



RESEARCH PAPER

Performance evaluation of tractor operated trailed type power sprayer

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Abstract : Effective spraying technologies and spraying equipment should be innovated for proper and optimum usage of chemicals. Tractor operated power sprayer is less time consuming, feasible for marginal and larger farms and also it provides more effective spraying. Tractor operated sprayer was tested and evaluated for its performance. Short run test deals with discharge rate determination that was found 44.59 l.min⁻¹ (at minimum pressure 500 kPa), 44.68, 43.00 and 44.51 l.min⁻¹ (at maximum pressure 20000 kPa), volumetric efficiency of piston pump was found 84.15%. In laboratory nozzle can target up to 6.5 m length. Field test was done for prediction of average working speed, theoretical and actual field capacity, field efficiency and time losses. On an average man can spray a field at a speed of 3.0 km.h⁻¹ at covering length from gun was 3.65 m in field conditions. Theoretical field capacity was found 1.27 ha.h⁻¹ whereas actual field capacity was found 0.93 ha.h⁻¹. Field efficiency was predicted as 73.20%. Average time required for filling the tank of 500 l capacity was 10 min. Field capacity of sprayer was found 1.40 ha.h⁻¹.

Key Words : Sprayer, Tractor operated power sprayer, Field capacity, Field efficiency

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