

Design and Evaluation of Functional Parameters of the Double Helical Roller Cutting Mechanism for Ripened Chilli

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ABSTRACT

Chilli cultivation needs more number of labourers for harvesting apart from the usual field operations such as sowing, weeding, pesticide applications, etc. as compared to other field crops. It is harvested (picking) 2 to 4 times and these harvestings are within a short span of time to get the quality produce, otherwise market price of chilli will be reduced. Mechanization is only the way through appropriate technology need to be developed to make farmer as profitable as possible and reduce the cost of harvest. The experimental set up was designed with two double helical rollers of each length 200 cm and overall diameter 14 cm. The base frame was developed with the height of 100 cm, width of 85 cm and length of 160 cm to house the double helical rollers inside of the base frame. The rollers were fixed in the base frame inclined to the horizontal. The experimental set up was modified regarding power supply to double helical rollers, rotational speed and gap between the two rollers. The prototype ripen chilli harvester was fabricated with four numbers of adjusting gap between two rollers and four rotational speeds of double helical rollers. The pulleys were changed on the double helical roller to get the four numbers of speeds like 289 rpm, 393 rpm, 484 rpm and 658 rpm by kept one small size of pulley on prime mover. The four numbers of gaps were provided between the two rollers as 32 cm, 33 cm, 34 cm and 35 cm.

Key words: *Chilli, Double helical roller, Harvesting, Mechanization, Sowing and Weeding,*