DESIGN AND DEVELOPMENT OF A HIGH LAND POWER SEEDER

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Sri Lanka is an agricultural country and many farmers live in Sri Lanka. Highland crop cultivation is very popular in wet and dry zones in Sri Lanka. With the increase population and needs to raise the living standards, agricultural sector faces many challenges. It has got a new form with the innovation of new technologies. These tools, implements and powered machinery are some of the essential inputs to agriculture. Use of a seeder is one mechanical application in agricultural sector. There are several types of high land seeders use in Sri Lanka. However, they have many drawbacks such as high cost, unsuitable nature, inadequate adjustable furrow depth wheel, seed rate and unadjustable spacing. Therefore, this study was aimed at develop a highland seeder which would have adjustable furrow depth, seed rate and spacing. Further it needs low initial cost, operational cost and labor requirement. The seeder was tested under RNAM test code at FMRC field. The result revealed that effective field capacity of maize was 1.25 ha/day, Row spacing was adjustable from 30 cm to 120 cm, and within row spacing was also adjustable from 2cm to100cm. Missing hills percentage of maize, black gram and cowpea were 4.6%, 5.3% and 4.2% respectively. Number of man power needed for one hectare was 6.42, 5.62 and 7.72 for Maize, Blackgram and Cowpea respectively. Fuel consumption rate per hectare was 12.8 l/ha for maize, 11.3 l/ha for black gram, 15.75 l/ha for cowpea. Machine shows easy straight traveling ability and easy turning at the headland within 140 cm. The machine is the most suitable machine for highland crop cultivation.

Key words: RNAM test code, Effective field capacity, Row spacing, Missing hills, Fuel consumption, Straight traveling, Headland