

Baler Technology for the Paddy Residue Management – Need Of the Hour

Ankit Sharma
Assistant Prof. in Agri. Engg.,
PAU, Krishi Vigyan Kendra, Mansa

Bharat Singh Bhattu, PhD
Incharge –cum- Associate Prof.
(Animal Science),
PAU, Krishi Vigyan Kendra, Mansa

ABSTRACT

Problems associated with the burning of paddy residues, sincere efforts are needed to find ways and means to efficiently utilize the huge amount of surplus rice residues produced in the state for maintaining soil, human and animal health, and increasing farmer's profits. To overcome this problem, a straw baler was introduced by Punjab Agricultural University, Ludhiana. Accordingly, the baler is used in Mansa district of Punjab state since the last three years for collecting and baling paddy straw in the combine harvested fields. With the awareness of technology among the farmers, there is continuously increase in area under baler machine which is benefit for the farmer community in terms of revenue and avoid serious problem of straw burning.

Keywords

Baler, paddy straw management, biomass plant, income, pollution.

1. INTRODUCTION

In Punjab, the total production of paddy straw alone contributes more than 22 million tonnes, from the 2.82 million hectare cultivated area. Out of the total area under paddy around 91% per cent paddy is harvested by combines (Gajri et al 2002). Paddy straw is considered poor dry fodder for animals due to high silica content. Therefore, the farmers are burning it without bothering about the damage to ecology. Burning of straw causes environmental pollution leading to many diseases. Burning also produces CO₂, which creates green house effect during the short span of 15 - 20 days. The Green house effect disturbs the natural climate of the planet. In addition, burning also decreases the efficiency of some herbicides used for controlling weeds in wheat crop (Singh et al, 2012). Sincere efforts are needed to find ways and means to efficiently utilize the huge amount of surplus paddy residues produced. The paddy straw baler machine, which can be used for making the bales of loose paddy straw, may be the possible solution for the paddy residue management.

2. BALER TECHNOLOGY

The straw baler is used for collecting and baling straw in the combine-harvested field. Before baling, first stubble shaver is operated to harvest the stubbles from base level. It can form bales of varying length from 40 to 110 cm. The height and width of the bales is generally fixed at 36 cm 46 cm respectively. The weight of bales varies from 20 to 30 kg depending on moisture content of straw and length of bales. The capacity of the baler varied from 0.30-0.35 ha/h. Krihi Vigyan Kendra (KVK) Mansa has promoted the use of commercially available paddy straw baler in the district with the help of Punjab Agricultural University (PAU) Ludhiana, Punjab. The management of paddy straw by use of baler was practiced in 40 villages of Mansa district during the year 2013-14. Total area under management of paddy straw was more than 550 ha in district Mansa. The bales were prepared

and sold @120/- quintal to the Bio-mass plant situated very near to KVK Mansa. The area was covered by total 05 balers including one baler of PAU, Ludhiana. Total quantity of paddy straw including bales and loose straw received by bio-mass plant from the farming community of various districts was 12000 tonnes during the year 2013-14. Instead of selling the paddy straw at bio-mass plants it can also be utilized in the following industry for additional income:

- Paper industries use this as raw material for paper production
- Dairy/cattle owners use it for fodder application and urea treatment projects of straw.
- Packaging industry, mushroom industry, straw/board manufactures, natural manure (wormi-compost) and many more.



3. ADVANTAGES OF USING PADDY STRAW BALER

The straw baler technology creates the following advantages: Avoid the serious problems associated with the burning of paddy residues.

- Efficient utilization of the huge amount of surplus rice residues produced in the state.
- Maintain soil, human and animal health.
- Increasing farmer's profits to the tune of Rs. 2400/acre.
- It clean the field for sowing of next crop.
- It generates the employment as various peoples are involving in collecting and transporting the straw from field to the desire location.

Due to the interventions of KVK Mansa and demand of paddy straw in the biomass plant, farmers have started collecting the paddy straw for sale to biomass plants. Total area where straw was collected by paddy straw bale reached to more than 550 ha from Nil. Similarly total village where this technology has spread is 40. Farmers have even started collecting loose straw for sale.

4. REFERENCES

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