

19. CHISEL TECHNOLOGY

The occurrence of hard pans at shallow depth is the most prevalent soil physical constraint in soils. The agricultural crops are denied of the full benefits of the soil fertility and nutrient use due to this constraint. The sub-soil hard pans are characterized by high bulk density (1.8 g cc.⁻¹) which in turn lowers infiltration, water storage capacity, available water and movement of air and nutrients, with concomitant adverse effect on the yield of crops. This problem is predominantly present in six districts of Tamil Nadu viz., Coimbatore, Erode, Dharmapuri, Tiruchirappalli, Madurai and Salem particularly under rainfed farming affecting a total of 3.8 lakh hectares of land.

TECHNOLOGY

Plough the field with chisel plough at 50 cm interval in both the directions viz., horizontally and vertically. Chiselling helps to break the hard pan in the sub soil. Besides, it ploughs upto 45cm depth. Chisel plough is a heavy iron plough which goes up to 45 cm depth, thereby shattering the hard pans. It is usually drawn by the tractor. Fabrication of chisel plough has been done by the Department of Farm Machinery, Tamil Nadu Agricultural University, Coimbatore.

- Spread 12.5 t of FYM / pressmud / composted coir pith per hectare evenly on the surface.
- Give two ploughings using a country plough for incorporating the added manures. The broken hard pan and incorporation of manures make the soil to conserve more moisture.

Vegetative barriers for soil moisture conservation

For better in-situ moisture conservation in drylands of Vertisols, raise vegetative barriers of vettiver or lemon grass across the slope and along the contours at 0.5 m vertical interval.