MARKETABILITY AND SCOPE OF ORGANIC AGRICULTURE PRODUCE: A GREAT DILEMMA' USE OF SYNTHETIC FERTILIZERS IN VIEW OF GROWING NEED VERSUS SCOPE OF ORGANIC AGRICULTURE WITH INVARIABLE USE OF BIO-ORGANIC FERTILIZERS

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ABSTRACT

Abundant use of synthetic fertilizers, pesticides, insecticides, herbicides, etc., is perhaps the need of the hour for a country like India in view of the growing population, export liabilities, enriching agriculture share in the Gross Domestic Product (GDP), provisioning of subsidized food, reserving sufficient agriculture reserve under National Disaster Policy and so on, has confronted the organic agriculturalists and policy makers at a crucial juncture in striking out a right balance between high growth through the high use of synthetic fertilizers and use of natural wastes and microbes to enhance organic agriculture produce. This crucial agricultural vertex has also put forward a hilarious challenge for the sustainability and marketability of organic agriculture in India. Through this research paper, an attempt is made to visualize the scope and marketability of organic agriculture produce.

KEYWORDS

Synthetic Fertilizers, Agriculture Share, GDP Pie, Natural Wastes, Microbes, Marketability etc.

INTRODUCTION

Genesis of Organic Agriculture: Organic Agriculture is neither a buzz word nor a new concept for the countries like India, China and African countries where since ages people have been using natural wastes and manures to grow agricultural products and other important herbs. In simple terms, the organic agriculture can be defined as any agricultural output through the application of natural fertilizations without disconcerting the main composition of the particular soil. However, organic agriculture is defined as:

- “A method of farming system which primarily aims at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (bio-fertilizers) to release nutrients to crops for increased sustainable production in an eco-friendly pollution free environment.” – National Project on Organic Farming (NPOF), Department of Agriculture and Cooperation, Government of India.

- “Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.” – Food and Agriculture Organization (FAO)

- “Organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection”. – United States Department of Agriculture (USDA) Study

From the definitions above, it is inductive that organic agriculture is producing agriculture farming outputs through the application of natural and biological excretes / wastes that maintains the composure and composition of the soil and without causing any harm to eco-biological environmental.

Indian Organic Agriculture Scenario since 19th Century and defacto status as on time: Organic farming is very much native to this land. Whosoever tries to write a history of organic farming will have to refer India and China. The farmer of these two countries farming organic agriculture since 40 centuries and it is the organic farming that sustained them. This concept of organic farming is based on following principles:

- Nature is the best role model for farming, since it does not use any inputs nor demand unreasonable quantities of water,
- The entire system is based on intimate understanding of nature's ways. The system does not believe in mining of the soil of its nutrients and do not degrade it in any way for today's needs,
- The soil in this system is a living entity.

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The soil’s living population of microbes and other organisms are significant contributors to its fertility on a sustained basis and must be protected and nurtured at all cost.

The total environment of the soil, from soil structure to soil cover is more important.

INITIATIVES AND PRINCIPLES OF ORGANIC AGRICULTURE

Banning of Chemicals: It is widely known fact that some biological processes of plants involved in acquiring nutrients such as nitrogen e.g. N2 fixation are generally inhibited by adding Nitrogen fertilizer. Soil scientists generally caution against non-judicious fertilizer use and encourage use of organic compost otherwise; it may lead to deficiency of micronutrients. Therefore, in organic farming systems there is no place for chemicals.

Low Input Alternative: In first year simultaneously sow three different types of legumes in strips, first of 60 days (like moong), second of 90-120 days (Cow pea or soya bean) and third of more than 120 days (red gram) in strips. Apply mixture of Compost and vermicompost (2:1) @ 2.5 ton per acre enriched with 4 kg Azotobacter and 4 kg PSB bio-fertilizers or 4 kg consortia of customized cultures as basal dose at the time of sowing preferably in furrows before the seeds. Seeds of legumes should be treated with crop specific strains of Rhizobium biofertilizer. Mulch the entire surface with a thick layer of biological mulch and drench the biomass with Jivamrut @ 200 lit per acre. Seedlings will emerge from this layer. If soil is poor in phosphorus then apply 300 kg of low-grade mineral rock-phosphate along with the compost. Apply second dose of Jivamrut after 25-30 days of sowing with irrigation water or during rains. To add to diversity 100 plants/acre of marigold or Hibiscus subdarifa or any other suitable plant effective as trap crop/plant may be planted randomly throughout the field. Few seedlings of vegetables such as chillies, tomato, brinjal, etc., and rhizomes of turmeric, ginger etc., can be planted randomly for home consumption.

Switching over to Organic Agriculture (Conversion and certification): Organic certification addresses a growing worldwide demand for organic food. It is intended to assure quality and prevent fraud. For organic producers, certification identifies suppliers of products approved for use in certified operations. For consumers, "certified organic" serves as a product assurance, similar to "low fat", "100% whole wheat", or "no artificial preservatives". Certification is essentially aimed at regulating and facilitating the sale of organic products to consumers. Individual certification bodies have their own service marks, which can act as branding to consumers. Most certification bodies operate organic standards that meet the National government's minimum requirements.

Year 2009 witnessed several major developments in the field of standards and regulations. The new European Union (EU) regulation on organic production came into force as well as the Canadian organic standard. Furthermore, the Australian domestic organic standard was implemented. Canada and the U.S. concluded the world’s first reciprocal agreement between regulated organic systems and the EU introduced procedures for approving certification bodies from outside the EU. It is expected that these developments will ease trade in organic products and foster the future growth of the sector. The number of countries with organic standards has increased to 73 and there are 16 countries that are in the process of drafting legislation. In 2009, Food and Agriculture Organization (FAO), International Federation of Organic Agriculture Movements (IFOAM) and United Nation Centre for Trade and Development (UNCTAD) started the Global Organic Market Access (GOMA) project. The aim of GOMA is to facilitate equivalence, harmonization and other types of cooperation in order to simplify the process for trade flow of products among the various organic guarantee systems.

There has been modest growth in the number of certification bodies. The total is 488, up from 481 in 2008. Most certification bodies are in the European Union, the United States, Japan, South Korea, China, Canada, and Brazil. A growing number of organic producers are certified through Participatory Guarantee Systems (PGS) across the world. PGS are locally focused quality assurance systems. It is estimated that around 10’000 small operators are involved in PGS worldwide. The leading countries about PGS are located in the global South. Several organic standard setters have also developed draft standards for climate “add-ons” for organic certification, and it is expected that the use of carbon labeling by retailers will grow considerably in the future. Adopting IFOAM, USDA, National Programme for Organic Production (NPOP) and Agricultural and Processed Food Products Export Development Authority (APFEDA) Act, 1985 categorize organic products into four (4) categories that are as follows:

- **Single-Ingredient Products 100% Organic**: Raw or processed agricultural products containing 100% certified organic ingredients (excluding water and salt but including additives) may be labeled, "produce of organic agriculture" or similar description.

- **Multi-Ingredient Products with at least 95% Organic Ingredients**: Raw or processed agricultural products containing a minimum of 95% certified organic ingredients (by raw material weight, excluding water and salt, but including additives) may be labeled "certified organic" or a similar description.

- **Multi-Ingredient Products with at least 70% Organic Ingredients**: Raw or processed agricultural products containing between 70% and 95% certified organic ingredients (by raw material weight, excluding water and salt, but including additives) may be labeled, "made with organic ingredients" or a similar description on the principal display, provided that the proportion of organic ingredients is clearly indicated. Such products cannot be simply labeled, "organic".
Multi-Ingredient Products with less than 70% Organic Ingredients: Raw and processed agricultural products containing less than 70% certified organic ingredients may only contain indications that an ingredient is organic on the ingredient list but cannot be labeled "organic".

SOME FACTS ABOUT ORGANIC AGRICULTURE IN ASIA CONTINENT

As per the details released at BioFach 2010 at Nuremberg, the organic agriculture is developing rapidly, and statistical information is now available from 154 countries of the world. Its share of agricultural land and farms continues to grow in many countries. Some of the main results of the 2010 global survey on certified organic farming are as follows:

The total organic agricultural area in Asia is nearly 3.3 million hectares. This constitutes 9% of the world’s organic agricultural land. 4.00,000 producers were reported. The leading countries by area are China (1.9 million hectares) and India (1 million hectares). Timor Leste has the most organic agricultural area as a proportion of total agricultural land (7%). Organic wild collection areas play a major role in India and China, while Aquaculture is important in China, Bangladesh and Thailand.

Global Market: According to Organic Monitor estimates, global sales reached 50.9 billion US dollars in 2008, doubling in value from 25 billion US dollars in 2003. Consumer demand for organic products is concentrated in North America and Europe; these two regions comprise 97% of global revenues. Asia, Latin America and Australasia are important producers and exporters of organic foods. The financial crisis has had a negative impact on the global market for organic products; however, preliminary research finds that growth continued in 2009 in spite of the poor economic climate.

Organic Agriculture in India, Emergence: The growth of organic agriculture in India has three dimensions and is being adopted by farmers for different reasons. First category of organic farmers are those which are situated in no-input or low-input use zones, for them organic is a way of life and they are doing it as a tradition (may be under compulsion in the absence of resources needed for conventional high input intensive agriculture). Second category of farmers are those which have recently adopted the organic in the wake of ill effects of conventional agriculture, may be in the form of reduced soil fertility, food toxicity or increasing cost and diminishing returns. The third category comprised of farmers and enterprises, which have systematically adopted the commercial organic agriculture to capture emerging market opportunities and premium prices. While majority of farmers in first category are traditional (or by default) organic, they are not certified, second category farmers comprised of both certified and uncertified but majority of third category farmers are certified. These third category commercial farmers are attracting most attention. The entire data available on organic agriculture today, relates to these commercial organic farmers.

Growing Area: Emerging from 42,000 hectares under certified organic farming during 2003-04, the organic agriculture has grown almost 29 fold during the last 5 years. By March 2010, India has brought more than 4.48 million hectares area under organic certification process. Out of this cultivated area accounts for 1.08 million hectares while remaining 3.44 million hectares is wild forest harvest collection area. Year wise growth of cultivated area under organic management is shown as follows in Table 1.

<table>
<thead>
<tr>
<th>Years</th>
<th>Area under Organic Management (in Hectares)</th>
<th>% of the Total Agriculture Arable Area of India (159.7 Million Hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>42,000</td>
<td>0.0262 %</td>
</tr>
<tr>
<td>2004-2005</td>
<td>76,000</td>
<td>0.0475 %</td>
</tr>
<tr>
<td>2005-2006</td>
<td>1,73,000</td>
<td>0.108 %</td>
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<tr>
<td>2006-2007</td>
<td>5,38,000</td>
<td>0.336 %</td>
</tr>
<tr>
<td>2007-2008</td>
<td>8,65,000</td>
<td>0.541 %</td>
</tr>
<tr>
<td>2008-2009</td>
<td>12,07,000</td>
<td>0.755%</td>
</tr>
<tr>
<td>2009-2010</td>
<td>10,85,648</td>
<td>0.679 %</td>
</tr>
</tbody>
</table>

Sources: Year wise data source from National Project on Organic farming, Department of Agriculture and Cooperation, Government of India and relative share calculated by the author.

The crops conversion in commodities under organic agriculture are rice, wheat, cereals/millet, pulses, oil seeds including Soya bean, Cotton (raw seeds cotton), Spices, Tea/Coffee, Fruits and vegetables, Herbal/medicinal plants and other miscellaneous crops.

ENVISIONING SCOPE OF THE ORGANIC AGRICULTURE

Hindsight of Literature, Scenario and expert opinions about sustainable or abrupt growth of Organic Agriculture in India:

- The organic food industry in the world is worth US $ 35 billion with a growth rate of 15% with most of the growth concentrated mainly in U.S.A, U.K and Japan (Willer, 2004),

Are the capacity building measures taken by the Central and State governments encouraging and satisfactory to boost the organic agriculture in India,

"The market for organic foods is growing at a Compounded Annual Growth Rate (CAGR) of 20-22%," Yes Bank's Country Head, Food and Agribusiness, Girish Aivali told PTI. Yes Bank also released a report 'Indian Organic Foods Market' at a one-day conference, Jaivilk India, on proliferation of organic and natural products in the Indian market. The report said the global organic food and beverages market is expected to grow from $57.2 billion in 2010 to $104.5 billion by 2015 with a CAGR of 12.8%.

The States doing well in organic farming are Madhya Pradesh (4.40 lakh hectare), Maharashtra (1.50 lakh hectare) and Orissa (95,000 hectare), the data added,

13th August 2014, Chairman of Agricultural and Processed Food Products Export Development Authority (APEDA) Santosh Sarangi said the export of agriculture and processed food from the country has increased by 19 % and India has emerged as the eighth biggest agricultural exporter in the world. Last year, agro food export was to the tune of `1, 34,000 crore,

Principal Secretary, Agriculture, Rajesh Verma said the State would soon have a dedicated policy for organic farming. Advisor, Organic Food Production in the Ministry of Commerce and Industry, PVSM Gouri said Odisha has around 69,055 hectares of certified area for organic cultivation including 14,033 hectares wild area which is larger than that of Bihar, Chattisgarh, Jharkhand and West Bengal,

"India can greatly benefit from the export of organic foods but it needs to devote attention to market intelligence regarding which product to grow, where to sell, distribution channels, competition and marketing access," points out Malavika Dadlani, joint director, IARI,

It is estimated that India’s organic food industry will grow to Rs. 10,000 crore by 2015 with an annual growth of 40%. The Associated Chambers of Commerce and Industry of India (ASSOCHAM) has reported that the present market is Rs. 2,500 crore (approximately) and it is likely to grow with rising health awareness among the populace of this globe. A study by ASSOCHAM titled “Organic Products – The Way Ahead” shows that the certified area used by many private players is growing rapidly and providing work for a number of farmers, consolidators, retailers and many others,

All pioneer entrepreneurs in organic farming faced a number of challenges like developing consumer trust, unorganized market, staff hiring and financing. Moudgil says, “It is difficult to convince customers about how to choose while buying our organic products as they question about their quality. Therefore, we start capturing the pictures and real videos of harvesting of produce at field. This helps us to convince customers about the quality of products.” Other challenges include consumers’ lack of information and awareness about organic products,

Organic food is regularly catching up pace among the Indian retailers owing to wide awakening among Indian consumers towards leading a healthy life. A set of effective and successful entrepreneurs in the cities is coming up to set up distribution and retail network. Moreover, Tier 1 and Tier 2 cities are witnessing growth in the use of organic products that shows huge acceptance among masses,

During the last four decades of the 20th Century, the global population doubled itself from 3 to 6 billion and it is estimated that by the year 2020, it will reach the 8 billion mark. It has also been noticed the volume of population from 3000 BC to 1950 is almost same or less from 1950 to 2030. It means that the galloping explosion of population has been made during last 5-6 decades only. 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 combination of organic and inorganic is undoubtedly the best option as on today unless the existing dietary system is changed.

It claims it gets no subsidy for organic farmers. Unbelievably, almost 70 % of the national Capital was used for organic farming in 2011-2012, according to National Project on Organic Farming (NPOF), which comes under the Ministry of Agriculture. While the total geographical area of Delhi is 1.48 lakh hectares, NPOF data shows 100238.74 hectares (almost twice the size of Mumbai) was used for organic farming during that period,

What smacks of data fudging and a gigantic scam took place between 2009 and 2012 when the Sheila Dikshit government was in power in Delhi and Congress-led UPA ruled at the Centre. As per the central government scheme, a subsidy of Rs 10,000 per hectare of land is given to a farmer for organic farming. Hence, Rs 100-crore plus subsidies in 2011-12 were given by the Union government for organic farming in the national Capital for 100238.74 hectares. In addition, Delhi, on paper, produced 4,765 tons of organic products in 2009. The state of Assam produced 2,329 tons.
other words, urban Delhi's output of organic products was 100% higher than that of Assam. The scam was exposed by the Crop Care Foundation of India (CCFI) through an RTI.

- When MAIL TODAY asked the Ministry of Agriculture if indeed such gigantic tract of land inside Delhi has been used for organic farming or if the national capital is such a big producer of organic vegetables, we got no answers. Neither did the Commerce Ministry, which is in charge of export of organic products come up with any answers. Both ministries shifted the blame and pointed fingers at each other. Dr Krishan Chandra, Regional Director, and National Center for Organic Farming (NCOF), Ministry of Agriculture, said: "Agriculture is a state subject. The Centre's role is to help states monetarily so that they can take up organic farming. We have different schemes through which we help farmers by providing money to states. However, there is no scope of organic farming in Delhi as there is meager land available for any kind of farming. As far as subsidy is concerned, we give subsidy for the export of organic produce." According to the data available with the Ministry of Agriculture, the annual export value of Agri-organic products for 2012-13 was Rs 1155.81 crore.

- Dr Chandra said that on noticing major glitch in the data provided by the Agricultural and Processed Food Products Export Development Authority (APEDA), under the Ministry of Commerce, regarding organic farming in Delhi, he asked them for clarification.

- "The data regarding land for organic farming is maintained by APEDA and not by our department. They said that earlier they used to enter the data manually but now they are doing it using computers. There may be some data manipulation as it is not possible to carry out such large-scale organic farming in Delhi," said Chandra. "At times the state helps the farmer financially to carry out organic farming. Farmers furnish address details of the national capital, but the land is somewhere else. The responsibility to check such details furnished by farmers lies with the Commerce Ministry," he said. Sources in the Agriculture Ministry said that there is a possibility of embezzlement of funds at the state level because who the beneficiaries would be are decided by the state.

- The state agriculture department claims to have no information on organic farming in Delhi. "We don't have any information," said Kaushal Kishore, joint director, agriculture, Development department, Delhi government. Rajinder Chaudhry, Director (Media), Ministry of Commerce, said: "We are not aware about the disparity in data from other sources. The data provided by APEDA is sourced from TRACENET - a web-based traceability system operational under NPOP.

- It is acceptable fact that India comparative has a high advantage in organic food production to compete in the international market as 65% of arable land is mainly rain-fed, negligible amount of fertilizers are being used. Farmers in these areas often use organic manure as a source of nutrients that are readily available either in their own farm or in their locality. The northeastern region of India provides considerable scope and opportunity for organic farming due to least utilization of chemical inputs. It is estimated that 18 million hectare of such land is available in the Northeast, which can be exploited for organic production. With the sizable acreage under naturally organic/default organic cultivation, India has tremendous potential to grow crops organically and emerge as a major supplier of organic products in the World’s organic market. Need is for putting up a clear strategy on organic farming and its link with the markets (Ramesh et al., 2005);
Inductive Inferences and Repercussions thereof:

- From the review or retrospection of Organic Agriculture sustainability and scope; it is evident that huge potential lies ahead for Indian sub-continent for its domestic and international market being a country already adopting bio-fertilizers in most of the coastal, poorly developed States and hilly terrain areas,

- The classification of organic agricultural produces in India in 4 different categories viz. Single-ingredient products 100 % organic, Multi-ingredient products with at least 95 % organic ingredients, Multi-ingredient products with at least 70 % organic ingredients and Multi-ingredient products with less than 70 % organic ingredients respectively, is and will definitely be hilarious marketing dilemma for the producers and customers as well in the absence of hi-tech gadgets readily available in the market for the spontaneous checks of bio-organic contents in the products,

- Segregating or segmenting a particular land of piece invariably for cultivating organic agriculture will be prone to pilferage of synthetic fertilizers through overflowing irrigation or rain water or otherwise, through the major portion of the soil having deep deposits of fertilizers, hence, converting conventional land into organic agriculture land is a difficult affair and long term that seems a farfetched dream in the era when the population of the globe is multiplying,

- It is evident that majority of the Indian arable land is rain-fed, vegetation wastes and manures are used in most of the tribal areas as bio-fertilizers, nevertheless, worth quoting, people in these areas too have started using synthetic fertilizers to increase the growth of agriculture produces and use of highly health hazardous pesticides, insecticides, herbicides etc., that all indeed pose a great threat to the growth of organic agriculture in Indian sub-continent,

- Which mechanism can work effectively for India; truly Indian government, United Nation Organization’s and partial global developed countries initiatives and investments are encouraging but the monitoring and supervision systems developed thereof seem to non-effective ignoring various aspects at ground level,

- Indian government to prepare rather should work on a concrete road map in identifying States or Geographical spreads where mainly bio-fertilizers are used and focus more on those areas for developing organic agriculture and concurrently gradual conversion of the high synthetic fertilizer using States and areas into organic agriculture produces,

- In the Indian market context, People Purchasing Parity (PPP) has increased considerably, hence, has already paved pathway for the bright future of organic products, nevertheless, need to strike out right balance between the growing food demand and organic farming space,

- Organic agriculture products markets need to be created at specific locations and producers need to be supported for supply chain to enhance the viability of this market,

- It is inductive that a great potential lies at domestic and international context for the organic agriculture products but needs concrete and specific initiatives to streamline and channelize this and all the countries across the globe need to capitalize more on this front.

REFERENCES


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