

Evaluation testing of inter row cultivator in broad bed furrow method of sowing for *Kharif* crops

■ NILESH NARAYAN WAGHMARE, V. P. KHAMBALKAR AND C.N. GANGDE

Received : 12.03.2013; Revised : 24.04.2013; Accepted : 29.04.2013

See end of the Paper for authors' affiliation

Correspondence to:

NILESH NARAYAN WAGHMARE

College of Agricultural Engineering and Technology, Jalgaon, Jamod, BULDANA (M.S.) INDIA

Email :

nilesh9372@gmail.com

■ **ABSTRACT** : The feasibility study of tractor drawn inter row cultivator on broad bed furrow sown field was carried out at village Kutasa on farmers field for *Kharif* season during 2011- 2012. The green gram and soybean crop was sown by broad bed furrow planter which is developed by Department of Farm Power and Machinery, Dr. Panjabrao Deshmukh Krushi Vidyapeeth, Akola. The same implement was used for inter cultural operation by changing its furrow opener by the inter cultural sweep. The inter row cultivator was tested as per the RNAM test code 1995 for both green gram and soybean crop. The inter culture operation was carried out after the 20 days of sowing for both the crops. The inter cultivator was tested in the laboratory as well as in the field as per standard procedure. The working width and depth of inter row cultivator was recorded to be 136.9 cm and 2.73 and 2.46 cm for green gram and soybean, respectively. The weeding efficiency of inter row cultivator was found to be 86.19 per cent and 86.54 per cent for green gram and soybean, respectively with negligible plant damage during operation for both the crops. During inter row cultivation the speed was recorded which was 3.75 km/h and 3.69 km/h for green gram and soybean, respectively. The net saving of 12.45 per cent in green gram and 14.55 per cent in soybean was observed in cost of operation for mechanical inter culture operation over traditional practice. The energy requirement for interculture operation of green gram and soybean was found to be 73.38 kWh/ha and 77.32 kWh/ha and for traditional it was 22.10 kWh/ha and 22.67 kWh/ha, respectively. The per cent saving in cost of energy in BBF sown interculture operation was 74 and 74.97 over traditional method for green gram and soybean, respectively. The overall performance of inter row cultivator was found satisfactory. The BBF method of sowing was more feasible, reliable than the traditional method of sowing, which resulted in high yield and selective mechanization of farm.

■ **KEY WORDS** : Inter row cultivator, Broad bed furrow, Interculture operation, Cost of operation, Energy requirement

■ **HOW TO CITE THIS PAPER** : Waghmare, Nilesh Narayan, Khambalkar, V.P. and Gangde, C.N. (2013). Evaluation testing of inter row cultivator in broad bed furrow method of sowing for *Kharif* crops. *Internat. J. Agric. Engg.*, 6(1) : 208-212.

Sustainable development in agriculture can be achieved by use of mechanization in agriculture. Mechanization can help in increasing the production by timely farm operation, reducing losses, reducing the cost of operations. It also ensures better management of costly inputs and enhances the productivity of natural resources. It also reduces drudgery in farm operations. (CRIDA, 2007).

Mechanization of different farm operations can increase the agricultural productivity by more work in less time, efficient use of inputs, by producing quality product, improving the safety of the farmers, reducing the loss of produce and drudgery of farmers thus, improving comforts of farmers (CIAE, 2009).

The broad bed marker (BBM) was developed in the late 1980s from the traditional dual ox-drawn plough, called as maresha by the Joint Vertisol Project. In vertisol soils it is difficult to work, cracking occurs when dry and becoming sticky and waterlogged when wet. The role of the broad bed furrow (BBF) was to make raised seedbeds and furrows more efficiently and effectively, thus, reducing water logging and encouraging early planting of crop (Rutherford, 2008).

In the rainy season when there is scarcity of labour, the sowing of crops delay and it ultimately results in reduction of yield. For timely operations and agriculture mechanization can be adapted which will improve the productivity. The implements, machines, tractors and power units can be owned