

Evaluation Performance of Transport Vehicle on Different Surfaces

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Abstract : This study was carried out at the farm of El-Gemmaiza Agriculture Research Station, El-Garbia Governorate Egypt, to determine the performance characteristics of an agricultural transport. The performance of this transportation was compared between three surfaces (asphalt, dusty and field). The study was concentrated on the rate of drawbar pull, slip ratio, tractive efficiency and specific energy per unit area. The comparison was made under three different surfaces (asphalt, dusty and field), different traveling speeds from (3.38 to 6.55 km/h) and variable weights (0 and 300 kg). The results showed that the highest value of the tractive efficiency 60.20% was obtained at traveling speed 4.00 km/h with weight on the rear wheel on the asphalt surface. The highest value of specific energy 1.93 kW.h/ton during use of ballast on rear tractor wheels at traveling speed 3.38 km/h on the field surface.

Keywords : tractor, energy, transportation, weight, power

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