

Design and Fabrication of Multipurpose Machine for Agriculture

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Abstract

The main purpose of the education is to serve the people and enhance the engineering ideas in their daily applications. As we all aware of that agriculture is the backbone of our nation, we have to apply our ideology to improve it. In agricultural field, farmers who are poor in economical condition were able to sow the seeds and spray the pesticides manually. So, in our project we are using a combination of seed sowing, seed spraying and pesticide spraying operations which can be done in a single stretch. The main aim of our project is to reduce the burden of the farmers. Here, there is no usage of fuel so that the machines consuming fuel can be neglected by replacing our equipment. It is available at low cost comparatively buying fuel and electricity consuming machines. This machine is multi tasking because it can able to do more than one operation.

Keyword — seed sowing, seed spraying, pesticide sprayer, v-cutter, sand closer, hooper etc.,

I. INTRODUCTION

The history of agriculture records the domestication of plants and animals and the development and dissemination of techniques for raising them productively. Agriculture began independently in different parts of the globe, and included a diverse range of taxa. At least eleven separate regions of old and new world were involved as independent centers of origin.

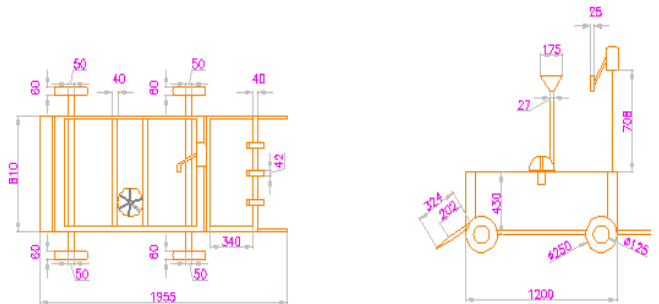
II. REASON FOR USING MULTI PURPOSE MACHINE

- ❖ All the machines which are in existence can do only one operation
- ❖ Eventhough some machines are available as multipurpose uses but they all are require a fuel for working.
- ❖ But this machine doesn't require any sort of fuels for its working.
- ❖ So it is available at low cost for the farmers

III. DESIGN OF THE MACHINE

By using the AUTO CAD software we designed the machine. First of all we calculated the

average man height we got the average height of the man is 1.7 meters and women is 1.6 meters. This machine can be easily handled by both the men and women without any barrier.



IV. FABRICATION OF THE MACHINE PARTS

A. V Cutter

The V- cutter is the important part which is used to remove the upper layer of the sand. It is kept in inverted position so that the seeds can be fall easily. It can be kept in rest position by a rod when there is no usage of the cutter.



B. Sand Closer

It is another part of the machine which is used to close the already digged sand by the v-cutter for sowing the seed. It is placed at the back side of the machine which is rectangular in shape so that the sand can be closed easily.



C. Seed Sower

The seed sower is the device which sprays the seeds to the V-cutter. It collects the seeds with the help of funnel. The seeds are transmitted with the help of tube which connects funnel and seed sower.



D. Seed Sprayer

The seed sprayer is the part which is used to spray the seeds. It is made up of Nylon so that it occupies less weight in the machine. The seeds fall in the sprayer with the help of funnel.



E. Hoopers

The hopper is used as a dropping agent for the seeds because with the help of only the seeds can be sprayed and sowed easily.



F. DC Pump

The DC pump is used to spray the pesticides from the tank to the field with the help of nozzle. The power supply for the DC pump is 12V and it is driven by the DC battery.



Final fabricated machine:



Future scope of the project:

- This project can be developed in future with the help of budding engineers. The areas which can be developed are:
- The machine now is semi-automatic which comprises both man and automatic movements of the machine.
- Later, it can be developed fully by automatic.
- The V-cutter in the machine can able to cut only one pathway for the seeds to sow
- Later, it can be developed into multi cutter to form multi pathways on the ground.
- The seed sower in the machine is kept only one setup which can put single seed continuously.
- Later, it can be developed to attach more than one seed sower setup such that many seeds can be able to put in different pathways.
- The project can also be developed by attaching harvesting setup with more power backup.

ADVANTAGES

- Cost wise by comparing to those three machines this one is low cost.
- Farmers don't need to buy a machine for a single operation.
- Time consumption also is reduced by using this machine.
- This machine is semi-automatic so it is eco-friendly.

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