

Performance evaluation of groundnut thresher for freshly harvested crop

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■ **ABSTRACT** : Groundnut is cultivated as a major oilseed crop in Andhra Pradesh. As the farmers want to strip the pods immediately after harvest mainly to prevent crop damage from unexpected rains and other field losses, a fresh pod thresher for groundnut was tested for its performance in comparison with conventional method of groundnut threshing (stripping of pods by hand) at Agricultural Research Station, Anantapur. Its overall performance was satisfactory and recorded an output of 225 kg/h with threshing and cleaning efficiencies of 96 and 98 per cent, respectively. The use of groundnut thresher can save 75 per cent labour and 40 per cent of cost compared to conventional method of groundnut threshing.

■ **KEY WORDS** : Groundnut, Manual stripping, Machine threshing, Fresh pod thresher

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Groundnut is cultivated as a major oilseed crop in Andhra Pradesh. In India, Andhra Pradesh is the 3rd largest growing state with production of 1.6 million tons annually grown in an area of 1.7 million ha. Manual method of stripping of groundnut pods takes 175 to 200 women-h/ha. Since it is a labour intensive operation, scarcity of labour is often experienced during the peak harvesting season due to diversion of labour to non-agricultural and industrial activities. Singh and Verma (1972) developed and evaluated an experimental groundnut thresher and found that pod damage decrease with decrease of moisture content and the optimum cylinder speed was 5.7 m/s. Sharma *et al.* (1983) successfully developed and evaluated a multi crop thresher that can be used for groundnut threshing by simply changing concave and sieves. Its capacity was 65 kg/h with threshing and cleaning efficiencies of 92 and 95 per cent, respectively. Some of the threshers like axial and radial flow threshers developed for oil seeds and pulses were promising in India (Choude Gouda and Ranganath, 1978). These threshers are suitable for dry groundnut plants only. Even though they became popular, as the farmers want to strip the pods immediately after harvest mainly to prevent crop damage from unexpected rains and other field losses, a fresh pod thresher was developed by CIAE, Bhopal during the year 2006. The power operated throw-in type groundnut thresher for freshly harvested groundnut crop was considered to be of immense use to groundnut growers in Andhra Pradesh. Hence, a commercially available

throw-in type groundnut thresher was procured and tested in Agricultural Research Station, Anantapur for its performance in comparison with manual stripping.

■ METHODOLOGY

Thresher selected for study consists of frame, feed hopper, drum type threshing cylinder, concave, oscillating sieves and a blower. Total construction sits on the main frame (specifications given in Table A). The threshing cylinder has the diameter and length of 50 cm and 90 cm, respectively. The cylinder surface is provided with flat pegs arranged in 6 rows such that each row has 7 – 8 pegs (length of peg 10 cm). A concave is provided under the threshing cylinder for rough separation of pods and stripped plants. An outlet is provided at the rear portion of cylinder for stripped plants. In order to separate all the unwanted material after threshing from the pods, two sieves have been provided below the concave. The top sieve has holes of 50x17 mm size and the bottom sieve has holes of 25x9 mm size. A centrifugal blower with spiral casing has been provided in between the two cleaning sieves for blowing of light weight plant material coming along with threshed pods from the concave. Crop flow diagram for threshing freshly harvested groundnut crop is shown in Fig. A.

A popular variety of groundnut K6 freshly harvested crop was used for threshing and pod to haulm ratio was noted.