

SEED SOWING MACHINE

¹Mr. M. B. Mane, ²Mr. Shaikh Soheb A, ³Mr. More Makkuchand Y. Mr. ⁴Mane Nikhil D, ⁵Mr. Hegde Vishwajit N.

Head of the Department (Mechanical Engineering), SVSMD's KKI Polytechnic, Akkalkot, Solapur, Maharashtra, India¹, Student, Department of Mechanical Engineering SVSMD's KKI Polytechnic, Akkalkot, Solapur, Maharashtra, India^{2,3,4,5}

ABSTRACT

Sowing machine should be suitable to all farms, all types of crops, robust construction, also it should be reliable, this is basic requirement of sowing machine. Thus we made sowing machine which is operated manually but reduces the efforts of farmers thus increasing the efficiency of planting also reduces the problem encountered in manual planting. For this machine we can plant different types and different sizes of seeds also we can vary the space between two seeds while planting. This also increased the planting efficiency and accuracy. We made it from raw materials thus it was so cheap and very usable for small scale farmers. For effective handling of the machine by any farmer or by any untrained worker we simplified its design. Also, its adjusting and maintenance method also simplified

INTRODUCTION

The India is agricultural country. More than 70% peoples depend on the agriculture. To improve the economic condition of India, growth in the agricultural sector is important. To achieve this goal efforts are necessary to reduce the cost of farming process by mechanizing the agricultural operations.

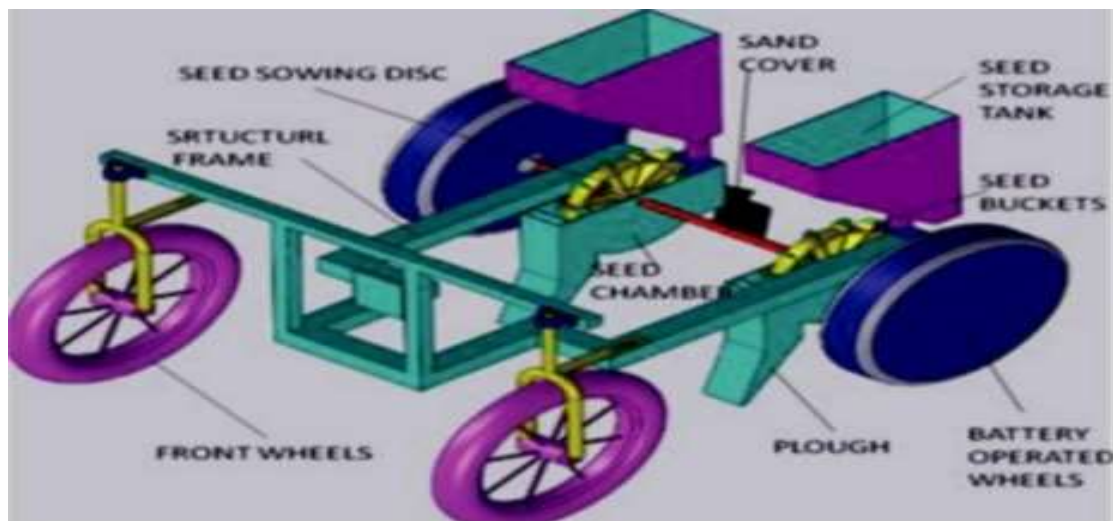
Manual seed planting is the one of the operation which is very time consuming and more labours are required for this operation. But this method have a drawbacks like low seed placement, variation in spacing and serious back ache for farmers.

Conventional seed sowing method is available but this has a lot of disadvantages like no control over the depth of seed placement, No uniformity in the distribution of seed placement, Loss of seeds, No proper germination of seeds. Also not useful for ridge and furrow method. Conventional seed sowing machines are not suitable for ridge and furrow method and large quantity of seed is necessary.

In this study focus is on to reduce the disadvantages of manual and conventional method and develop a seed planting machine which is suitable to plant seed at specific interval and also useful to plant seed in ridge and furrow method.

PURPOSE OF SEED PLANTER MACHINE

The objectives of seed planter machine are to put seeds at desired depth with constant seed spacing and covering the seed with soil. This machine is suitable for planting seed in ridge and furrow method, flat row method, flat bed method as well as multi cropping. The main objective of this machine is to reduce human effort and back ache of farmers.

I. 3D MODEL OF SEED SOWING MACHINE**CATIA drawing of the project****WORKING PRINCIPAL**

The working of the seed planter machine is described as follows:

When the force applied by the farmer on the handle of the seed sowing machine then the wheels are move towards forward direction. The wheels start to rotate with some specific rotation. Wheels are mounted on the metallic rod which is also rotates in the direction of wheels. Also the sprockets are mounted on the metallic rod which transmit the rotating motion of the wheel to the shaft of the bevel gear. Here, the chain drive is used to smooth transmission of the motion of the wheel to the bevel gear assembly. Bevel gears are used to the transmission of motion in perpendicular axis. For these bevel gears are connected perpendicular to each other. The function of the bevel gear is to transmit motion in perpendicular direction with same speed. On the shaft of the second bevel gear scotch and yoke mechanism is mounted transmits linear motion to the strip which controls the seed rate by opening and closing the hopper outlets. Strip stars to reciprocate with constant stroke by this mechanism. The seeds are stored in the hopper as per requirement. The flow of these seeds in the downward direction takes place due to gravity. When the strip reciprocates with constant intervals the holes of the strip and the hopper are gets matches and seeds flow through the holes. These flowing seed moves in the flexibal pipes and after that it comes in the back side of the dibber and sows in the soil. After that seeds are covered by triangular strip which is mounted back side of the dibber hole. It is necessary to give top priority for safety operation, Cost reduction. It is necessary improve the strength of the machine members such as dibber. Presently, full focus is given only to design modification in seed metering mechanism which is beneficial to the small farmers. At present, seed metering mechanism is used for sowing different types of seeds with single metering mechanism. In future further study is needed to use separate metering mechanism for every seeds. Thus, we can increase the value of the machine in future. By using electrical drive, the machine can be made automatic just like an automobile which can faster the work of seed planting. It can be also used for planting as well as fertilizer sowing. In future, it is possible to use the electronic operated solenoid valve to maintain the seed flow rate. It is time operated valve. Also we will use level sensors to know the level of seeds and maintain it.

ADVANTAGES

- Following are the advantages of manual seed planter machine are
- Improved efficiency in planting.
- Increased yielding and reliability in crop. Increased cropping frequency.
- Increased speed of seed planting.
- Seed planting accuracy.
- Durable and cheap as low cost materials are used.
- Less maintenance cost.
- Since seed can be poured at any required depth, the plant germination is improved.
- Dependency on labor also decreased. Also it saves time of sowing.

CONCLUSION

This seed plantation machine has great potential for increasing the productivity of the planting. Till now tractor was the main traction unit for nourishment in farming. With the adaptation of this seed planting machine its purpose will be done. Hence there is need to promote this technology and made available to even small scale farmers with affordable prices. This machine can be made by raw materials also which saves the cost of whole project and is easily manufactured in available workshops. The only cost is of metering device and sensors. Hence by using this machine we can achieve flexibility of distance and control depth variation for different seeds hence usable to all seeds.

REFERANCES

- [1] Roshan V Marode, Gajanan P Tayade and Swapnil K Agrawal. Design and implementation of multi seed sowing machine IJMERR ISSN 2278 – 0149, www.ijmerr.com, Vol. 2, No. 4, October 2013.
- [2] D.Ramesh , H.P. Girishkumar. Agriculture seed sowing equipments. International Journal of Science, Engineering and Technology Research (IJSETR), Volume 3, Issue 7, July 2014.
- [3] A.Kannan , K. Esakkiraja , S. Thimmarayan. Design modifications in multipurpose sowing machine. International Journal Of Research In Aeronautical And MechanicalEngineering, Vol.2 Issue.1, January 2014.
- [4] Kalay Khan, Dr. S. C. Moses Ashok Kumar. The design and fabrication of a manually operated single row multi - crops planter. IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)e-ISSN:2319-2380, p-ISSN: 2319-2372. Volume 8, Issue 10 Ver. II, Oct. 2015, PP 147-158 S.S.Katariya, S.S.Gundal, Kanawade M.T and Khan Mazhar. Research article automation in agriculture. International Journal of Recent Scientific Research Research ,Vol. 6, Issue, 6, June, 2015, pp.4453-4456