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## Summer Ploughing and Its Benefits

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Summer Ploughing is defined as the ploughing the field across the slope during hot summer with the help of specialized tools with primary objective of opening of the soil crust accompanied by deep ploughing and simultaneously overturning of the soil underneath to disinfect it with the help of piercing sun rays. Perform deep summer ploughing (off season tillage) with pre-monsoon showers (during May) to recharge the soil profile. It facilitates to sow the crops immediately after onset of southwest monsoon. Off season tillage increases water content of soils and reduces runoff. It also reduces pest and weed infestation. The number and depth of ploughing depends on weed intensity. At best two summer ploughings are done prior to advent of monsoon at an interval of 15-20 days. Third ploughing can be done once with the help of harrow or cultivator to pulverize the soil and prepare field beds for sowing/transplanting soon after the first monsoon rain.

### Benefits of Summer Ploughing

- ✓ The first and foremost benefit is that due to breaking of hard crusted upper layer of the soil and deep ploughing the infiltration capacity and permeability of the soil increases which increases in-situ moisture conservation. Consequently plant roots will get more moisture with less effort.
- ✓ Summer ploughing improves soil structure due to alternate drying and cooling.
- ✓ Tillage improves soil aeration which helps in multiplication of micro-organisms. Organic matter decomposition is hastened resulting in higher nutrient availability to the plants.
- ✓ Increased aeration also helps in degradation of herbicide and pesticide residues and harmful allelopathic chemicals exuded by root of previous crops and weeds (such as couch grass) which inhibit the growth of other near by plants.
- ✓ Since the capacity to absorb rainwater increases atmospheric nitrate mixed with water enters the soil and it increases soil fertility.
- ✓ Lot of insects and pests hibernate underneath the soil crust or stubbles during hot summer season. Due to overturning of the soil in summer ploughing the sharp rays of sun enters the soil and kills the eggs, larvae and pupae of soil borne insects and pests, thereby the hazards of insects and pests on subsequent crop is reduced. Consequently the farmer's expenditure in procuring insecticides and pesticides decreases.
- ✓ A lot of harmful bacteria spores and fungal microbes die due to exposition to heat of summer. Farmers can get relief in purchasing fungicides and pesticides because of the inhibition of plant diseases due to summer ploughing.

- ✓ Plant parasitic nematodes are microscopic organisms, ubiquitous in nature, which remain hidden inside the soil and attack subsequent crops so much so that there is chances of total crop failure. Summer ploughing and crop rotation are important methods to control nematodes. Use of nematicides for nematode control is very rare due to their prohibitive costs while summer ploughing does it with free gift of nature.
- ✓ Deep ploughing and overturning uproots the weeds. Consequently the roots and stems of the weeds get dessicated and die. As a result, weed control and less application of weedicides is one of the major advantage of summer ploughing As a result of it competition between the crops and weeds for same plant nutrients is reduced, there by the productivity increases.
- ✓ Ploughing of field across the slope breaks the continuity of soil slope, thereby reducing the soil carrying capacity of runoff water. So water erosion of soil is restricted. More over the land surface is left with clods, so that effect of wind erosion of nutritive soil particles is restricted.

