

Flexible Manufacturing in Agriculture Equipments (Tiltavator)

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Abstract

Tiltavator is a system, which is a frequent plough with a tiller connection. This is a new advancement, which has not been out in the marketplace. The product does both the perform of the plough and the tiller (rotavator).the plough smashes the area and the tiller softens the sand and makes the area for farming. Various assessments has been done to research the performance of the tiltavator against the performance of the plough and the rotavator. The analyze mainly focus on the energy intake, time intake, smooth of the ground, and the development of marijuana against the paddy. The Tiltavator, the plough, the rotavator, all the three has been used in three different places of area to research the result of all the three devices. The tiltavator can do both the perform of the plough and the rotavator at a relatively smaller efforts and also takes in less energy for the same job. It also has much greater performance with regards to conditioning the sand for farming. The tiltavator was developed and developed and various assessments have been performed and the outcomes are mentioned in this document.

Keywords

Rotavator, Market Place, Plough, Tiltavator

I. Introduction

The Tiltavator test mainly emphasis on the fuel consumption, time consumption, softness of the soil, and the growth of weed against the paddy. The Tiltavator, the plough, the rotavator ,all the three has been used in three different sets of land to study the outcome of all the three machines. The tiltavator can do both the work of the plough and the rotavator at a comparatively lesser time and also consumes less fuel for the same job. It also has much higher efficiency in terms of softening the sand for cultivation..

II. Experimental Study

Various study has been conducted on the tilttavor to compare its performance over the plough and rotavator. The various tests on different areas are,

- Fuel Consumption,
- Time consumption,
- Softeners of soil,
- Growth of paddy vs weeds.



Fig. 1:



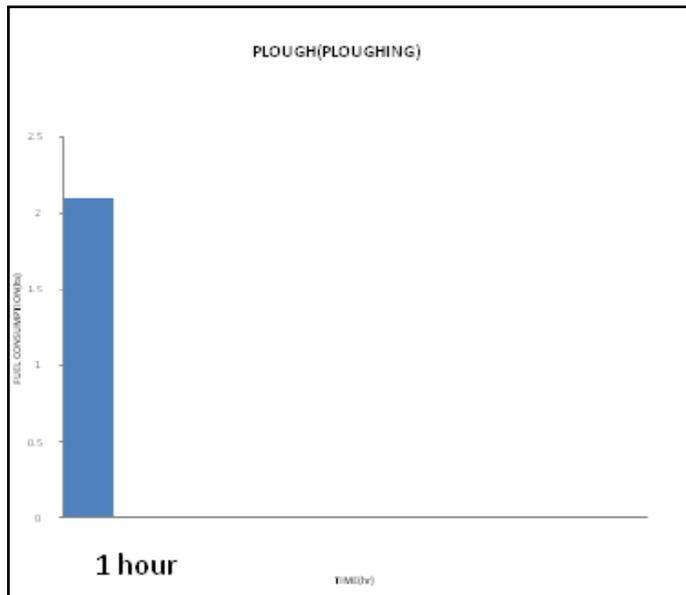
Fig. 2:



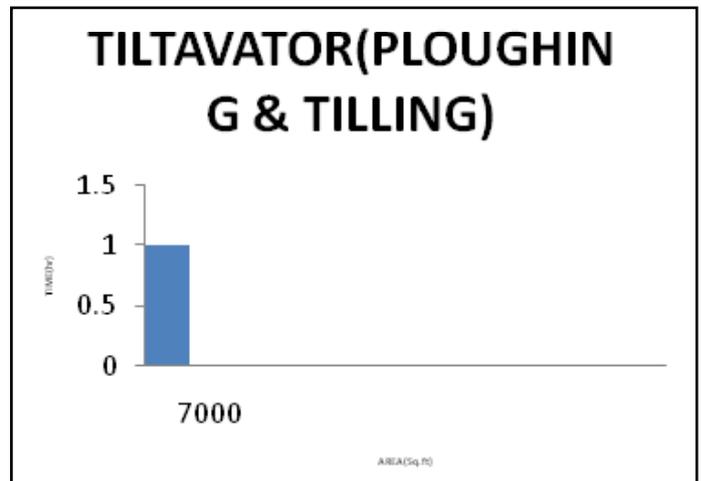
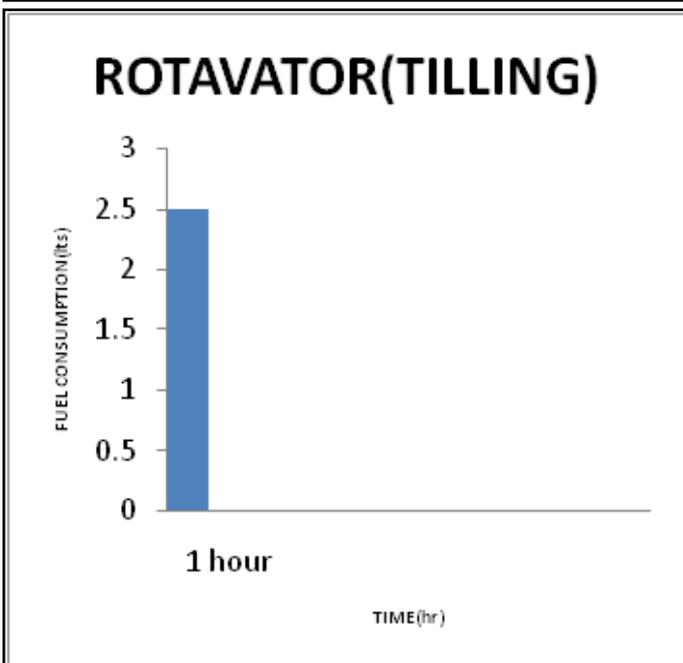
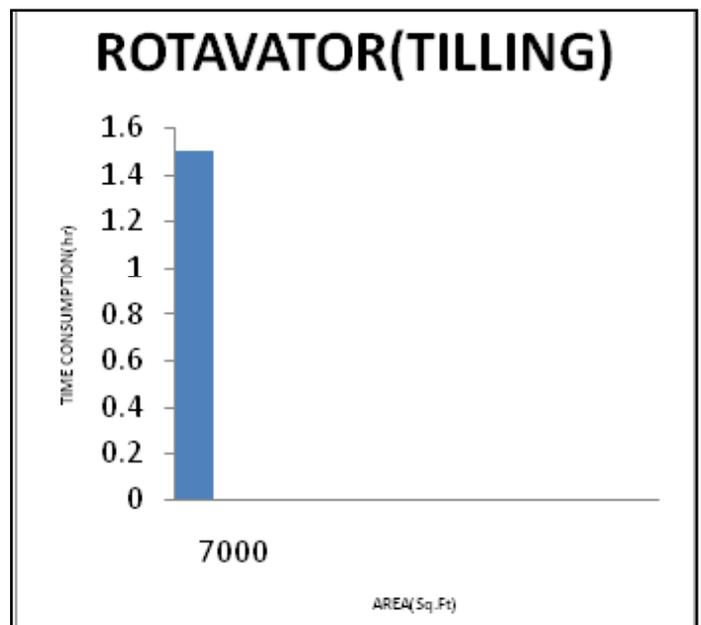
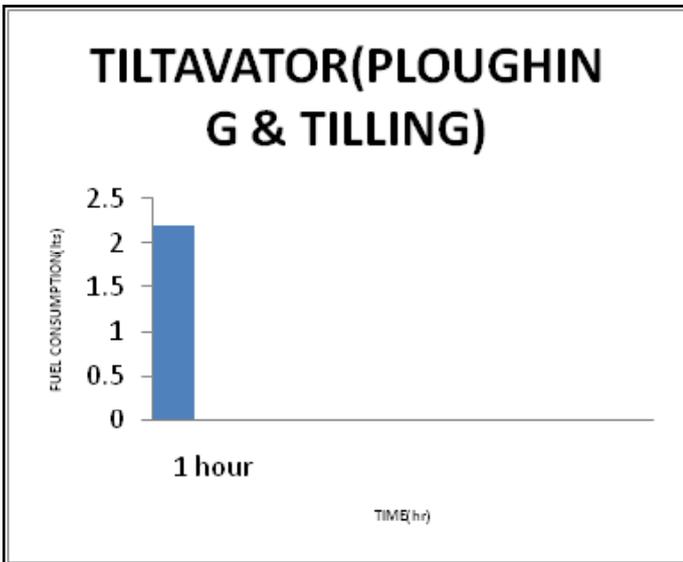
Fig. 3:

A. Fuel Consumption

All the three, the plough, the rotavator, and the tiltavator where used on different lands with same condition for an hour. The amount of fuel consumed by the tractor for each of the machines are discussed.



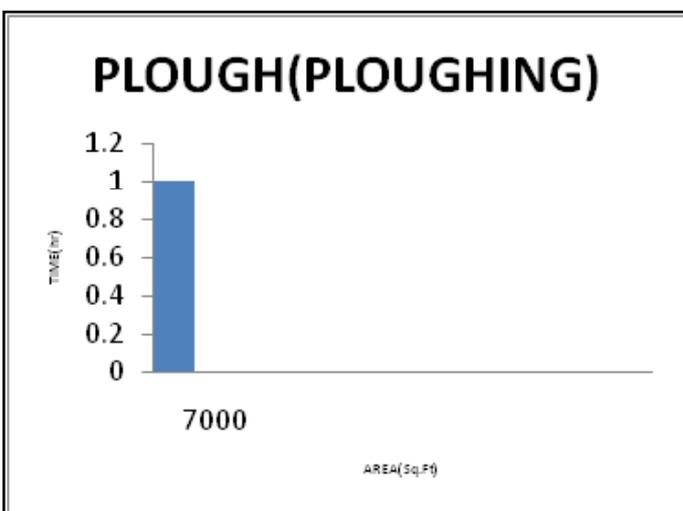
The plough, used only for ploughing consumed about 2.1 liters of fuel.



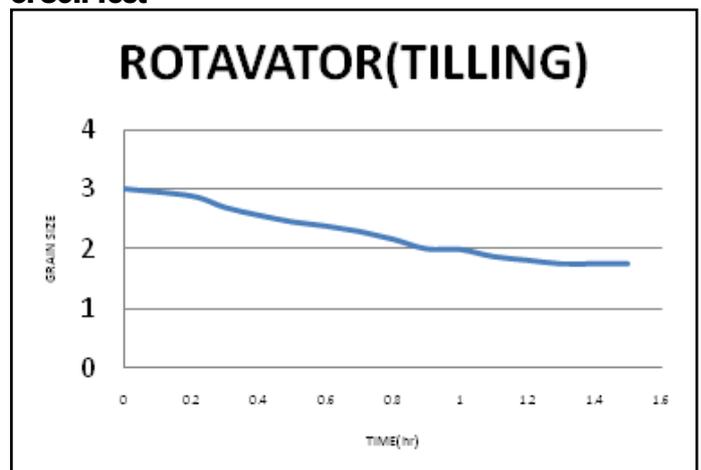
The time consumed by all the three machines, for working on a particular area of land were studied. The plough consumed about 1hr to plough 7000Sq.ft of land. The rotavator consumed about 1hr 30min for tilling 7000sq.ft of land. But, the tiltavator consumed about 1hr for both ploughing and tilling 7000sq.ft of land. The time consumption by the tiltavator is half the time consumed by both the plough and rotavator put together.

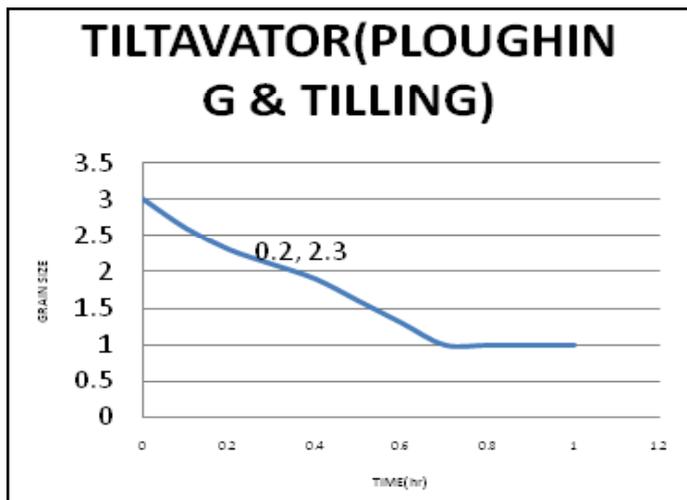
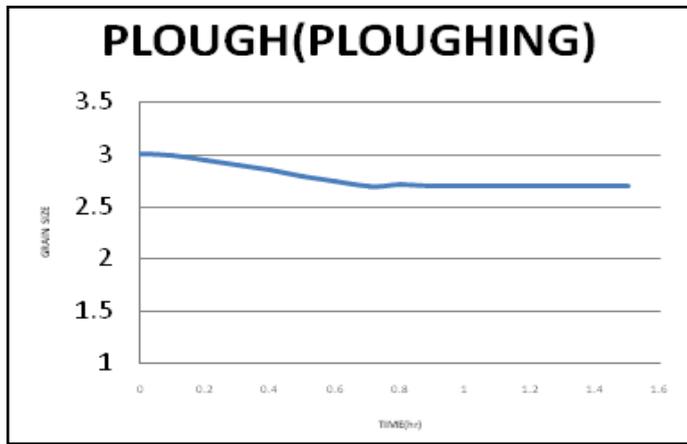
The rotavator, which is used only for tilling consumed about 2.5 liters of fuel. Whereas the tiltavator which is used for both ploughing and tilling consumed about 2.2 liters of fuel.

B. Time Consumption



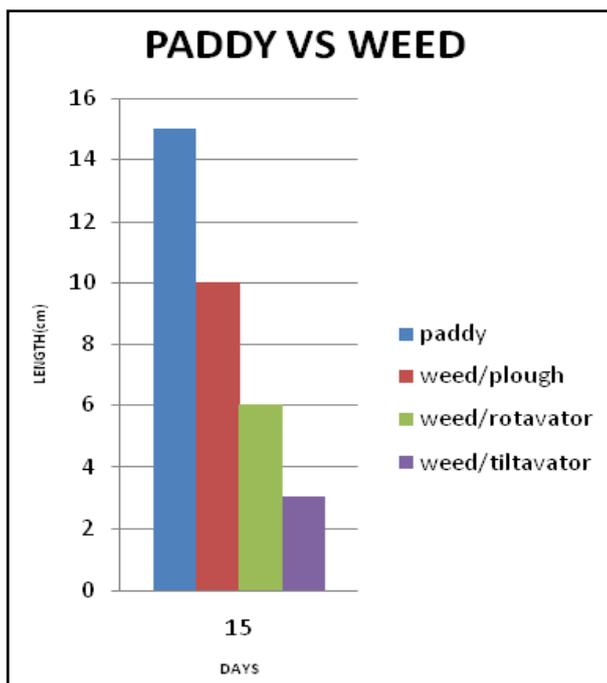
C. Soil Test





The softness of the soil has been studied, when different machines are used on land. The softness of the soil is not much, when only plough is used. The plough just brakes the land. It does not soften the soil much. When rotavator is used, the rotavator brakes the soil and the soil softens. But when the tiltavator is used, the plough brakes the land and tilling attachment further softens the soil. The softness of the soil is much better when the tiltavator is used, when compared with the plough and the rotavator.

D. Growth of paddy Vs Weeds



when using the different machines on the lands, they uproots all the grasses and the weeds from the land, which reduces the growth rate of the weeds and the grasses. when the plough is used the plough does not uproot the weeds and grasses fully. When rotavator is used they uproot the grasses and weeds well, and reduces the growth of the weeds and grasses. The use of tiltavator uproots the grasses and weeds to the maximum extent and further reduces the growth of the weeds and grasses.

III. Results and Discussion

The tiltavator does both the work of the plough as well as the rotavator. Thus it reduces the fuel consumed for both of them done separately. It only uses half the amount of fuel consumed by plough and rotavator put together. Thus the tiltavator consumes a lesser fuel for doing both the work of ploughing and tilling.

IV. Conclusion

The using of the tiltavator is much better compared to the plough and rotavator. The results of the tests also suggest the same. Thus manufacturing of such a device will result in consumption of fuel, consumption of time, better soil softness and lesser growth rate of weeds. It also reduces the manufacturing cost because there is no need for the two machines(plough and rotavator). Thus it would make a great impact in the field of agriculture.

References

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