

Automated Seed Sowing Robot

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Abstract: Agriculture is the backbone of Indian economy. Hence in this work of project we decided to design a better mechanical machine which is available to the farmers at a cheaper rate and also which can sow and seed the crop at a same time. This project consists of the better design of the machine which can be specifically for sowing of soybean, maize, pigeon pea, groundnut etc. The success of crop production depends on timely seeding of these crops with reduced dull work of farm labor. This will not satisfy need of energy requirement of the farming as compared to other countries in the world. So we are developing this equipment which will satisfy all this need and to solve labour problem. In this equipment we used ploughing rod, water pump, seed sower land levelling attachment.

Keywords: Agriculture, Sowing, Crop production.

1. Introduction

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 percent of world population from 2.3 percent of world geographical area and 4.2 percent of world's water resources. 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. A traditional method of seed sowing has many disadvantages. This paper is about performing different agricultural operations with the help of single vehicle setup which can perform simultaneous operations.

2. Literature Review

Mahesh R. Pundkar, et al describes that e seed sowing machine is a key component of agriculture field. high precision pneumatic planters have been developed for many varieties of crops, for a wide range of seed sizes, in seed spacing.

P. P. Shelke, et al describe that bullock drawn planters are becoming necessity for sowing as the skilled workers for sowing are almost diminishing. planting distance and plant population are crucial factors in maximizing the yields of crops.

Umed Ali Soomro, et al describes that their project is three sowing methods and seed rate in a four replicated rcbd method and concluded that drilling method of sowing at seed rate 125 kg/ha is optimal for yield and quality of wheat grains, because the said sowing method and seed rate distribute seed uniformly and desired depth which provide appropriate depth for seed germination and crop establishment.

Kyada, A. R, Patel, D. B, et al describes that a manually operated template row planter was designed and developed to improve planting efficiency and reduce drudgery involved in manual planting method. Seed planting is also possible for different size of seed at variable depth and space between two seed. Also it increased seed planting, seed/fertilizer placement accuracies and it was made of durable and cheap material affordable for the small scale peasant farmers.

D. Ramesh, H. P. Girish Kumar et al says that the mainly focused on the basic objective of sowing operation is to put the seed and fertilizer in rows at desired depth and seed to seed spacing, 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 agro-climatic conditions to achieve optimum yields. Seed sowing devices plays a wide role in agriculture field.

A. Kannan, K. Esakkiraja, S. Thimmarayan, et al This paper deals with the various methods of seed sowing and fertilizer placement in India. The depth at which seed should be sown and distance between seeds can be maintained by proper seed metering device because depth of seeding has great influence on crop yield. In today's era availability of labour is becoming great concern. This machine does the work with less efforts and in less time so it reduces cost of labour required for seed sowing and fertilizer placement.

Roshan V. Marode, et al describes that the various sowing methods used in India for seed sowing and fertilizer placement. The comparison between the traditional sowing method and the new proposed machine which can perform a number of simultaneous operations, has number of advantages.

Amol B. Rohokale, et al says that the paper is to compare conventional sowing methods and modern methods. The required row to row spacing, seed rate, seed to seed spacing can be achieved by proposed machine. The machine reduces the human efforts.

Prabhakar Khandait, et al describes a system for agricultural researcher to determine the effects of different seeding technique and machines and also different rates of oil seed rape application on seeding emergence plant establishment and final grain yield.

Nikita Chame, et al describes the implement system would cut small channels into the soil and the seed would be dropped into the channel. with its biggest advantage that it is a non-

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Table 1
Literature survey

S. No.	Author Name	Year of Publishing	Title of Journal	Findings
1.	Mahesh R. Pundkar, et al	2011	Design and Development of Automated Seed Sowing Machine	The space required for the seed sowing is needed. depend upon the seeds it varies. A kind of robot should be designed which can sow every kind of seeds.
2.	P. P. Shelke, et al	2011	Bullock-Drawn Planter Yield of Soya Bean Crop.	To plant at most seeds in the field will maximize the yield of crops.
3.	Umed Ali Soomro, et al	2011	“Seed Rate on Growth And Effects of Sowing Method and Yield of Wheat	The efficiency of the robot should be same for every seeds.
4.	Kyada, A. R, Patel, D. Bet Al	2014	Design and Development of Manually Operated Seed Planter Machine	For different seeds the depth should be noted. The robot should work according to it.
5.	D. Ramesh, H.P. Girish kumar et al	2014	“ Agriculture Seed Sowing Equipment’s	The row spacing and the depth should be determined carefully. the climatic conditions should be noted

electrical.

K. A. Sunitha, et al describes This paper represents the method used and the design of the machine. In this paper main objective is to make seed sowing simple and easy for the farmers. The main objective is to make it affordable to the farmers so that they can manually do their own work without depending on labour.

Drishti Kanjilal, et al mainly based on minimizing man power and cost of the equipment, which can be affordable to all farmers

Mahesh R. Pundkarijess, et al - stated that in agriculture field seed sowing machine is an important part. For many verities of crops high accuracy pneumatic planters have been developed, resulting to uniform seeds distribution along the travel path, for a large range of seed sizes, in seed spacing

Joaquin Guierrez, Juan Francisco, et al This system is designed in such a way that the user can operate it by means of a PC/smart phones and can also monitor all the parameters from this PC/smart phone. In this system we have developed a control window application in visual basic.

Jagruti A. Dandge, Rashmi Shirwadkar et al, the system is mainly designed for automatic seed sowing to reduce the work and time consumption the farmer. For this we have designed a special mechanism for seed sowing based on dispensing system principle. This mechanism is controlled through microcontroller and performs the seed sowing action at every successive node. Though this, the user can operate and monitor all the task done by the designed automatic system for the help of the farmer and to reduce the labor requirement and time consumption due to this hectic work in the form

Bhushan Deshmukh, et al., describes project consists of two different mechanisms. The first mechanism contains making an assembly of vehicle and its motion, whereas second mechanism is preparing a seed bed on ploughed land. The microcontroller is used to control and monitor the process of system motion of vehicle. It is controlled with help of DC motor and servo motor. This system also detect obstacle present in the path of the vehicle by infrared sensor. It is also used for sensing turning position of vehicle at the end of the land. Because of no man power requirement and high speed of operation, it has scope for further expansion.

3. Conclusion

The automated seed sowing machine is designed and

checked for successful working. It was found to be running successfully under all the condition. Using of this mechanism in agricultural field it will leads to sowing the seed is easier, reduce the work of labour and reduce the man power.

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