EVALUATION AND COMPARISON OF TRACTION PERFORMANCE OF TWO COMMON TRACTORS IN IRAN

A.A. MASUMI KOLAHLOO AND M. LOGHAVI
Department of Farm Machinery, College of Agriculture, Shiraz University, Shiraz, Iran.
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ABSTRACT

Traction performance of two commonly used tractors in Iran, namely, Massey Ferguson 285 and Universal 650 with 56 and 48.5 kw rated engine powers, respectively, were evaluated and compared. Because of the limited available instrumentations, among the operating parameters affecting tractive performance of tractors, only wheel slip, fuel consumption and field capacity in tillage operations were evaluated and compared.

For accurate measurement of fuel consumption, a fuel measuring device consisting of a graduated cylindrical reservoir, a six-way, two-position spool valve and an oil cooler was designed, fabricated and mounted between the main fuel tank and feed pump of each test tractor.

Analysis of the test results showed that for the same draft load, Massey Ferguson had higher wheel slip and fuel consumption and lower field capacity as compared to the Universal. Lower tractive performance of the Massey Ferguson could be attributed to its lower static weight, shorter wheel base, smaller drive wheel outer diameter and higher tire inflation pressure.