

A Review on Manufacturing of Groundnut Separating Machine

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ABSTRACT: Groundnut is grown on small scale by farmers in developing countries like India. Lack of groundnut processing machines at affordable cost, especially groundnut Sheller, is a major problem of groundnut production. The groundnut Sheller machine available in the market is large in size & costly & not suitable for domestic purpose. The machine is fabricated by locally sourced material. The major parts of machine are hopper, crushing chamber, separating chamber & blower. The processes involve in the project are like design, fabricating & assembly of different component

KEYWORDS: Design & fabrication, groundnut separating machine, locally sourced material

I. INTRODUCTION

India is an agricultural based country. Since last 50 year's lot of changes has been occurred in agriculture sector. Many new agricultural based industries have been started new varieties and species of plant have been discovered. In our country most of the people can be depend on the agriculture sector/field. The Groundnut is one of the product in the marathwada-nashik region. The product in the farm, in abundant quantity. There is lot of time waste in old method of groundnut pod separating. The time required for 1 Kg of groundnut pod separating from this groundnut is about 1 to 2 hours. So we have we have produces new machine for fast groundnut pod separating. In the Marathwada region people collect the groundnut from the groundnut plant directly for pod separating purpose. The ground spreads on the ground and the pod of groundnut can be separated manually. Because of this method lot of time waste takes place as well as due to striking process some ground nut can be brakes of damage. But by using the groundnut pod separating machine we separate the pod from groundnut efficiently and large quantity in very less time. So we increase the work capacity and saving the time efficiently & effectively. So our machine in very useful to separating the pod from groundnut.

II. LITERATURE SURVEY

Shelling is the removal of grains from their pod either by stripping, impact action and rubbing or any combination of these methods[4].the most popular method of groundnut shelling, which is still widely used in the method of crushing or pressing of pods in between the thumb and the first method has low efficiency, it is time consuming, and has high demand of energy [4]. Groundnut shelling machine is a machine used to remove the shell of groundnut so as to obtain the groundnut seed[3]. The are different machine have been fabrication and used to shell wide variety of groundnut pods[4].The machine are too costly and complex in operation and maintenance .The lowest price is 13000/- some of these machine have very high shelling capacity, shelling capacity varies from machine to machine ranging from 6kg speed/h to 60 kg speed/h same hand Sheller machine are suitable are domestic application but they only do shelling operation. , separation of seeds we have to do manually by using traditional methods such as by using natural wind or by using sieve. A simple hand operated groundnut Sheller has a semi-cylindrical screen closed on both sides. A shaft carrying a lever at one end is fixed across the centre of the semi-cylinder as shown in the Fig.1 (a). On the lever is a pair of plate with shoes or beater bars, having blunts on their undersides. For successful operation of the machine, the operator stands by the side, then holding the operating lever (handle) and swinging it by pushing to and fro to provide shelling action on the shoes assembly [4]. The semi-rotary, action of the shoes shells the pods against the screen but this type of machines cannot do separation of shell and seed.

III. OBJECTIVE

- The main and basic objective is to make low cost groundnut shelling and separating machine.
- The machined shell maximum possible groundnut in shortest possible time.
- The machine should not damage the peanuts in according to earn profit.
- The cost of a machine should be affordable to the farmers.
- The space required by the machine should be less. It should be kept within the land.
- The machine should not have high weight. It should be easily move anywhere.

IV. CLASSIFICATION OF GROUNDNUT SHELLER MACHINE

Groundnut Sheller machines are classified based on the following factors

a. Based on the power source

Based on power source, groundnut Sheller machines are classified in to two types.

- Manually operated
- Mechanized shelling method



Fig.1 Power operated groundnut Sheller Machine

V. COMPONENTS& SPECIFICATIONS

- Frame
- Electric motor
- Roller
- V-Belt
- Pulley
- Fan

5.1Frame

The frame is used to support all the components. Material of frame is cast iron and height up to 1m.



Fig.2 Frame

5.2 Electric Motor

This motor is used to rotate the roller by using belt and pulley.

Output = 230 volt

Current =3.5 amps

Power =0.37kw/0.5 HP



Fig.3 Electric motor

5.3 Roller

Roller is made up of hollow cylinder of 1ft dia. and 1ft length with the rods welded on its periphery.



Fig.4 Roller

5.4 V-Belt

V-Belt is used to transmit rotary motion of shaft of motor to the shaft of roller. Material of the belt is rubber or polymer for strength and reinforcement.



Fig.5 V-Belt

5.5 Pulley

Pulley is used to transmit the torque of motor to the roller. One pulley is directly mounted over the motor shaft and another pulley mounted on the shaft of roller. And both the pulleys are connected with the help of V-belt. Pulley Dia. =75mm.



Fig.6 Pulley

5.6 Fan

Fan is mounted on the shaft of the motor just in front of pulley at some distance. This fan separates the shell and the peanuts

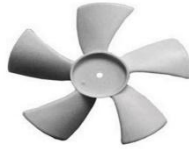


Fig.7 Fan

VI. CONCLUSION

1. The agriculture is the basic profession of vast of population world-wide .Some modifications can be done in this machine and it will be used over long scale.
2. This machine provides better help to farmers so that they can get proper income of their crop. The scope in agricultural field is tremendous.
3. It will definitely be a vast sector to work on to minimize man power and improve efficiency of operation, decrease cost of operation, decrease efforts.
4. Use of solar energy instead of electrical energy to operate machine

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