

Research Paper :

Performance evaluation of bullock drawn ferti hoe and stubble collector

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ABSTRACT

Ferti hoe and stubble collector design by and fabricated by M.A.U. Parbhani was tested for its performance. Depth, draft and field efficiency for ferti hoe was 8 cm, 35 to 40 kg, 84.12 %, respectively and for stubble collector depth was 5.73 cm and stubble collection efficiency was 81.12%. Field efficiency of stubble collector and ferti hoe was 86.61% and 84.21%, respectively.

Key words : Fertihoe, Stubble collector

Indian agriculture basically depends upon bullock power as more than 82 per cent of all farmers hold below 2 ha. farms. Keeping tractor and any other big machinery is beyond the economic capability of these farmers. They prefer to use a pair of bullock with small matching implements.

Fertihoe develop by department of FMP, Parbhani which is useful for functions like hoeing with fertilizer application. It helps to apply the fertilizer near the crop due to which the wastage of fertilizer can be avoided. It requires less labour as compared to traditional method, one labour can do both the jobs at a time.

Stubble collector is an implement used to collect the stubble after harvesting and ploughing. To reduce the drudgery in the operation with saving in the time and to do work efficiency a bullock drawn stubble collector is developed. This implement helps in saving time, work and money at large amount.

METHODOLOGY

Specification of fabricated M.A.U. fertihoe:

- Make : M.A.U. Parbhani
- Type : Bullock drawn, adjustable
- Power source : Pair of bullock
- Main frame : A.M.S pipe 75cm
- Tines : M.S. flat 25x 5 at angle 21°
- Blades : 15,22.5 and 30 cm
- Fertilizer metering : Manual
- Beam : 50 mm diameter pipe,10 feet

Specification of fabricated M.A.U. stubble collector:

- Make : M.A.U. Parbhani
- Type : Bullock drawn, adjustable
- Power source : Pair of bullock
- Width of implement : 1.6 m
- Collecting rate : 26 bars at 5 cm spacing
- Depth control : A flat 5 cm away from tip of rod and hitch
- Man power requirement : 1 person

Field performance of implements:

Fertihoe and stubble collector was tested for its performance evaluation in the field of College of Agricultural. Engineering and farm field Parbhani.

Field test was also conducted at Dry land Research Center and Cotton Research Center MAU, Parbhani. RNAM test code was followed and plot size selected was 20m x20 m.

Moisture content of soil :

The soil sample were taken from 3 places randomly in the field and moisture content was determine by oven dry method.

Draft requirement:

For draft requirement dynamometer was used. The implement was operated and draft was measured for pulling indicated by the dynamometer.

Field efficiency :

Field efficiency was calculated by using formula