FAQ

What is the difference between organic farming and natural farming?

Globally, organic farming is regulated by IFOAM. Organic farming is a system of monoculture that follows conservation tillage, organic seed, crop rotation and avoids use of synthetic chemical inputs as far as possible. IFOAM has a positive and negative list of inputs that should be used or avoided in organic farming. IFOAM regulates a system of organic certification to differentiate organic products from chemical products. The cost of organic farming is higher than conventional agriculture but the quality of organic products are inferior to conventional agricultural products. Therefore the price of organic products is higher and consumer acceptance of organic products is limited.

On the other hand, natural farming is a spontaneous initiative of the farmers for minimising cost and maximising profit in farming. It is a system of polyculture that totally depends on available natural resources (soil, water, sunlight, temperature), natural ecosystem services (biogeochemical cycles) and native biodiversity of plants, animals and microorganisms, to maximise crop diversification, crop yield and profit. The risk and cost of natural farming is minimum but the yield, quality and market price of the products are maximum. Actually consumers regularly visit the natural farms to buy natural food products. Consumers judge the quality of the naturally grown product by its taste, and there is no need for any third party certification.

How does natural farming maintain soil tilth?

Plant, animal and microorganism biodiversity maintain the soil tilth in the natural farming agroecosystem. Plant roots penetrate the soil layers and incorporate organic matter in soil after dying and decaying. Earthworms, insects and other animals bore in the soil and bring bottom soil to the top. These tunnels help aeration and infiltration of rainwater in soil. Earthworms shred and decompose organic matter and mix it with soil. Earthworm casting (vermicompost) contains bacteria that mineralise organic matter and help increase organic carbon in soil. Bacterial mass forms biofilm over the soil particles and helps soil aggregation and increase water holding capacity of soil. In this way earthworms help tilling of soil most efficiently, without disturbing the soil structure, soil water, soil organic matter, soil biodiversity and soil health. Therefore mechanical tillage is unnecessary and harmful for natural farming.

How does natural farming regulate the temperature cycle?

The variation in atmospheric temperature and soil temperature follows a diurnal cycle as well as a seasonal cycle. Mulching and cover cropping forms a layer of insulation over the soil surface and moderates these temperature variations in the natural farming agroecosystem, to help biodiversity of plants, animals and microorganisms to live and function comfortably.

How does natural farming regulate the water cycle?

Water cycle naturally occurs through the atmosphere (air) and geosphere (soil and water bodies). Natural farming tries to create a rainforest by planting a biodiversity of plant species that regulates this water cycle.

The plant leaves release water vapour through transpiration and emit biogenic volatile organic compounds (BVOC) and ice-nucleating bacteria (such as Pseudomonas putida) in the air during air turbulence. In this way plants induce cloud seeding and induce rainfall. Plants can absorb the shock of the falling rain drops and can harvest rainwater through leaves, stems and roots. The mulching layer over the soil surface absorbs rainwater, checks runoff and helps slow infiltration of water down the soil layers to reach the underground water aquifers. Mulching layers also check the water loss from soil through evapotranspiration. Overall, the natural farming agroecosystem maintains soil water level constantly at field capacity throughout the year for optimum plant growth and development. Therefore, there is no need for irrigation in the natural farming agroecosystem.

How does natural farming regulate the nitrogen cycle?

Nitrogen cycle naturally occurs through the atmosphere (air) and geosphere (soil). During lightning, nitrogen in the air oxidises into nitrate compounds and gets mixed with rainwater. Plant leaves can absorb these nitrogenous compounds in rainwater for their nutrition. Rhizobium bacteria form nodules in the roots of the legume crops and fix atmospheric nitrogen for plant nutrition. Some free living bacteria in soil (such as Azotobacter) fix atmospheric nitrogen that helps plant nutrition. In exchange, plants provide them carbohydrate food. This is known as symbiosis. Earthworms and various fungi and bacteria decompose and mineralise organic compounds in soil and provide nitrogenous compounds to plants. Some bacteria in soil release nitrogen in the atmosphere through denitrification. In this way natural farming agroecosystems regulate the nitrogen cycle and provide enough nitrogen to the plant to maximise crop production and crop protection. There is no need to purchase or use any nitrogen fertilisers (chemical or organic) for natural farming.

How does natural farming regulate the phosphorus cycle?

Phosphorus cycle naturally occurs in the geosphere (soil). Plant, animal and microorganism biodiversity in the natural farming agroecosystem regulate this phosphorus cycle (regulating ecosystem service) to maximise crop production and to maximise crop quality. Phosphate solubilizing bacteria (PSB) solubilise inorganic and organic phosphorus in soil and make it easily available to plant roots. Plants uptake phosphorus from soil to assimilate organic compounds in plant bodies. Animals get phosphorus by eating plant parts. Plant and animal droppings return organic phosphorus to soil to recycle it again.

How does natural farming manage insect pests, diseases and weeds?

Natural farming agroecosystems improve soil health. Soil health improves plant health, plants defence against insect pests, plants immunity against diseases and plants competitive advantage over weeds. Natural farming agroecosystems also regulate natural control of insect pests, diseases and weeds through predation, parasitism and competition by their natural enemies.

What is the difference between biological control and natural control?

Biological control is a human intervention in natural ecosystem services. Introduction, augmentation and conservation of specific alien invasive species of insects or microorganisms in the field, to control specific insect pests, diseases or weeds, is known as biological control. As the introduced alien invasive species never survived in the non-native environments, biological control remained unsuccessful in the field. Moreover, biological control is an expensive proposition.

On the other hand, natural control is ubiquitous in nature, it needs no human intervention. Man creates the natural farming agroecosystem by mimicking the structure of the natural forest ecosystems, to restore natural control on biodiversity. Natural control is permanent and involves no cost.

How does natural farming ensure food security of the world?

Natural farming agroecosystems maximise leaf area index (LAI), solar energy harvesting, rainwater harvesting and carbon capture, to maximise its biomass synthesis. Natural farming regulates temperature cycle, water cycle, carbon cycle, nitrogen cycle, phosphorus cycle and potash cycle to maximise crop nutrition, crop yield. Natural farming passively regulates natural control to maximise crop protection against pests, diseases and weeds. Mixed harvesting of multiple crops ensures good market price of crops for farmers and ensures nutritional security of the consumer. Advanced methods of natural farming such as breeding of exclusive and exquisite plant varieties and animal breeds, multilayer polycropping, netting and bagging of fruits, direct marketing of farm products and eco-agritourism can maximise crop yield, crop quality and market price of crops. In this way natural farming not only ensures food security but also nutritional security of the world.

Why Biodynamic Agriculture and Spiritual Farming are not included in natural farming?

The philosophy of Biodynamic Agriculture and Spiritual Farming are beyond the scope of modern science.