

Design And Fabrication Of Groundnut Thresher

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Abstract:

In India, Agriculture is the backbone. In country like India, groundnut is grown on a small scale by farmer. The major problem in groundnut production in country like India is the lack of groundnut processing machines available to farmers. In the beginning the groundnut pods were separated from its plants by the workers. They simply remove groundnut pods by their hands and separate from the plants. The output got from this method, was very low because it was very time consuming process. It was also a boring work for the worker. Traditional method of separating pods from groundnuts plants by hands. That the traditional method is not a sufficient method for separating the groundnut pods. Due to this manual process, identify some major problem & to overcome this problems some idea or concepts generates.

INTRODUCTION

Groundnut is the sixth most important oilseed crop in the world. The production of groundnut is concentrated in Asia and Africa (56% and 40% of the global area and 68% and 25% of the global production, respectively). 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 major seed crop. This product can cultivate 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 1/2 to 1 hour. So we have produces new machine for fast groundnut pod separating. The traditional manner of stripping groundnut pods is by removing by fingers or hitting the bunch of nuts with rods. Both the traditional methods cause injuries to the fingers of farm women and damage of nuts which can then be used only for oil expelling purposes. Stripping of groundnut in this manner needs 30 women labour per acre and it is tedious to the fam women. The fields need to be made wet the previous day with scant irrigation, so that the soil becomes loose and the plants along with the pods can be pulled out easily from the soil. Once plucked, the pods need to be stripped from the shell. Stripping the pods is a traditional practice done either by removing the pods manually or hitting the bunch with the help of rods.

OBJECTIVES OF THE MACHINE:

- I. To minimize the time for separating the groundnut pod from plant body.
- II. To minimize manpower. -To simplify the process.
- III. To improve efficiency of operation of separation of groundnut pods from plant body.
- IV. To develop a low cost machine this can be used by farmer
- V. It satisfies the need of village people to earn more money.

VI. The aim of project is to design & develop a low-cost groundnut pod separator which will help farmer to reduce time required to separate groundnuts.

VII. To reduce human efforts. -To increase efficiency and get more profit.

VIII. To reduce high requirement of labours.

MATERIALS USED

1. Electric Motor



SPECIFICATIONS		
SL NO	PARAMETER	VALUE
1	MAKE	SPN INDUSTRIES, COIMBATORE
2	TYPE	A C MOTOR
3	VOLTAGE	200/220V
4	PHASE	1 / 50 HZ
5	kW	0.75
6	HP	1.0
7	RPM	1440
8	AMPS	6A

1.Shaft

2.Pedestal Bearing

3.Sprocket

4.Chain

5.Sprocket Key

6.Sheet Metal

7.L-angle

8.Flat Rod

9.Stabilizer

10.Electric Wire

IDENTIFICATION AND JUSTIFICATION OF PROBLEM

In country like India, groundnut is grown on a small scale by farmer. The major problem in groundnut production in country like India is the lack of groundnut processing machines available to farmers. In the beginning the groundnut pods were separated from its plants by the workers. They simply remove groundnut pods by their hands and separate from the plants. The output got from this method, was very low because it was very time consuming process. Traditional method of separating pods from groundnuts plants by hands. That the traditional method is not a sufficient method for separating the groundnut pods. Due to this manual process, identify some major problem & to over-come this problems some idea or concepts generates.

VILLAGE/STUDY AREA/LOCATION

The problem was identified in the Nandana Gardens of Kalpakkam, tamilnadu. In which they have grown groundnuts for more than 50 acres. The most problem was availability of labour and cost incurred to separate Pods.

DESCRIPTION OF PROBLEM

The lot of time is required in old method of groundnut pod separating. The time required for 1 Kg of groundnut pod separating from this groundnut is about 1/2 to 1 hour. So we have fabricated new machine for fast groundnut pod separating. In traditional method groundnut pods are removing by fingers or hitting the bunch of

nuts with rods. Both the traditional methods cause injuries to the fingers of farm women and damage of nuts which can then be used only for oil expelling purposes. Stripping of groundnut in this manner needs 30 women labor per acre and it is tedious to the farm women.

BRIEF DESCRIPTION OF INNOVATIVE SOLUTION

Stripping is done by holding the pod portion of a bunch manually over spiked cylinder. It is suitable for stripping of groundnut pod from the harvested crop. It saves 60 percent labour and pod separation time which ultimately reduces the cost of cultivation. The vines are not fed into the machine, so that the fodder value of the crops can be maintained and used in lean season also. Though there are several models of groundnut pod stripper available in various research institutes, this particular machine has the advantage of running on 0.25 HP electrical power, stripping and winnowing are done simultaneously and is portable. By using this machine a farmer can harvest an acre area of groundnut in two or three days by engaging family labourers alone. On-farm testing was conducted by Nandana Gardens in order to study the performance and suitability over the existing models. Stripping efficiency of the machine was tested in various farmers' fields and found that 99 percent and the harvested pods are clean and it was noticed that there were no broken pods at the time of stripping. It reduces the labour dependency/engagement of farm labourers up to 60 percent which ultimately reduces the cost of stripping operation by around Rs 2400 -3000 per acre. The family members themselves operate this machine and complete the stripping operations in 2 – 3 days. It also reduces the drudgery of the women labourers and it can easily be transported even on a bicycle.

TARGET BENEFICIARY GROUP

Since the groundnut is one of the major crops in

some of the states, the farmers can use this machine to reduce time and cost of the machine. Even small and medium class farmers are able to buy this machine.

IMPLEMENTATION AND OUTREACH PLAN

1. Visit to farmers in their villages where groundnut production is more
2. Demonstrating our model to the farmers
3. To make understand to farmers about reducing labour cost
4. To explain the efficiency of the machine
5. To explain about accessories for machine like inverter during power cut off and blower for removal of dust

FINANCIAL IMPLICATION FOR THE VILLAGE

- The time required for 1KG of groundnut pod separating is about 30 minutes to 1 hour. Due to more time consumption village areas are facing problem in lack of time. This reason is a major drawback of earning money in a short period.
- Stripping of groundnut pods in old manner, it takes up to 15 labours per acre, where the FARMER must pay the labours. Which affects in making much profit
- By using our model, 1KG of groundnut pods can be separated within 3 to 6 minutes, where labours can be eliminated and also time consumption can be reduced, hence the labours are eliminated, owner need not to pay the labours, that helps him to make much profit?

- This model is also available at low cost, which helps Poor Farmers to afford it. Maintenance cost of this model is very Low.



CONCLUSION:

This model is very helpful, especially for poor farmers



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