

Performance Evaluation Of A Tractor Mounted Kenaf Harvesting Machine.

ABSTRACT

The potential of kenaf (*Hibiscus cannabinus* L.) as an industrial commercial crop has been exploited in recent times. Recent findings from field studies have drawn attention to the need to develop an efficient kenaf harvesting machine. Hence, field equipment for harvesting whole kenaf stems continues to be of interest in Kenaf production. In this study, kenaf harvesting machine incorporating a rotary serrated cutting system was developed at Universiti Putra Malaysia. The kenaf harvester which can harvest both row and broadcast planted kenaf is tractor mounted and comprises of hydraulic, cutting and the gathering systems. The parameters evaluated were the harvesting field efficiency (FE), effective field capacity (EFC) and machine material capacity (MC). Kenaf varieties V36 and FH 952 were used for the experiments to determine the performance of the machine. Different tractor speeds ranging from 2.0 to 7.7 km hr⁻¹ were used. The optimal operating forward speed at 3.7 km hr⁻¹ achieved an efficiency of 76%. Results of the field test showed that the tractor speed had a significant effect on the performance of the machine, in terms of its effective field capacity, field efficiency and the machine material capacity.

Keyword: Tractor Speed; Harvester; Kenaf (*Hibiscus Cannabinus* L.); Machine Material Capacity; Performance Evaluation.