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## DESIGN AND ANALYSIS OF CROP CUTTER

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**Abstract:** This title presents the concept for design and analysis of crop cutter. The crop cutting is important stage in agriculture field. Currently in India former used conventional method for crop cutting i.e. the conventional method for crop cutting is as manually cutting using labour but this method is lengthy and time consuming. This project aim is to design and analysis of small field crop cutter machine for small height crop. It helps to reduce farmer's effort and to increase rate of cutting crop. The machine of consist of petrol engine and different mechanisms are used in this machine. When compare to manual crop cutting by using this machine has a capacity to cut the crop in faster rate and storage economical. This machine is helpful for both the small as well as big farm.

**Keywords:** Manual method, Mechanized method, Peak working, Crop cutting.



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## INTRODUCTION

Agriculture is the backbone of India. In India agriculture has facing serious challenges like scarcity of agricultural labour, in peak working seasons but also in normal time. This is mainly for increased nonfarm job opportunities having higher wage, migration of labour force to cities and low status of agricultural labours in the society. In India two type of crop cutting like as manual method (conventional method) and mechanized type of crop cutter. The crop cutting is important stage in agriculture field. Currently Indian former used conventional method for crop cutting i.e. cutting crop manually using labour but this method is very lengthy and time consuming.

To design and analysis the crop cutter machine which is help to the Indian former which is in ruler side and small farm. It will reduce the cost of crop cutting in field. It will help to increase economical standard in Indian former. The design of the crop cutting machine will be presented by using PRO-E drawing software.

## RELATED WORKS

Various approaches have been proposed for improving mechanized type of crop cutter in agriculture field. Designing a reaper machine to harvest grains more efficiently. The research work focusing on harvesting operation to the small land holder to cutting varieties of crop in less time and at low cost by considering the factor as power requirement, ease of operation , field condition , time of operation and climatologically condition. By the study Mr. P. B. Chavan, Mr. D. K. Patil, Mr. D. S. Dhondge (1)

To increase the productivity and profit. How to cutting reduce the cost and how to solve the problem comes from workers. It is fabricated for cutting various crop varieties during the time cutting to the "FABRICATION AND PERFORMANCE TEST OF AN ULTRAPORTABLE CROP CUTTER by G Maruthi Prasad Yadav , GMD Javeed Basha (2)

This fabrication model small scale sugarcane harvesting machine consists petrol engine and mechanisms are used in this machine to compare to manual harvesting by using this machine has capacity to cut sugarcane in faster rate and economical. This study done by the Adarsh J Jain, Srinivas Rarod, Vinay N Thotad and Kiran (3)

In this research work was made to investigate the cutting energy and force required for the pigeon pea crops. The commercially available blade it has been attached to the lower end of the arm of pendulum type dynamic tester which cut the stalk at 90° to the stalk axis with knife velocity ranging between 2.28m/s to 7.23 m/s the diameter of stem at 42.6 % (wb) moisture

content. The cutting force is directly proportional to cross sectional area. The stem cutter was designed and developed by Atul R. Dange, S. K. Thakare, I Bhaskarao and Umarfarooq Momin. (4)

## PROPOSED SYSTEM

### FIELD SURVEY

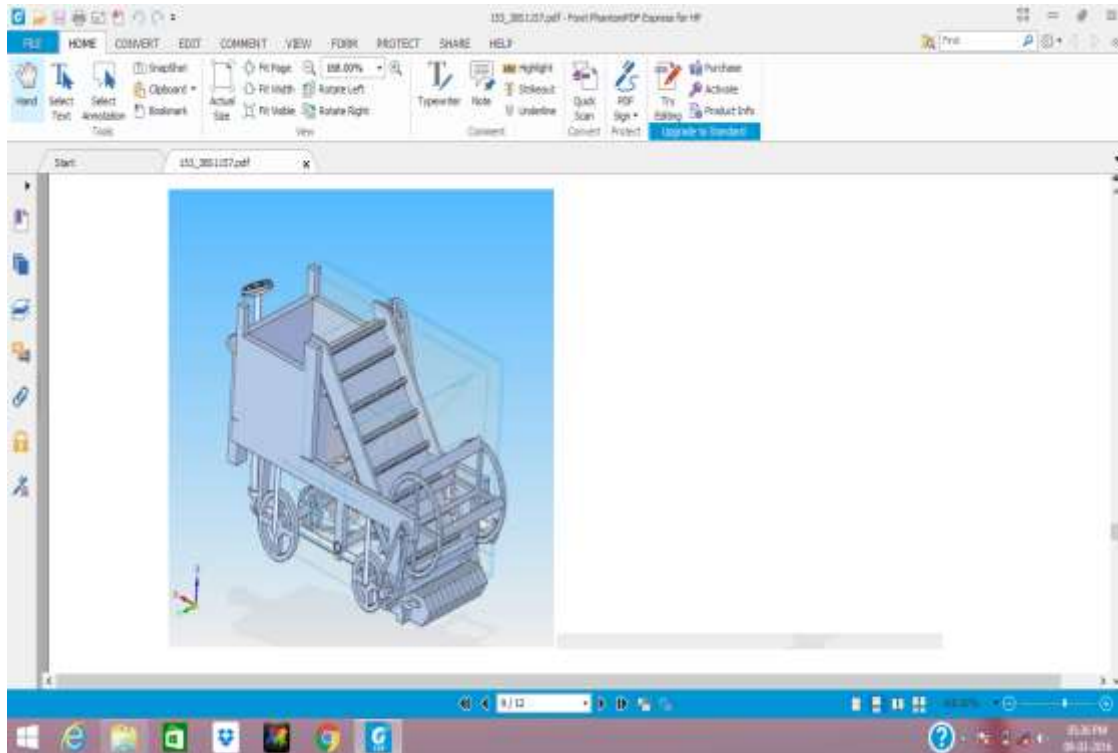
Present method of Crop cutting

- Manual methods of crop cutter.
- Crop cutting by using mechanized.

To the cutting and threshing machine for seed separation this method the crop are removed as mentioned in the traditional method. These method crops are tied together to form a bundle. These bundles are gathered and taken to threshing machine. This machine separates the seed from the crops.

- Combine crop Cutting Machine

The combination of crop cutting machine is to combine the three operations like as cutting, reaping and winnowing into a single process. The combination of crop cutting machine most of the economically labor saving.



## METHODOLOGY

Methodology is the systematic, Theoretical analysis of the methods applied to a study or to the theoretical analysis of the method and principles associated with branch of study.

1. Studying the present mechanisms.
2. Field Survey.
3. To identifying the potential problem
4. Problem definition.
5. Literature review.
6. Design of crop cutter
7. Calculation
8. Analysis using FEM method.
9. Fabrication.

## OBJECTIVE

- It should require less man power.
- Design should be 'simple' to operate and safe.
- It should have 'low cost of maintenance'.
- The design should be Robust and Reliable.

## CONCLUSION

The crop cutting machine to develop is just concept. It innovative three stage crop cutting machine like as cutting the crop, Reaping, and winnowing. The machine can be run on petrol engine .the machine operated by single labor. The machine will eliminate the labor problem in peak session for crop cutting period. This machine is helpful for the both the small as well as big farm.

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