

Performance evaluation of knapsack type portable engine operated cotton picker

VINOD KUMAR VERMA AND RAVI MATHUR

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See end of the Paper for authors' affiliation

Correspondence to :

VINOD KUMAR VERMA
Department of Farm Machinery and Power Engineering, College of Technology and Engineering, Maharana Pratap University of Agriculture and Technology, UDAIPUR (RAJASTHAN) INDIA

■ **ABSTRACT** : In India entire cotton is handpicked by human labour. It is not only a slow process but is extremely tedious work. Manual picking of cotton is labour intensive, requiring 1565 man-hours per hectare. The knapsack cotton picker was required to suit one-man operator. It was tested in the laboratory in terms of fuel consumption, picking efficiency, trash content, pressure at the tip of pick-up pipe and pressure of the collection drum for speed of blower (2500, 3500, 4500 and 5500 rpm), diameter of pick-up pipe (20, 25 and 30 mm) and opening of blower bowl (50, 75 and 100 %). Fuel consumption (l/h), picking efficiency (%), trash content (%), pressure at the tip of pick-up pipe (kg/cm²) and pressure of the collection drum (kg/cm²) ranged from 0.72 to 1.31, 94.42 to 96.85, 8.16 to 11.33, 0.035 to 0.076 and 0.023 to 0.047, respectively. From the results laboratory performance the cotton picker was tested in the field at 5500 rpm of speed of blower, 25 mm diameter of pick-up pipe and 100 per cent opening of blower bowl. The mean fuel consumption (l/h), picking efficiency (%), trash content (%) and output capacity (kg/h) was 1.29, 96.47, 10.22 and 4.95, respectively for first and second picking. The cost of picking was 10.88 Rs. /kg when operated by kerosene. Saving in cost and time compared to conventional method was 12.96 per cent and 69.85 per cent, respectively.

■ **KEY WORDS** : Knapsack cotton picker, Speed of blower, Picking efficiency, Diameter of pick-up pipe, Opening of blower bowl

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