

## Performance evaluation of threshing of finger millet by mechanical method

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■ **ABSTRACT :** The research was conducted on evaluation and testing of threshing methods for finger millet in the Department of Agricultural Engineering. Finger millet (*Eleusine coracana* Craertn) commonly known as ragi is one of the important small millet crops grown in red soil areas of India. It is predominantly cultivated in southern parts of Karnataka. More mechanical damage occurs during threshing process. The traditional methods of threshing are tedious time consuming and inefficient in operation. The experiment was conducted with the varieties of ragi MR1 and HR911. Hence mechanical threshing is a means to overcome the above problems. But so far none of the mechanical threshers available are suited for ragi. At present there is a little information available regarding the mechanical threshers and optimum threshing parameters for ragi crop. Some of the important parameters which influence the threshing efficiency, mechanical damage, moisture content, threshing cylinder speed, feeding rate and concave clearance in mechanical threshing. This method of threshing was experimented at three different moisture content levels of ragi [around 18 to 19, 13 to 15 and 10 per cent (w.b.)]. In mechanical ragi threshing, the raspbar thresher has given the maximum grains output of 140.5 kg/h for variety MR1 and 130.3 kg/h for variety for HR911. The raspbar type thresher showed the least cost for MR1 Rs.18.4 and HR911 Rs.19.5/q for threshing operation. There was not much difference in threshing cost between varieties.

■ **KEY WORDS :** Finger millet, Rasp bar thresher, Threshing, Moisture content, Ragi varieties

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**F**inger millet (*Eleusine coracana* Craertn) commonly known as ragi is one of the important small millet crops grown in red soil areas of India. It is predominantly cultivated in southern parts of Karnataka. The average yield of the crop under rainfed conditions is about 10 quintals per hectare and under irrigated conditions its about 25 quintals per hectare. The crop occupies an area of 2.5 million hectares and contributes 2.6 million tonnes of grain in India. Its cultivation is concentrated mainly in the states of Karnataka (49%), Orissa (11%), Maharastra (10%), Tamilnadu (9%) and Andhrapradesh (7%), Karnataka stands first both in area (1.06 million ha) and production (1.5 million tonnes). Among all states, Karnataka contributes 54 per cent to country's annual production.

Moisture content of the ear-head plays a key role in threshing operation and seed quality. The traditional methods of threshing are tedious time consuming and inefficient in operation. Hence, mechanical threshing is a means to overcome the above problems. But so far none of the mechanical threshers available are suited for ragi. At present there is a little information available regarding the mechanical threshers

and optimum threshing parameters for ragi crop. Some of the important parameters which influence the threshing efficiency, mechanical damage, moisture content, threshing cylinder speed, feeding rate and concave clearance in mechanical threshing.

Hence, the present investigation entitled performance evaluation of threshing of finger millet by mechanical method was undertaken at the University of Agricultural Sciences, Gandhi Krishi Vignana Kendra, Bangalore with the following objectives: to evaluate the various methods of threshing mechanically, to evaluate the threshing methods for ragi by mechanical thresher, to study the effect of different parameters on threshing output and efficiency in ragi threshing, to determine the optimum operating parameters to obtain maximum threshing output and efficiency and work out the cost and economics of different methods of threshing at optimum operating conditions.

### ■ METHODOLOGY

This paper deals with the materials used and the methods