Design, Fabrication and Testing of Four-Wheel Tractor Mounted Upland Channel Maker

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Irrigation is one of the very important practice in agriculture. There are many types of irrigation. Drip and Sprinkler are highly profitable irrigation systems with higher water application efficiency and less operational cost compared to traditional systems. However, most small-scale farmers cannot afford to install them due to high initial and maintenance cost compared to traditional systems. Currently, there are two lift irrigation systems in operation from two tanks such as Iranamadu tank and Muththaiyankaddu tank. Therefore, farmers of these areas are now adopting flood or basin irrigation systems. This irrigation system installation and operations are time-consuming and these activities are not mechanized yet. Therefore, the objective of this study was to mechanize the channel forming practice with a suitable channel former, as four wheel tractor attachment in order to reduce the cost and time. Newly fabricated channel maker was tested in different primary and secondary pre-ploughed lands with various gear ratios of the tractor and compared with the manual channel making. The results revealed that the newly fabricated channel maker performs well on the field prepared with disc plough and the rotavator plough with 1st and load gear ratios. It has been proven that the newly fabricated channel maker is more economical compared to the manual channel making as it can complete channel making job of 1-acre field within 40 minutes with high quality.

Keywords: Four wheel tractor mounted upland channel maker, Gear ratios, Irrigation system