

Recent Trends of Organic in Fruit Culture

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Abstract

The USDA defined organic farming as an ecological production system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on farm management approaches that restore, maintain, and improve ecological coordination and uses the fewest off-farm inputs possible. Simply put, using synthetic (chemical) fertilisers, insecticides, and genetically modified organisms are not permitted in organic farming (GMO).

Introduction

A production method known as organic horticulture promotes the health of soils, ecosystems, and people. Instead than using inputs that have negative impacts, it relies on biological processes, biodiversity, and cycles that are tailored to local conditions. Organic farming blends science, creativity, and tradition to benefit the environment as a whole, foster just relationship, and improve everyone's quality of life (according to IFOAM). Agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity, are promoted and enhanced by organic horticulture, a holistic production management strategy. Given that regional conditions necessitate regionally adapted systems, it prioritises the use of management approaches over the use of off-farm inputs. Instead of employing synthetic materials to carry out any specific functions inside the system, this is achieved by using, if possible, agronomic, biological, and mechanical approaches.

Organic farming in India

Year	Area (000 Ha)	% Production	Producer
2009-10	186	0.10	48'846
2010-11	432	0.24	141'904
2011-12	1030	0.57	195'761
2012-13	1039	0.57	340'000

Source: www.organic-world.net

Recent Trends of Organic In Fruit Culture

- Use of organic liquid manures
- Biodynamic farming
- Effective microorganism technology(EM-Technology)
- Homafarming / Agnihotra farming
- ITKs

Use of organic liquid manures in organic fruit production

Jeevamrut:

An excellent alternative to chemical fertilisers is jeevamrutham, an organic fertiliser. In addition to other minerals necessary for plant growth and development, it is a very good source of biomass, natural carbon, nitrogen, phosphorus, calcium, and other nutrients. The microorganisms that are found in the soil are what make it more fertile and increase crop output. Jeevamrutham is used to enhance the amount of microorganisms in the soil. Jeevamrut improves soil fertility by increasing microbial activity in the soil. With increasing storage time, Jeevamrutham becomes deeper in colour and more pungent-smelling. It initially has a modest green colour. Jeeva and Amrutham combine to form the term Jeevamrutham. Both languages are based on Sanskrit. The word “Jeeva” means a living being and “Amrutham” means the elixir(medicine) upto extending life. According to agricultural view, Jeevamrutham is for crop life. It is the best culture to increase the count of microorganisms. Jeevamrut, is a microbial culture, mainly prepared from cow dung and cow urine generally used in organic farming to meet the nutritional requirement of crops.

Application --If Jeevamrutham is given by Irrigation like a drip, canal water, sprinkler utilize complete 200 liters. When you are considering the spray, you can dilute the mixture. First spray – One month after seed sowing or transplanting of seedling. Take 100-liter water to add 5 liters of filtered Jeevamrutham. Second spray – 21 days after the first spray. Here 150 liters of water plus 10 liters of filtered Jeevamrutham. Third spray – 21 days after the second spray, take the third spray. 200 liters of water plus 20 liters of filtered Jeevamrutham. Fourth spray – When fruits are beginning to show up. 200 liters of water plus 6 liters sour buttermilk can be sprayed for one acre.

Beejamrit:

An old, environmentally friendly farming method is beejamrit. For seeds, seedlings, or any other planting material, it is used. Young roots are effectively shielded from fungus by it. As a seed treatment, beejamrit is a fermented microbial solution that is rich in microorganisms that are good for plants. It is anticipated that the helpful microorganisms will colonise the seeds' roots and leaves and aid in the plants' healthy growth. Any crop's seeds can be coated with Beejamrit, mixed by hand, dried thoroughly, and used for sowing. Simply immerse leguminous seeds, which may have thin seed coverings, briefly, and let them to air dry.

Panchagavya:

An organic compound called panchagavya has the ability to support plant growth and provide immunity. Cow dung, cow urine, milk, curd, jaggery, ghee, bananas, tender coconuts, and water are the nine ingredients that make up panchagavya. These produce astonishing results when properly combined and applied. According to their physical and chemical characteristics, Panchagavya plants have practically all of the essential macronutrients, micronutrients, and growth hormones (IAA & GA) needed for crop growth. It is possible that the predominance of lactobacillus and yeast is caused by a combination of low pH, milk products, and the addition of jaggery or sugarcane juice as a growth substrate.

Beneficial effects of Panchagavya on commercial crops**Mango**

- Induces dense flowering with more female flowers
- Irregular or alternate bearing habit is not experienced and continues to fruit regularly
- Enhances keeping quality by 12 days in room temperature
- Flavour and aroma are extraordinary

Acid lime

- Continuous flowering is ensured round the year
- Fruits are plumpy with strong aroma
- Shelf life is extended by 10 days

Guava

- Higher TSS
- Shelf life is extended by 5 days

Banana

- In addition to adding with irrigation water and spraying, 3% solution (100 ml) was tied up at the naval end of the bunch after the male bud is removed. The bunch size becomes uniform. One month earlier harvest was witnessed. The size of the top and bottom hands was uniformly big.

Generally panchagavya is recommended for all the crops as foliar spray at 30 % level (3 litre panchagavya in 100 litres of water).

Amrutpani:

Amrut is the heavenly drink, which refreshes the gods and has the power to resurrect the dead. In the same manner, Amrutpani invigorates the living soil and converts a dead soil into a living one. Amrutpani is liquid manure prepared by Ahimsak Rishi-Krishi Deshpande technique. Like Panchagavya, Amrutpani is also used to improve the soil fertility.

Homa Farming:

Homa Organic Farming is the application of Homa Therapy to organic agriculture. Homa Organic Farming is a system of agriculture that may be added to any good organic farming practices.

Treating the Atmosphere

The main difference between Homa organic farming and other organic farming techniques is that Homa farming regards the atmosphere as the most important source of nutrition, whereas in any other farming practices today the atmosphere is almost totally neglected. Ancient science of Homa Therapy states that more than 75% of nutrition to plants and soil comes through the atmosphere. Homa organic farming injects nutrients into the atmosphere to nourish the plants, to prevent disease, bring natural predators and nutritious, timely rains. Homas are specially prepared fires for the purification of the atmosphere. If you make the atmosphere more nutritious and fragrant by performing Homas, a type of protective coating comes on plants and diseases, fungi, pests, etc. do not thrive. Plants' capacity to breathe increases and the toxic choking effect due to atmospheric pollution is eliminated.

Agnihotra is the basis of Homa Farming. This should be performed twice daily in the Agnihotra hut. If cow dung and ghee are readily available they should be used in greater quantity when doing Agnihotra. The Agnihotra pyramid is a generator of life-sustaining energies.



Om Tryambakam Homa should be done as many hours as possible, up to four hours daily and up to 24 hours on full moon and new moon days. *Om Tryambakam Homa* enhances the healing energy cycle set up by daily Agnihotra fires, injecting more nourishment into the atmosphere.

Vyahruti Homa can be practiced at any time, except Agnihotra time. Agnihotra is a healing fire from the ancient science of ayurveda. It is a process of purifying the atmosphere through a specially prepared fire performed at sunrise and sunset daily. Agnihotra utilizes the combined effect of various factors involved in its science viz., burning of specific organic substances like cow's ghee, rice grains, twigs of plants like vata, audumbar, palaash, peempal and bael etc and thereby injecting the atmosphere with nutrients. The mantra vibrations chanted too have a healing and relaxing effect on the atmosphere and all the living beings. Anyone in any walk of life can do Agnihotra and heal the atmosphere in his/her own home. Hundreds of thousands of people all over the world have experienced that Agnihotra leads to greater clarity of thought, improves overall health, gives one increased energy and makes the mind more of love. Agnihotra also nourishes plant life and neutralizes harmful radiation and it harmonizes the functioning of Prana (life energy) and can be used to purify water resource. The practice of Agnihotra is simple, easily adoptable and universal. It may be performed by all irrespective of barriers like religion, sect, creed, nationality, color, sex and age.

Indigenous Technical knowledge (ITKS) in some fruit crops

Banana:

Unripened banana bunches are piled in a vessel and incense sticks are inside the vessel. Then if the lid of the vessel is closed, the bunches will ripe in about 12 hours. For quick ripening of banana fruits, lime solution is sprinkled over the bunches. For easy ripening of banana, neem leaves are inserted in between the bunches

Diluted tobacco leaf extract is sprayed on banana crop to control leaf spot diseases. Banana suckers are immersed for a while in 1 lit. of neem oil dissolved in 100 lit. of water before planting in order to prevent rhizome rot. Ground nut cake is applied to banana crop for better yield. To control fruit rot in banana during storage, the fruit stalks are soaked in 10% thulasi (*Ocimumcanum*) leaf extract or 1 % neem oil solution and stored. Growing *Sesbania spp.* (trees) as border crop around banana fields to act as a shelter crop in order to

prevent the wind damage. Neem leaves are put inside a vessel containing banana hands for ripening of fruits. But ripening will take about four days. Dried, drooping leaves are removed once in three months to avoid shade effect which may produce black spots on fruits and to reduce wind damage there by preventing lodging. One kg each of powdered neem cake and tobacco waste are soaked separately in 5 lit. of water each. In the next day they are filtered and decanted solutions are mixed together in which suckers are immersed before planting to prevent nematode attack. To control banana wilt, affected plants are removed and burnt and 1 -2 kg of lime is applied in each pit. For quick ripening and for festive occasions, bunches are stacked in bigger earthen pots in to which fuming incense sticks are kept and mouth is covered with clothes

Mango:

Neem oil is sprayed to control the hoppers. Sunflower is cultivated in between the mango trees to attract honey bees which increase pollination and fruit production. To induce early ripening of mango fruits, they are spread on a layer of the branches of 'Aavaram' (*Cassia auriculata*) plant on the floor and again covered with its branches. Groundnut cake is powdered, soaked in water and poured to grapes @ 1 bucket/pit for better fruit quality and yield. Circular trenches are dug around vines in which green manures and FYM are applied in 3:1 ratio and covered with soil before the monsoon starts in order to get higher yields. Neem cake is applied to control the nematodes.

Guava:

Pounding 2kg.of foliage of *Calotropis* sp. with 3 kg.ofneem cake, soaking them in 20 lit. of water for four days and dissolving the extract in 200lit.of water and spraying for one ac. to control all the pests. Apply pig manure @ 1 basket/tree to increase the yield and to prevent flower shedding. Neem seed kernel extract or neem cake solution is sprayed to control leaf miner. Dried neem fruits are powdered and applied @ 500g per tree to control the nematode attack.

Mandarin orange:

Greenish Aloe vera plants are cut into small pieces and spread to a radius of 2 feet around the tree during flowering to control powdery mildew. Collected orange seeds are mixed with ash to avoid ants' attack.

**Plum:**

One year old plum grafts are used for planting to control algal infestation, 1kg. of lime dissolved in 10 lit. of water is sprayed after pruning. Plum fruits are packed in bamboo baskets and leaves of a fern type called 'Idaivalai' (*Pteridiumaculinum*) are kept in between the fruits in order to slow down their ripening since these leaves are slow drying.

Biodynamic farming is a form of alternative farming based on pseudo-scientific and esoteric concepts initially developed in 1924 by Rudolf Steiner (1861–1925). It was the first of the organic farming movements.

Biodynamics has much in common with other organic approaches. It emphasizes the use of manures and composts and excludes the use of synthetic (artificial) fertilizers, pesticides and herbicides on soil and plants. Methods unique to the biodynamic approach include its treatment of animals, crops, and soil as a single system, an emphasis from its beginnings on local production and distribution systems, its use of traditional and development of new local breeds and varieties. Some methods use an astrological sowing and planting calendar. Biodynamic agriculture uses various herbal and mineral additives for compost additives and field sprays; these are prepared using methods that are more akin to sympathetic magic than agronomy, such as burying ground quartz stuffed into the horn of a cow, which are said to harvest "cosmic forces in the soil". No difference in beneficial outcomes has been scientifically established between certified biodynamic agricultural techniques and similar organic and integrated farming practices. Biodynamic agriculture is a pseudoscience as it lacks scientific evidence for its efficacy because of its reliance upon esoteric knowledge and mystical beliefs. As of 2020, biodynamic techniques were used on 251,842 hectares in 55 countries, led by Germany, Australia and France. Germany accounts for 41.8% of the global total, the remainder average 1,750 ha per country. Biodynamic methods of cultivating grapevines have been taken up by several notable vineyards. There are certification agencies for biodynamic products, most of which are members of the international biodynamic standards group Demeter International.

Conclusion

The modern form of organic farming is new concept. However, it s being popular in the world speedily especially in developed countries. Organic farming system is alternative and appropriate management system would help to improve soil health environment thus

increase the productive level and improve the quality of fruit crops. India has tremendous potential to grow crops and fruits organically and emerge as a major supplier of organic product in the world's organic market. 100% RDF through vermicompost resulted in higher number of shoot, shoot length, plant height and plant canopy. Highest phosphorous is content in poultry manure might help the plants to produce more flower and fruit.

Reference:

Selvaraj, N., B. Anitha, B. Anusha and M. Guru Saraswathi. 2007. Organic Horticulture. Horticultural Research Station, Tamil Nadu Agricultural University, Udhagamandalam-643 001.

