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Organic Food – The Next Agenda in Agri-business

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Abstract: The growing population and shortage of quality food is a concern for every human being. The production of agricultural food products has declined drastically across the continent. Loss of fertility of soil, changing climatic conditions, drop in rainfall, slow development in irrigation systems and canalization lead to impacting the ecosystem. Organic foods are those that are produced without the use of any chemical such as, pesticides, fertilizers and etc... which are commonly used in cultivation and even drugs, such as antibiotics and hormones given to commercial livestock. This method of production of organic food without the use of any chemicals and drugs encourages environmental health, improvised productivity of agricultural yield and in turn contribute for a healthy living of human beings. This paper shall further provide an insight in to the significance of organic foods and the life style changes of people which are favorable for organic foods. This paper shall also emphasize on the prospects for a sustainable ecosystem while adopting organic method of farming.

I. Introduction

Scenarios of change have impacted every living creature on this earth to a great extent. This is an evolution of transition and has to be met by everybody. On one hand the growing population and on the other hand the depleting resources provoke every individual to question the future. Even though, these two aspects are yet to be addressed, there is a tremendous growth in literacy, employment, entrepreneurial growth, generation of household income and improved living standard among people across the world. The desire of every person today is to live healthy, happy and long. So as to accomplish this desire, each and every person has to battle head-on with the deceases, epidemics, disasters, malnutrition, polluted environment, so on and so forth. The cost of living healthy has also become manifolds today. This has lead to the growing demand for healthy food products, and that has identified a very good and sustainable scope for organic products. Organic products' in this context refers to the agricultural products cultivated through organic farming. Organic farming is an alternative method of agriculture where the use of scientific ingredients such as fertilizers, insecticides, artificial drugs and etc... are eliminated. Organic cultivation or farming also conserves biodiversity and enable a safe ecological balance. The yields of organic food production are high in quality as well as in quantity. Organic agriculture and the produce are gaining momentum in recent times.

There are two aspects to be address and that is the focus of this paper. Firstly, the shortage of agricultural food products, and secondly, producing quality food products. Both these aspects could be resolved to a greater extent by producing organic food products. May be this initiative could not be taken immediately and wide spread across the country at one point of time but then, in the long run the results are expected to be tremendously contributing to the set goal – going organic way and ensure a sustainable ecosystem.

II. Agriculture – the backbone of India

Agriculture is the backbone of the Indian economy. Agriculture and allied sectors contribute nearly 19 per cent of Gross Domestic Product (GDP of India) during 2010-11. India with arable land of 184 million hectares could produce 90 million tonnes of milk annually, which is the highest in the world. On an average, India produces 150 million tonnes of fruits & vegetables, (second largest), 204 million tonnes food grain (third largest), 6.3 million tonnes fish (3rd largest), 489 million Poultry and produces 45,200 million eggs. India has 485 million livestock population. India had passed through the “Green” Revolution, the “White” Revolution, and the “Blue” Revolution, and now the focus is on the “Pink Revolution”. The Green Revolution had led to self-sufficiency in food grains, the White Revolution saw India occupy the Number One Position in milk production in the world, and the Blue Revolution brought about increase in fish production. The Ministry of Agriculture of India has implemented many plans and schemes so as to enhance the level of agricultural productivity. On identifying fluctuations in crop production over recent years and the corresponding increase in population, demand for food has increased manifolds.

Table 1: An analysis of population, agriculture, consumption of chemicals and pesticides in India

Factor	Year 2001-02	Year 2010-11
Population (In persons)	1,02,86,10,328	1,21,01,93,422
Rural	74,24,90,639	83,30,87,662
Rural Households	14,78,98,800	15,72,81,650
Farming Households	8,93,50,400	7,85,64,201
Agricultural Land Holding (In numbers)	11,55,80,000	11,99,31,000

Area under agriculture (In hectares)	16,33,57,000	15,94,36,000
Consumption of Chemical Fertilizers (In Lakh tonnes)	113.10	155.91
Consumption of Pesticides (In Thousand tonnes)	47.02	43.86

**Source: Central Statistical Institute, New Delhi; Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Govt. of India.*

From the above it is inferred that there is a remarkable growth in the total population, as well as in the household population. On the other hand, the number of households in farming has declined to a large extent. Apparently, the area under agriculture has also reduced. Another important inference is the consumption of fertilizers, pesticides and artificial drugs, which has reduced to some extent. These inferences also provide ample scope for organic farming and for organic products produced thereof.

Area for agriculture has to increase and so that production increases. Due to natural reasons, it may be difficult to increase the area for agriculture, whereas it must be possible to improvise the yield from the same size of area. Hybrid seeds, methods of cultivation, advanced technology in farming; organic methods and etc... are some of the means that shall help in achieving yield. The following section helps in understanding the cross relationship between area, production and yield of agriculture.

Table 2:

An analysis of area, production and yield of agricultural food products in India
(Both cereals & Pulses)

Year	Area (in Million Hectares)	Production (in Million Tonnes)	Yield (in Kg. / Hectare)
1959 – 60	115.82	76.67	662
1969 – 70	123.57	99.50	805
1979 – 80	125.21	109.70	876
1989 – 90	126.77	171.04	1349
1999 – 2000	123.10	209.80	1704
2009 – 10	121.37	218.20	1798

**Source: Central Statistical Institute, New Delhi; Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Govt. of India.*

From table 2, it is inferred that even though there was a gradual increase in the expansion of area under agriculture, in the early 90s, there was a decline in the area which culminated at 123.10 during 1999 – 2000. This further declined over the next decade and finally stood at 121.37 during 2009 – 10, and this fact is to be studied. Another important aspect is that, even though there was a decline in the area under agriculture since early 90s, production and yield per hectare has increased, which are favorable indications to the sectors productivity.

III. Initiatives taken to enhance agri-productivity

The Indian Government had developed various schemes and development projects beneficial to the agricultural communities. Some of such schemes are as follows:

Crop Production Scheme, Integrated Cereal Development Programme, Crop Protection Scheme, Sustainable Development of Sugarcane-Based Cropping System, Special Jute Development Programme, National Food Security Mission, Intensive Cotton Development Programme, Jute Technology Mission, National Project on organic Farming, National Project on Development and Use of Bio-fertilizers are some of the initiatives taken by the government.

Centrally Sponsored Scheme on National Food Security Mission has been launched in the country to enhance the production of rice, wheat and pulses by 10, 8 and 2 million tonnes respectively by the end of the 11th Plan.

The Union Government has constituted a National Rainfed Area Authority (NRAA) during 2006 to give focused attention to the problem of the rainfed areas of the country. The Authority is an advisory, policy making and monitoring body charged with the role of examining guidelines in various existing schemes and in the formulation of new schemes including all externally aided projects in this area.

A scheme of debt waiver for small and marginal farmers and debt relief for other farmers has been announced by the Government in the Union Budget from time to time. Agricultural Extension has been strengthened and Agricultural Technology Management Agencies (ATMAs) have been set up in 565 districts in India.

Under National Horticulture Mission (NHM), an area of about 8.25 lakh hectares has been brought under horticulture crops, 1.17 lakh hectares of senile plantations have been rejuvenated and 1710 new nurseries have been set up since launching of NHM in 2005. An area of about 6 lakh hectares has been covered under the Scheme of Micro Irrigation since it was launched in 2006.

IV. Organic Food Production

Organic food is produced through organic farming. Organic farming is a method of cultivation using such cultural, biological and mechanical technologies that maintain long-term soil biological activity, recycle organic wastes to return nutrients to the soil, provide alternate care for livestock and not using extraneous synthetic

additives for growing crops or for post-harvest processing (chemical preservatives) so that the integrity of organic products is maintained until they reach the consumers.

Producing Organic is a commitment to a system, which ensures that healthy, nutritious food can be produced year after year without environmental degradation. The primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people. This technology does not favor the use of fertilizers, artificial cloning drugs, yield enhancers, pesticides or synthetic treatment of seeds, saplings and plants. This objective is kept in mind on visualizing the need for maintaining a sustainable ecosystem as well.

V. The essence of Organic Food Production – Organic Farming

Having understood the problems of the country, and the scope of enhancing agricultural productivity through organic farming, the following are some of the points which shall emphasize on this method of cultivation:

- Organic farming replaces the use of chemical fertilizers and pesticides with natural methods of food cultivation.
- Cultivation is usually Polyculture (growing variety of crops in single piece of land) is preferred in organic farming rather than monoculture (growing of single crop in single piece of land) followed by conventional farming.
- Different crops invite different soil microbes (which are useful for soil) and hence help in pest control organically.
- Composts and green manuring are used to increase the fertility of soil. They add nutrients (organic matter) to soil that are necessary for plant growth.
- Pest Control is done with the help of beneficial insects which control harmful insects are grown by growing plants which attract them. A biological insecticide like neem extract is used for pest control.
- Special crops are grown which diverts harmful pests and crop rotation helps in protecting crops from different pests.
- Protection of long-term fertility through using cow dung, green manure, coir pith, vermi-compost Bio-fertilizers, living cells of different types of microorganisms
- Careful mechanical intervention to maintain and enhance the ecological balance such as, use of Nitrogen-fixing plants and balanced fertilization, use of manual, mechanical and thermal weeding, recycling of plant and animal residue and etc...
- Adoption of proper management techniques or cultural practices to control pests such as, soil management techniques, proper water management, use of fallow periods, various cropping systems, such as inter-cropping/ agro-forestry, proper crop selection and rotation, change in time of sowing, growing of trap crops, due consideration given to animal welfare, flora and fauna.
- Shifting to organic farming shall contribute to avoid contamination in water, soil and air as there is a significant reduction in the use of fertilizers, insecticides or pesticides. Further, the fertility of soil shall remain natural.

VI. Agricultural food production through organic farming in India

Even though organic method of farming was the early ages of cultivation, the changes in the environment paved way for the incoming of fertilizers pesticides and etc... but then, it is of late understood that, these additives has harmed the ecology to a much greater extent which could not be compromised for the yield enjoyed. The following table shows the food products produced in India through organic farming:

Table 3:

Organic Food Products produced in India

Sl. No.	Type of Product	Products
1	Commodity	Tea, Coffee, Rice & Wheat
2	Spices	Cardamom, Black pepper, White pepper, Ginger, Turmeric, Vanilla, Tamarind, Clove, Cinnamon, Nutmeg, Mace & Chili
3	Pulses	Red Gram & Black Gram
4	Fruits	Mango, Banana, Pineapple, Passion Fruit, Sugarcane, Orange, Cashew nut and Walnut
5	Vegetables	Okra, Brinjal, Garlic, Onion, Tomato & Potato
6	Oil Seeds	Mustard, Sesame, Castor & Sunflower
7	Others	Cotton & Herbal Extracts

**Source: Central Statistical Institute, New Delhi; Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Govt. of India.*

VII. Organic Food – Product Decision

The primary issue of this study ie., shortage of food supply and shortage of quality food products, is production of 'Organic Food'. Therefore, the product decision is 'Organic'. Food products may be in the form of direct output from the farm, such as rice or soya bean which is cooked and consumed or it can also be processed one

like a juice or pickle or it might be an ingredient of another product. This production method shall take in to account the following aspects:

Changing Demographics and Lifestyles – There has been remarkable changes in the demographics of the population. The life-cycle has shortened, with not many people living for more than even 70 years, the stamina and nutrition among the present children or adults are low when compared to those who lived in the past, the physical growth has declined, these changes have created a vulnerable situation for human beings.

Taste - Organic food tastes better; this is the simple message given by many people who eat organic. It is more natural and therefore, the natural taste is revitalized.

Healthier - Organic foods have far less residues of pesticides, growth promoters and antibiotics. It has been shown in a number of studies that organic food contains more vitamins, nutrients and cancer-fighting antioxidants than non-organic food.

Animal friendly - Organic farming places great emphasis on animal welfare and is more animal friendly, where animals are not treated with synthetic growth hormones or drugs.

GMO free - Genetically Modified Organisms are not allowed in organic agriculture.

Fair Play - By avoiding expensive inputs of agrochemicals, organic farmers can manage to reduce production costs and get out of the debt trap. Fair prices additionally can enable farmers to get reasonable returns for their efforts.

More sustainable - Organic production aims, at all times towards sustainability while having best management of the environment and wildlife as a priority. This implies a sustainable management of natural resources; soil water and bio diversity. Organic systems are less dependent on non-renewable resources.

Nutrition - Organically grown food products are rich in vitamins and minerals compared conventionally grown food products.

Contamination and poison free - Substances hazardous to health such as pesticides, fungicides and herbicides are not present in organic products. They are healthy and free from contamination.

Certification – Ensuring standards and appropriated grading is achieved enables certification of organic food products. Any business directly involved in food production can be certified, including seed suppliers, farmers, food processors, retailers and restaurants.

Organic farming supports greater biodiversity in the environment, conserves soil fertility and stability better

VIII. The road ahead – Suggestions and conclusion

Organic food products are gaining significance in the recent times owing to reasons such as shortage of food supply, shortage of quality food products, decline in the size of farming community, loss of soil fertility, fluctuating rainfall, more areas are turning in to drought hit areas, deficiencies in the human system, increased cost of living and obviously every individual aspires to live as long as possible. To live long, one has to live healthy and happy. Consumption of organic food products shall enable a person to accomplish his desire to live healthy and happy.

Organic food products are quite expensive compared to conventional food products. This is mainly because the demand for organic food is increasing and the supply of the same is not sufficient. The demand for organic food is on an increase because of its composition and nature.

With the view to promote organic farming practices to reduce the burden on Chemical Fertilizers, to ensure effective utilization of farm resources and to cater domestic and international growing Organic Food Market, a National Project on Organic Farming was launched during 10th Plan with an outlay of Rs.115.00 crores. The earlier scheme "National Project on Development and Use of Bio-fertilizers" has been merged with the "National Project on Organic Farming".

As the entire world is eyeing on health consciousness, it is imperative that people need quality food. Quality food in this context refers to food products produced through the organic way. Countries with substantial capacity to produce food products organically, may find lucrative markets across the world, thus providing more scope for export business.

Organic farming copes with diverse agro-climate regions across the country that provides environment for wide range of crops that can cater to different market demands. The composition of bio-fertilizers and its synthesis with the soil has not only helped in combating diverse agro-climatic conditions, but has also retained soil fertility. This has provided more scope for a sustainable growth.

The pace of urbanization and its result of environmental changes have instigated the need for awareness and information for a healthy living. Among the domestic consumers, those who live in urban areas are said to be more health conscious than those in the rural areas. The negative impact of urbanization has led to biological imbalances among human beings, such as physical and mental deficiencies, posing hazards, immunity of the human body and many more threats.

The nature and composition of organic products shall help people to overcome these critical issues. Organic farming is a solution for 'sustainable productivity'. Along with sustainability in food production or farming,

sustainability shall be achieved in conserving biodiversity. This is a possible approach to repair the damage caused to the ecology to a greater extent.

Marketers of food products, generic, processed or finished form shall do so by procuring the inputs from organic sources and ensure the avoidance of additives, preservatives or other components which may be out of the context of organic product. The pricing of these products as of now is high. This is because, there are fewer people engaged in this business. Once the players increase, the output also increases and so the price may stabilize. Another reason for the price to be high is only the upper social class of people could afford to purchase organic food products, as food security is yet to be achieved as far as India is concerned.

While achieving productivity of agricultural products, food security could be achieved and therefore, the possibility to poverty alleviation is on the high. Poverty alleviation is a major issue for developing countries like India, as the nations vision at ground level is for ensuring food, health, education, food and other basic requirements.

Thus, it could be concluded that, the population, the demand and supply of food products, the decline in agricultural productivity, the ecological imbalances, advancements in organic farming, organic methods of processing and packaging, growing health consciousness among people and improving living standards, so on and so forth provide ample scope for the implementation of organic farming or production in future. This would be a sustainable strategy for all stakeholders connected to this sector. This shall also contribute towards ensuring a sustainable ecosystem.

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