

Review of Multipurpose Farming Machine

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Abstract- Today in India agriculture is the demographically the broadcast of economic sector and play a significant role in the overall economy. The consumption of food is increases because of increasing population required more the production of crops. Therefore, mechanisation is necessary. The main purpose of the mechanisation is more production of crops at less time, For the traditional way of farming taking more time and less production, higher cost of cultivation and more wastage of the seed. The main purpose of this paper is to study review of different types of multipurpose machine which can be useful for seed spacing, seeding and fertilizer placement varies from crops to crops. But this type of multipurpose farming machine is working manually and some multipurpose machine is attached or assemble to the pair of bull or tractor. This machine reduces human effort and labour cost.

Keywords- mechanisation, multipurpose, seeding, seed spacing etc.

I. INTRODUCTION

Agriculture has been the backbone of the Indian economy and it will continue to remain so for a long time. Agricultural sector is changing the socio-economic environment of the population due to liberalization and globalization. About 75% people are living in the rural area and are still dependent on agriculture. About 43% of geographical area is used for agricultural activity. Agriculture has been the backbone of the Indian economy. As Indian population is growing continuously, the demand for producing crop per hector is also increasing, this requires efficient and high-capacity machines. So mechanization in agricultural industry plays an important role in Indian economy. The basic function of multipurpose farming machine is to sow the seed, wastage of seed and loosening of soil in rows at required depth and to maintain the distance between the seeds and provide proper compaction over the seed. A multipurpose farming machine is a device that plants or sows the crops, it digs a furrow places the seed or seeds into the furrow and covers it. multipurpose farming machine ensures uniformity in seed broadcasting and saves time and money.

II. LITERATURE REVIEW

[1] Amol B. Rohokale, Pavan D. Shewale, Sumit B. Pokharkar, Keshav K. Sanap

The main purpose of this paper is to compare between conventional sowing method and new proposed machine which can perform number of simultaneous operation. The required row to row spacing, seed rate, seed to seed spacing and fertilizers placement varies from crop to crop can be achieved by the proposed machine. This machine reduces the sowing time, human efforts and labour cost. In the machine two operation will be done simultaneously i.e. seed sowing and fertilizer placement.

[2] Aditya Kawadaskar, Dr. S. S. Chaudhari

Redesigned and tested the seed sowing machine using CAD package like PROE. This Paper deals with 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 and has number of advantages. As day by day the labour availability becomes the great concern for the farmers and labour cost is more, this machine reduces the efforts and total cost of sowing the seeds and fertilizer placement.

[3] Kalay Khan, Dr. S. C. Moses, Ashok Kumar

This project work focused on the design and fabrication of a manually operated planter sowing for different crop seed that is cheap, easily affordable by the rural farmers, easy to maintain and less laborious to use. The multi-crop planter has the capability of delivering the seeds precisely with uniform depth in the furrow, and also with uniform spacing between the seeds. The seed planter consists of the main frame, adjustable handle, seed hopper, seed metering device, adjustable furrow opener, adjustable furrow closer, drive wheels, seed tube and ball bearings. Most of these were fabricated from mild steel material, except for the metering mechanism which was made from good quality nylon and the seed funnel tube, was made from rubber material. Seed metering device was designed to be interchangeable to allow for the different varieties and types of seeds. The single-row manually operated multi-crop planter is very simple to use, the various adjustments are made with ease, and it is maintenance

free, except for the bearings which needs to be lubricated from time to time to allow the planter's ground wheel to move freely.

[4] A. A. Wankhede, A. P. Rathod, A. V. Gorde, R. K. Gondane

This paper deals with the various methods of seed sowing and fertiliser placement in India. Here is a comparison between traditional methods of seed sowing and newly designed machine which can perform simultaneous operations in less time and has several advantages. 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. And using this multipurpose machine advance technique we can increase the production of crops in minimum cost and time. The multipurpose machine will be manually operated which can pull by bull cart or mini tractor.

[5] Olajide O. G. and Manuwa S. I.

The main objective of this study is to design, fabricate and evaluate the performance of a low-cost grain planter capable of planting three types of grains- maize, soybean and cowpea. The components of the machine are hopper, seed plates, furrow opener, and soil coverer. The laboratory investigation comprised the determination of weight of seed discharged from the hopper, percentage damage of seeds, and average inter-row spacing of seeds. The field tests included the determination of effective field capacity, average depth of placement of seeds in the furrows, and spacing of seeds within row. A manually-operated hand pushed row crop planter to cater for the need of small holder farmers has been designed, fabricated and its performance evaluated. The machine has an overall field capacity of 0.36 ha/hr. with an average inter row seed spacing of 50.2 cm and the overall efficiency of the planter was 71 %. The planter was able to effectively meter maximum of two to three seeds per hill with minimum damage of 2.6% to the seeds. By means of the adjustable handle, the planter was able to meet the need of various heights of operators during planting operation.

[6] B. Mursec a, P. Vindis, M. Janzekovic, F.Cus , M. Brus

The purpose of the paper is to presents two sowing machines for interval sowing, differing in the mode of operation. We were interested in adequacy of sowing at different working speeds of the pneumatic vacuum sowing machine OLT and the pneumatic pressure sowing machine Aeromat - Becker for sowing sugar beet. The goal of the paper

is to find out the optimum working speed for the individual sowing machine.

III. OVERVIEW

During my observation it was seen that for there are lack of mechanisation in agriculture process and for the lack of mechanisation in farming operation more effort and time will have required which result on cost of production of crops and Conventional method have many disadvantages. There are many types of farming machine available in market but if we talk about tractors and other advance farming machine they are costly and not affordable to medium and small scale farmers.

IV. SCOPE OF THE PROBLEM

In spite of the large scale mechanisation of agriculture in some parts of the country, most of the agricultural operations in larger parts are carried on by human hand using simple and conventional tools and implements like wooden plough, sickle, etc.

Little or no use of machines is made in ploughing, sowing, irrigating, thinning and pruning, weeding, harvesting threshing and transporting the crops. This is specially the case with small and marginal farmers. It results in huge wastage of human labour and in low yields per capita labour force.

There is urgent need to mechanise the agricultural operations so that wastage of labour force is avoided and farming is made convenient and efficient. Agricultural implements and machinery are a crucial input for efficient and timely agricultural operations, facilitating multiple cropping and thereby increasing production.

Strategies and programs have been directed towards replacement of traditional and inefficient implements by improved ones, enabling the farmer to own multipurpose machine for ploughing, sowing, irrigating, thinning and pruning, weeding, harvesting threshing and transporting the crops.

V. ADVANTAGES OF MULTIPURPOSE FARMING MACHINE

- The seed can be placed at any required depth.
- Seed can be placed uniformly in a row with required distance between plants.
- It was made of durable and cheap material affordable for the small scale peasant farmers.
- Requirement of labor also decreased.

- Increase in crop yield and cropping reliability.
- Seed flow can be controlled.

VI. CONCLUSION

This multipurpose farming machine has considerable potential to greatly increase productivity of crops. Other countries of the world where the tractor and two-wheel power tiller is the main traction unit in farming. The main task now is to promote this technology and have available to farmers at an affordable price. So, we are designing a multipurpose farming machine which will do multiple-operation simultaneously i.e. ploughing, seeding, irrigation and carrying or transporting goods. The multipurpose farming machine can be readily made from local components in workshops. This machine is more beneficial to small farmer who cannot afford farming equipment at higher cost. And one person can be easily handle this machine.

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