Mini Self-propelled Rotary Tiller

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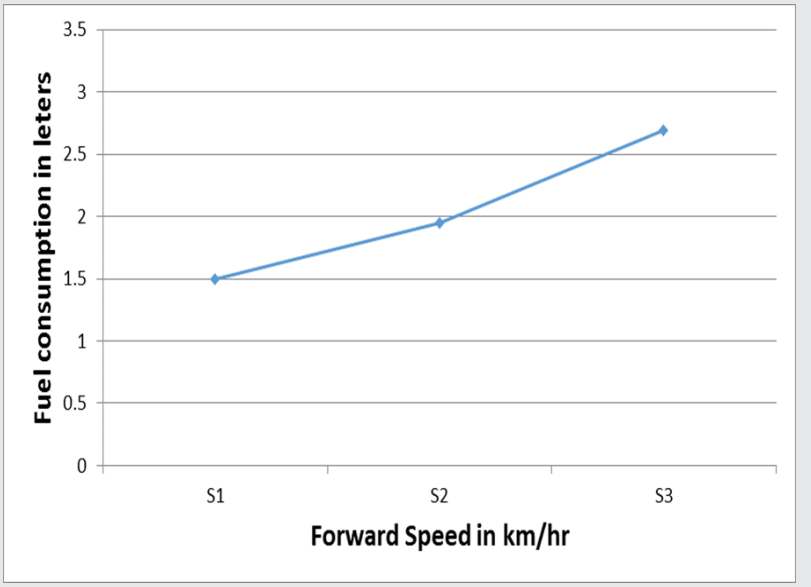
A rotary tiller is a type of cultivating equipment that breaks or works the soil with the aid of rotating blades. It is also used for weed eradication and mixing with soil. Rotary tillers are available with advanced technologies and innovative designs which provide great performance but at the same time having higher initial investment which is not affordable for small farmers. The rotary tiller can be self-propelled and driven forward on wheels. The gearbox of the rotary tiller enables to increase the rotational speed of the cutter blades higher than the forward speed of the machine. Because rotary tillers power is directly transmitted to the tillage blades, the power transmission efficiency is also higher in rotary tillers.

Machine Development

A mini self-propelled rotary tiller has been designed and developed in the Department of Farm Machinery and Power, University of Agriculture, Faisalabad keeping in view the need of small scale farming community. It is used for hoeing of furrows, tilling of beds as well as eradication and mixing of weeds in the soil. It has a working depth and width of 5 and 60 cm, respectively. A small size 5.5 hp engine is mounted on the rotary tiller and rotational speed of the tines is 540 rpm. The performance evaluation of this machine has been carried out under actual field conditions. The results showed that the average fuel consumption of machine was found to be 1.5, 1.85 and 2.69 l/ha for machine forward speeds of S1 (3 km/hr), S2(4.5 km/hr), and S3 (6 km/hr).

Impact

Promotion of farm mechanization and increased crop productivity in the country.



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Shaft containing rotary cutters