Fabrication of Multipurpose Agriculture Machine

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***Abstract*- India stand second in worldwide in farming sector agriculture product plays very importance role. Approximately 36% world engaged in agriculture with India's 70% population being directly and indirectly depend on this sector. If we observed that with increased the population. The farm get distributed among the family. So now they have only 2 acre farm in economically farmer. So they are not able to purchased costly equipment. Basically many farmer in India's also used manual labors and working animal for farming operation. Therefore for the development of agriculture new technology have to be made for working in this field. So we are thinking that human and animal effort can be replace advance mechanization. So we are fabricate new machine.**

Fabrication of solar operated multipurpose agricultural machine. This equipment which will satisfy all this need and solve labors problems. In this machine 12 volt battery, solar panel 100 volt. This machine perform three farming operation seed sowing pesticide spraying and also grass cutting which is use small scale farming.

***Index terms*- Engine, Seed Sowing Mechanism, Cutter, Pesticides Spraying, Nozzle, Hopper.**

INTRODUCTION

Agriculture has been back bone of economy and it will containing to remain. History of agriculture dates back thousands of year and it is development has been driven and define by greatly climates, cultures and technology. Out of the various reasons involve for this evolution is controlled of various diseases on crops. During the initial days three as only hand spraying people used to do then slowly there has been development of various method to spray out chemicals and dusts. If we observe that with increase in population the farm gets distributed amounts the family and because of this farmer in India held averagely only two acre farm also Economically farm very poor due to which they are enable to purchase tractors and other costly equipment hence they are traditional method of farming.

So we are thinking that human and animals effort can be replace by the some advance technology which will be suitable for more scale farmer. So we are fabricating this machine which will be satisfy the need of and also to solve the labor problem and manually operation.

Problem Definition

1. Cost of mechanism is high.
2. Required more man power.

Aim

"Fabrication of Multipurpose Agriculture Machine" For performing major agriculture operation like Seed Sowing, Pesticides Spraying and Grass Cutting.

Objective

1. It is beneficial for agriculture purpose.
2. Human and animal effort can be replaced by mechanism (for farmer economical and effort point of view).
3. It is also use in other type of farming or grass cutting for anywhere such as garden, lawn, etc.
4. As time should be short and more work should be done
5. Easy to farming work and middle level farmer can be purchase this machine.

LITERATURE REVIEW

1. Nitish Das et.al (April 2015) In this research paper author has mentioned day to day the population of India is increase and to fulfil the need of food modernization of agriculture sector are importance. So they are fabricated "Agriculture fertilizer and pesticides sprayer" It

will the cost of production. Mechanization give higher productivity in minimum input.

2. Dr. C. N. Sakhale et.al (2016) in this research paper author has mentioned importance of mechanisation in agriculture. So they are thinking that human and animal efforts can be replace by so advance mechanisation which is suitable for small scale farmer. So they are developing multipurpose agriculture machine. This machine perform various farming operation in less time and economically.
3. PatilNikhil et.al (5 may 2018) In this research paper author gives statement about agriculture field. Face some problem such as how to minimize the loses and how to increase productivity and how to minimize cost. So they are think and using some mechanization they fabricated of "fabrication of multipurpose agriculture machine" It is perform (ploughing, digging, seed sowing pesticide pouring soil covering) all of this functions have perform using a single machine. It is use in farming and agriculture
4. Abdul Raheem et.al (7 July 2018) In this research paper author gives statement of multipurpose agriculture equipment's is basic and major equipment in involved in agriculture for maximum yielding, convection method of planting and cultivation the crops is a laborious process . Hence that the reason they is scarcity of labours this result is delayed agriculture to overcomes these difficulties they fabricated and design multipurpose agriculture machine. This performs digging of soil fertilizer spraying and seed sowing etc.
5. Sharath T. et.al (2019) In this research paper author observed that with increase in population the farm gets distributed among the family and because of this farmer in India held averagely only two acre farms also economically the farmers are very poor due to which they are unable to purchased tractor and other costly equipment's. Hence they are thinking that human and animal efforts can be replace by some advance mechanization which is suitable for small scale farmers. So they develop digging machine and spraying machine use motor and next two operation are manual based which is cultivation and sowing.

METHODOLOGY

LITERATURE REVIEW

First we have identify some research paper according to our project. We read it completely and find out some conclusion about it. We find out some parameters to regarding to our machine and also the working process of our project. We find out some problems from others research paper project so our aim to find the remedies about that problems. We found required space, load, material, their composition so that we can easily find that material in the market.

MARKET SURVEY

For we using to fabricate multipurpose agricultural machine. We purchased cutter and seed sowing mechanism We are conduct market survey for collecting information about engines hopper and many components which is used in machine and we going to farm for identifying different soil in farming and distance of two seeds in each farm.

PURCHASED

Before the purchasing components we compared the petrol engine, diesel engine and solar system. For which one help full and low costly for poor and rural farmer. We purchased some components like hopper, pipe, spraying mechanism, iron, rod, nut, bolts, and wheel.

FABRICATION

We fabricate the previous multipurpose agricultural machine by our new idea and new technology.

ASSEMBLE

We assemble the all components of machine on main frame by using nuts, bolts welding and also screw. Cutter and sprayer assemble the front of main frame, and also seed sowing mechanism mount on bottom of frame. Solar panel mount on main frame at above the machine it is adjustable according to requirement.

ANALYSIS AND TESTING

After assembling the machine we analysis the machine for proper working and where it is problems in machine for driving forward and backward direction the machine. And all components which is properly working or not in that purpose.

OUTPUTS

Multipurpose agricultural machine are properly working in farming and very use full for poor and rural side farmers.

BLOCK DIAGRAM

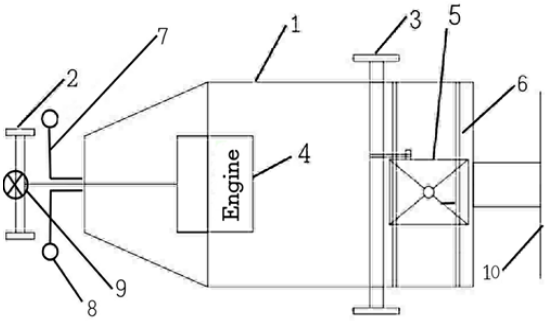

Fig.1 BLOCK DIAGRAM

COMPONENTS

1.Main Frame	2. Front Wheel
3. Rear Wheel	4. Engine
5.Seed Sowing mechanism	6.Pesticides Spraying Box
7. Spraying pipe	8. Sprinkler
9. Cutter	10. Handle

CONSTRUCTION

The construction of "fabrication of multipurpose agriculture machine" are as follows:

1. CONSTRUCTION OF MAIN FRAME OR BODY AND WHEEL

The main frame is mounted on the rear wheels with the help of bearing and shaft, the one base is provided on the front side of the machine for mounting the engine and another base is provided on the back side of the machine for mounting the pesticides storage box and seed sowing assembly.

The chain and sprocket wheel is connected from the left side of the rear wheel to the gear mounted on the back side of the machine with the help of bearings for the transmitting power during the pesticides spraying process. And the handle is attach to the back side of the machine for the operating of the machine and give the desire direction of the machine and the accelerator is provided on the right hand of the handle and the accelerator is connected to the engine through the accelerator cable and wire.

2. CONSTRUCTION OF GRASS CUTTER ASSEMBLY

For the operation of grass cutting engine is mounted on a front side of the machine and clutch housing is connected to the engine. And the grass cutter mechanism is connected to the clutch housing shaft.

3. CONSTRUCTION OF PESTICIDES SPRAYER

Pesticides spraying box is mounted on the base of the back side of the machine and the sprinkler is mounted on the front side of the machine with the help of supporting rod and the number of holes is provided on the supporting rod for the adjustment of sprinkler as per our requirement and the sprinkler is connected to the pesticides spraying box with the help of pipe.

The chain and sprocket wheel is connected from the left side of the rear wheel to the gear mounted on the back side of the machine with the help of bearings for the transmitting power during the pesticides spraying process. And the cam and follower mechanism is attach from the piston of the pesticides spraying box to the shaft of the bearing which gear is to be attach driving by the chain and sprocket wheel mechanism.

4. CONSTRUCTION OF SEED SOWING

The seed sowing assembly is mounted on the base of the back side of the machine and the chain is connected from the gear of the seed sowing mechanism to another gear which is mounted on the middle of the rear wheel shaft. And the one pipe is connected to the bottom of the seeder box to the ground. And the soil cover is connected to the other end of the pipe of the ground for the seed is transfer from the seeder into the soil.

WORKING

1. Working of grass cutting

For the operation of grass cutting the grass cutter is attach to the shaft of the clutch housing. Then the switch is on from the accelerator and the engine is start with the help of the starter. During this process power is given to the grass cutter from the engine and driving the machine manually by the operator.

Fig.2 GRASS CUTTING ASSEMBLY

2. Working of pesticide sprinkler

For the operation of pesticide spraying the pesticide box is mounted on the back side of the machine and connect the sprinkler attachment. Then remove the grass cutter mechanism and connect the gear head to the shaft of the clutch housing and front wheels is attach to the shaft of the gear head with the help of lock pin.

During the operation of pesticides sprinkler the machine is drive by the front wheel and the power of the engine is gives to the front wheel with the help of gear head and clutch housing. After starting the engine power is supplied to the front wheel from the engine and the front wheel gates rotates and also the rear wheels gates rotes by the front wheel. And the pesticides box is operate by the chain and gear arrangement. The driver gear is attached with the rear wheel and driven gear is mounted on the frame near pesticides box. When the rear wheels is rotate then the gear are also gets rotate and piston is moves linear direction inside the box during pesticide spraying the rotational motion is converted into linear motion. And spraying operation will be done

Fig.3 PESTICIDE SPRINKLER ASSEMBLY

3. Working of seed sowing

For the operation of seed sowing the seeder assembly is mounted on the back side of the machine and connected the chain from gear of the seeder to the another gear which is mounted on the shaft of the rear wheel. Then remove the grass cutter mechanism and connect the gear head to the shaft of the clutch housing and front wheels is attach to the shaft of the gear head with the help of lock pin.

During the seed sowing operation machine is drive same as the working of the spraying operation, the only change in this operation the seeder attachment is drive by the chain which is connected to the rear wheel and the seeder. The seeds are pour into the hopper and the adjusted the flow of seed by the opening the rack and pinion attachment.

Then the seed is collected by the floated roller from the one side of the seeder and drops into the hole on the another side of the seeder and then seed is comes into the soil with the help of the pipe connected to the bottom of the hole of the seeder and after seed is come into the soil the seeds are covered by the soil with the help of soil cover which is attach to the bottom of the pipe, Hence the seed sowing operation will be done.

Fig.4 SEED SOWING ASSEMBLY

FUTURE SCOPE

1. In future the modification of in this machine we are doing harvesting, cultivation, tiller, bed making for the sugar cane and potato farming.
2. In future the wheels of the machine replace by the new and better efficient wheels for doing work in muddy soil.
3. In future we can increase power output of the engine for doing fast and efficient working.
4. Also doing better modification in sprinkler for doing efficient work.

CONCLUSION

This multipurpose agriculture machine is very useful for poor and rural area farmers. It perform cutting operation, pesticides spraying, operation, seed sowing operation on a one petrol engine so the cost of this equipment Is low.

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