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STUDY ON SEEDLING TRANSPLANTER FOR EFFECTIVE PLANTATION

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Abstract:Seedling trans planter should be suitable to all farms, all types of corps, robust construction, also is should be reliable, this is basic requirement of seedling trans planter. Thus we made seedling trans planter 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.

Keywords: Seed, Planting, agriculture, efficiency

1. INTRODUCTION

Cropping is important and tedious activity for any farmer, and for large scale this activity is so lengthy also it needs more workers. Thus agriculture machines were developed to simplify the human efforts. In manual method of seed planting, we get results such as low seed placement, less spacing efficiencies and serious back ache for the farmer. This also limited the size of field that can be planted. Hence for achieving best performance from a seed planter, the above limits should be optimized. Thus we need to make proper design of the agriculture machine and also selection of the components is also required on the machine to suit the needs of crops.

The agriculture is the backbone of India. And for sustainable growth of India development of agriculture plays vital role. The India has huge population and day by day it is growing thus demand of food is also increasing. In agriculture we saw various machines. Also there traditional methods are there. Since long ago in India traditional method is used. Also India has huge man power. This manual planting is popular in villages of india. But for large scale this method is very troublesome. The farmer has to spend his more time in planting. But time available is less for him. Thus it requires more man power to complete the task within stipulated time which is costlier. Also more wastage happens during manual planting. Hence there is need of developing such a machine which will help the farmer to reduce his efforts

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while planting. This process of using machines is called as mechanization. Along with mechanization automation also helps to increase the efficacy of the process.

2.LITERATURE REVIEW:

Kyada A et al.[1] :

This research paper presents design and development of manually operated seed planter machine. In this they present objective of seed planter machine design, factors affecting seed emergence, some mechanisms. The basic objective of sowing operation is to put the seed and fertilizer in rows at desired depth and seed to seed spacing, cover the seeds with soil and provide proper compaction over the seed. The recommended seed to seed spacing and depth of seed placement vary from crop to crop and for different agro-climate conditions to achieve optimum yields. From this we know that mechanical factors effects on seed germination like uniformity of depth of placement of seed, uniformity of distribution of seed along rows. In this power transmission mechanism, seed meter mechanisms, plunger mechanism etc. mechanisms"are used. The working as machine is pushed; power wheel is rotating which transmit power to plunger through chain and sprocket mechanism. Now cam is mounted on sprocket shaft which push plunger towards downward direction. Once plunger is penetrate in soil and during backward stroke flapper is opened so seed get separated from plunger and inserted in dig. From this we get idea that if we use the belt having small holes with defined thickness

Then it is beneficial for our project. As our automatic seed feeder is only for small seeds then using of conveyor belt with motor is useful.

Ramesh D et al. [2]:

This research paper present "Agriculture Seed Sowing Equipment: A Review". The present review provides brief information about the various types of innovations done in seed sowing equipment. The basic objective of sowing operation is to put the seed and fertilizer in rows adesired depth and seed to seed spacing, cover the seeds with soil and provide proper compaction over the seed. In this multipurpose seeding machine equipment consists of cylindrical shape container in which the seeds can fill. The container is attached on the four wheeled carrier assembly. It consists of metering plate bevel gear mechanism and two holes at the bottom depending on seed size. The working as plate will rotate in container when the bottom holes of container and meter plate hole coincide seeds will flow through pipe to soil. Here the metering plate gets rotating motion by bevel gear assembly and the bevel gears get the motion by rear wheels with the help chain and sprocket assembly

3. OBJECTIVE

Seed sowing machine is a device which helps in the sowing of seeds in the desired position hence assisting the farmers in saving time and money. So considering these points related to spraying and seed sowing an attempt is made to design and fabricate such equipment which will able to perform both the operations more efficiently and also will result in low cost. Decrease the operational cost by using new mechanism.

- •Work reliably under different working
- • Decrease the cost of the machine
- • Decrease labour cost by advancing the spraying method.
- • The machine can be operated in the small farming land (1 acre).
- • Making such a machine which can be able to perform both the operation.

Main objectives in this study were to:

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- Design a mechanism for transplanting paddy seedlings
- Test the performance of the transplanting mechanism

4. PUSH RODMECHANISM:

Push rod mechanism is used to check the quantity of the seed which is going into the farm. It also maintains the required level of the soil in the land. Mostly metering is necessary to track the amount of seed also determine the when the plant is again filled. It gives the length or the distance which can be sowed. Thus only required plant falls for every one

5.WORKING PRINCIPLE

The working principle of seedling trans planter is used to planting the mini plants it can be working the pushrod mechanism. When push the handle the pushrod mechanism will worked to move up words they open the tiller and the same time to feedthe trans planterto down direction to the ground level. Then release the handle the plant will be placed in the ground and to remove the trans planter from the ground level then soil will be closed the plant.

COMPONENT DESCRIPTION

- Stainless steel pipe
- Open coil spring
- Blot and nut
- Mild steel rod
- Handle
- Stainless steel plate

6. FACTORS AFFECTING SEED EMERGENCE

Mechanical factors, which affect seed germination and emergence are :

- Its depth should be uniform with regard to placement of seed
- It should be distributed uniformly along the rows.
- Its transverse displacement with regard to row also considered.
- Loose soil getting is also prevented.
- Soil is covered uniformly over the seed.
- Fertilizer is mixed with seed during placement in the furrow.

By fulfilling above factors we get best performance of the seed drill or planter. To improve the performance we need to optimize the above factors also so that we get desired efficacy from the system in economical way. Its design is simplified and components are selected to suit the need of the corps. In the working of the robot seed drill or planter also plays vital role in manipulating the physical environment. The metering system allows the metered or required quantity of the seed in the farm. This system also serves the seed so that seed should not be damaged while working.

7.CONCLUSION

By this work we can use this seedling Trans planter for effective plantation and by using less labour work. This product increases the yield for the farmersand cost saving by means of less labour needed. And our product is using mechanism so no power required for operation. And life time of our product is much higher so farmers can use our product for longer duration.

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