**HAZARDS OF INORGANIC FARMING**

Modern or improved crop production technology has considerably raised output but has created many problems. Major hazards of input intensive inorganic farming/agricultural technology are:

1. **Building up of insects, diseases and weeds**

Insects, diseases and weed problems are now more serious than ever before. This situation is the result of monoculture of selected crops leading to buildup of insects, diseases and weeds. Carryover of stem borer (pink borer) and build-up of soil born pathogens in soil of continuous cereal system and *Phalaris minor* weed problem in rice-wheat system are examples of such serious problems. Farmers have to incur huge amount on plant protection relative to traditional crop rotation.

1. **Hazards of indiscriminate use of agrochemicals**

Modern cultivars are not only responsive to inorganic fertilizers but also to other chemicals (inorganic) used in plant protection. In general insects, diseases and weed problem are more in modern cultivars compared with traditional varieties. Keeping in view the productivity of high yielding cultivars, farmers use agrochemicals indiscriminately. The natural enemies are thus eliminated with agrochemicals resulted in pests and disease incidence. Excessive reliance on synthetic chemicals has also resulted in problems such as pesticide resistance thus complicating plant protection. Insecticides, fungicides and herbicides residues entering the environment and food chain have serious health hazards in both humans and animals. Despite large scale use of such chemicals more pest outbreak of boll worms and white fly in cotton, leaf folder in rice, pyrilla and borers in sugarcane are mainly due to destruction of natural enemies. Pesticide residues are disposable into air, soil and water and other non agricultural ecosystems, where they are subjected to transformation. Pesticides enter the agro ecosystem via green plants either by direct foliar absorption or by uptake from soil and water. If the pesticides taken by humans and animals through food or feed are not voided from the system, these are stored in internal organs such as liver. They are highly toxic at relatively low levels. Residual toxicity contributes to elimination of vulnerable species in animals and plants. Soluble inorganic fertilizers, particularly nitrogen, which have not been taken up by plants are leached out of the system. Others such as P and K are not so susceptible to leaching losses as in N except under abnormal conditions. Over use and abuse of chemical fertilizers harm biological power of soil. This must be prevented as all nutrient transformation are negotiated by soil micro flora. There is mounting concern about increasing level of NO3 in river and ground water. Nitrates have been identified as one of the causes of fatal conditions methemoglobinemia in young babes. In addition, they are the source of carcinogenic nitroso compounds.

1. **Accelerated soil erosion/land degradation**

The most deleterious impact of agriculture on environment is man induced accelerated soil erosion. Continuous cultivation and decline in soil organic matter content has resulted in blowing of lighter drier soil and sheet washing, rilling and gullying of heavier soils. Once the fertile top soil is lost, the parent material will not respond to any input or management practices for improving the crop productivity. Of the soil lost by water erosion high proportion find its way finally into oceans besides silting up of lakes, reservoirs and tanks leading to depletion of surface water sources.

1. **Depletion of soil fertility**

With increasing harvest especially in intensive cropped areas more quantities of nutrients are removed from soil than restored through manures and fertilizers. Availability of FYM decreases as tractors replaced the draught animals in many cases and large quantities used as fuel. Hence use of organics is not to the desired level. There is imbalance in the use of nutrients resulting in low use efficiency. Decline in quality and quantity of organic matter in most soils is adversely affecting soil biodiversity and biological regulation of soil process.

1. **Deforestation and over grazing of rangelands**

Perennial vegetation such as trees and grasses successfully prevent soil erosion and runoff from fallows. Deforestation and over grazing lead to soil erosion silting up of reservoirs and soil degradation. Forests influence climate of a region due to their effect on wind direction and hence rainfall. Deforestation and over grazing modify the climate and biodiversity besides valuable genetic resources used in breeding programme for developing high yielding cultivars. While some plant or animal species can adapt to direct or indirect of particular agro ecosystem others have been unable to do so. Habitat reduction or destruction inevitably accompanied by the disappearance of plant and animal species.

1. **Irrigation related problems**

Inadequacies in irrigation water management resulted in serious resource degradation. In the areas of canal irrigation without adequate drainage salinity, alkalinity and high water table are serious constraints in enhancing the productivity. There are other areas where unrestricted installation of tube-wells has resulted in continuous lowering of ground water table leading to increasing costs in lifting water for irrigation. It is the misuse and associated poor water use efficiency which leads to depriving the tail enders of the valuable water resources and diminishing the potential of otherwise prime land which would otherwise benefited.

1. **Damage to ozone layer**

Ozone concentration of stratosphere is declining at nearly half a percent per year. This is due to release in the atmosphere of chemicals such as CFC, nitrogen dioxide and methane.

1. **CO2 content**

The level of CO2 in the atmosphere has been increasing due to deforestation and consumption of fossil fuels. In 1960s and 1970s a growing environmental agriculture movement evolved in response to above stated problems. Simultaneously, the economic condition of farmers started progressively decline due to low levels of farm productivity. All these generated interest in sustainability. In 1980s Wes Jackson began using the term sustainable agriculture to describe an alternative system of agriculture based on resource conservation and quality of rural life.