Bioved, **27**(1) : 73–78, 2016 http://biovedjournal.org/

Development of power operated onion detopper

Girishkumar Bhanage[1], V.D. Deshmukh[1], P.J. Thokale[1] and S.V. Wandkar[2]

Received August 2, 2015 and Accepted November 15, 2015

ABSTRACT : Onion detopping operation is tedious, time consuming and labour intensive which increases cost of operation. About 12.5 man-hours are required in manual detopping operation of 1 MT onion bulbs. The onion detopping is calls for its mechanization to reduce the losses in field and for timeliness in operation, fetching good market price and better storability. Therefore, a prototype of power operated onion detopper was developed for reducing the drudgery and labour involved in onion detopping operation. It consists of main frame, conveying unit, cutting unit, safety guard and power transmission unit. Conveying unit consists of a pair of counter rotating spiral rollers which is key component of machine. The cutting unit consists of shaft, two plain and one serrated cutter. The separate electric motors were used as prime movers for conveying and cutting mechanism. The performance of developed onion detopper was evaluated. The average de-topping efficiency was observed as 86.59% with 315.03 kg/hour output capacity. Average onion neck length of 20.66 mm was found which is sufficient for reducing storage losses of onions. The cost of operation was worked out to be Rs. 18.84/quintal.

Key Words: Onion, spiral roller, cutter, detopper, electric motor.