

TRACTOR DRAWN THREE ROW ROTARY WEEDER



Designed and developed by: TNAU, Coimbatore centre



All India Coordinated Research Project on
Farm Implements and Machinery
Central Institute of Agricultural Engineering
Nabi Bagh, Berasia Road, Bhopal – 462 038

TRACTOR DRAWN THREE ROW ROTARY WEEDER

Year	:	2006
Published by	:	Coordinatind Cell AICRP ON FARM IMPLEMENTS AND MACHINERY CENTRAL INSTITUTE OF AGRICULTURAL ENGINEERING Nabi Bagh, Berasia Road Bhopal - 462 038, India
Implement designed & developed by	:	V.M.Duraisamy D. Anantha Krishnan R.Kavitha <i>TNAU, Coimbatore</i>
Report preparation and Compilation	:	R.Kavitha V.M.Duraisamy G.Meena <i>TNAU, Coimbatore</i>
Editing	:	MM Pandey CR Mehta RK Tiwari <i>CIAE, Bhopal</i>
Drawings	:	S. Venkatesan <i>TNAU, Coimbatore</i>
Art, Cartography & Proof Reading	:	RK Tiwari YS Bhokardankar <i>CIAE, Bhopal</i>
Word Processing & Design	:	NG Bhandarkar <i>CIAE, Bhopal</i>
Reprography	:	RS Kushwah <i>CIAE, Bhopal</i>

TRACTOR DRAWN THREE ROW ROTARY WEEDER

Introduction

Manual weeding is laborious and time consuming and hence efficient mechanical weeders are being developed to obtain good yields. Weed control is one of the most expensive and important operation for increasing crop yields. In Tamil Nadu, the most common method of weeding is by hand tool, which is labour intensive. Hence a tractor mounted rotary weeder was designed and developed.

Salient Features

Generally the crops like cotton, sugarcane and maize are cultivated in wide rows in which tractor can be easily run for carrying out field operations. A tractor mounted multi row rotary weeder has been developed, which consists of, main frame, made of MS box sections, three rotary blade assemblies (Fig. 1) made of MS disc having 4 steel blades each, safety covers over the rotors, power transmission system from pto to the rotor to obtain 200-225 rpm and hitch frame suitable for three point linkage.

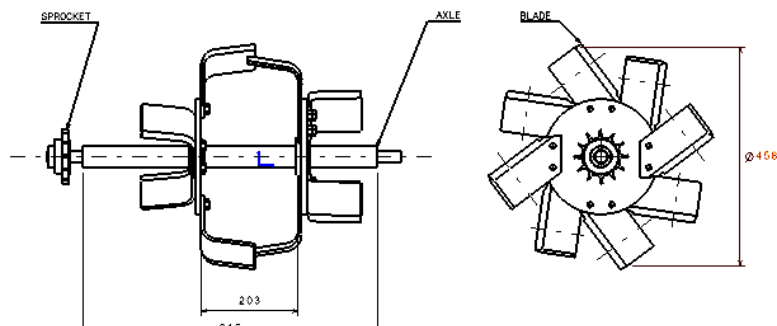


Fig. 1. Details of rotary weeder assembly.

The multi row weeder is shown in Fig. 2. By a single pass of the tractor, weeding can be done in three rows. The cost of the multi row weeder is Rs. 1,00,000/-. On average the cost of operation is Rs. 1700 per ha for single weeding.

Performance of machine

The multi row weeder was evaluated in cotton and sugarcane fields. The performance of the machine was found to be good in terms of weeding efficiency. The performance is furnished in Table 1.



Fig. 2. Tractor drawn three row rotary

Table 1 Comparison of multi-row weeder with manual weeding in sugarcane

Sl. No	Method of weeding	Weeding	Field coverage		Operational cost Rs / ha
			ha/h	ha/day	
1	Manual weeding	First weeding	0.006	0.05	3600
		Second weeding	0.007	0.06	3450
Total					7050
2	Multirow weeder	First weeding	0.25	2.00	1800
		Second weeding	0.28	2.24	1600
Total					3400

Labour requirement and economics of operation

The cost of operation per ha for two passes is Rs.3400. The cost of weeding by conventional method is Rs.7050. The savings in cost in comparison with the manual method is 52 %, whereas the saving in time is 78%.

Present status of technology

The multi row weeder was demonstrated and exhibited in different parts of Tamil Nadu. An area of more than 10 ha in research farms and 8 ha in farmers fields were covered during the trials. Six numbers of prototypes have been manufactured and sold.

Brief specifications of machine

1.	Overall dimensions (excluding traction unit)	2700 x 860 x 840
2.	Weight, kg	390
3.	Weeder type Number of rotary weeding units No. of blades per flange Total working width, mm Material of construction	Rotary 3 4 2400 High carbon steel
4.	Details of hitch	Standard three-point hitch
5.	Safety aspects	Safety covers for blades
6.	Depth of operation, mm	100

Available from:

M/s Ramakumar Industries,
Vellakinar Pirivu, Post Box No.5309, G.N.Mills (P)
Coimbatore - 641 029 (Tamil Nadu)