

A new Invention

Wholecane Harvester

(for Harvesting Sugarcane)

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Introduction

Senzo Group of Companies has developed over 300 specialized machines in the last few years of which 27 are patented. We are also strong in Research & Development and have come out with new products regularly.

- The collapsible bridges and Swaptadwaras at Tirupati Temple are widely appreciated as engineering marvels.
- We have just completed an automated Condom Testing & Rolling machine, Rubber Tapping Machine the only one of its kind in India with strong export potential, as well.
- We have also developed a very useful technology to Convert Municipal Waste to Energy and a plant setting up is being negotiated.

For the Sugar Industry, we have developed Sugarcane Sampler to measure the sucrose content in the sugarcane for payment of remuneration to the farmers for their supply of cane to the mills.

After watching the performance through Video, Renuka Sugar, Vasantdada Sugar Institute, Pune and many mills in India and also from Brazil, Kenya, Thailand etc persuaded me to develop Sugar cane Harvester

Accordingly, we developed the Harvester in record time which is unique in features and functions

Background....The Issue

Sugarcane Harvesters: As awareness dawned on farmers there is a steady demand for Harvesters

Harvesters are of 2 types as follows:

Chopper Harvesters –Which is Available today	Whole Cane Harvesters- The Product (we would like to introduce)
The harvester cuts the stalk in to pieces (5 to6 pieces- multiple cuts) and then loads in the vehicle for transportation	Harvester cuts the stalk at the base, cleans the cane and loads in the transportation vehicle in its full length (two cuts- one piece)
Chopping process accelerates sugar deterioration because of : <ul style="list-style-type: none">• Easy access of bacteria through scratch, failure points and more cutting surface area exposed to atmosphere.• The sugar loss due to deterioration is depending on atmospheric temperature, humidity and time between harvesting and crushing.	This results in avoiding sugar loss and weight loss which is substantial-as cutting the stalk into small pieces is avoided The increase in Sugar productivity is considerably higher

Technical Details- As agreed by Sugar Experts from Vasantdada Sugar Institute (VSI), Pune

- The weight loss in chopper harvester is 2.7% as compared to 1.94% in whole cane harvester in 24 hours. Therefore almost 0.76% more weight loss is observed in the chopper harvester cane.
- There also substantial juice loss during cutting and chopping operations as cane juice came out from the torn cells. This cane juice loss leads to the reduced sugar recovery and higher effective cost of operation.
- From experts experience the recovery loss in chopped cane is likely about 0.05% to 0.1% on cane; against the whole cane.

Calculations -Sugar Experts

- If we calculate this sugar loss, taking lowest side figure it works out Rs. 17.50 per tonne of cane for Sugar price @ Rs.3500 per Qtl.
- For cane crush of one lac MT, this sugar loss in terms of money will be Rs. 17.50 lacs.
- In India the average capacity of sugar mill is 5000 TCD. The 5000 TCD factory is crushing 8 lacs MT sugarcane in one crushing season.
- **Then, this loss will be Rs. 17.50 lac x 8 Lac. MT = Rs.1.40 Crores for one season.**

To find a solution to this practical problem of reducing Sugar loss this Whole-cane harvester is developed

The whole-cane harvesters like ours have distinct advantages over the harvesters available in the market at the moment

Advantages:

- Unlike a few in the market which harvests only single row, our design of the whole cane harvester tackles 2 rows/both sides simultaneously at a much faster rate.
- Our harvester also cleans the cane stalk by stripping of leaves and brushing before loading.
- No other competitor, as the market is currently supplying only chopper harvesters with their inherent disadvantages.

Working of Harvester

- The four circulating rollers fitted in front of the harvester will pull the cane stalk on both sides including the fallen ones from the top.
- Simultaneously the cutting discs fitted below cuts the stalk at the base and pushes the cane towards the belt drive mechanism fitted both sides which take the cane further towards the top cutter which would cut off the green top.
- The cane stalk then travels through a conveyor and gets lifted vertically through rollers and then passes through cleaning mechanism consisting of rolling brushes and strips the leaves off and cleans the cane.
- The cleaned cane then gets deposited on the on-board container and stripped leaves are blown off with a blower towards the field as fertilizer

The Product. And Possibilities

With this invention the opportunities seen are:

- A **new technology** -highly efficient product for the sugar cane farming sector, which increases sugar productivity

For Farm Mechanization Business.

- First and only company in the region to manufacture and sell the whole-cane harvester
- Costs will be on par or even less than the available harvester in the market- higher profits..
- The design is such that the new whole cane harvester is powered with the use of two Tractor Engines-which are already available products with Mahindra

There is a sure global market potential for this new technology

Looking forward to a buy-in on this product

Thankyou!