

Design And Development Of Thrusters For Groundnut

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Abstract: Agriculture is the backbone of India. Without farmers our live hood is more difficult. At present there is a lot of demand for agriculture workers and harvesting cost is very high.so the farmers are not involved in cultivation of groundnuts. The harvesting of groundnuts is very expensive and need a lot of time. Our groundnut thruster reduces the workers needed for harvesting and time consumption is low. The farmers will get more profit. Hence solar power is used which is freely available.

1. INTRODUCTION

As we groundnut is the one major cash crop in India. Major problem is stripping of groundnuts from the plants, traditional groundnut harvesting involves the large numbers of workers.by using their hands they strip the groundnuts. The harvesting efficiency is very low.this groundnut thruster will help farmers easier to harvest the groundnuts. The main mechanism used here is mechanical rotation. This method is more eco-friendly method. Hence cylinder with spikes is attached to a drum. Hence, the drum rotates the pods gets removed. This method is very cheaper. Hence minimal workers are needed for harvesting of groundnuts

Problem identified

- Too much time is required in traditional method
- Labour requirement is very high
- Efficiency is low
- Harvesting cost is high

Main objectives

- The main objective is to develop low cost groundnut thruster will help the farmers to harvest groundnut crops
- To get more profit
- Time required to cultivate is low
- Farmers can earn more profit

Main components used in groundnut thruster are as follows:

Cylinder spikes

A drum with spikes arrangement is used for the purpose. The spikes like structure are fitted with the roller. The motor rotates, the spikes fitted on the roller rotates, when the bunch of groundnuts are inserted into spiked groundnuts, the groundnut pods are separated

Universal motors

The universal motors are used for the purpose.it runs at the speed of 1440 rpm. The ends are sealed to ensure smooth operation. Shaft is made of mild shaft and grinded to close tolerance.to reduce the core the thin lamination is wheproduced.die cast rotor is used for the purpose. The roller is rotated by the electric motor using the belt drive.

Output=240 volts

Current=4.5 amps

Output power=0.39kW/0.5 HP

Hopper

Hoppers are used to contain the groundnuts before thresting.it supplies the groundnuts to crushing unit of the groundnut thruster.after the thrushing process the groundnuts are collected in the collecting trayer.

Fan

The fan is placed before the collecting trayer. The sand and other solid particles are removed.so that clean groundnut pods are collected in the trayer.

Belt

Belt is used to connect the rotating roller and the motor.it transmits the rotational power to the roller.

Working



Fig:1

The roller inside the cylindrical drum is rotated by the electric motor. the roller is start rotating.the roots of the groundnuts bunch are inserted into the cylindrical drum through the hopper.the groundnuts pods are gets separated, the soils particles are blown away by the fan, the clean ground pods are collected in the trayer.

CONCLUSION

Hence the cost of this groundnut thruster is very low.this invested money can be taken away by the farmers, this machine can reduce the labour crisis, the labour cost is very much reduced, only one workers is used for operation, the time consumption is low when compared with the manual thresting method

Advantages

- Labour required is very low
- Efficiency is very high
- Thresting time is very low when compared with the manual methods.
- Shelling cost is low

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