

# Seed Sower Mechanism

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**Abstract-** Agro-technology is the process of applying the technology innovation occurring in daily life and applying that to the agriculture sector which improves the crop produced and also develop a better mechanical machine to help the agriculture field which reduces the money and time of work spent on one crop. The agricultural has always been the backbone of India's sustained growth. The population of India continues to grow, there is a greater need for multiple cropping in the farms and we require efficient and time saving machine. Hence we decided to design a better mechanical machine which can shovel the soil, sow and seed the crop at the same time. Thus, this project is concerned with the design and fabrication of a seed shower machine, which can be specifically used for wheat crops, ground nuts.

**Index Terms-** Open shovel, Close shovel, Rotating disc.

## 1. INTRODUCTION

As we know economy dependency of our country is on agriculture. As India is agricultural country about 65 percent of peoples are farmers. In recent scenario number of changes are occurring in agriculture methodology like seed sowing, pesticides and irrigation. For developing our economic condition. it must necessary to increase our agricultural productivity and quality also. Out of them Seed plantation is one of the most important and day-today job of the farmers. The conventional method for seeding is manual one but it requires more time and more efforts.

The major occupation of the Indian rural people is agriculture and both men and women are equally involved in the process. Agriculture has been the backbone of the Indian economy and it will continue to remain so for a long time. It has to support almost 17% of world population from 2.3% of world geographical area and 4.2% of world's water resources. The present cropping intensity of 137% has registered an increase of only 26% since 1950-51.

The net sown area is 142 Mha. The basic objective of sowing operation is to put the seed and fertilizer in rows at desired depth and spacing, cover the seeds with soil and provide proper compaction over the seed.

The recommended row to row spacing, seed rate, seed to seed spacing and depth of seed placement vary from crop to crop and for different agricultural and climatic conditions to achieve optimum yields and an efficient sowing machine should attempt to fulfill these requirements. In addition, saving in cost of operation time, labour and energy are other advantages to be derived from use of improved machinery for such operations. A traditional method of seed sowing has many disadvantages. This paper is about the different types of methods of seed sowing and fertilizer placement in the soil and developing a multifunctional seed sowing machine which can perform simultaneous operations.

## 2. AIM OF PROJECT

As we all know the main requirement in the industry or any firm is man power. So the main objective of our project is to reduce the need of man power.

- To achieve proper distance in two seed in seeding mechanism for proper nutrition and growth of plants.
- To make this machine which operate manually for small farmer.
- To provide this machine in lowest cost and light in weight.
- To adjust proper depth in variable soil in any whether condition.

The "Seed plantation" is one of the most important and day-to-day job of the farmers.

## 3. METHADODOLOGY

- To make agriculture project we follow this steps

- The first step is to go to the farmers and find the problems faced by them.
- The second step is to choose a problem.
- The third step is to visit to agriculture industry.
- The fourth step is to analyse the problem& their solution.
- The fifth step is the selection of Design of gear for proper seed distance.
- The sixth step is to find which mechanism is to suitable in lowest cost.
- The seventh step is to find all components we require in proper dimension.
- The eight steps are to start fabrication.
- The ninth step is to make proper balance sheet of work done.
- The last step is the testing of machine.

#### 4. COMPONENTS

##### 4.1 FLUTED ROLLER:

The fluted roller is fixed to the shaft with equal spacing between them. The shaft is connected to two wheels. The fluted roller consists of four mouths opened with the angle of 90degree. Two rollers are used in this machine with equal spacing.

##### 4.2SEED CARRIER:

Seed sower is attached to the frame with support of the two rods. The seeds are stored in the seed carrier. Seed carriers are placed under each fluted roller. It carries only limited number of seeds.

##### 4.3SHOVEL:

It consists of two shovels 1. Open shovel 2. Close shovel

##### 4.3.1Open shovel:

Open shovel is attached to the frame in front of fluted roller. Open shovel open or dig the sand or soil.



##### 4. 3.2Close shovel:

Close shovel is attached to the frame behind the fluted roller. Close shovel closes the sand or soil after sowing the seed.



##### 4.4FRAME:

It is rectangular frame which is connected to shaft with the use of clamp. It is the main part of the machine. It is made up of iron which having hallow cross section of length 90 cm and breadth 45 cm. It carries the seed carrier with the support of rods.



Fig 4.4

#### 4 WORKING OF SEED SOWER MACHINE

Steps involved in seed sower machine:

- Put the seeds in the box as per its capacity.
- When a pair of bull or two man pulls the machine, then the motion is transmitted to the fluted roller seed cup from shaft of the rotation of wheels.
- The fluted roller seed cup is having the arrangement of seed cut-off and roller to control the amount of seeds.
- Open shovel opens the furrows of the soil.
- Then, the fluted roller collects or take the seed from seed carrier. Then the roller continuously rotates.
- The seeds are fall from the roller due to gravity when roller cup in down position.
- The seeds are fall on the furrows of soil.
- The seeds will get placed in the furrows through the space. The close shovel will close the furrows of the soil.
- In this way, the seeds are placed in the furrows at proper distance and this machine maintains the proper row spacing.
- We can do more rows in one time based on the roller construction on the machine.

#### 4. 3D MODELLING IMAGES:

TOP VIEW

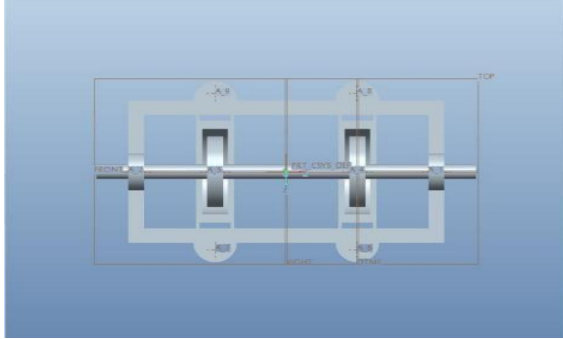


Fig 6.1

FRONT VIEW

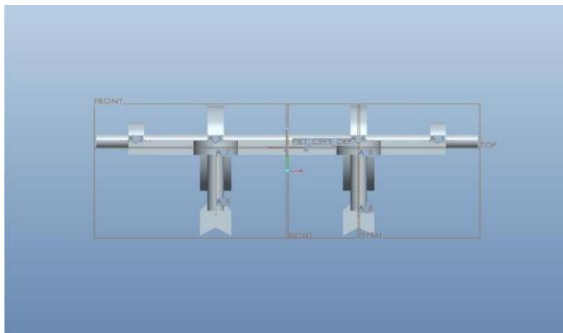


Fig 6.2

## 5 FABRICATION

- All parts of the seed sower machine were fabricated from mild steel material except the seed carrier.
- Seed carrier fabricated from sheet metal material.
- Roller fabricated from wood. Because roller is too difficult for fabricate in metals.
- Shovels fabricated from steel pipe.
- Shovels fixed to frame by clamps, nuts and bolts.
- Wheels were fixed to shaft by welded each other. The shaft was fixed to frame by bearing.
- Bearing welded on the frame by using clamps on both side.

### 5.1 FABRICATED MODEL



## 6.RESULT AND DISCUSSION RESULT

Hence after comparing the different the existing machine, it is concluded that the multi-purpose seed sowing machine can,

1. It Maintain row spacing and controls seed and fertilizer rate.
2. It Control the seed and fertilizer depth and proper utilization of seeds and fertilizers can be done with less loss.
3. It perform the various simultaneous operations and hence saves labour requirement, labour cost, labour time, total cost of saving and can be affordable for the farmers.
4. It can be improved in planting efficiency and increase in crop yield and cropping reliability.

## 7.ADVANTAGES AND APPLICATIONS

### 7.1ADVANTAGE:

Following are the advantages of manual seed planter machine are

- Improvement in planting efficiency.
- Increase in crop yield and cropping reliability.
- Increase in cropping frequency.
- It increased seed planting.
- It was made of durable and cheap material affordable for the small scale peasant farmers.
- Lesser maintenance cost.
- The seed can be placed at any required depth.
- The plant germination can be improved.
- Requirement of labour also decreased.
- It consumes less time for sowing.
- Seed can be placed uniformly in a row with required distance between plants.
- Provide proper compaction over the seed.

### 7.2APPLICATION:

- Seed sowing machine can fix with tractor and use for sowing seeds.
- Seed sowing machine can also fix with pulls.

## 8.CONCLUSION

We can conclude that our designed mechanical machine is advantageous over the existing machines in the following ways:

- The mode of operation is very simple even to the layman.

- It is more efficient than the present existing machines of this category and range.
- It is of low cost comparatively and accounts less than 50% of the existing costs.
- The maintenance cost of this equipment is very less as there are no delicate parts involved.
- By using this machine we get high accuracy in seeding.
- This machine used in any type of soil.
- In this machine we can vary depth of seed plantation for proper nutrients.
- Proper skill not required for operating this machine and easy to transfer.

#### 9. FUTURE SCOPE

- Connect the machine with the engine or motor.
- Introduction of Cutter in place of plow can be used as grass cutter equipment.
- Using remote control machine can be made automatic.
- Addition of multi-seed sowing can be attached side by side for sowing of large farm.
- Fertilizer carrier will fix with it.
- Water dripping unit could be included in seed sowing machine.

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