COMPARATIVE STUDY ON FIELD CAPACITY AND SPECIFIC FUEL CONSUMPTION OF THREE DIFFERENT MODELS OF TRACTORS

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ABSTRACT

A field experiment was conducted during June to July 2015 at Kibungo, Ngoma District, Eastern Province of Rwanda to evaluate the fuel consumption and work performance of three different models of tractors of different Brake Horse Power (bhp) with Rotary plough and cultivator in sandy loam soil. Three soil cover conditions viz. unploughed soil; stubble soil and tilled irrigated soil surface were taken to determine the better performance of tractor-implement system and fuel economy. Mahindra 55 bhp, MF 35 bhp and TYM 30 bhp tractors were used at three speed control setting of the tractors, viz. 1/3rd, 2/3rd and full throttle positions. The cultivator and rotary plough combination were found most economical to be operated at 2/3rd speed control position. Maximum fuel consumed 4.1 l/h in tilled irrigated soil with cultivator and rotary plough 3.6 l/h at 2/3rd throttle position because of increased depth of operation. Almost in all soil cover conditions, rotary plough gave maximum field capacity. Fuel consumption for cultivator was higher than rotary plough due to higher depth of ploughing.

Key words: Tillage implements, tractor, specific fuel consumption, brake horse power, soil conditions