

Ecological Farming

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What is Ecological farming ?

- Ecological farming is recognised as the high-end objective among the proponents of sustainable agriculture.
- Ecological farming is not the same as organic farming, however there are many similarities and they are not necessarily incompatible.
- Ecological farming includes all methods, including organic, which regenerate ecosystem services like: prevention of soil erosion, water infiltration and retention, carbon sequestration in the form of humus, and increased biodiversity.
- Many techniques are used including no till, multispecies cover crops, strip cropping, terrace cultivation, shelterbelts, pasture cropping etc.

Principles

- Food production should be ecological in both origin and destiny.
- Integration of species that maintain ecosystem services whilst providing a selection of alternative products.
- Minimise food miles, packaging, energy consumption and waste.
- Define a new ecosystem to suit human needs using lessons from existing ecosystems from around the world.
- Apply the value of a knowledge-base (advanced data base) about soil microorganisms so that discoveries of the ecological benefits of having various kinds of microorganisms encouraged in productive systems such as Forest Gardens can be assessed and optimised; for example in the case of naturally occurring microorganisms called denitrifiers .

Benefits

- Ecological farming involves the introduction of symbiotic species, where possible, to support the ecological sustainability of the farm. Associated benefits include a reduction in ecological debt and elimination of dead zones.
- Ecological farming is a pioneering, practical development which aims to create globally sustainable land management systems, and encourages review of the importance of maintaining biodiversity in food production and farming end products.
- One foreseeable option is to develop specialized automata to scan and respond to soil and plant situations relative to intensive care for the soil and the plants. Accordingly, conversion to ecological farming may best utilize the information age, and become recognised as a primary user of robotics and expert systems. [\[5\]](#)

Challenges

- The challenge for ecological farming science is to be able to achieve a mainstream productive food system that is sustainable or even regenerative.
- To enter the field of ecological farming, location relative to the consumer, can reduce the food miles factor to help minimise damage to the biosphere by combustion engine emissions involved in current food transportation.
- Design of the ecological farm is initially constrained by the same limitations as conventional farming: local climate, the soil's physical properties, budget for beneficial soil supplements, manpower and available automatons; however long-term water management by ecological farming methods is likely to conserve and increase water availability for the location, and require far fewer inputs to maintain fertility.