

## **Effect of Tillage and Plant Residue Management Practices on Shrinkage of a Vertisol**

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- tillage ;
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- void ratio

A study was carried out to determine the effects of different tillage and plant residue management practices on different soil moisture and shrink-swell properties of a Vertisol (very fine, semctitic, thermic, chromic Haploxerert (with less than 1 % slope). The core samples were collected in July (after harvesting of lentil) and in November (after planting of wheat) 1993. The two tillage methods were moldboard (T1) and chisel (T2). The two plant residue incorporation dates were in August (R1) and in October (R2). Results indicated that T2 tends to give higher water holding capacity and available moisture than T1. Immediate incorporation of plant residue (R1) tends to increase the bulk density and to decrease soil specific volume and void ratio when compared to late incorporation treatment (R2). In general, the two tillage treatments tend to decrease moisture availability, shrinkage characteristics, soil specific volume, and void ratio. They also tend to increase the soil shrinkage (subsidence and cracks volume) and bulk density. Chisel plough is recommended in Vertisols, if it is to be used before the rainfall.