was a relic of the 1960s that was headed for the compost pile. Now most food stores carry some organic products; it is the fastest growing sector in the grocery business, and the giants in the food processing and retail business, from General Mills to Wal-Mart, wants to cash in on the organic market (http://www.cias.wisc.edu/curriculum/modV/sece/sec_E_modV.htm). In this paper, an attempt was made to cover the various emerging areas of organic farming and sustainable agriculture, including the evolution and benefits of organic farming vis-à-vis conventional agriculture, long-term sustainability and environmental quality, linkage of organic farming with green supply-chain and food value-chain, eco-labelling and green marketing of organic farm produce, the future perspectives, etc. The desirability of good governance and compliance of quality standards and promotion of organic foods by providing various incentives are highlighted in the conclusion of this paper as viable policy measures by the producers, the government, as well as certifying agencies at large.

Key words: Organic farming, sustainable agriculture, green marketing.

INTRODUCTION

Organic farming is basically a specialized form of farming involving selected application of organic fertilizers, manures, crop residues, green manuring crops, earthworm casts (vermiculture), etc., to enrich soil with adequate nutrients, and provide good soil structure and soil health with the aim of creating a sustainable form of farming system. Broadly, the aim of organic farming is: to create integrated, humane, environmentally and economically sustainable production systems, which maximize reliance on farm-derived renewable resources and the management of ecological and biological processes and interactions, so as to provide acceptable levels of crop, livestock and human nutrition, protection from pests and disease, and an appropriate return to the human and other resources. There are several benefits of organic farming vis-à-vis conventional farming systems.

Organic farming, among other things promotes recycling of organic wastes, use of renewable energy and application of system-worthy low-cost and appropriate technologies using local resources. Organic farming has emerged as a potential alternative for meeting food demand, maintaining soil fertility and increasing soil carbon pool. It is not only about managing the soil – plant – environmental interaction in a holistic manner, it also has food quality, human health, animal welfare and socio-economic aims. As a result of these principles and philosophies, organic food has a strong brand image in the eyes of the health-, environment- and socially-conscious consumer.

Organic agriculture – a predominant component of organic farming is a specific type of low external input agriculture that adheres to certain principles in the production and transformation of agricultural commodities. Organic agriculture may be either certified or non-certified. Certified organic agriculture must meet certain standards in the production, processing and handling of organic products. These standards are developed in accordance with basic standards established by the International Federation of Organic Agriculture Movements (Kilcher et al., 2004). The basic standards provide a framework within which certification bodies worldwide develop their own certification standards, which may vary across countries depending upon specific local conditions. Organic standards have been established by most industrialized nations, and organic standards are specified in guidelines of the *Codex Alimentarius* of the Food and Agriculture Organization of the United Nations and the World Health Organization. Organic agriculture is based on minimizing the use of external inputs and avoiding the use of synthetic fertilizers and pesticides (FAO, 1999, 2000, 2002).

Organic agriculture has come a long way from a tiny, disorganized, idealistic fringe movement. Twenty-five years ago some may have thought it was a relic of the 1960s that was headed for the compost pile. Now most food stores carry some organic products; it is the fastest growing sector in the grocery business and the giants in the food processing and retail business, from General Mills to Wal-Mart, want to cash in on the organic market. But rather than rejoicing at the success of the organic paradigm, some former organic supporters are asking "Can organic agriculture remain sustainable with these changes in the market?"

EVOLUTION OF ORGANIC FARMING

Over the past couple of centuries, the principles and practices of organic farming has undergone evolutionary changes; and in the process of such transitions the conventional farming systems met with severable challenges. The various aspects of organic farming are presently engaging attention to the practitioners of organic farmers; and these include: clarity on the basic concepts and historic evolution of organic farming; aims of organic production and processing, principles of organic farming, major components and technology of organic farming. The emerging areas of organic farming are those of assessing and exploring organic products' new market potential and growth perspectives; environmental, ecological and economic dimensions of organic farming, preservation of biodiversity, soil microbial growth to leverage positive *'Rhizosphere effect'*, mode of improvement of soil health and soil fertility regime, and increased usage of microbial bio-fertilisers in organic farming.

For many years, the organic movement was dominated by small farms and businesses, and in most cases farmers received significant premiums for organic products. So in practice, organic agriculture contributed to the economic sustainability of farms and food businesses. Because these economic gains allowed small and medium-sized farms to thrive where similar businesses in conventional agriculture were struggling economically, organic agriculture also had social benefits for rural communities. Many organic supporters saw these benefits as equal in importance to the ecological benefits and central to the overall sustainability of organic agriculture. In recent years, however, large traditional food processors and retailers have bought out most small independent organic processing, distribution, and retail businesses. Most large processing companies and retailers are committed to minimizing the price they pay for organic products and often prefer the ease of dealing with a few large suppliers rather than many small farms.

BENEFITS OF ORGANIC FARMING AND GREEN MARKETING

Organic agriculture can contribute to meaningful socio-economic and ecologically sustainable development, especially in poorer countries. This is due on the one hand to the application of organic principles, which means efficient management of local resources (for example, local seed varieties, manure, etc) and therefore cost-effectiveness. Various organic farming technologies have been utilized for several years world over to allow agriculture and allied farming activities to extract and judiciously utilize natural resources, while conserving soil, water, energy, and biological resources to the detriment of ecology and environment. Broadly, the potential benefits of organic farming technologies are higher soil organic matter, organic carbon and nitrogen, lower fossil-fuel based energy inputs, and comparable yield performance as are quite similar to those of conventional systems. The other incidental benefits are conservation of soil moisture and water resources (especially advantageous under drought conditions). Experiences of traditional farmers have shown that even the conventional agriculture can be made more sustainable

and ecologically sound by adopting some traditional organic farming technologies. Organic agriculture (OA) and conventional agriculture (CA) represent two polar approaches to farming, both of which employ their own methods and farming practices. OA and CA can both hold their own challenges and implications within the global food-chain, particularly with respect to the impending global food crisis, coupled with climate change consequential to global warming. These issues present pressing agricultural questions leading us to ask how our farming methods will adapt to feed the world's mammoth population while maintaining the viability and health of the world's ecosystems.

Organic agriculture shows several benefits; as it reduces many of the environmental impacts of conventional agriculture, it can increase productivity in small farmers' fields, reduce reliance on costly external inputs, and guarantee price premiums for organic products. Organic farmers also benefit from organizing in farmer cooperatives and the building of social networks, which provide them with better access to training, credit and health services. Organic agriculture generally reduces the vulnerability of farmers as the higher organic prices act as buffer against the low prices and price volatility of conventional markets, as organic systems are often more resilient against extreme weather events, and as the often diverse organic crop-livestock systems provide a diverse set of outputs (https://www.mcgill.ca/isid/files/isid/seufert.pb13.pdf).

Systematic research studies are now being conducted to evaluate relative environmental vis-à-vis economic benefits of organic farming as opposed to conventional farming approach. Some of the current endeavours put up by the lead research establishments in this direction encompass review of experiences of different agrochemical industries in organic and conventional farming systems, measurements of profitability of organics-based alternate farming systems, analysis of socio-economic approach of sustainable farming systems versus conventional agriculture, organic farming for food production stability, climate mitigation and adaptation actions, and organic-based integrated farming systems to help build synergy between conventional and organic farming.

The green marketing is often considered a solution to the many issues of the degradation of the environment and the consumers' health. The ecological, green or environmental marketing attempts to connect the classical components of the marketing and management to the ecological issues. The key-concept attempting to define the green marketing is how the responsibility and environmental issues are integrated into the concept of (the) marketing management. In this respect, the green marketing might be defined as the holistic management process responsible for identifying, anticipating and satisfying the requirements of the customers and society, in a profitable and sustainable way (Kärnä, 2003). Green marketing incorporates a broad range of activities about ecological products, including organic products as an important part, about changes in the production process, in the packaging as well as modifying of promotion and distribution (Pollan, 2006).

Focus on preserving long-term sustainability and environmental quality

In recent years, many studies have shown that integrated farming system, combining organic and conventional farming system could be a better option to ensure long-term sustainability without sacrificing profitability but some sacrifice to the environmental quality. Hence, organic agriculture - the predominant component of organic farming, is increasingly being seen to be a sustainable way of farming without chemical inputs during cultivation, whereas integrated farming system is a sustainable way of farming which falls somewhere in between the conventional and the organic farming system. Organic and integrated agriculture are the sustainable farming systems that have been developing noticeably during the last decade. Organic Farming (OF) is one of the agro-ecological approaches needed to grow enough food for the increasing population. This approach minimizes external inputs such as chemical fertilizers, pesticides to produce non-toxic crops. Thus, it is less environmentally damaging and has much potential to produce more food in a sustainable manner.

While conventional farming systems face serious problems of sustainability, organic agriculture is seen as a more environmentally-friendly system since it favours renewable resources, recycles nutrients, uses the environment's own systems for controlling pests and diseases, sustains ecosystems, protects soils, and reduces pollution. At the same time, organic farming promotes animal welfare, the use of natural foodstuffs, product diversity and the avoidance of waste, among other practices. However, the future of organic agriculture will depend on its economic viability and on the determination shown by governments to protect these practices.

Agricultural researchers widely recognise the importance of sustainable agricultural production systems and the implicit need to develop appropriate methods to measure sustainability. An integrated farming system consists of a range of resource-saving practices that aim to achieve acceptable profits and high and sustained production levels, while minimizing the negative effects of intensive farming and preserving the environment. Based on the principle of enhancing natural biological processes above and below the ground, the integrated system represents a winning combination that: (a) reduces erosion; (b) increases crop yields, soil biological activity and nutrient recycling; (c) intensifies land use, improving profits; and (d) can therefore help reduce poverty and malnutrition, and strengthen environmental sustainability.

An integrated farming system involving such components as crops, forestry, livestock, fishery, piggery, poultry, apiculture, pisciculture/aquaculture, vermiculture, organic waste recycling, renewable energy deployment to farming system, etc., can make a significant synergistic contribution to sustainable development of farming system on a long-term basis.

Organic agriculture can contribute to meaningful socio-economic and ecologically sustainable development, especially in poorer countries. This is due on the one hand to the application of organic principles, which means efficient management of local resources (for example, local seed varieties, manure, etc) and therefore cost effectiveness. On the other hand, the market for organic products – at local and international level – has tremendous growth prospects and offers creative producers and exporters excellent opportunities to improve their income and living conditions. Organic agriculture reduces the risk of yield failure, stabilizes returns and improves the quality of life of small farmers' families.

Linkage of organic farming with green supply-chain and food value-chain

Organic farming is now being linked to the *green supply-chain* on the one hand and the *food value-chain* on the other. Food value-chains represent a business model in which producers and buyers of agricultural products form strategic alliances with other supply chain actors, such as aggregators, processors, distributors, retailers, and consumers, to enhance financial returns through product differentiation that advances social or environmental values. Partners in these business alliances recognize that creating maximum value for their products depends on interdependence, collaboration, and mutual support. The food value-chain model is gaining traction because it responds to agricultural and food industry consolidation that has placed intense market pressure on small, marginal and mid-sized farmers.

Central to the notion of food value-chains is the idea that transparent and trusting relationships between supply-chain partners can produce positive 'win-win' outcomes for all parties. In this model, consumers, farmers, distributors, and others in the chain of food business activity, from planning and planting to processing and selling, see results and reap rewards. The gains of producers are not achieved at the expense of distributors or retailers, or vice versa, because the structure of food value chain transactions facilitates the sale of a broader range of well-differentiated food products, priced to reflect the incorporation of both social and private benefits, which are more closely tailored to the preferences of specific consumer segments. The *organic principles of farming* based of integration of health, ecology, stakeholders partnership, fairness and care (that is, value-chain), should, ideally, include these multiple functions.

Agri-food systems are undergoing rapid transformations and the emergence of integrated food supply chains is one of the most visible market phenomena in India. Increasing concentration on processing, trading, marketing and retailing is being observed in all the segments of supply chains. Organization of agriculture, along the *value-chain framework* has been conceived as one of the strategies to bring more efficiency in the agricultural sector. The *value-chain network* may now be defined as a range of activities that are required to bring a product from its conception, through its designing, sourcing of raw materials and intermediate inputs, marketing and distribution, to the final consumer. There has been an increasing emphasis on the development of efficient organic value-chains in India and several innovative and successful value-chains have emerged to popularize organic farming among the farming communities in order to exploit the full market potential of organic produce in future.

An ideal value chain should bring all the stakeholders engaged in the production system on a common platform to contribute their best, while ensuring fair deal and transparency. The value chain will include all the input suppliers, technology delivering agencies, scientists indirectly engaged in developing appropriate technologies and extension officers who are involved in capacity building and providing various services to farmers. The stakeholders involved in post-production activities are the agencies organising collection, grading, storage, transportation, processing and marketing of the produce. Agencies like financial institutions and market information centres are also part of the value chain. Efficient linkage of various stakeholders improves production, price realisation and profitability. Research, training, capacity building and continuous innovation in developing organic farming models and testing their economic viability and adaptability will add to the organic value-chain in a sustainable manner.

The increasing pace of globalization and industrialization has revolutionarised the way the corporate world is responding to the changed life-style with time. Some of the major casualties of the energy-intensive mode of industrialization are enhanced rate of greenhouse gas emissions, global warming and ecological degradation. As the public becomes more aware of environmental issues and global warming, consumers are asking more questions about the eco-friendliness of products they are purchasing. Companies are confronted with embarrassing questions like how green their manufacturing processes and supply chain are, the state of their carbon footprints and how they recycle and dispose wastes, etc. Consumers increasingly prefer to purchase products that are free of toxins, produced with minimum level of pollution-linked contaminants and with minimal environmental impact.

Increasing evidences are accumulating that a gulf of difference exists between consumers' green claims and the certified quality of 'green' products. Companies that successfully adopt a 'green' policy can generate profits, provide positive social impact, and reduce environmental impact as there is an apparent link between improved environmental performance and financial gains.

Realising this perspective, companies have looked to their supply chain and explored areas where they can expect more profits (Martin Murray-Introduction to the Green Supply Chain: http://logistics.about.com/od/greensupplychain/a/green_intro.htm). Prominent features of leading green supply chains include an emphasis on life-cycle costing, asset efficiency, and waste reduction and service innovation and recycling. Executed effectively, Green Supply Chain Management (GSCM) stimulates product and service innovation, improves asset utilization, and deepens customer relationships and service levels through a shared focus on reducing waste and cost (Françoise van den Broek, 2010). Several companies have gone one step further by green supply chain management (GSCM) as a competitive advantage (Murphy et al., 1995; Sarkis, 1999, 2003, 2007; Wu and Dunn, 1995; Yang and Sheu, 2007; Vachon and Klassen, 2008). The premise of GSCM is that sharing and integrating environmental ideas and concerns across organizational boundaries will greatly enhance green manufacturing. More manufacturing firms have recognized the importance of GSCM practices and have begun to foster long-term partnerships with their suppliers to increase environmental performance (Hanfield and Bechtel, 2002, Hanfield et al, 2002; Johnson and Sohi, 2003; Rao, 2002). Green Supply Chain Management (GSCM) improves green marketing operations by employing an environmental solution in the following ways:

- Improves agility: GSCM helps to mitigate risk and speeds up innovations.
- Increases adaptability: Green supply chain analysis often leads to innovative processes and continuous improvements.
- Promotes alignment: GSCM involves negotiating policies with suppliers and customers, which results in better alignment of business processes and principles.
- Core focus of the lectureship will be on the necessity of 'green' and on green operations (network design and reverse logistics, transportation, green manufacturing and re-manufacturing and waste management).

ORGANIC CERTIFICATION, CARBON FOOT-PRINTING, ECO-LABELLING AND GREEN MARKETING

The term '*carbon footprint'* is commonly used to describe the total amount of Carbon-di-Oxide and other greenhouse gas (GHG) emissions for which an individual or organization is responsible. Footprints can also be calculated for events or products. Certification marks, labels and logos are increasingly being used by brand owners to signal their green credentials and so boost their market share. A properly controlled *eco-label* offers consumers a guarantee that a product or service has been independently verified to meet given environmental standards. In Australia, for example, the Greenhouse Friendly™ label is a registered certification mark, administered by the Government Department of Climate Change. Some companies are developing their own eco-standards and product labelling. MNCs like BASF and Philips have launched their Green Logo and tick symbol last year to identify products with - significantly better energy efficiency than the nearest competitor products. Eco-labelling could be of two kinds: performance-based and process-based. An eco-labelling scheme based on product performance, such as labels claiming biodegradability of packaging, sustainability in production processes or non-pollutant aspects of product usage will require certain trust on the part of the consumer. A systems approach to the eco-labelling of food and other products requires the involvement of multiple stakeholders as one party's actions affect others' environmental performance.

Organic certification is a certification process for producers and marketers of organic food and other organic agricultural/ non-agricultural organic products. In general, any business directly involved in food production can be certified, including seed suppliers, farmers, food processors, exporters, retailers and hotels and restaurants. Requirements vary from country to country, and generally involve a set of production standards for growing, storage, processing, packaging and shipping, etc. In some countries, certification is overseen by the government, and commercial use of the term *organic* is legally restricted. Certified organic producers are also subject compliance to the same agricultural, food safety standards and other government regulations that apply equally to non-certified producers.

An eco-label, in the context of organic farming, identifies a claimed to be organic product that meets a wide range of environmental performance criteria or standards. Developed by governments, manufacturers, and third-company organizations, eco-labeling is a voluntary approach to environmental certification practiced around the world. In contrast to "green" symbols or claims, an 'eco-label' is given to products that have met specific environmental safeguard criteria. As there is a wide range of products available in the market, environmental performance labels and declarations vary greatly. The growing number of environmental claims led the U.S. Federal Trade Commission (FTC) in 1992 to issue Title 16-Part 260 CFR: Guides for the Use of Environmental Marketing ("Green Guides"). The FTC issued 'Green Guides' to help marketers avoid making environmental claims that are unfair or deceptive under

Section 5 of the FTC Act. This includes guidance on claims for biodegradable, compostable, recyclable, recycled, and ozone-safe content. The FTC has updated the guides and is currently undergoing an extensive review process. General benefits of eco-labelling include: economic incentives for better long-term custodianship and availability of natural resources vital for economic welfare; competitive and comparative advantage of export products through product differentiation which is realised through price premiums, long-term contracts and market access; a platform for innovation with the use of more environmentally friendly products such as lighting or refrigeration, with knock on benefits in other parts of the economy; and last but not the least providing assistance to countries to fulfil commitments made under environmental agreements such as biodiversity.

Some recent estimates suggest that there are over 400 existing eco-labels marking consumer products in nearly every category and the number are growing rapidly. In the wake of the recent global recession and major economic crisis, however, it appears that consumers are less motivated to purchase green products. For example, in the United Kingdom, sales of certified-organic fruits, vegetables, and meat have plummeted 12.9% in the past year. In other words, green claims are proliferating fast in the marketplace, but there are serious questions about their efficacy in driving sustainability outcomes and their success in creating real consumer preference.

The concept of labeling organic products has been in existence for quite some time now. At present, there are over 300 eco-labels, according to cataloguer Ecolabelindex.com (2010). Competition between eco-labels carries benefits vis-a-vis pitfalls; it can raise the bar on performance, but it also tends to create confusion among consumers, who are left wondering whether organic products are genuine, eco-friendly, recycled or recyclable. To-date, there has been limited research on eco-label design, and very little is known about what drivers affect a label's market penetration and associated product sales.

Certification for Green Food production involves the regulation of inputs, with the objective of reduced use of pesticides and other agro-chemicals, the oversight of production, and the residue testing of the claimed organic produce. In 1995, Green Food certification is usually split into 'Grade-A' and 'Grade-AA'. It is this bifurcation of Green Food standards that laid the groundwork for the rapid articulation from 'Green Food certification to Organic certification'. China, for example, has over 30 million hectares of eco-food production. China's total eco-labelled food production area is 28% of China's total of 122 million hectares of agricultural land.

Eco-labels have emerged as one of the main tools of green marketing. Although a great deal of effort has gone into making them more effective and efficient, the market share of eco-labelled products is still low, partly because they have been addressed mainly to 'green' consumers. Eco-labels are intended as a means for consumers to make choices that will reduce environmental impact and enable them to influence how products are made. In the Nordic Countries, there are eco-labels for 55 product groups and 2800 products. In Japan, 64 product groups have criteria established for eco-labels and more than 5000 products have been accepted.

The Food Alliance is a non-profit organization dedicated to marketing sustainable agriculture. They have a certification program for farms that:

- Provide safe and fair working conditions;
- Ensure the health and humane treatment of animals;
- Do not use hormone or antibiotic supplements;
- Do not raise genetically modified crops or livestock (GMOs);
- Reduce pesticide use and toxicity;
- Protect water resources;
- Protect and enhance soil resources;
- Provide wildlife habitat;
- Continually improve practices.

While their regulations on pesticide and fertilizer use are less stringent than organic standards, their economic and animal welfare requirements are more rigorous (http://www.foodalliance.org/certification/index.html).

Certification and the standardizing eco-labelling procedures are the basic foundations for green marketing of organically produced eco-friendly products, also called 'green products' or 'eco-products'. Certification and labeling systems serve as tools to enhance distribution and market development, create trust, and foster confidence. It is a commitment from producers/farmers to work with certain standards of production. In 2009, the Canadian government implemented the Organic Products Regulation to regulate organic certification. The number of certified organic producers for the local market is growing and there are now Participatory Guarantee Systems (PGS) initiatives on all continents in terms of the number of farmers involved, with Latin America and India being the leaders. However consumers' confidence in certification standards in other countries and trust in their labels and products could be increased by the consolidation of standards and regulations between countries like Canada and the US, the world's first fully reciprocal agreement between regulated organic systems.

The latest developments in organic farming and consumption pattern show dynamic market growth; however the uptake of organic farming by farmers is seen to be fairly slow. In recent years, he global market has grown over 5%, while the agriculture area in general and organic sector in particular, have been rather sluggish. Bottlenecks in the adoption of organic farming are often due to production and/or processing (including post-harvest management) problems or even the fact that farmers are not always convinced that organic methods

can solve farming problems, such as fertilization, plant protection, animal health, efficient use of workforce, marketing diversity, overall cost effectiveness and competitive economic advantage. Although these problems can sometimes be resolved through continuous learning on existing and regionally practiced methods, innovations nonetheless, are imperative to making organic farming more adaptive, sustainable and regenerative for fetching the benefits of organic farming and organic produce to a wider consumer-base. Farmers must therefore continuously adapt production and management systems in order to maintain and enhance the competitiveness and sustainability of their businesses. The development and implementation of innovations require both in terms of information and the farmers' willingness to change daily work schedules and methods. Learning and knowledge transfer among farmers, technology developers, experts and university teams ensure the development and application of innovative ideas which are crucial for a sustainable growth in food (and non-food) production.

The ecological significance of sustainable development has increased dramatically since the so called 'green economy' and 'organic production' of 'eco-friendly organic produce' have been turning into sources of competitive advantage for the country of origin in the international markets. A high number of new or modified products (including genetically modified products) are often combined with process innovations; in addition to product innovation. Three very innovative fields in the organic food industry are in the area of 'genetically modified organisms (GMO)', 'functional food' and 'organic food', representing market opportunities, which, however, are also experiencing different obstacles and drivers. A future innovation challenge to the agro-food industry, with focus on organics, will be to tackle the multiple new scientific approaches and technical opportunities that have an interdisciplinary character. The creation and building-up of interfacing competencies as well as the establishment of new external knowledge and competence networks seems to be of strategic relevance for future growth of these categories of industries. The target for policy should be to support the advances of the knowledge base of the food industry companies themselves and the diffusion of new scientific approaches and technology, and not solely concentrate on stimulating knowledge generation with relevance for the food industry in general, and life-style organic products (eco-products) in particular.

ORGANIC FARMING: THE FUTURE PERSPECTIVE

For many years the organic movement was dominated by small farms and businesses, and in most cases farmers received significant premiums for organic products. So in practice, organic agriculture contributed to the economic sustainability of farms and food businesses. Because these economic gains allowed small and medium-sized farms to thrive where similar businesses in conventional agriculture were struggling economically, organic agriculture also had social benefits for rural communities. Many organic supporters saw these benefits as equal in importance to the ecological benefits and central to the overall sustainability of organic agriculture. In recent years, however, large traditional food processors and retailers have bought out most small independent organic processing, distribution, and retail businesses. Most large processing companies and retailers are committed to minimizing the price they pay for organic products and often prefer the ease of dealing with a few large suppliers rather than many small farms.

Future prospects of organic farming should safeguard the basic interests of consumers in the domain of health and prosperity, giving importance to consumption of organic food products - a way to healthy life, voluntary food-labelling to meet lifestyle requirements, exploration of new business opportunities by promoting specialty food products (organics), ensuring fairness to growing green-conscious customers, protection of ecology, designing organic research agenda for a sustainable future, and innovations in organic gardening for bestowing a new age-defying lifestyle product concept.

Keeping in view the growing importance currently being given by the government and the implicit desirability of embracing eco-friendly and pollution-free cultivation and farming practices, organic farming seems to be a long-term pragmatic solution. With the increasing expressed concerns and consciousness for conservation of natural resources, protection of biodiversity of flora and fauna, protection of environmental quality, and improving health and hygiene with changing lifestyle throughout the world, organic farming and sustainable agriculture has a great future.

In India, the relative lack of national rules, regulations and specific standards relating to organic food production, inadequate certifying agencies and unrecognized 'green' marketing and retailing channels have not only been confusing for producers and consumers alike, but have prevented farmers from exploiting the export market advantages of organic production. This is a major missed opportunity because most small and marginal farmers in India have actually been practicing organic farming as part of traditional cultivation practice. Thus they have used local or own-farm derived renewable resources and managing self-regulating ecological and biological processes. In fact, this is usually found to be absolutely necessary simply in order to cultivate acceptable levels of crop, livestock and human nutrition products while protecting them from pests and diseases through bio-chemicals and bio-fertilizers (such as Neem extract). However, it is true that the higher cost of such inputs and processes compared to industrially generated fertilizers and pesticides has encouraged many farmers to shift production patterns.

No system of food production can guarantee perfect sustainability. The organic standards have flaws and gaps, but there are a variety of efforts to address at least some of them. In addition, consumers, farmers, and processors can seek to buy and produce food with other ethical qualities, such as economic justice (fair trade) and local food. As yet, they account for a small percentage of the food sold both in the US and around the world, but organic and other value-based foods are a rapidly growing part of the market. Questions about the environmental and social sustainability of our food supply are becoming a mainstream. However, the complexity of the agro-ecosystem and food system makes reform challenging.

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