INTRODUCING AN EFFICIENT MECHANICAL METHOD FOR PINEAPPLE HARVESTING

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Pineapple (*Ananas comosus* (L.)) is a succulent and tasty fruit rated only second to banana. Although it is cultivated all over in Sri Lanka, it is prominent in Wet and Intermediate Zones of Low Country and Intermediate Zone of up Country with different cultivation methods. Among other cultivation practices, harvesting is laborious, time consuming and drudgery due to higher plant density and spiny leaves. However, it has drawn less attention on the mechanization of harvesting process in order to increase the efficiency and keep the post-harvest quality. Since the mechanical harvester introduced by Rajarata University in 2013, is not up to the satisfactory level, this study aimed to introduce an efficient mechanical method for harvesting to overcome the identified practical problems of it. Reducing the walking distance, by harvesting number of fruits at one place instead of going plant to plant, was highly considered to increase the efficacy. Newly designed harvester consists of fruit gripper, stalk holder, cutter, handle and operating levers. The cutter and fruit gripper which are in one end of the two meter long handle can be operated by levers of other end in order to approach number of plants without reaching them. In a properly managed field cultivated under double row method, 28 plants can be harvested at one place. The performance of the newly designed pineapple harvester was tested at a pineapple field in Wariyapola area and compared with the previously introduced machine and manual harvesting method. The effective field capacity of the new one was 0.03220 ha/hr while that of the previous one and manual method has been recorded as 0.02858 ha/hr and 0.02902 ha/hr, respectively. Results clearly showed that the newly designed mechanical method saves the time considerably than the manual method and early designed mechanical method. Although newly designed harvester shows maximum performances, there are more opportunities for further developments such as, replacement of cutter with motorized blade and handle consist of belt for easy carrying.

Keywords: Effective field capacity, Pineapple cultivation, Pineapple harvester