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RESEARCH PAPER

Performance evaluation of tractor drawn power harrow

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Abstract : Power harrow is the tillage implement, now being projected as important implement that results in production of fine tilth soil. The study was conducted to compare the performance of rotavator and power harrow taking forward speed (2, 2.5, 3 and 3.5 km/h) and operating depth (50, 80, 110 and140 mm) as independent parameters and theoretical field capacity (ha/h), effective field capacity (ha/h), field efficiency (per cent), fuel consumption (l/h), soil pulverization (mm) as dependent parameters.The maximum theoretical field capacity (0.42 ha/h), effective field capacity (0.36 ha/h) and field efficiency (85.71%) was found at forward speed of 3.5 km/h. Also, the results of this study proved that the fuel consumption and soil pulverization was greatly affected by tractor speed and working depth. Increase in forward speed and operating depth increases the fuel consumptionand decreases the soil pulverization.The minimum fuel consumption (4.33 l/h) and mean mass diameter of soil (5.80 mm) was recorded at 2 km/h forward speed at 50 mm operating depth of the power harrow.The cost of operation of the power harrow was found to be Rs. 3870per hectare.

Key Words : Rotavator, Power harrow, Field efficiency, Fuel consumption,Soil pulverization

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