

## Comparative performance evaluation of high capacity wheat thresher with variable parameters

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■ **ABSTRACT** : This research study was conducted in order to determine and compare the performances of two different high capacity wheat thresher and economic characteristics of threshing for wheat crop. The research was conducted in the farm of Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad. The treatments under the comparisons were different type of power thresher .Wheat crop which was ready for threshing in the field at SHIATS, Allahabad. Wheat was threshed by high capacity Himanchal and Haramba thresher on different cylinder speeds. Three replications were taken and values of dependent variables were computed to indicate the performance evaluation of high capacity flow through the Himanchal and Haramba wheat thresher were carried out for threshing of wheat w.r.t threshing efficiency, cleaning efficiency, output capacity and total machine losses including broken grain, sieve loss, blown or spilled grain and unthreshed grain. The observation were taken at three drum speeds of 850 rpm, 740 rpm and 685rpm and three feed rate 34kg/min, 36kg/min and 39kg/min at the moisture content of 16.2 per cent and two concave clearances (21mm and 18 mm).The analysis of data and results obtained from the comparative evaluation of both the machines shows that threshing efficiency and cleaning efficiency for machine ( $M_1$ ) 98.89 per cent and 98.96 and ( $M_2$ )99.10 per cent and 99.08 per cent, respectively at the 850 rpm drum speed on given feed rate 39kg/min. The highest machine losses were 10.07 per cent at 34kg/min on 685rpm and lowest grain losses were 6.30 per cent at 39kg/min on 850 rpm. The cost of threshing through the high capacity thresher was obtained Rs. 417.70 per hour and the threshing cost Rs.41.77 per quintal through the Himanchal high capacity wheat thresher and Rs.27.84 per quintal through the Haramba high capacity wheat thresher. It was concluded that there is an inherent advantage of Haramba high capacity wheat thresher over the Himanchal high capacity wheat thresher and manual operation. It is necessary to maximize the use of the machine.

■ **KEY WORDS** : Threshing performance, Wheat, Threshing efficiency, Cleaning efficiency

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