

Ploughing and Importance of Deep Summer Ploughing

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Ploughing, or tilling, provides several benefits for soil health and crop production. It improves soil aeration, drainage, and water retention, leading to better root growth and nutrient availability for plants. Ploughing also helps control weeds and incorporate organic matter, enhancing soil fertility.

Summer ploughing means ploughing the agricultural field across the slope during summer with the help of ploughing machinery like inter cultivator that have attachments like ridger and plough. The main primary purpose of summer ploughing is to open the soil crust with deep plough while at the same time turning the soil for disinfection with help from sunrays. Summer ploughing is a ploughing to a depth greater than 50 cm as compared to ordinary ploughing which rarely exceeds 20 cm. summer ploughing, especially deep ploughing, is important for several reasons, including improving soil structure, enhancing moisture conservation, controlling weeds and pests, and promoting soil fertility. By turning and breaking up the soil, summer ploughing creates a better environment for crop growth and helps maintain healthy soil conditions.

Importance of summer ploughing

1. Soil Structure and Moisture Conservation

- **Improved Infiltration:** Summer ploughing breaks the hard, compacted upper layer of the soil, allowing rainwater to infiltrate more easily.
- **Increased Moisture Holding Capacity:** By improving infiltration, summer ploughing helps the soil retain more moisture, which is crucial for crop growth, especially in drier climates.
- **Soil Aeration:** The ploughing process increases soil aeration, which is essential for the health of soil microorganisms and plant roots.

2. Pest and Weed Control

- **Sunlight Exposure:** Turning the soil exposes pests and weeds to the sun's rays, which can help kill them or weaken their population.

- **Disruption of Life Cycles:** Ploughing can disrupt the life cycles of various pests, including insects and nematodes, by exposing them to unfavourable conditions.
- **Weed Seed Destruction:** Summer ploughing can help destroy weed seeds and prevent their germination, making it easier to control weeds during the growing season.

3. Soil Fertility

- **Organic Matter Incorporation:** Ploughing helps incorporate organic matter, like crop residues and manure, into the soil, which provides nutrients for plants.
- **Microbial Activity:** Improved aeration and moisture retention from ploughing promote beneficial microbial activity in the soil, which is essential for nutrient cycling and soil health.

4. Other Benefits

- **Reduced Soil Erosion:** Summer ploughing can create a rough, cloddy surface that helps prevent wind and water erosion.
- **Improve Soil Condition:** Summer ploughing improves soil physical conditions by making the soil more friable and porous.
- **Prepare for Kharif Crops:** In regions with a monsoon climate, summer ploughing is often done to prepare the soil for the Kharif (wet season) crops.



Practices of summer ploughing

1. **Timing:** Summer ploughing is typically done after harvesting the Rabi crop (winter crop)

and before the onset of the monsoon rains, often in late March or early April.

2. **Depth:** The depth of ploughing depends on the specific crop and soil conditions, but generally, deep ploughing (25-30 cm) is recommended for crops with deep root systems, while moderate ploughing (15-20 cm) may be sufficient for other crops.
3. **Tools:** Modern ploughing is often done using tractors with attachments like ridges and ploughs, or specialized implements like inter cultivators.
4. **Number of Ploughings:** In some cases, two summer ploughings may be done before the

monsoon, with an interval of 15-20 days between them. A third ploughing, using a harrow or cultivator, may be done after the first monsoon rains to prepare the seedbeds.

5. **Soil Pulverization:** After the initial summer ploughing, the soil is left to dry and crumble under the sun's heat, which helps to improve soil structure and make it easier to work with.
6. **Incorporation of Organic Matter:** Manure, compost, or other organic matter can be incorporated into the soil during summer ploughing to improve soil fertility and structure.
