COMPARATIVE PERFORMANCE EVALUATION OF A MANUALLY OPERATED SINGLE ROW MAIZE SEED DRILLER

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Maize is the second most important cereal crop in Sri Lanka and more than 75% of the production cost is counted for labour. Seeding is one of a laborious and drudgery operation in maize cultivation. Although, several mechanical methods are introduced, most of the maize farmers are practicing manual seeding with a mamoty. Therefore, introducing an affordable and an appropriate mechanical approach for seeding is very important expecting to increase the efficiency and profitability by reducing the labour cost and drudgery. Manually operated single row maize seed driller, which is imported from China is 1650 g in weight and consists of a seed container, handle, seed metering mechanism and the seed drilling unit. The operator has to carry it with the handle. The drilling points of the unit should be placed on the visually determined planting hole and firmly push the handle down to place the seeds in the hole. The performance of this seed drilling machine was properly evaluated and compared with manual method at the research farm, Faculty of Agriculture, Rajarata University of Sri Lanka in *maha* season, 2017. The average depth of drilling was 4 cm in a properly prepared plot and it was approximately same in an improperly prepared plot. The theoretical capacity, actual capacity and the efficiency of the machine, when operated by a male in a properly prepared field were 0.138 ha/h, 0.098 ha/h and 71% respectively. The corresponding values when operated by a female were 0.118 ha/h, 0.083ha/h and 70%, respectively. In an improperly prepared field, same values for a male were 0.095 ha/h, 0.067 ha/h and 70% respectively and 0.079 ha/h, 0.054 ha/h and 67% respectively for a female. The statistical analysis shown that, actual capacity, theoretical capacity and the efficiency of the seed drilling machine were significantly different from of manual seeding ($p<0.05$). Thus, the manually operated single row maize seed driller can be recommended for Sri Lankan maize farmers.

Keywords: Depth of drilling, Field efficiency, Field capacity, Maize seed driller