



Enhancing Agriculture: Exploring Summer Deep Ploughing Techniques in Chhattisgarh

(*Dr. Roshan Kumar Bhardwaj¹ and Dr. Gourav Jatav²)

¹Assistant Professor, College of Agriculture and Research Station, Korba (IGKV)

²Assistant Professor, College of Agriculture, Raipur (IGKV)

*Corresponding Author's email: drroshanbhardwaj@gmail.com

Summer deep ploughing is a crucial agricultural practice, particularly in regions like Chhattisgarh, where the monsoon plays a pivotal role in crop cultivation. This technique involves the thorough cultivation of soil during the summer months (During March to May) to prepare it for the upcoming sowing season. In Chhattisgarh, where agriculture is the primary occupation for a significant portion of the population, adopting effective deep ploughing methods is essential for maximizing yields and ensuring food security.

Implementing Summer Deep Ploughing

Various implements are utilized for summer deep ploughing in Chhattisgarh, each serving specific purposes and catering to different soil types. Let's explore some of these implements in detail:

- 1. Tractor-drawn Mouldboard Plough:** The mouldboard plough is commonly used for deep ploughing in Chhattisgarh. It consists of a curved metal plate, known as the mouldboard, which turns the soil over, burying the surface residue and bringing nutrient-rich soil to the top. This implement is effective in breaking hardpan and improving soil aeration and drainage.
- 2. Disc Plough:** The disc plough is another popular implement for deep ploughing, especially in areas with heavy or clayey soil. It comprises a series of concave metal discs arranged on a rotating shaft. These discs cut through the soil, breaking it into smaller clods and facilitating better soil structure. Disc ploughs are particularly useful in regions where traditional mouldboard ploughs may struggle to penetrate dense soil layers.
- 3. Subsoiler:** For addressing soil compaction issues, subsoilers are employed during summer deep ploughing. Subsoilers have long, narrow shanks that penetrate deep into the soil, breaking up compacted layers without inverting the soil profile. By alleviating compaction, subsoilers enhance root penetration and improve water infiltration, ultimately promoting better crop growth.
- 4. Chisel Plough:** Chisel ploughs are ideal for shallow to medium depth tillage, making them suitable for summer deep ploughing in Chhattisgarh. They feature multiple narrow shanks with chisel-like tips, which penetrate the soil and loosen it without completely turning it over. Chisel ploughing helps to control weeds, incorporate organic matter, and improve soil tilth, all of which are beneficial for crop establishment.
- 5. Rotavator:** Rotavators are versatile implements commonly used for seedbed preparation and weed control. They consist of rotating blades or tines that pulverize the soil, mix in crop residues, and create a fine tilth suitable for planting. In Chhattisgarh, rotavators are often employed after initial deep ploughing to further refine the seedbed and promote uniform seed germination.

Benefits of Summer Deep Ploughing

The adoption of summer deep ploughing techniques offers several benefits for agriculture in Chhattisgarh:

- 1. Weed Control:** Summer ploughing helps control weed growth by uprooting or burying weed seeds and plants. This reduces competition for nutrients, water, and sunlight, thereby improving the growth of crops in the following season.
- 2. Moisture Conservation:** By breaking up the soil surface during summer ploughing, moisture is conserved within the soil. This is particularly important in regions with hot and dry summers, where moisture retention is essential for sustaining crop growth during periods of water scarcity.
- 3. Soil Aeration:** Summer ploughing aerates the soil, allowing better penetration of air, water, and nutrients to the plant roots. Improved soil aeration enhances microbial activity, which in turn promotes nutrient cycling and overall soil health.
- 4. Pest and Disease Management:** Summer ploughing can disrupt the life cycles of pests and pathogens by exposing them to harsh environmental conditions or breaking their habitat. This reduces the prevalence of pests and diseases in subsequent crops, contributing to higher yields and better crop quality.
- 5. Residue Management:** If there are crop residues left over from the previous season, summer ploughing helps incorporate them into the soil. This speeds up the decomposition process, releasing nutrients back into the soil and improving its organic matter content.
- 6. Preparation for Planting:** Summer ploughing prepares the field for the next planting season by creating a suitable seedbed. It breaks up compacted soil layers, levels the field, and facilitates better seed-to-soil contact, promoting uniform germination and emergence of crops.
- 7. Erosion Control:** By disturbing the soil surface and promoting better soil structure, summer ploughing reduces the risk of erosion caused by wind and water. This is especially important on sloping or vulnerable lands where erosion can lead to loss of soil fertility and productivity.
- 8. Crop Rotation:** Summer ploughing can be integrated into crop rotation systems to break pest and disease cycles, improve soil structure, and enhance overall farm sustainability. By alternating between different crops and incorporating summer ploughing, farmers can optimize yields while minimizing the need for chemical inputs.

Conclusion

Summer deep ploughing is a fundamental agricultural practice in Chhattisgarh, where the success of crop cultivation depends largely on soil health and preparation. By utilizing a range of implements tailored to local soil conditions, farmers can optimize deep ploughing efforts and reap the rewards of improved soil structure, weed control, water management, and nutrient availability. Embracing these techniques is essential for sustaining agricultural livelihoods and meeting the growing demand for food in the region.