



## Organic Farming: A Need of Era During COVID-19 Pandemic

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“Why the coronavirus pandemic could be a blessing in disguise to fast-track mass production and export of Indian organic farm produce” ??

If there is one area where the coronavirus pandemic is causing a massive rethink, it is in what we eat, where we get that food from, and how the food is produced, stored, and prepared.

Organic farming is an agricultural system which originated early in the 20th century in reaction to rapidly changing farming practices. Certified organic agriculture accounts for 70 million hectares globally, with over half of that total in Australia. Organic farming continues to be developed by various organizations today. It is defined by the use of fertilizers of organic origin such as compost manure, green manure, and bone meal and places emphasis on techniques such as crop rotation and companion planting. Biological pest control, mixed cropping and the fostering of insect predators are encouraged. Organic standards are designed to allow the use of naturally occurring substances while prohibiting or strictly limiting synthetic substances. For instance, naturally occurring pesticides such as pyrethrin and rotenone are permitted, while synthetic fertilizers and pesticides are generally prohibited. Synthetic substances that are allowed include, for example, copper sulphate, elemental sulphur and Ivermectin. Genetically modified organisms, nanomaterials, human sewage sludge, plant growth regulators, hormones, and antibiotic use in livestock husbandry are prohibited. Organic farming advocates claim advantages in sustainability, openness, self-sufficiency, autonomy/independence, health, food security, and food safety. 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.



Demand for organic food, more specifically vegan and vegetarian food, already a movement around the world, is almost certainly going to rise exponentially in a world where the fallacy of living out of tune with nature is being exposed in the most brutal manner.



More questions, no doubt, will be asked of how, and in what manner, scientific modification of food is happening, and even deeper queries about how the food is made available at industrial levels (of consumption and wastage), including the impact of chemicals and hormones in the food.

The World Organic Agriculture report of 2018 notes that a third of all organic food producers in the world live and cultivate in India. But at the same time, organic food cultivation makes up only 2.59% or 1.5 million hectares of the total global organic cultivation area of 57.8 million hectares. The size of the Indian organic food market remains relatively small, at around \$1.5 billion of the approximately \$250 billion global organic food market. The cultivation of organic agriculture is growing around the world, rising to 50.9 million hectares in 2015 from around 11 million hectares in 1999.

Some Indian states like Sikkim have taken the lead in converting their entire produce to organic cultivation, and while still unorganized, estimates suggest that Indian organic agriculture is growing at 25% a year. It is important to understand that the post Covid-19 world could be strikingly different not only in material terms but also in mood. The definitive historic break that the 2008 financial crisis could not bring, the virus is likely to produce.

### **Organic Agriculture**

An integrated farming system that strives for sustainability, the enhancement of soil fertility and biological diversity while, with rare exceptions, prohibiting synthetic pesticides, antibiotics, synthetic fertilizers, genetically modified organisms, and growth hormones. Since 1990 the market for organic food and other products has grown rapidly, reaching \$63 billion worldwide in 2012. This demand has driven a similar increase in organically managed farmland that grew from 2001 to 2011 at a compounding rate of 8.9% per annum. As of 2018, approximately 71,500,000 hectares (177,000,000 acres) worldwide were farmed organically, representing approximately 1.5 percent of total world farmland. Organic agriculture is a production system that sustains the health of 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. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved..."—International Federation of Organic Agriculture Movements. Organic farming methods combine scientific knowledge of ecology and some modern technology with traditional farming practices based on naturally occurring biological processes. Organic farming methods are studied in the field of agro ecology. While conventional agriculture uses synthetic pesticides and water-soluble synthetically purified fertilizers, organic farmers are restricted by regulations to using natural pesticides and fertilizers. An example of a natural pesticide is pyrethrin, which is found naturally in the Chrysanthemum flower. The principal methods of organic farming include crop rotation, green manures and compost, biological pest control, and mechanical cultivation. These measures use the natural environment to enhance agricultural productivity: legumes are planted to fix nitrogen into the soil, natural insect predators are encouraged, crops are rotated to confuse pests and renew soil, and natural materials such as potassium bicarbonate and mulches are used to control disease and weeds. Genetically modified seeds and animals are excluded.

While organic is fundamentally different from conventional because of the use of carbon-based fertilizers compared with highly soluble synthetic based fertilizers and biological pest control instead of synthetic pesticides, organic farming and large-scale conventional farming are not entirely mutually exclusive. Many of the methods developed for organic agriculture have been borrowed by more conventional agriculture. For example, Integrated Pest Management is a multifaceted strategy that uses various organic methods of pest control whenever possible, but in conventional farming could include synthetic pesticides only as a last resort.



## **Soil Management**

Organic farming relies heavily on the natural breakdown of organic matter, using techniques like green manure and composting, to replace nutrients taken from the soil by previous crops. This biological process, driven by microorganisms such as mycorrhiza and earthworms allow the natural production of nutrients in the soil throughout the growing season, and has been referred to as feeding the soil to feed the plant. Organic farming uses a variety of methods to improve soil fertility, including crop rotation, cover cropping, reduced tillage, and application of compost. By reducing tillage, soil is not inverted and exposed to air; less carbon is lost to the atmosphere resulting in more soil organic carbon. This has an added benefit of carbon sequestration, which can reduce greenhouse gases and help reverse climate change. Plants need a large number of nutrients in various quantities to flourish. Supplying enough nitrogen and particularly synchronization so that plants get enough nitrogen at the when plants need it most, is a challenge for organic farmer] Crop rotation and green manure ("cover crops") help to provide nitrogen through legumes (more precisely, the family fabaceae), which fix nitrogen from the atmosphere through symbiosis with rhizobia 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 ploughed 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 green sand, 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 sulphur, but in the U.S. some compounds such as iron sulphate, aluminium sulphate, magnesium sulphate, 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-fixing forage grasses such as white clover or alfalfa and grows cash crops or cereals when fertility is established. Farms without livestock ("stockless") may find it more difficult to maintain soil fertility, and may rely more on external inputs such as imported manure as well as grain legumes and green manures, although grain legumes may fix limited nitrogen because they are harvested. Horticultural farms that grow fruits and vegetables in protected conditions often rely even more on external inputs.

Biological research into 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 benefits of healthier yields and more productive soil for future crops. Fields with less or no manure display significantly lower yields, due to decreased soil microbe community. Increased manure improves biological activity, providing a healthier, more arable soil system and higher yields.

## **Conclusion**

Organic farming is a prerequisite need of era because it not only increases crop production but also it is ecofriendly, cheaper to use as require less cost of cultivation, nourishes the soil to increase its productivity and in the current coronavirus crisis, consumer are also looking to boost their personal immunity. They are spending more on organic foods, plant based foods, nutritional supplements, etc. The price premium is not so important when consumer are looking to improve their overall health, food safety, and look at diseases prevention.