World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:11, No:10, 2017

Comparative Study on Soil Tillage Using Rotary Tiller and Power Harrow

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Abstract : Farmers try to reduce steps of soil preparation by using subsoiler and then following by equipment for soil pulverization such as a rotary tiller and a power harrow which take advantage of using a power take-off of a tractor. Therefore, this study was conducted to compare the tilling performances of a rotary tiller and a power harrow applying after subsoiling. The results showed that both the rotary tiller and the power harrow had negative slip, indicating that they generated force to push a tractor. The rotary tiller created negative vertical force to lift up the tractor whereas opposite result was found when using the power harrow. Since working depths were different, vertical forces, torques and PTO powers for two equipment types were significantly different. However, no significant differences were found for the forward speeds, slips, drawbar pulls and drawbar powers. Comparative analysis showed that two equipment types had significant difference in PTO power to working depth, drawbar power to working depth, PTO power to working area, drawbar power to working area and soil pulverization.

Keywords : Rotary Tiller, Power Harrow, Drawbar Pull, Drawbar Power, PTO Power
Conference Title : ICFAE 2017 : International Conference on Food and Agricultural Engineering
Conference Location : Bali, Indonesia
Conference Dates : October 23-24, 2017