

## The mechanism of sugarcane planter used in Thailand

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### Objective

Sugarcane is an important economical crop in Thailand. The mechanization of sugarcane farming is still low level. Sugarcane planter became one of the popular machinery among Thai farmers, which has been used since about 50 years ago. This paper described to the mechanism of the typical sugarcane planter used in Thailand.

### Method and material

The sugarcane planter was disassembled into all parts, and CAD program was employed to drafting important parts

### Result and discussion

Sugarcane planter is attached to a tractor by three-point link hitch, which is composed of five parts of mechanism such as power transmission system, stalk cutting box, soil furrowing system, fertilizer applicator and frame structure which tights all parts together as shown in Fig. 1

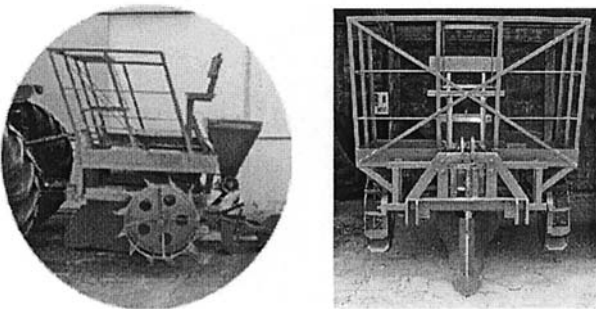
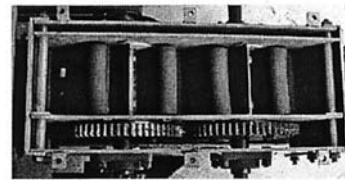


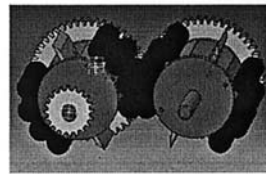
Fig. 1 The sugarcane planter

The power transmission system consists of two rugged wheels mounted on the same shaft with sprocket. The wheels are driven by the reaction from ground surface, and the power is transmitted to cutting box through sprocket and chain. The power is also transmitted to the fertilizer applicator

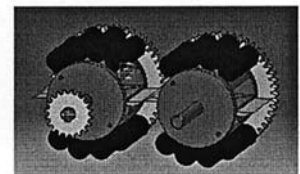
through pulley and belt. Cutting system is formed with two shafts rotating in opposite direction. Each shaft attaches with a 54-teeth gear, two cutting blades and sets of rubber tube. When these shafts are driven, the sets of rubber tube pull sugarcane stalk fed from upper open hole downward. Then the rotating blades cut the stalk to be 30 cm.



(a) Upper view of cutting box



(b) Pulling position



(c) Cutting position

Fig. 2 Demonstration of the cutting mechanism

The cut cane flows through the tapered tube down to the ground. The soil furrowing system has a trough positioned behind the ridge, which opens soil making a furrow for laying the cut cane. Then, the covering blade fills up the furrow and rolled on by the suppress wheel. Simultaneously, fertilizer is applied into the furrow through the fertilizer applicator equipped at the rear side of the planter. The length of cut cane can be adjusted by changing sprocket in the power transmission system. The exceeded covering the ditch often causes the bad germination. Planting precision is influenced by soil moisture, traveling speed, bending of the cane stalk and others.