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Some Techniques Used to Minimize Fuel Consumption and Wheel Slip in Crop Production Growth on Clay Loam Soil

Tayel, M. Y.[1], M. Ismaiel [2], S. M. Shaaban[1] and H. A. Mansour [1]*

[1]Water Relations and Field Irrigation Dept., Agricultural Division, National Research Centre (NRC), 33 Elbehouth St., El-Dokki, Giza, Cairo, Egypt.
[2]Soil, Water and Environment Research Institute (SWERI), Agricutlural Research Center, 9 Cairo University St., Giza, Cairo, Egypt.

Abstract: Field expriment was conducted on clay loam soil at El-Dokki, Giza Governorate as a cooperative work between the National Research Centre and the Agricutlural Research Center to study the effects of soil water content at plowing θ1, θ2 and θ3 (8.1, 17.1; 26.4 % w/w), plowing depth D1, D2 and D3 (10, 15; 20 cm) and plowing speed S1 and S2 (1.99; 10.33 km/h), respectively on minimizing both fuel consumption and tractor wheel slip. It was found that:Increasing (D) and (θ)had positive effects on fuel consumption and tractor wheel slip, whearas increasing (S) has positive effect on the 1-set and negative one on the 2nd. The maximum values and the minimum one of fuel consumption and tractor wheel slip were achieved in the following interactions:(D3xS2xθ3, D1xS2xθ1)and (D3xS1xθ3 and D1xS1xθ2), respectively. The main effect of :(D, S; θ) and their interaction have significant effects on fuel consumption and tractor wheel slip at the 5% level.
Keywords: Soil water content, plowing depth, speed, fuel consumption and wheel slip.

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