



Innovative Way for Collection of Combine Harvested Paddy Straw

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INTRODUCTION

Janjgir –Champa district is mechanization area of state and agro-climatic zone is a called Chhattisgarh plain. The total geographical area of the district is 446674 ha. The average rainfall of the district is 1150mm while normal rainfall is 1477.8mm. The main crop which has been grown in this area is paddy and other crops are grown in considerable amount like wheat, gram, mustard, arhar, black gram and green gram.

The problem of unavailability of labour for crop cultivation is increasing day by day. Hence, now even in paddy now a day farmers using combine harvester for harvesting of paddy. The use of tractor operated and self propelled combine leaves behind enormous quantity of paddy straw which is difficult to arrange for every farmers of paddy nearly equal amount of straw remain in the fields which is normally burnt by the farmers. This practice damages the soil quality, create pollution and also affect on availability of feed paddy straw for cattle. To overcome this problems and save energy Krishi Vigyan Kendra, Janjgir-Champa conceptualized an efficient method to collect paddy straw. Hence in order to save energy, an efficient mechanism have been development to collect paddy straw after application of combine harvester.

Straw management

The combine harvesting has been taken up on large scale on custom hiring service. The use of tractor operated and self-propelled combines leaves behind enormous quantities of organic matter,

which is difficult to manage. For every four tones of rice and wheat , nearly 6-7t of straw produced which shows a huge amount of residue available for disposal every year. The total yield of paddy straw in combine-harvested paddy field is 10-12 t/ha and the yield of standing stubbles and loose straw are about 60 and 40 per cent, respectively (Anonymous, 2002). At present, the leftover straw and stubble is burnt to prepare the field for crops but this method damages soil quality and causes pollution.

MATERIALS AND METHODS

In this new innovative practice farmers required tractor, cultivator and steel mash having size 7 X 1ft or 8 X 1.1 ft. This mesh tied behind the cultivator through simple steel wire. This mesh keep just 5cm above the ground. Tractor in the field in one direction and collecting spreaded straw easily 3 to 4 places collect the straw which after lifted in trolley manually.

Design considerations

Farmers can collect easily with their available resources (Tractor & Cultivator). It should be economical in operation, variety should not affect the technology, no need of additional knowledge and field situation no bar.

RESULTS AND DISCUSSION

In collection of harvested paddy straw from one hectare area required 300 minutes with 5 labours where as with tractor operation it can be collected within 45 minutes. In manual collection of straw

Jain and Shantaiya



Krishi Vigyan Kendra, Janjgir-Champa, Chhattisgarh have devised a way to collect leftover paddy straw from the fields by attached a simple steel-mesh to a tractor drawn cultivator.

Length: 7-8 ft
Width: 1.1 ft
Above the ground level: 5 cm or 2 inch
Cost of attachment: Rs.150/-



Table 1. Technical Specification of wire-mesh attached TD cultivator.

Particulars	Specification
Total length	2.13 to 2.20m or 7 to 8 ft
Width	0.30 m or 1.1ft
Above the Ground level height	5 cm or 2 inch
Cost of Technique	Rs.150/-

with there labours 8 hrs @ 200/- per day costing 625/- per ha where as in tractor operation cost just one third i.e., Rs.200/- ha. One hactare paddy produce near 30-40q paddy straw which is term of rupees near about Rs.700/- that additional income to farmers if collected instead of burning of straw.

Table 2. Results of different parameters of wire-mesh attached TD cultivator.

Technique	Manual	Cultivator attachment
Time required to collect straw/ha	300 minutes	45 minutes
Cost of operation (Rs. 200 /labour)	625/- (5 labours & 5 hrs)	200/- (Tractor rent)
Quantity of collected paddy straw	Nil	4 tonnes
Earned cost of paddy straw	Nil	Rs.7650/-

CONCLUSION

After observing results of this technology at KVK, farmers started to utilize in their field for collecting paddy straw by making use of this innovative technique.

REFERENCES

Anonymous (2002). Annual report of project, Mechanization of rice wheat cropping system for increasing the productivity 2001-02. Department of Farm Power and Machinery, PAU, Ludhiana.

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