

SUGARCANE BUD CUTTING MACHINE

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ABSTRACT

Sugarcane is a fast growing field of agriculture. Sowing of sugarcane buds in field is laborious and time consuming. Not maintaining uniform distances between the buds and varying the depth while sowing manually, may result in less productivity.

Keywords: Cutting Blades, Guiding Studs, Sugarcane Bud Cutting Machine.

I. INTRODUCTION

Sugarcane cultivation and the development of a sugar production industry run in parallel to the growth of human civilization and are as old as agriculture. In addition to being the third most important cash crop in India, sugarcane ranks third in the list of most-cultivated crops, coming after paddy and wheat. India is one of the largest sugarcane producers in the world, producing around 300 million tons of cane per annum.

The production of sugar is the second largest agro-processing industry in the country, after cotton and textiles. India has more than 566 sugar mills. About 4 million sugarcane farmers and a large number of agricultural laborers are involved in sugarcane cultivation and ancillary activities, constituting 7.5% of the rural labor force. In addition, the industry provides employment to 500,000 skilled and semi-skilled workers in rural areas.

The sugar industry thus is a focal point for socio-economic development in rural areas, mobilizing rural resources, generating employment and higher incomes, and supporting the development of transport and communication facilities.

1.1 Importance of Sugarcane

Sugarcane is a most important cash crop of India. It involves less risk and farmers are assured up to some extent about return even in adverse condition. In agriculture sector, sugarcane shared 7% of the total value of agriculture output and occupied 2.6% of India's gross cropped area during 2006-07. Sugarcane provides raw material for the second largest agro-based industry after textile.

About 527 working sugar factories were located in the country during 2010-11 with total crushing capacity of about 242 lakh tonnes.

The sugar industry is an instrumental in generating the sizable employment in the rural sector directly and through its ancillary units. It is estimated that about 50 million farmers and their dependents are engaged in the cultivation of sugarcane and about 0.5 million skilled and unskilled workers are engaged in sugar factories and its allied industries.

The sugar industry in India has been a focal point for socio-economic development in the rural areas by mobilizing rural resources, generating employment and enhancing farm income. Some of the sugar factories have also diversified into by-products basis industries and have invested and put up distilleries, organic

chemical plants, paper, ice board factories and cogeneration plant.

II. SUGARCANE BUD CUTTING PERFORMANCE

In this technique, fertile soil is filled in one kg. Polythene bags, small holes made in the bottom portion of polythene bag for aeration, single bud cuttings made from top one third portion of seed cane stalk, planted horizontally with bud position upward in top one fourth soil portion and covered with thin soil layer followed by applying water with a watering cane. Alternatively, polythene bags are placed in a ploughed up field plot and irrigation water applied through surface irrigation.

In this technique, the germination is almost 95% while in direct vegetative seed cane planting in the field, the germination hardly 40-50%. These pre germinated shoots in polybags are ready for transplanting in the field 30 days after planting by which time they attain 4-5 leaf stage. The poly cover is removed with a blade at the time of transplanting and the plantlets along with the earth ball placed in a mini pit made in the furrow and filled with soil and irrigation water applied. With this technique, only 20 qtl.

Seed is sufficient to transplant one hectare area while in normal direct sett planting about 75 qtl. Seed is required. Therefore, there is significant saving of seed cane with this technique.

This technique has particularly been found very useful for quick multiplication of seed of new promising varieties, replanting of ratoons and filling of gaps. It is also useful for late planting of sugarcane after wheat harvesting in April-May. Seed rate in sugarcane varies from region to region.

Generally higher seed rate are used in north western India (Punjab, Haryana and Rajasthan) because of the lower germination percent and also adverse climatic condition (very hot weather with desiccating winds) during tillering phase. A northern region seed rate generally varies from 40,000 to 60,000 three budded setts per hectares while in southern region it range between 25,000 to 40,000 three budded setts. Effect of row spacing from 45 to 120 cm has been tried on growth, yield and quality of sugarcane. Optimums inter rows spacing range between 60-100 cm under different situation and location.

About 80% of the sugarcane roots go up to a depth 60 cm. Hence deep ploughing of sugarcane fields is necessary.

Initially one or two deep ploughings with tractor drawn disc plough or mould board plough or animal drawn mould board plough have to be done at least to a depth of 30 cm. This has to be followed by ploughing with other light tillage implements.

In sugarcane bud is cut in small pieces as shown in figure guider are provided for cutters by using that sugarcane is push in below cutter then see the useful part is in between that two cutters and then by pedal apply force on cutters because of that sugarcane bud is cut and we got the useful sugarcane bud and waste sugarcane bud separately. From sugarcane bud guider useful sugarcane bud is coming out for planting in the farm.

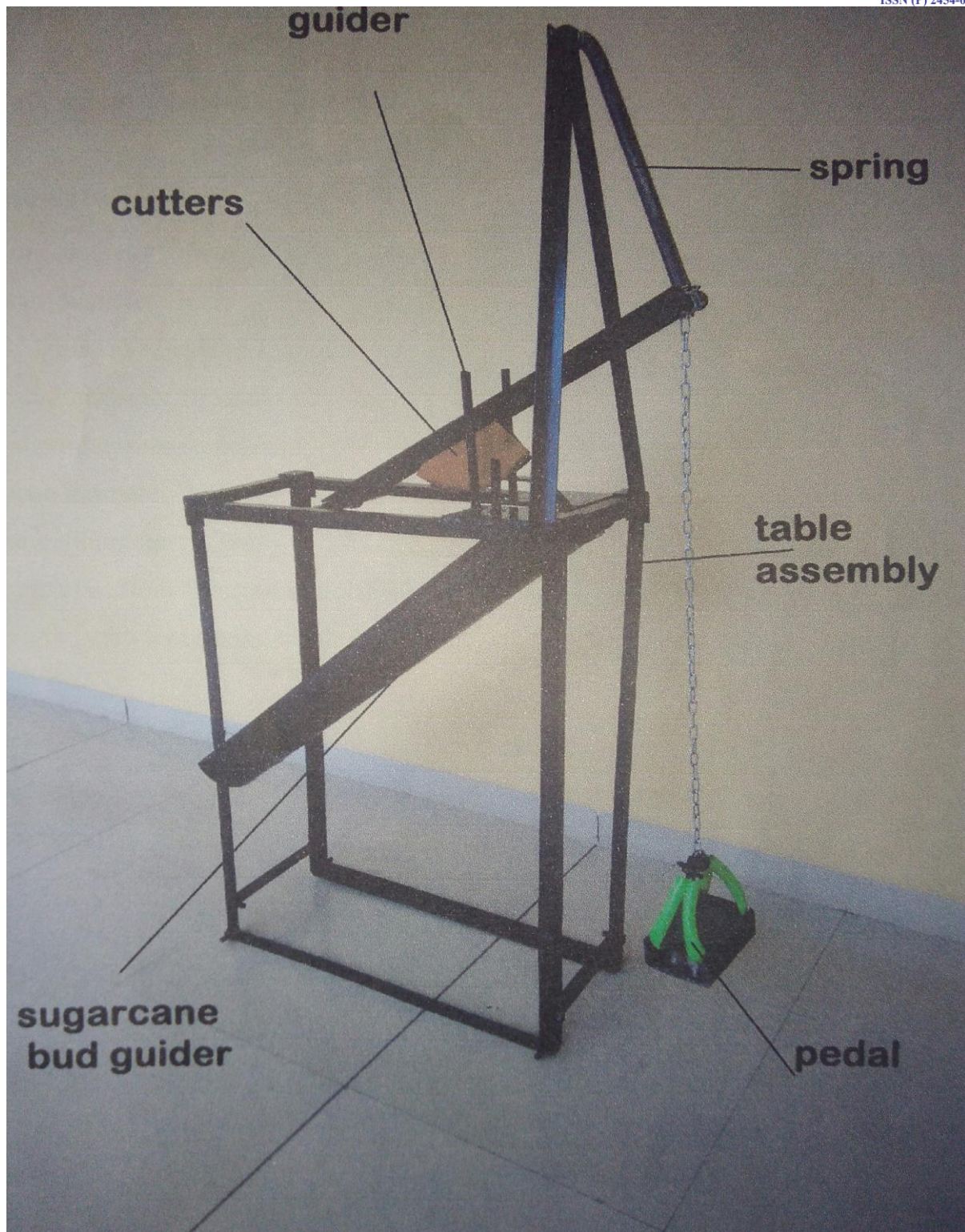


Fig 1: Sugarcane bud cutting machine



Fig 2: Traditional method



Fig 3: New method

III. ADVANTAGES AND DISADVANTAGES

3.1 Advantages

1. Save large amount of sugarcane bud from waste by plant in farm.
2. Initial cost of machine is very low.

3. Easy to handle for unskilled persons for e.g. farmers and labors related with farm.
4. Saved sugarcane bud used for fodder, pasturage for animals.
5. Electricity or any other costly energy is not required fully manual operated machine.
6. Sugarcane bud cutting operation is very fast as compare to traditional system of sugarcane planting.
7. Maintenance cost is negligible.

3.2 Disadvantages

1. Sharpness of cutting blades reduces after some weeks for that sharpness requirement is time to time.
2. Man force is required.

IV. CONCLUSION

The sugarcane bud cutting machine is very useful to small scale farmers to planting sugarcane bud. Also time is saved by this process as compare to the traditional system of sugarcane bud plant .Extra piece of sugarcane bud is waste in small scale farm that can be saved by using sugarcane bud cutting machine that can be used as a fodder for animals.

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