

## **DEVELOPMENT OF MULTIFUNCTION AGRICULTURE MACHINE**

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### **1 ABSTRACT**

*When we think of cultivating the field the first thing that comes in our mind is tractor which has cultivator attached to it. But the problem arises after cultivating the process after that is manual and consume a lot of time. In India 65% of families do farm practice for the living. In few years later if we compare our India than other nations in terms of production rate the we realized India is certainly lagging. In present time the agricultural scenario of manual method of seed bow, low crop yield and serious backache for the farmer which limits the size of field can be planted. Now a days, the cost price of agriculture tractor increasing day by day which creates problem to farmer to purchase tractor. So, to overcome from these factor a study has been carried out to develop multipurpose agriculture machine for performing major agricultural operations like- bow seeds, goods carrying, water filling and levelling to increase the efficiency and reduce production cost of farmer. This vehicle is named as KISSAN all in one which consists various agricultural implements which can be easily assembled and disassembled by single person only.*

### **2 INTRODUCTION**

A study has been carried out over the years agricultural practices carried out by small land holders cultivating between 2 to 3 hectare with human effort and traditional tools like- wooden plough, leveller, harrow, etc. According to present scenario, in India the increase in demand for the various agricultural machine is arise. Most of the farmers are not capable to purchase all the machines which reduces the production rate, income of farmers, etc.

To get a rid from these factors we are designing the project which functions satisfy machine requirements. The main purpose of this machine is to fulfil the need of operation and to increase the output of farmers. Here we are designing prototype which satisfy the basic need of farmer.

### **3 SCOPE AND OBJECTIVE OF THE PROJECT**

Multipurpose agriculture tractor mainly focuses to enhance the productivity and efficiency of farmers by performing multiple operations at a time. The amount of human effort will reduce and greater amount of work can be obtained. We are looking this project as a revolution in small farms in India, which is uncovered area in this sector is cost and more efficient way.

### **4 IMPORTANCE OF PROJECT**

The importance of this project is to reduce the work of farmers and to increase the productivity. And also to help small scale farmers to fulfil the need and supply of the market. With the help of multipurpose agricultural tractor the farmers can the crop more easily seeding and ploughing easily in less time at low cost by taken into account different factors such as- ease of operation time of operation and cost of equipments. The tractor can be easily handle by unskilled operators or persons.

### **5 LITERATURE REVIEW**

Here, we are designing multipurpose agriculture machine which can do many operation at a time. In order to do this work we have undergone by various author as follows:

- I. Nitin Pv et. He designed a robot which can dig the soil, sow seeds, level the soil and sprays the water. The movement of vehicle is controlled by relay switch power an IR sensor.
- II. F.A. Adams B.G Jahun and B.B Babangida in this paper authors draws our attention on the performance factor of a power tiller. Authors discussed on the fuel efficiency and field capacity. We have taken out these points in consideration while designing a multipurpose agriculture tractor.
- III. Rajesh et. Al. He studied the materials of solar cell which can effect the overall efficiency. The developed a solar pesticide sprayer which is easy to use and beneficial in terms of cost of spraying saving of fuel, etc. over fuel engine pesticide sprayer.
- IV. Mohammad Muneer he emphasized on designing parameters of the grass cutter and he done a lot of research to reduce the cost of material to be used.
- V. V.K Tewari, Ashok Kumar, Satya Prakash Kumar, Brajesh Narel. In this research papers authors have done case study on farm mechanization in west Bengal as being part of India it give clear status about availability and progress in India.

## 6 DESIGN



Fig.1 Multifunction tractor

## 7 PARTS

### (1) Steel frame

It is the most important and main part of the model. All the components will be mounted on it. Its major is to support the whole apparatus and provide a rigid structure.



Fig.2 Steel Frame

### (2) Tyres

Wheels are implanted on the model to make it mobile. This increases the ease of operation and reduces the effects of imbalanced forces to a small extent.



Fig.3 Tyres

### (3) Water tank

A lightweight portable PVC water tank is used to carry water required for irrigation. The water travels through a narrow nozzle like structure and comes out in adequate amount with force. This also helps in reducing the wastage of water.



Fig.4 Water Tank

**(4) Mechanical vibrator**

It is a mechanical device which will provide the necessary to and fro motion required for seeds to be dispersed. The power requirement of this vibrator is very low.



Fig.5 Mechanical Vibrator

**(5) Perforated seed box**

A perforated box is coupled with vibrator and serves the purpose of dispersing the seeds with accuracy in amount and quality.

**(6) Agricultural leveller**

An agricultural leveller of the shape and size of conventional leveller is used for levelling of the tilled land



Fig.6 Agricultural Leveller

**(7) Cultivator**

A cultivator is used to cultivate the land in the desired depth keeping the fertility of the soil intact.



Fig.7 Cultivator

#### **(8) Plastic nozzle**

Plastic nozzles of appropriate diameter and cross section are used to ensure the exact amount of water being delivered at the required site only. This puts a check on wastage of water.



Fig.8 Plastic Nozzle

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### **9 CONCLUSION**

From the above work the conclusions were drawn by using multipurpose agricultural machine we can perform all the operation (**which were done by the farmers manually**) with one labour only in less time with less human effort. As, we all know very well if the farmer works in field whole day the get strained whereas a machine cannot.

At last, it is concluded that the **device is more economical**.

### **10 BIOGRAPHY**

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