Organic farming business proposal

Business

Introduction

Organic farming is the form of agriculture that relies on techniques such as crop rotation, green manure, compost, and biological pest control.

Organic farming uses fertilizers and pesticides but excludes or strictly limits the use of manufactured (synthetic) fertilizers, pesticides (which include herbicides, insecticides and fungicides), plant growth regulators such as hormones, livestock antibiotics, foodadditives, genetically modi? d organisms, human sewage sludge, and nanomaterials Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organization for organic farming organizations established in 1972. IFOAM denes the overarching goal of organic farming as: " Organic agriculture is a production system that sustains thehealthof soils, ecosystems and people.

It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Does organic agriculture combine tradition, innovation andscienceto bene? t the sharedenvironmentand promote fair relationships and a good quality of life for all involved... " —International Federation of Organic Agriculture Movements Since 1990, the market for organic products has grown from nothing, reaching $55 billion in 2009 according to Organic Monitor (www. organicmonitor. com).

This demand has driven a similar increase in organically managed farmland which has grown over the past decade at a compounding rate of 8. 9% per

annum. [5] Approximately 37, 000, 000 hectares (91, 000, 000 acres) worldwide are now farmed organically, representing approximately 0. 9 percent of total world farmland (2009) History Organic farming (of many particular kinds) was the original type of agriculture and has been practiced for thousands of years. Forest gardening, a fully organic food production system that dates from prehistoric times, is thought to be the world's oldest and most resilient agroecosystem.

After the industrial revolution had introduced inorganic methods, some of which were not well developed and had serious side effects, an organic movement began in the mid-1920s in Central Europe through the work of Rudolf Steiner, who created biodynamic agriculture, an early version of organic agriculture. Organic agriculture was independently developed in 1940s England through the work of Albert Howard as a reaction to agriculture's growing reliance on synthetic fertilizers. Artificial fertilizers had been created during the 18th century, initially with superphosphates and then ammonia-based fertilizers mass-produced using the Haber-Bosch process developed during World War I. These early fertilizers were cheap, powerful, and easy to transport in bulk. Similar advances occurred in chemical pesticides in the 1940s, leading to the decade being referred to as the 'pesticide era'. Although organic farming is prehistoric in the widest sense, Sir Albert Howard is widely considered to be the " father of organic farming" in the sense that he was a key founder of the post-industrial-revolution organic movement.

Further work was done by J. I. Rodale in the United States, Lady Eve Balfour in the United Kingdom, and many others across the world. The first lectures

and publications on organic agriculture stem from Rudolf Steiner, however, whose Lectures on Agriculture were published in 1925. The modern organic movement is a revival movement in the sense that it seeks to restore the balance that was lost whentechnologygrew rapidly in the 19th and 20th centuries. Modern organic farming has made up only a fraction of total agricultural output from its beginning until today.

Increasing environmental awareness in the general population has transformed the originally supply-driven movement to a demand-driven one. Premium prices and some government subsidies attracted farmers. In the developing world, many G r o u p V I! Organic Farming 1 producers farm according to traditional methods which are comparable to organic farming but are not certified. In other cases, farmers in the developing world have converted for economic reasons Methods Soil management Plants need nitrogen, phosphorus, and potassium, as well as micronutrients and symbiotic relationships with fungi and other organisms to nourish, but getting enough nitrogen, and particularly synchronization so that plants get enough nitrogen at the right time (when plants need it most), is likely the greatest challenge for organic farmers. Crop rotation and green manure (" cover crops") help to provide nitrogen through legumes (more precisely, the Fabaceaefamily) which x nitrogen from the atmosphere through symbiosis with rhizobial bacteria. Intercropping, which is sometimes used for insect and disease control, can also increase soil nutrients, but the competition between the legume and the crop can be problematic and wider spacing between crop rows is required.

Crop residues can be plowed back into the soil, and different plants leave different amounts of nitrogen, potentially aiding synchronization. Organic farmers also use animal manure, certain processed fertilizers such as seed meal, and various mineral powders such as rock phosphate and greensand, a naturally occurring form of potash that provides potassium. Together these methods help to control erosion. In some cases, pH may need to be amended. Natural pH amendments include lime and sulfur, but in the U. S. some compounds such as iron sulfate, aluminum sulfate, magnesium sulfate, and soluble boron products are allowed in organic farming. Mixed farms with both livestock and crops can operate as ley farms, whereby the land gathers fertility through growing nitrogen-? xing forage grasses such as white clover or alfalfa and grows cash crops or cereals when fertility is established. Farms without livestock (" stockless") may nd it more difficult to maintain fertility, and may rely more on external inputs such as imported manure as well as grain legumes and green manures, although grain legumes may limited nitrogen because they are harvested. Horticultural farms growing fruits and vegetables which operate in protected conditions are often even more reliant upon external inputs. Biological research on soil and soil organisms has proven beneficial to organic farming. Varieties of bacteria and fungi break down chemicals, plant matter, and animal waste into productive soil nutrients. In turn, they produce bene? ts of healthier yields and more productive soil for future crops. Fields with less or no manure display signi? antly lower yields, due to decreased soil microbe community, providing a healthier, more arable soil system Weed management Organic weed management promotes weed suppression, rather than weed elimination, by enhancing crop competition and phytotoxic effects on weeds. Organic

farmers integrate cultural, biological, mechanical, physical, and chemical tactics to manage weeds without synthetic herbicides. Organic standards require rotation of annual crops, meaning that a single crop cannot be grown in the same location without a different, intervening crop.

Organic crop rotations frequently include weed-suppressive cover crops and crops with dissimilar life cycles to discourage weeds associated with a particular crop. Organic farmers strive to increase soil organic matter content, which can support microorganisms that destroy common weed seeds. Other cultural practices used to enhance crop competitiveness and reduce weed pressure include a selection of competitive crop varieties, high-density planting, tight row spacing, and late planting into warm soil to encourage rapid crop germination.

Mechanical and physical weed control practices used on organic farms can be broadly grouped as Tillage - Turning the soil between crops to incorporate crop residues and soil amendments; remove existing weed growth and prepare a seedbed for planting;

- Cultivation - Disturbing the soil after seeding;
- Mowing and cutting - Removing the top growth of weeds;
- Flame weeding and thermal weeding - Using heat to kill weeds;
- Mulching - Blocking weed emergence with organic materials, plastic LMS, or landscape fabric. Some naturally sourced chemicals are allowed for herbicidal use.

These include certain formulations of acetic acid (concentrated vinegar), corn gluten meal, and essential oils. A few selective bioherbicides based on

fungal pathogens have also been developed. At this time, however, organic herbicides and bioherbicides play a minor role in the organic weed control toolbox. Weeds can be controlled by grazing. For example, geese have been used successfully to weed a range of organic crops including cotton, strawberries, tobacco, and corn, reviving the practice of keeping cotton patch geese, common in the southern U.

S. before the 1950s. Similarly, some rice farmers introduce ducks and nourish to wet paddy fields to eat both weeds and insects. Controlling other organisms Organisms aside from weeds that cause problems on organic farms include arthropods (e. g., insects, mites), nematodes, fungi, and bacteria. Organic farmers use a wide range of Integrated Pest Management practices to prevent pests and diseases. These include, but are not limited to, crop rotation and nutrient management; sanitation to remove pest habitat; provision of habitat for beneficial organisms; selection of pest-resistant crops and animals; crop protection using physical barriers, such as row covers; and crop diversification through companion planting or establishment of polycultures. Organic farmers often depend on biological pest control, the use of beneficial organisms to reduce pest populations. Examples of beneficial insects include minute pirate bugs, big-eyed bugs, and to a lesser extent ladybugs (which tend to fly away), all of which eat a wide range of pests. Lacewings are also effective but tend to fly away. Praying mantis tend to move more slowly and eat less heavily.

Parasitoid wasps tend to be effective for their selected prey, but like all small insects can be less effective outdoors because the wind controls their movement. Predatory mites are effective for controlling other mites. When

these practices are insufficient to prevent or control pests an organic farmer may apply a pesticide. With some exceptions, naturally occurring pesticides are allowed for use on organic farms, and synthetic substances are prohibited. Pesticides with different modes of action should be rotated to minimize the development of pesticide resistance.

Naturally derived insecticides allowed for use on organic farms use include Bacillus thuringiensis (a bacterial toxin), pyrethrum (a chrysanthemum extract), spinosad (a bacterial metabolite), neem (a tree extract), and rotenone (a legume root extract). These are sometimes called green pesticides because they are generally, but not necessarily, safer and more environmentally friendly than synthetic pesticides. Rotenone and pyrethrum are particularly controversial because they work by attacking the nervous system, like most conventional insecticides.

Fewer than 10% of organic farmers use these pesticides regularly; one survey found that only 5. 3% of vegetable growers in California use rotenone while 1. 7% use pyrethrum (Lotter 2003: 26). Naturally derived fungicides allowed for use on organic farms include the bacteria Bacillus subtilis and Bacillus pumilus; and the fungus Trichoderma harzianum. These are mainly effective for diseases affecting roots. Agricultural Research Service scientists have found that caprylic acid, a naturally occurring fatty acid in milk and coconuts, as well as other natural plant extracts have antimicrobial characteristics that can help. Does compost tea contain a mix of beneficial microbes, which may attack or out-compete certain plant pathogens, but variability among formulations and preparation methods may contribute to inconsistent results or even dangerous growth of toxic microbes in compost

teas. Some naturally derived pesticides are not allowed for use on organic farms. These include nicotine sulfate, arsenic, and strychnine. Synthetic pesticides allowed for use on organic farms include insecticidal soaps and horticultural oils for insect management; and Bordeaux mixture, copper hydroxide, and sodium bicarbonate for managing fungi. Genetic modification A key characteristic of organic farming is the rejection of genetically engineered plants and animals. On October 19, 1998, participants at IFOAM's 12th Scientific Conference issued the Mar del Plata Declaration, where more than 600 delegates from over 60 countries voted unanimously to exclude the use of genetically modified organisms in food production and agriculture.

Although opposition to the use of any transgenic technologies in organic farming is strong, agricultural researchers Luis Herrera-Estrella and Ariel Alvarez-Morales continue to advocate the integration of transgenic technologies into organic farming as the optimal means to sustainable agriculture, particularly in the developing world. [32] Similarly, some organic farmers question the rationale behind the ban on the use of genetically engineered seeds because they view this kind of biotechnology as consistent with organic principles. Although GMOs are excluded from organic farming, there is concern that the pollen from genetically modified crops is increasingly penetrating organic and heirloom seed stocks, making it difficult, if not impossible, to keep these genomes from entering the organic food supply. International trade restrictions limit the availability of GMOs in certain countries. The hazards that genetic modification could pose to the environment are hotly contested.

Economics

The economics of organic farming, a sub? eld of agricultural economics encompasses the entire process and effects of organic farming in terms of human society, including social costs, opportunity costs, unintended consequences, information asymmetries, and economies of scale.

Although the scope of economics is broad, agricultural economics tends to focus on maximizing yields and efficiency at the farm level. Economics takes an anthropocentric approach to the value of the natural world: biodiversity, for example, is considered beneficial only to the extent that it is valued by people and increases pro? ts. Some entities such as the European Union subsidize organic farming, in large part because these countries want to account for the externalities of reduced water use, reduced water contamination, reduced soil erosion, reduced carbon emissions, increased biodiversity, and assorted other benefits that result from organic farming. Traditional organic farming is labor and knowledge-intensive whereas conventional farming is capital-intensive, requiring more energy and manufactured inputs. Organic farmers in California have cited marketing as their greatest obstacle.

Geographic producer distribution The markets for organic products are strongest in North America and Europe, which as of 2001 are estimated to have $6 and $8 billion respectively of the $20 billion global markets (Lotter 2003: 6).

As of 2007, Australasia has 39% of the total organic farmland, including Australia's 1, 180, 000 hectares (2, 900, 000 acres) but 97 percent of this land is sprawling rangeland (2007: 35). US sales are 20x as much. (2003).

Europe farms 23 percent of global organic farmland (6. 9 million hectares), followed by Latin America with 19 percent (5. 8 million hectares). Asia has 9. 5 percent while North America has 7. 2 percent. Africa has 3 percent. Besides Australia, the countries with the most organic farmland are Argentina (3. 1 million hectares), China (2. 3 million hectares), and the United States (1. million hectares). Much of Argentina's organic farmland is pasture, like that of Australia (2007). Italy, Spain, Germany, Brazil (the world's largest agricultural exporter), Uruguay, and the UK follow the United States in the amount of organic land (2007). Growth Organic farmland by world region (2000-2008) As of 2001, the estimated market value of certi? ed organic products were estimated to be $20 billion. By 2002 this was $23 billion and by 2007 more than $46 billion. In recent years both Europe (2007: 7. 8 million hectares, European Union: 7. 2 million hectares) and North America (2007: 2. million hectares) have experienced strong growth in organic farmland. In the EU it grew by 21% in the period 2005 to 2008. However, this growth has occurred under different conditions. While the European Union has shifted agricultural subsidies to organic farmers due to perceived environmental bene? ts, the United States has not, continuing to subsidize some but not all traditional commercial crops, such as corn and sugar. As a result of this policy difference, as of 2008 4. 1% G r o u p V I! Organic Farming 5 percent of European Union farmland was organically managed compared to the 0. 6 percent in the U. S.

IFOAM's most recent edition of The World of Organic Agriculture: Statistics and Emerging Trends 2009 lists the countries which had the most hectares in 2007. The country with the most organic land is Australia with more than 12

million hectares, followed by Argentina, Brazil and the US. In total 32. 2 million hectares were under organic management in 2007. For 1999 11 million hectares of organically managed land are reported. As organic farming becomes a major commercial force in agriculture, it is likely to gain an increasing impact on national agricultural policies and confront some of the scaling challenges faced by conventional agriculture.

Productivity and profitability

Various studies and that versus conventional agriculture, organic crops yielded 91%, or 95-100%, along with 50% lower expenditure on fertilizer and energy, and 97% fewer pesticides, or 100% for corn and soybean, consuming less energy and zero pesticides. The results were attributed to lower yields in average and good years but higher yields during drought years. A 2007 study compiling research from 293 different comparisons into a single study to assess the overall efficiency of the two agricultural systems has concluded that ... organic methods could produce enough food on a global per capita basis to sustain the current human population, and potentially an even larger population, without increasing the agricultural land base. (from the abstract) Converted organic farms have lower pre-harvest yields than their conventional counterparts in developed countries (92%) but higher than their low-intensity counterparts in developing countries (132%). This is due to the relatively lower adoption of fertilizers and pesticides in the developing world compared to the intensive farming of the developed world. Organic farms withstand severe weather conditions better than conventional farms, sometimes yielding 70-90% more than conventional farms during droughts. Organic farms are more profitable in the drier states of the United States,

likely due to their superior drought performance. Organic farms survive hurricane damage much better, retaining 20 to 40% more topsoil and smaller economic losses at highly significant levels than their neighbors. Contrary to widespread belief, organic farming can build up soil organic matter better than conventional no-till farming, which suggests long-term yield benefits from organic farming. [56] An 18-year study of organic methods on nutrient-depleted soil, concluded that conventional methods were superior for soil fertility and yield in a cold-temperate climate, arguing that much of the bene? ts from organic farming are derived from imported materials which could not be regarded as " self-sustaining".

Profitability

The decreased cost of synthetic fertilizer and pesticide inputs, along with the higher prices that consumers pay for organic produce, contribute to increased profits. Organic farms have been consistently found to be as or more pro? table than conventional farms.

Without the price premium, profitability is mixed. Organic production was more profitable in Wisconsin, given price premiums. Sustainability (African case) In 2008 the United Nations Environmental Programme (UNEP) and the United Nations Conference on Trade and Development (UNCTAD) stated that " organic agriculture can be more conducive to food security in Africa than most conventional production systems, and that it is more likely to be sustainable in the long-term"[60] and that " yields had more than doubled where organic, or near-organic practices had been used" and that soil fertility and drought resistance improved.

Employment Impact

Organic methods often require more labor than traditional farming, therefore it provides rural jobs.

Sales and marketing

Most sales are concentrated in developed nations. These products are what economists call credence goods in that they rely on uncertain certification. Interest in organic products dropped between 2006 and 2008, and 42% of Americans polled don't trust organic produce. 69% of Americans claim to occasionally buy organic products, down from 73% in 2005.

One theory was that consumers were substituting " local" produce for " organic" produce. Distributors In the United States, 75% of organic farms are smaller than 2. 5 hectares. In California, 2% of the farms account for over half of sales. (Lotter 2003) Small farms join together in cooperatives such as Organic Valley, Inc. to market their goods more effectively. Most small cooperative distributors have merged or were acquired by large multinationals such as General Mills, Heinz, ConAgra, Kellogg, and others. In 1982 there were 28 consumer cooperative distributors, but as of 2007, only 3 remained.

This consolidation has raised concerns among consumers and journalists of potential fraud and degradation in standards. Most sell their organic products through subsidiaries, under other labels. Organic foods also can be a niche in developing nations. It would provide moremoneyand a better opportunity to compete internationally with huge distributors. Organic prices are much more stable than conventional foods, and the small farms can still compete and have similar prices with the much larger farms that usually take all of

the pro? ts. Farmers' markets Price premiums are important for the profitability of small organic farmers. Farmers selling directly to consumers at farmers' markets have continued to achieve these higher returns. In the United States, the number of farmers' markets tripled from 1, 755 in 1994 to 5, 274 in 2009

SWOT Analysis of Indian Organic Agriculture (Domestic and Export Market)

Organic farming is one such part of the agriculture sector that is unexploited yet. The projects strengths, weaknesses, opportunities and threats are discussed below:

Strengths

- Export of organic produce from India is on the rise
- With organic farming, comes greater nutritional value and better taste
- There is increased awareness for healthy food in the present generation
- The realization of the harmful effects of pesticides and presence of their residues is surfacing
- The international and national certification bodies in the country that are making it easier for the farmers to certify their produce as “ organic”
- With increased demand, Central and State Governments are providing more land at cheaper rates for Organic Agriculture
- The Government is also providing higher subsidies
- Tax holidays are given a higher priority and are being given to the farmers who produce organics

- Organic produce being a premium product, pro? ratios will be towards the higher end due to the higher prices
- Sustainability over the long term
- There is an enhanced soil structure and water infiltration
- Reduces non-renewable energy use by decreasing agrochemical needs (these require high quantities of fossil fuel to be produced by reducing carbon levels in the soil)
- OA promotes biodiversity at all levels of production
- Duration of the edibility is longer.
- Drought resistive in nature
- A major strength is that the only technology OA needs are more of the SUN

Weaknesses

- Lack of awareness is the major downside of Organic Agriculture
- Not only among the customers but also among the farmers
- Most farmers have small holdings
- Quality consciousness is low amongst them Lack of marketing skills (mainly due to the disjoint between the agricultural sector and its domestic market not to mention the international market)
- The market for organics is not consumer-based, but supply oriented
- There is lower productivity due to the mono-cultured farming
- Fields may become bland due to the lack of inorganic additives
- Industrialized agriculture (if a conversion to organic agriculture takes place) exploits the land to an extent where the soil loses its fertility

- Sowing of seeds is time-consuming since direct drilling of seeds (as done in the traditional form of agriculture) increases the risk of soil being lost to wind and erosion
- There is no usage of genetically modified seeds
- Another major drawback is the time required for the interaction and theobservationbetween the farmer and his crop A requirement for OA is using skilled labor, which is hard to find
- Finding the specific seeds are not only time consuming, but also more expensive
- Being more supply oriented, it requires a larger workforce to look after it

Opportunities

- With the ever-growing society and economy in the country and in the world, the growth potential for Organic Agriculture is enormous
- As of 2001, the estimated market value of certified organic products was estimated to be $20 billion.
- By 2002 this was $23 billion and by 2007 more than $46 billion and still showing a positive trend
- Along with the market value, the total farmland assigned for OA is also increasing massively
- The government is also starting to believe in this form of farming, hence giving its consent for extensive practice throughout the country
- The Indian Competence Centre of Organic Agriculture (ICCOA) is a promising initiative towards OA and serves as a platform for various activities related to its market development

- With the continuous growth of the sector, it will be providing a vast number of job opportunities OA helps in making people less reliant on genetically modified food and moves them towards healthier living
- The market for organic fertilizers and other organic materials are also growing and making it easier for the farmers to get hold of all the supplies they need

Threats

- Dishonesty among the suppliers of the raw materials required, i. e products offered with declarations such as “ without pesticides”, “ organic” etc.
- Unavailability of actual organic materials such as seeds, fertilizers and more
- High costs of being a premium product may prevent success in the market
- Hesitation for purchase by customers due to lack of awareness
- Land may be too contaminated or may not be convertible for organic agriculture
- Training unskilled labor may be tougher than expected
- Although governments are cooperating for organic farming, some state governments still believe this method is unproductive and may not give the required permissions and grants
- Lives of organic farmers are being made difficult by large food conglomerates as they want the consumers to focus only on their products