

Integrated Systems of Organic Farming and its Adaptation and Mitigation

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Opinion Article

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ABOUT THE STUDY

In poorer nations, organic farming is not always certified. Certification facilitates trade in commodities and connections to markets. Certification is not a major concern for the majority of small-scale farmers. In the meanwhile, the adoption of organic agricultural practises may put small-scale farmers in a position where they produce an excess of food, making market access an important consideration. Growing middle classes in developing nations' major cities exhibit an increase in concern for food safety, which fuels a rise in demand for pesticide-free, organically cultivated food goods.

Many small-scale farmers are still unable to reach this market, and extra produce is being sold at neighbourhood markets without being certified. One may state that food is produced using agro-ecological methods when a farmer employs cultivation methods based on organic farming principles but does not meet the requirements of certified production. The current concept and methods of organic farming have been influenced by a number of other schools of thought and particular organisations. 'Anthroposophy' was started by Rudolph Steiner in Germany, and biodynamic farming developed from his teachings and philosophy.

Using internal resources and specialized chemical preparations (referred to as "preparats") that are fundamental to the health and vitality of composts, the farm, and surrounding the farm is administered as a self-contained and dynamic organism in this movement. The methods show a belief in the influence of cosmological and earthly forces on the biological cycles on the farm. Although the majority of organic farmers reject Steiner's principles, they do accept the holistic approach to farming, the avoidance of chemical pesticides and fertilizers, and the sound management practises that were a cornerstone of the original lectures.

Other movements from the USA, Europe, and India that emphasize the effective use of animal manures and compost, green-manure crops, and careful attention to nutrients and soil fertility are included in the category of biological farming. Most systems focus on the humus portion of the soil and emphasize how crucial it is in giving nutrients, and for those who use the systems, soil health is frequently linked to animal and human health. Such results have sparked more investigation into the composting of human faeces, a practise that has long been practised in Asia but has recently not been incorporated into the majority of European or Western Hemisphere fertility programmes. As these systems developed, integrated management became an emphasis, which is still present today.

Currently, integrated farming is a method that considers diversity in those plans, the organization of the entire farm into a system that cycles nutrients and enables effective production of various enterprises and the balance of livestock and agricultural production. Even though they go by different names and are fervently promoted by their proponents as distinct techniques, it is simple to observe how many of these farming systems and tactics overlap and enhance one another. Reduce Greenhouse Gas (GHG) emissions in agriculture by using adaptation technology to offset the effects of climate change on crop output.

The adaptation technologies discussed include changing the transplanting date, enhancing heat tolerance in plants to lessen the impact of temperature, mulching straw to conserve soil moisture, applying balanced fertilizers, and managing plants to make them able to withstand erratic weather conditions. It also clarifies ways to lower GHG emissions, including the use of solid organic N fertilizers, tightening the N cycle, reducing emissions from fallow and bare soil, and using slow-release N fertilizers for nitrous oxide; carbon sequestration, minimal soil disturbance, organic farming, and growing cover crops for carbon dioxide; and proper irrigation water management and crop management for methane.

Although adaptation and mitigation have the same objective; however, adaptation is receiving more attention as a different response strategy than reducing net Greenhouse Gas (GHG), which is referred to as mitigation. To produce more under unstable production conditions and with net reductions in GHG emissions from food production and marketing is the main challenge of agricultural climate change adaptation and mitigation. Some changes could affect mitigation in ways that affect how much energy is used.