

Yield components of sweet corn (*Zea mays*) and some soil physical properties towards different tillage methods and plant population

ABSTRACT

A field experiment was conducted to investigate the effects of three tillage systems and three corn plant populations on selected soil physical properties and yield components of sweet corn for Serdang soil series (Typic Paleodults) at the research farm of University Putra Malaysia (UPM) in Malaysia. The experimental design with three replications was a 2×3 factorial treatments based on randomized complete block design (RCBD) for soil analysis and a 3×3 factorial treatments based on RCBD for yield and yield components analysis of sweet corn (*Zea mays*). The three tillage systems were moldboard plow followed by once disc harrowing (MPD), disc plow followed by once disc harrowing (DPD) and rotary cultivator (RC) only, as control on soil physical properties at two depths of 0-10 cm and 20-30 cm; and also their effects on yield and selected yield components of sweet corn at three seeding rates or seed spacing of 20, 30 and 40 cm. The results showed that the measured soil physical properties were homogeneous at three plots and the two depths. Although WI (water infiltration) was higher and resistance to penetration (RP) was lower in RC plot at the upper layer, this condition had no influence on crop yield. The highest and minimum value of crop yield at given seed spacing occurred in DPD plot and MPD and RC plots, respectively. Interaction effects of the two factors, tillage and planting density were found to be significant on row length of kernels on cob corn, yield of sweet corn and total weight of dry matter.

Keyword: Land preparation; Soil physics; Sweet corn; Yield