

Development and Field Testing of a Sowing Attachment Suitable for Hilly Areas

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Abstract—*Mono-cropping practice is predominant under rain-fed agriculture in north east India, where rice is the most important crop followed by maize. It is apparent that about 80-95% of the areas remain vacant during the rabi season. Rice and maize fallows can be effectively utilized for cultivation of rabi crops with improved technology packages. Sowing is a critical field operation that makes the prospects of a crop. However, farmers in the region still follow traditional methods. Therefore, a two-row sowing attachment was developed and its field testing was conducted for sowing of bold seeded crop such as maize, pea and soybean. The power was transmitted from a 4.1 kW petrol engine (BCS Make light weight power tiller having 69 kg weight) through drawbar to the drive wheels and through transmission shaft from drive wheel to metering mechanism. Rotor type seed metering mechanism was used in the sowing attachment. Seeds were placed in the furrows at desired depth through adjustable system. The average depth of seed placement was 40 mm. The maximum draft requirement was 588.60 N (Inverted-T type furrow opener) which was well within the capacity of the power source. Average field capacity of 0.068 ha/h was achieved against the theoretical field capacity of 0.080 ha/h for continuous operation at an average speed of 1.6 km/h. The average field efficiency was observed to be 85 % and man-hour requirement of 14.71 per hectare of land. The savings in man-hours per hectare and cost of sowing were substantial as compared to conventional manual dibbling method being followed by the farmers.*

Keywords: *Rice or maize fallow, light weight, sowing attachment, hilly areas, north east India.*