

Design and development of special cutting system for sweet sorghum harvester

ABSTRACT

Sweet Sorghum is similar to racemose maize with about 3m height and 0.5-3cm thickness of stalk. Sweet Sorghum has sweet flavor stalk, which is used for sugar production. Developed cutting mechanism in this research has a rotary disk with 50 cm diameter and four cutting blades that spin clockwise. The stalks are cut with the impact and inertia forces at the linear velocity of 27 m/s, by cutting blades. This system has a simple bar mechanism guiding the whole-stalk to one side. The cutting quality tests were achieved by two series of blades with 30° and 45° blade angles on the stalk. The results showed that the stalk cutting surface with 30° blade angle was smooth and without fracture on filaments and vasculums, compared to that of 45° blade angle. Blade penetration was accomplished very well with 30° blade angle.

Keyword: Design; Development; Rotating cutting system; Sweet sorghum; Harvester