

# Design, Fabrication and Experimentation of Equidistant Seed Sowing Cum Fertilizer Machine

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## Abstract

Machines are designed for improving the productivity as well as performance. Now a day's world is moving towards rapid growth of all sectors including the agricultural sector. The present paper provides brief information about the various types of innovations done in seed sowing machine available for plantation. The seed sowing machine is a key component of agriculture.

**Keywords: Metering mechanism, plantation, Fertilizer Machine**

## I. INTRODUCTION

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. 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 high-capacity machines. Manual method of seed planting, results in low seed placement, spacing efficiencies and serious back ache for the farmer which limits the size of field that can be planted.

### A. Metering Mechanism

External force feed seed metering systems employ a rotating member in the form of a fluted or a peg/studded roller to regulate seed flow from the seed box to the seed delivery system. In both cases, as the roller rotates the seed is moved and metered by the external surface of the roller.

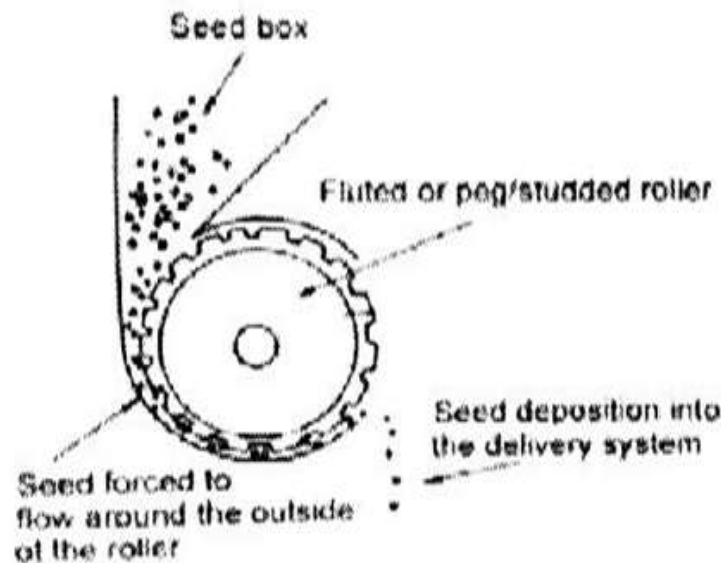


Fig. 1: Metering mechanism



Fig. 2: Actual Working Model

## II. WORKING

As soon as the machine is pulled by the power source i.e., bullock cart or tractor, the ground wheel holds the grip on the surface of the field, the motion is transferred from teeth wheel shaft to main shaft by chain, the main shaft is rotated and the seeds are poured from hopper to the groove the seed metering mechanism, as the hole matches with hopper seed fall down into the hose and from hose to the ground.

The teeth ploughs the soil in a definite pattern. For different types of seeds the manual forward and sideward spacing of the pouring is necessary. The seed to seed distance is managed by nut and bolt same for row wise distance.

### A. *Benefits of Proposed Seed Sowing Machine*

- Equidistant sowing of seed in efficient way.
- Row distance can be arranged.
- Same machine for variety of seed.
- Simple to handle.
- Simple in construction and working.
- Low maintenance cost.
- Parts can be easily replaced.
- Mixed cropping can be done.
- Equidistant placement of seeds gives exact number of plants in hector.
- Save time of sowing.
- Sowing distance can be change by changing the gear arrangement.

## III. CONCLUSION

- 1) This equipment is useful to farmer for reducing the manual efforts and hence increasing the productivity.
- 2) The level and appropriate choice of agricultural seed sowing equipment has direct effects on land and labor productivity, farm income, environment and the quality of life of small-scale farmers in India.
- 3) This is multi-utility bullock driven flexible equipment which can be used as equidistance seed sowing as well as for ploughing. It can also be made engine driven with little improvement. The study showed superiority of the improved seed metering device over the older version.
- 4) Mixed cropping is obtained at the same time. Crops such as 'Jowar, Tuar, Udad, Bajra, Soyabin, and Wheat' are sown efficiently by using this equidistant seed sowing machine.

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