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Performance evaluation of flow through paddy thresher

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■ **ABSTRACT :** Performance tests were conducted on the Research-Cum-Instructional farm of College of Agriculture Engineering, JNKVV Jabalpur in 2012. The performance and evaluation of flow through thresher was done at four feed rate selected considering two feed rate within specified limit and other two beneath the specified limit on basis of manufacturer rated input capacity *i.e.* 400kg/h. The thresher was driven with 7.5 hp electric motor for conducting the experiment. The crop used for study was Mahamaya variety which was easily available in JNKVV Jabalpur. The threshing material was stacked in four heaps of 375, 400, 425 and 450 kg gross weights (Neeraj, 1985). The threshing was conducted for one hour duration for each feed rate (kg/h). A flow through paddy thresher was evaluated in terms of threshing efficiency, cleaning efficiency, per cent unthreshed, broken, blown grain delivered from thresher as well as sieve overflow (%), sieve underflow (%) and energy consumption (KWh) to optimize the capacity of thresher (Kamble and Panwar, 1985). Threshing efficiency of 375 feed rates was maximum *i.e.* 98.3 per cent, while 98, 96.8 and 96 per cent obtained at 375, 425 and 450 feed rate, respectively. Cleaning efficiencies of 375 feed rate was maximum *i.e.* 97.1 per cent while at 375, 400, 425 and 450 feed rate were found 96.9, 95.8, and 99.6 per cent, respectively. Maximum percentage of unthreshed grain obtained at 425 and 450 kg feed rate were 3.14 and 3.36, respectively. Out of four feed rate the minimum percentage of unthreshed grain obtained 1.63 and 1.97 at 375 and 400 feed rate, respectively. Percentage of broken grain at 375, 400, 425 and 450 feed rates were 1, 0.8, 0.7 and 0.7, respectively. Blown grain percentage at 450, 375,400 and 425 feed rate were 3.45, 2.66 2.25 and 2.06, respectively. The cylinder speed for four feed rates 929,930,901 and 878 rpm while blower speed 2369, 2368, 2368 and 2368 rpm and straw walker strokes varies from 180, 178, 166 and 145 no/min, respectively. Optimum capacity of thresher may be taken at 400 kg/h feed which meets the recommandation of the manufacturer (Klein and Harmond, 1966).

■ **KEY WORDS :** Thresher, Paddy, Threshing performance, Power requirement, Safety

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