

A Study on Conventional and Improved Tillage Practices for Sowing Paddy in Wheat Harvested Field

Authors : R. N. Pateriya, T. K. Bhattacharya

Abstract : In India, rice-wheat cropping system occupies the major area and contributes about 40% of the country's total food grain production. It is necessary that production of rice and wheat must keep pace with growing population. However, various factors such as degradation in natural resources, shift in cropping pattern, energy constraints etc. are causing reduction in the productivity of these crops. Seedbed for rice after wheat is difficult to prepare due to presence of straw and stubbles, and require excessive tillage operations to bring optimum tilth. In addition, delayed sowing and transplanting of rice is mainly due to poor crop residue management, multiplicity of tillage operations and non-availability of the power source. With increasing concern for fuel conservation and energy management, farmers might wish to estimate the best cultivation system for more productivity. The widest spread method of tilling land is ploughing with mould board plough. However, with the mould board plough upper layer of soil is neither always loosened at the desired extent nor proper mixing of different layers are achieved. Therefore, additional operations carried out to improve tilth. The farmers are becoming increasingly aware of the need for minimum tillage by minimizing the use of machines. Soil management can be achieved by using the combined active-passive tillage machines. A study was therefore, undertaken in wheat-harvested field to study the impact of conventional and modified tillage practices on paddy crop cultivation. Tillage treatments with tractor as a power source were selected during the experiment. The selected level of tillage treatments of tractor machinery management were (T1:- Direct Sowing of Rice), (T2:- 2 to 3 harrowing and no Puddling with manual transplanting), (T3:- 2 to 3 harrowing and Puddling with paddy harrow with manual transplanting), (T4:- 2 to 3 harrowing and Puddling with Rotavator with manual transplanting). The maximum output was obtained with treatment T1 (7.85 t/ha) followed by T4 (6.4 t/ha), T3 (6.25 t/ha) and T2 (6.0 t/ha) respectively.

Keywords : crop residues, cropping system, minimum tillage, yield

Conference Title : ICASTE 2016 : International Conference on Agricultural Science, Technology and Engineering

Conference Location : Los Angeles, United States

Conference Dates : April 05-06, 2016