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Fabrication of Seed Sowing Machine

B.S. BABA FAKRUDDIN, S. Sathak Vali, V. Ravindra, K. Narendra, E. Sundar, D. Vinay

Assistant Professor Department of Mechanical Engineering, Gates Institute of Technology Gooty,
Andhra Pradesh, India.

UG Students, Department of Mechanical Engineering, Gates Institute of Technology Gooty, Andhra Pradesh, India

ABSTRACT: For delivering the yields furrowing is compulsory. Seeds must be planted into the dirt. Planting machine will be reasonable to kinds of crops. It is ought to be solid, this is the essential necessity of machine. In this way, we made planting machine which is worked physically it diminishes the endeavours of ranchers for expanding the proficiency of planting and furthermore it lessens the issue experienced in manual planting. For this machine we can establish various sorts and various sizes of seeds likewise we can differ the space between two seeds while planting. This additionally expanded the establishing proficiency and exactness. We made it from unrefined components subsequently it was so modest and truly usable for limited scope ranchers. For powerful treatment of the machine by any rancher or by any undeveloped labourer we worked on its plan. Likewise, its changing and support strategy additionally improved.

KEYWORDS: Seed, Sowing, Planting, agriculture, efficiency

I. INTRODUCTION

Planting is a course of sowing seeds into the dirt. During this farming system, legitimate safety measures ought to be taken, including the suitable profundity, appropriate distance kept up with, and soil ought to be perfect, sound and liberated from infection and different microorganisms including organism. This large number of safety measures are fundamental for seed germination - the course of seeds forming into new plants.

II. LITERATURE REVIEW

Kyada A et al, 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.

Kannan A et al, This research paper presents design modification in multipurpose sowing machine. In this they present that for sowing purpose we import the machinery which are bulk in size having more cost. To prevent this they design multipurpose sowing machine which consists of hopper, seed metering mechanism, ground wheel, power transmission system, seed distributor, and tiller. In this they design model on PRO-E software. Actually the working is very simple as the tiller rotates it directly transmit motion to ground wheel which directly connected through main shaft. A main shaft has a disc with scoops inside the hopper. When the ground wheel rotates the main shaft also rotates with the help of power transmission system. The scoops collect the seed from hopper and leave it inside the seed distributor. The tiller is having very good contact with ground.

Rohokale A et al, Agriculture is demographically the broadest economic sector and plays a significant role in the overall economy of India. For the growth of Indian economy, mechanization is necessary. The main purpose of mechanization in the agriculture is to improve the overall productivity and production. Planning is conventionally done manually which involves humans and draught animals, this result in higher cost of cultivation and delay in planting.



Methods Of Sowing

There are various methods used for sowing the seeds.

- Traditional Method
- Broadcasting
- Dibbling
- Drilling
- Seed Dropping behind the Plough
- Transplanting
- Hill Dropping
- Check Row Planting

Traditional Method

A funnel-shaped tool is used to sow the seeds traditionally. The funnel is filled with seeds and the seeds pass through two or three pipes with sharp ends. These ends enter into the soil and the seeds are placed there.

Broadcasting

In this process, the seeds are scattered on the seed beds either mechanically or manually. In the broadcasting method of sowing, the seeds are spread uniformly and are then covered with planking. When there are a large number of seeds, the work is done using mechanical broadcasters. The seed rate is very high in this system.

Dibbling

Holes are made in the seedbeds and the seeds are placed in it. The seedbeds are then covered. The holes are made at definite depths. A dibbler is used for dibbling. It is a conical instrument that makes proper holes in the seedbed. This method is usually used to sow vegetables.

Drilling

The seeds are dropped into furrow lines in a continuous flow and are then covered with soil. This is done either mechanically or manually. The proper amount of seeds are sown at proper depths and proper spaces. Drilling can be done in the following ways:

- Sowing behind the plough
- Bullock-drawn seed drills
- Tractor-drawn seeds drills

Seed Dropping Behind the Plough

This method is commonly used in villages to sow a variety of food crops such as maize, peas, wheat, barley, and gram. Seeds are dropped in furrows behind the plough by a device known as Malbasa. It comprises of a bamboo tube with a funnel-shaped mouth. It needs two men to drop the seeds. One handles the bullocks and the plough and the other drops the seeds. However, this method consumes a lot of time and is labour-intensive.

Transplanting

In this cycle, the seedlings are first planted in quite a while and afterward established in the pre-arranged fields. Developing vegetables and flowers is generally finished. A transplanter is utilized for the reason. In any case, this cycle is tedious. In this method of sowing, the selected seeds are dropped at regular spaces but not in a continuous manner.

Check Row Planting

The seeds are planted along straight parallel furrows. A check row planter is used for the method. The row-to-row and plant-to-plant distance is uniform.

Components:

- Frame
- Wheels
- Chain transmission system
- Nozzle
- Digger
- Sand leveller
- Seed storage tank

Frame:

Frame is the support for the whole weight of the machine. It is totally made up of iron. It is fully painted for corrosion resistance.



Fig1: Frame

Wheels:

Wheels play a major role for the movement from one place to another without it we can't move.



Fig2: Wheel Chain

Transmission System:

Chain drive is an approach to communicating mechanical power starting with one spot then onto the next. It is frequently used to pass power on to the wheels of a vehicle, especially bikes and cruisers. It is likewise utilized in a wide assortment of machines other than vehicles.

Most often, the power is conveyed by a roller chain, known as the drive chain or transmission chain, passing over sprocket gear, with the teeth of the gear meshing with the holes in the links of the chain. The stuff is turned, and this pulls the chain placing mechanical power into the framework. One more kind of drive chain is the Morse chain, developed by the Morse Chain Company of Ithaca, New York, United States. This has reversed teeth. Once in a while the power is yielded by essentially pivoting the chain, which can be utilized to lift or drag objects. In different circumstances, a subsequent stuff is put and the power is recuperated by joining shafts or center points to this stuff. However, drive chains are in many cases basic oval circles, they can likewise circumvent corners by setting multiple

pinion wheels along the chain; equips that don't place power into the framework or communicate it out are for the most part known as idler-wheels. By differing the distance across of the info and result gears concerning one another, the stuff proportion can be adjusted. For instance, when the bike pedals' stuff turns once, it makes the stuff that drives the wheels pivot more than one transformation. Duplex chains are one more sort of chain which are basically two chains joined next to each other which take into consideration more power and force to be sent.

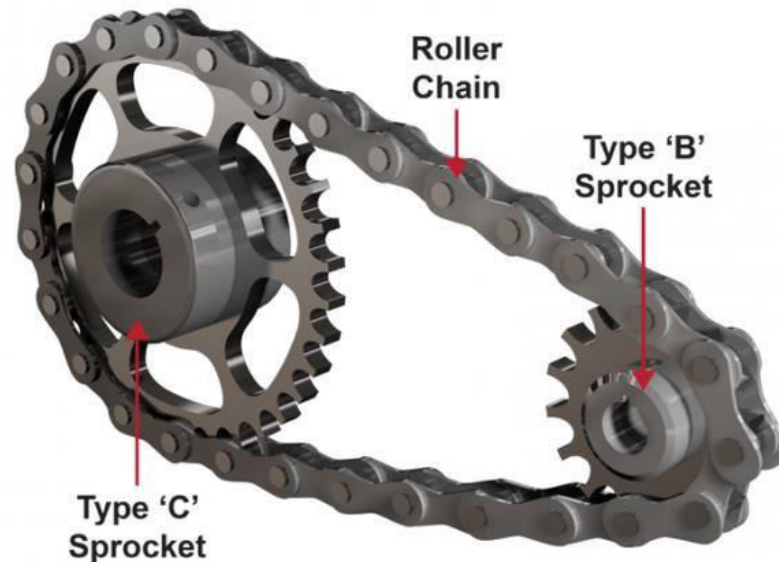


Fig 3: Chain Transmission System

Digger And Sand Leveller:

- Digger is used to turn and break up soil, to bury crop residues, and to help control weeds.
- It helps to penetrate the seeds into the soil.
- Nozzle is attached to the digger. Seeds are entered through it which is combined with seed storage tank .
- Sand leveler is used for leveling the soil which is digged for penetrating the seeds into the soil.
- Then only seeds are placed stable otherwise seeds may cause to misplaced by flowing of air



Fig4:Digger



Fig5: Leveller

Nozzle:

It is used for passing the seeds into the channels of soil which is ploughed previously through the digger. It is a main component for the process.



Fig 6: Nozzle

Seed Storage Tank And Wheel:

Capacity gadget is one of the significant gadgets of the framework. This part is fixed. To the lower part of this tank seed planting circle is organized. This circle serves the capacity of conveyance of the seeds, with respect to each finish revolution of the pivoting wheel, just a single seed tumbles from the tank. Likewise, number of seeds tumbling from tank is shifted by necessities. This circle uniformly opens the method for cultivating thus planting is done without a hitch and precisely.



Fig 7: Seed storage tank



Fig 8: Seed wheel

Fabrication Of Machine:



Fig 9: Working of Seed Sowing Machine



Working Procedure:

- Wheels are connected to the chain transmission system.
- When the chain moves then seed wheel is rotated.
- Nozzles are attached to the seed storage tank to the diggers •Whenever seed wheel rotates seeds are entered into the soil.
- For the deep penetration into the soil, we can add the weight on the diggers
- After seeds are penetrated into the soil then sand leveller helps the closure of the channels which is digged.
- Digger have different positions as for our requirement for ploughing.
- We can adjust the digger up and down through bolt and nut.
- Sand leveller can be adjusted as for our requirement by adjusting with bolt and nut.
- This machine is not only for sowing the seeds it can be used as to transport the load upto 20 kgs.
- Because at the front side of the vehicle space is provided for transferring the loads from one place to another.
- Within less cost this machine can be used for above mentioned operations easily

Advantages Of Seed Sowing Machine:

- Can be operated easily some distances
- Movable to desired position.
- Noise less as compared to chain conveyors •Low labor and low energy requirements
- Cost of checking the error is less.
- 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.
- Since seed can be poured at any required depth, the plant germination is improved.

Disadvantages:

- Man power is required
- Chain maintenance is required
- Seed wheels may be damaged
- In sowing of groundnut seeds
- For moving the loads upto 30 kgs

Conclusion:

This seed estate machine has incredible potential for expanding the efficiency of the planting. Till now work vehicle was the primary footing unit for sustenance in cultivating. With the variation of this seed establishing machine its motivation will be finished. Thus, there is need to advance this innovation and made accessible to try and limited scope ranchers with reasonable costs. This machine can be made by unrefined substances likewise which saves the expense of entire task and is effortlessly fabricated in accessible studios. The main expense is of metering gadget and sensors. Consequently, by utilizing this machine we can accomplish adaptability of distance and control profundity variety for various seeds. Consequently, usable to all seeds.

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