

## MANUAL SEED SOWING MACHINE

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### ABSTRACT

Sowing machine should be suitable to all farms, all types of crops, robust construction, also it should be reliable, this is a basic requirement of a sowing machine. Thus we made a 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.

This article addresses betterment in agricultural processes. Manually operated seed sowing machine consists of mechanisms for sowing of the seed. This mechanism runs simultaneously. The essential objective of sowing operation is to put the seed in desired depth and provide required spacing between the seeds and cover the seeds with soil. We can achieve optimum yield by proper compaction over the seed and recommended row spacing. To meet the demands farmers have to use new techniques in cropping to increase the yield.

The requirements of small scale sowing machines are, they should be simple in design, affordable for small scale peasant farmers, easy maintenance for effective handling by unskilled farmers. In this project the attempt has been made for reduction in cost of machine and developing the multifunctional sowing machine which can perform simultaneous operations.

**Key Words:** Multiple cropping, broadcasting, seed planter machine, Dibbling, Seed meter mechanism.

### 1. INTRODUCTION

This research is an attempt to produce multifunctional and highly efficient seed sowing machine which will reduce time of plantation, cost of labour, and enhance production. Traditional method of seed sowing based on assumptions of seed to seed spacing and depth of placement which is not at all efficient and beside this it requires a lot of time and efforts too. Sometime it results in backache of farmers. As per change in climate farmers are facing one more problem which occurs due to harmful insects and pest. Farmers have to stay alert for fighting this problem by using different pesticides. Pesticide spraying is one of the common operations in agriculture field which requires a lot of efforts to carry the pump in farm. It results in shoulder pain so badly. This machine contains pesticide spraying too which makes it multifunctional. This project addresses improvement in agriculture processes like sowing of seeds on ploughed land and distribution of fertilizer combinable by using mechanisms. Primarily this system works manually, but with lesser input energy requirement.

**Traditional Sowing Methods:** Traditional methods include broadcasting manually, opening furrows by a country plough and dropping seeds by hand and dropping seeds in the furrow through a bamboo/metal funnel attached to a country plough. For sowing in small areas dibbling i.e., making holes or slits by a stick or tool and dropping seeds by hand, is practiced. Multi row traditional seeding devices with manual metering of seeds are quite popular with experienced farmers. In manual seeding, it is not possible to achieve uniformity in distribution of seeds.

A farmer may sow at desired seed rate but inter-row and intra-row distribution of seeds are likely to be uneven resulting in bunching and gaps in the field. Traditional sowing methods have following limitations: In manual seeding, it is not possible to achieve uniformity in distribution of seeds.

A farmer may sow at desired seed rate but interrow and intra-row distribution of seeds are likely to be uneven resulting in bunching and gaps in field. Poor control over depth of seed placement. Labour requirement is high because two persons are required for dropping seed and seed. Agricultural implement and machinery program of the government has been

one of selective mechanization with a view to optimize the use of human, animal and other sources of power. In order to meet the requirements, steps were taken to increase the availability of implements, irrigation pumps, tractors, power tillers, combine harvesters and other power operated machines and also to increase the production and availability of improved animal-drawn implements. Special emphasis was laid on the later as more than 70% of the farmers fall in small and, marginal category. It is generally said that mechanization of small farms is difficult. But Japan having average land holding even smaller than ours, with proper mechanization has led agriculture to great heights. In order to minimize the drudgery of small farmers, to increase efficiency and save farmer's time for taking up additional /supplementary generating activities, the use of modern time-saving machines/implements of appropriate size needed to be suitably promoted.

Researchers have presented a system which is solar based automatic seed sowing. In village the farmers mainly income depends on the agricultural source. Automatic seed sowing machine is fulfil the digging, seed sowing, water pouring and fertilizing by using solar energy. This automatic seed sowing machine is help to the farmer. And also they can performtheir regular cultivation activity as well as saves fuel up to larger extent. At the same time by using solar energy environment pollution can be reduced.

Agriculture is main occupation in India.70% population to live in village. There are different type of traditional method are used. In Traditional method of sowing seeds is very bulky. The farmer has to sow the seeds are manually. This is very time to spend this process and also the wastage of seeds. In this design, the drive shaft directly controls the seed metering mechanism which eliminates completely attachments such as pulleys, belts system, thereby eliminating complexities which increase the cost, and increasing efficiency at a highly reduced cost which is the focus of this project work. This system is very much beneficial to all farmers because the wastage of seeds and more man power are avoided for that system. Also the time to be saves.

All facilities to be provided in automatic seed sowing machine. In seed sowing machine system they are used battery powered wheels and dc motor inbuilt in these wheels. In this system seed storage tank are used.when the seeds are empty it detect the level of storage seed and indicate the alarm. When any obstacle comes in the in-front of machine or divert path the seed sowing machine can detect this obstacle very easily. The end of system machine reached and it create alarm. This system provides to all the facility which can work efficiently. Also the farmer can sow the seed very much easily. As well as time will be save. This system is very useable to farmer seed can be sow automatically.

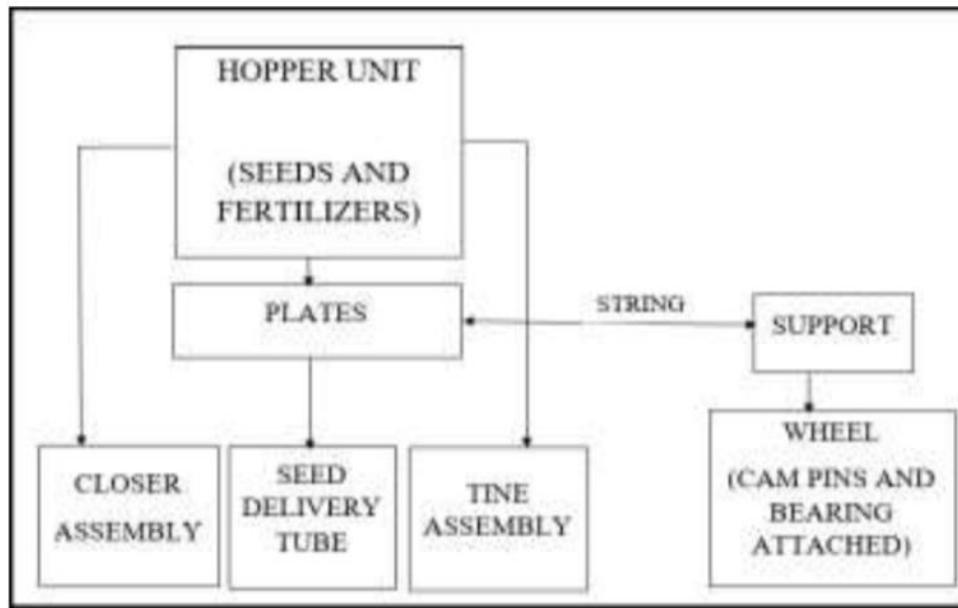
Seed sowing machine is a device which helps in the sowing of seeds in the desired position hence assisting the farmers in saving time and money. The basic objective of sowing operation is to put the seed and seed in rows at desired depth and seed to seed spacing, cover the seeds with soil and provide proper compaction over the seed. The paper discusses different aspects of seed sowing machine which will be helpful for the agriculture industry to move towards mechanization.

The agricultural industry has always been the backbone of India's sustained growth. As the population of India continues to grow, the demand for produce grows as well. Hence, there is a greater need for Multiple cropping on the farms and this, in turn, requires efficient and highcapacity machines. Mechanization of the Agricultural industry in India is still in a stage of infancy due to the lack of knowledge and the unavailability of advanced tools and machinery. In traditional methods seed sowing is done by broadcasting manually, opening furrows by a plough and dropping seeds by hand. The agricultural has always been the backbone of India's sustained growth. As the population of India continues to grow, the demand for produce grows as well. Hence, there is a greater need for multiple cropping in the farms and this, in turn, requires efficient and time-saving machines. The paper discusses different types of seed sowing machine which will be helpful for the agriculture industry to move towards mechanization.

## 2. WORKING PRINCIPLE

When the equipment is pushed forward by using handles, the front wheel rotates and the gear is mounted on the axle of the wheel is start to rotate and its rotation is then transferred to the pinion through the chain drive. The rotary motion of the pinion is converted into the reciprocating motion by the single slider crank mechanism, due to this arrangement the connecting rod moves upward and downward which then reciprocate the piston of the single acting reciprocating pump mounted at the top of the storage tank.

During the upward motion of the connecting rod the pesticide is drawn into the pump and during the downward motion of connecting rod the pesticide is forced to the delivery valve, the delivery is connected to the pipe carrying the number of nozzles. Improved seed-cum-seed drills are provided with seed and seed boxes, metering mechanism, furrow openers, covering devices, frame, ground drive system and controls for variation of seed and seed rates.



**Fig 1:** Block diagram of Seed Sowing Machine

### 3. CONCLUSIONS

Innovative Seed sowing equipment's has remarkable influence in agriculture. By using this innovative project of seed sowing equipment we can save more time required for sowing process and also it reduces lot of labourer cost. It is very helpful for small scale formers as it weighs less. After comparing the different method of seed sowing and limitations of the existing machine, it is concluded that the this seed sowing machine can. Maintain row spacing and controls seed rate. Control the seed depth and proper utilization of seeds can be done with less loss. Perform the various simultaneous operations and hence saves labour requirement so as labour cost, labour time and also save lots of energy. Hence it is easily affordable by farmers. So we feel that this project serves something good to this world and we would like to present it before this prosperous world.

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