

Natural farming

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Natural farming is an ecological farming approach established by Masanobu Fukuoka (1913–2008), a Japanese farmer and philosopher, introduced in his 1975 book *The One-Straw Revolution*. Fukuoka described his way of farming as 自然農法 (*shizen nōhō*) in Japanese.^[1] It is also referred to as "the Fukuoka Method", "the natural way of farming" or "do-nothing farming". The title refers not to lack of effort, but to the avoidance of manufactured inputs and equipment. Natural farming is related to fertility farming, organic farming, sustainable agriculture, agroforestry, ecoagriculture and permaculture but should be distinguished from biodynamic agriculture.

The system exploits the complexity of living organisms that shape each particular ecosystem. Fukuoka saw farming both as a means of producing food and as an aesthetic or spiritual approach to life,^[2] the ultimate goal of which was, "the cultivation and perfection of human beings".^[3] He suggested that farmers could benefit from closely observing local conditions.^[4] Natural farming is a closed system, one that demands no human-supplied inputs and mimics nature.^[5]

Fukuoka's ideas challenged conventions that are core to modern agro-industries, instead promoting an approach that takes advantage of the local environment.^[6] Natural farming differs from conventional organic farming,^[7] which Fukuoka considered to be another modern technique that disturbs nature.^[8]

Fukuoka claimed that his approach prevents water pollution, biodiversity loss and soil erosion, while providing ample amounts of food.^[9]



Masanobu Fukuoka, originator of the natural farming method

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Principles

Fukuoka distilled natural farming into five principles:^[10]

1. No tillage

2. No fertilizer
3. No pesticides or herbicides
4. No weeding
5. No pruning

Though many of his plant varieties and practices relate specifically to Japan and even to local conditions in subtropical western Shikoku, his philosophy and the governing principles of his farming systems have been applied from Africa to the temperate northern hemisphere. In India, natural farming is often referred to as "Rishi Kheti".^{[11][12]} In India natural farming or rishi kheti includes ancient vedic principles of farming including use of animal waste and herbs for controlling pests and promoting growth. The rishi 's or Indian sages use cow products like buttermilk, milk, curd and its waste urine for preparing growth promoters. The Rishi or Vedic farming is regarded as non -violent farming without any usage of chemical fertilizer and pesticides. They obtain high quality natural or organic produce having medicinal values. Today still small number of farmers in Madhya Pradesh, Punjab, Maharashtra and Andhra Pradesh, Tamil Nadu use this farming in India.

Principally, natural farming minimises human labour and adopts, as closely as practical, nature's production of foods such as rice, barley, daikon or citrus in biodiverse agricultural ecosystems. Without plowing, seeds germinate well on the surface if site conditions meet the needs of the seeds placed there. Fukuoka used the presence of spiders in his fields as a key performance indicator of sustainability.}

Fukuoka specifies that the ground remain covered by weeds, white clover, alfalfa, herbaceous legumes, and sometimes deliberately sown herbaceous plants. Ground cover is present along with grain, vegetable crops and orchards. Chickens run free in orchards and ducks and carp populate rice fields.^[13]

Periodically ground layer plants including weeds may be cut and left on the surface, returning their nutrients to the soil, while suppressing weed growth. This also facilitates the sowing of seeds in the same area because the dense ground layer hides the seeds from animals such as birds.

For summer rice and winter barley grain crops, ground cover enhances nitrogen fixation. Straw from the previous crop mulches the topsoil. Each grain crop is sown before the previous one is harvested by broadcasting the seed among the standing crop. Later, this method was reduced to a single direct seeding of clover, barley and rice over the standing heads of rice.^[14] The result is a denser crop of smaller, but highly productive and stronger plants.

Fukuoka's practice and philosophy emphasised small scale operation and challenged the need for mechanised farming techniques for high productivity, efficiency and economies of scale. While his family's farm was larger than the Japanese average, he used one field of grain crops as a small-scale example of his system.

Climax ecosystems

In ecology, climax ecosystems are mature ecosystems that have reached a high degree of stability, productivity and diversity (see old-growth forest). Natural farmers attempt to mimic those virtues, creating a comparable climax ecosystem, and employ advanced techniques such as intercropping, companion planting and integrated pest management.

No-till

Natural farming recognizes soils as a fundamental natural asset. Ancient soils possess physical and chemical attributes that render them capable of generating and supporting life abundance. It can be argued that tilling actually degrades the delicate balance of a climax soil:

1. Tilling may destroy crucial physical characteristics of a soil such as *water suction*, its ability to send moisture upwards, even during dry spells. The effect is due to pressure differences between soil areas. Furthermore, tilling most certainly destroys soil horizons and hence disrupts the established flow of nutrients. A study suggests that reduced tillage preserves the crop residues on the top of the soil, allowing organic matter to be formed more easily and hence increasing the total organic carbon and nitrogen when compared to conventional tillage. The increases in organic carbon and nitrogen increase aerobic, facultative anaerobic and anaerobic bacteria populations.^[15]
2. Tilling over-pumps oxygen to local soil residents, such as bacteria and fungi. As a result, the chemistry of the soil changes. Biological decomposition accelerates and the microbiota mass increases at the expense of other organic matter, adversely affecting most plants, including trees and vegetables. For plants to thrive a certain quantity of organic matter (around 5%) must be present in the soil.
3. Tilling uproots all the plants in the area, turning their roots into food for bacteria and fungi. This damages their ability to aerate the soil. Living roots drill millions of tiny holes in the soil and thus provide oxygen. They also create room for beneficial insects and annelids (the phylum of worms). Some types of roots contribute directly to soil fertility by funding a mutualistic relationship with certain kinds of bacteria (most famously the rhizobium) that can fix nitrogen.



Ladybirds consume aphids and are considered beneficial by natural farmers that apply biological control.

Fukuoka advocated avoiding any change in the natural landscape. This idea differs significantly from some recent permaculture practice that focuses on permaculture design, which may involve the change in landscape. For example, Sepp Holzer, an Austrian permaculture farmer, advocates the creation of terraces on slopes to control soil erosion. Fukuoka avoided the creation of terraces in his farm, even though terraces were common in China and Japan in his time. Instead, he prevented soil erosion by simply growing trees and shrubs on slopes.

Fertility farming

In 1951, Newman Turner advocated the practice of "fertility farming", a system featuring the use of a cover crop, no tillage, no chemical fertilizers, no pesticides, no weeding and no composting. Although Turner was a commercial farmer and did not practice random seeding of seed balls, his "fertility farming" principles share similarities with Fukuoka's system of natural farming. Turner also advocated a "natural method" of animal husbandry.^[16]

Nature farming

Japanese farmer and philosopher Mokichi Okada, conceived of a "no fertilizer" farming system in the 1930s that predated Fukuoka. Okada used the same Chinese characters,^[17] which are generally translated in English as "nature farming". Agriculture researcher Hu-lian Xu claims that "nature farming" is the correct literal translation of the Japanese term.^[17]

See also

- Korean natural farming
- Agrarianism
- Biomimicry
- Conservation agriculture
- Ecoagriculture
- Ethnobotany
- Forest gardening
- No-dig gardening
- No-till farming
- Holzer Permaculture
- Permaculture
- Seed saving
- Hydroculture
- Agroecology

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12. "Natural farming succeeds in Indian village By Partap C Aggarwal" in the 1980s (<http://www.satavic.org/rishikhheti.htm>) *Satavic Farms* (<http://www.satavic.org/media.htm>) (India), "Slowly, bit by bit, we found ourselves close to what is called 'natural farming', pioneered in Japan by Masanobu Fukuoka. At Rasulia we called it 'rishi kheti' (agriculture of the sages)."
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External links

- How to do Masanobu Fukuoka's natural farming (<https://www.youtube.com/watch?v=y0xmEDq3NI8>) on YouTube
- Masanobu Fukuoka Makes Seed Balls (<https://www.youtube.com/watch?v=A4-bwW8PWIO>) on YouTube

- Fukuoka-style seed balls for no till farming (https://www.youtube.com/watch?v=1_V9WI3ObyE) on YouTube

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| [Agriculture and the environment](#) | [Permaculture concepts](#)

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