

A COMPARATIVE STUDY ON DIFFERENT PEANUT AND SWEETPOTATO DIGGING BLADES

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Keywords: mechanisation, sweetpotato, peanut.

Introduction

Sweetpotato and Peanut have been described as important source of material for food production. However the cost of production has increased in recent years due to declining labour force. The use of machines is quite restricted. Some simple tools are used for weeding operation while manual harvesting continues. Factors that hinder the application of modern technology are many. Apart from having to remove the vines, both crops are normally easier to harvest when grown on raised bed. This work was focused on the development of planting and harvesting machines. Designs proposed will be complementary with on farm resources and maintained with local skills.

Materials and Methods

Four digging blades of various shapes were evaluated in Munchong series soils at various tractor forward speeds and blade inclination angles. The draught force requirement was measured using an extended octagonal ring transducer while the nature of soil disturbance between blades was evaluated using a profilemeter.

Results and Discussion

Results obtained show that the soil disturbance at 2.2 km/h was higher than that at 1.4 km/h. However the difference between 1.8 km/h and 2.2 km/h was not significant. The V-shaped blade disturbed the most soil compared to the other blades. In terms of unit draught, the flat blade had the highest followed by the curved, double discs and the V-shaped blade. The smaller draught force of the V-shaped blade and double discs could be due to better soil scouring effect and the their lower penetrating resistance. Moreover the flat and the curved blades had the tendency to gather soil.

Conclusions

V-shaped digging blade caused the most soil disturbance with lower draught force. Angle of inclination had significant effects on the draught force requirement for all digging blades.