

7. With the improvement in soil structure, water infiltration is enhanced while run-off is reduced thus soil water erosion is controlled. Moreover, soil temperature becomes favorable for soil biota.
8. There is saving of time, labour and money thus reduced cost of production and raised incomes by adopting conservation agriculture.
9. The increased C budget in soil on account of raised organic matter concentration and less exposure of soil to air is a sort of means to carbon sequestration that aid in mitigation in greenhouse effect.
10. The success and adoption level of conservation agriculture depend on availability of suitable equipment for conservation tillage and sowing. The assured availability of conservation agriculture machinery and equipment at subsidized rates will be a breakthrough in adoption of this system by the farmers of developing countries. There are enormous benefits of conservation tillage in the form of efficient utilization of resources, minimum environmental deterioration and sustained food supply to growing population.

### **3.7 Eco-Farming**

Eco-farming also known as nature farming is an ecological farming approach. The idea of eco-farming was floated in 1975 by Masanobu Fukuoka. He wrote a book with name *The One-Straw Revolution*. Fukuoka described his method of farming as the *do-nothing farming* or *natural way of farming*. Nature farming is associated with eco-agriculture, fertility husbandry, organic agriculture, agroforestry, sustainable agriculture, and permaculture however ought to be prominent from biodynamic agriculture. Fukuoka recommended that farmers may draw advantage from carefully staring at nearby situations. Eco-farming is an isolated system of characteristics that needs no human-furnished inputs and simulates nature. Nature farming differs from traditional organic agriculture which Fukuoka deliberated to be another cutting-edge method that interrupts nature. Although, nature farming is similar to organic agriculture in a number of aspects, but it emphasizes on improving soil health through composting rather than adding organic fertilizer. In addition, zero tillage, zero weeding, no fertilizer, no pesticides, no herbicides and zero pruning are also the principles of nature farming. Fukuoka was of the view that his tactic prevents loss of biodiversity, pollution, and soil erosion along with providing enough food for human beings. The eco-farming is aimed at reducing emissions of greenhouse gases, minimizing global warming and preventing ozone depletion. It reduces demand of

land, water without effecting the agricultural production and nutrient value of land resources. It reduces hunger and poverty.

Yoshikazu Kawaguchi, who is known to be a leading practitioner of nature farming of the second-generation., although his practices are also centered on Fukuoka's principles, he somewhat altered the concept of nature farming that more or less differ from Fukuoka's principles. He revised the definition of eco-farming as:

1. Ploughing should not be carried out in fields.
2. Do not consider insects and weeds the crop enemies.
3. Fertilizers are not needed to be applied
4. The foods which we grow should be well versed with local agro-ecological conditions

### **3.7.1 Types of Nature farming:**

Although the term nature farming emerged in 1980's, the concept of nature farming has a very long historical background in the world that spans through the historical native American farming practices. Some variants of nature farming area elaborated below:

- 1. Fertility farming:** This system of farming is based upon maintaining soil fertility through cover crops, without any composting, tillage, chemical fertilizers, pesticides, and weeding. Fertility farming also emphasized the natural ways of animal farming.
- 2. No fertilizer faming:** This system of framing is based on using no fertilizer in crops.
- 3. *Rishi Kheti*:** This system of farming has been accustomed in India since ancient times. It is based on Vedic principles of farming that emphasized the use of animal waste and herbs for controlling pests and promoting growth.
- 4. Zero Budget Faming:** This system of framing is being mainly practiced in southern India. It is also called spiritual farming. The system focuses on intercropping, mulching, and utilization of natural wastes like cow dung. These types of materials are produced on site and stimulate the activity of microbial organisms and earthworm in the soil.

## **3.8 Dynamics of Agro-Ecosystem**