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"AUTOMATIC MULCHING PAPER LAYING MACHINE"

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Abstract —*We know that avoiding growth of the weed on farm is very costly and time consuming task. Also in dry areas maintaining moisture in soil is very important for crop life. Mulching the plastic paper film near the root area of plants is for eliminating the rise of weeds also to retaining water and avoid de-moisturizing the soil but this process requires lots of capital and time. .So 'Drip irrigation pipe and Mulching paper laying machine' will reduce the labor cost and time, It will do both the jobs i.e. laying irrigation pipe and mulching paper on the ground at a time.*

Keywords- *Cylinder Size, Cylinder Number, Implement Speed, Operating Air Pressure*

I. INTRODUCTION

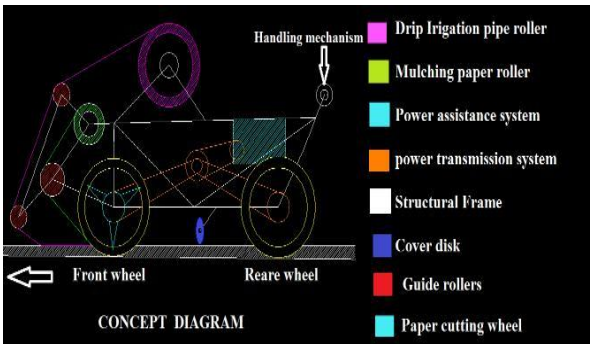
To meet the growing needs of the farmers who wish continuously to improve the profitability of their farming by using more efficient materials and machineries this will be one of the method which will help for improving it. 'Drip irrigation pipe and Mulching paper laying Machine' will be able to do the laying the irrigation pipe as well mulching paper simultaneously.

"A pneumatic dibbling machine for plastic mulch", American society of agricultural and biological engineers, applied engineering in agriculture.

Laying the drip irrigation pipe and mulching paper requires lots of labors cost and time. It will be effort less for farmer by reducing the capital cost and time of laying the mulching paper using the most convenient method **a**s well placing the drip irrigation pipe in one pass of the machine.

PROBLEM STATEMENT

Laying the drip irrigation pipe and mulching paper requires lots of labors cost and time. So using this above technique we can eliminate all above problems.



CONSTRUCTION

Methodology

The frame is designed for the heavy duty operation because it should be able to withstand at high loads, Shocks and the weight of the components which are acting on it. There are various materials available with various sizes and shapes i.e.

angles, strips but we selected the Square cross- sectioned MS pipe because of its Strength and ease of machining. The square pipes are available in market at various sizes and we selected the 1 inch square pipe.

The main function of the frame is to support the whole assembly .It is made up of the 1 inch square pipe

.Another systems are attached to the frame such as mulching paper rollers, drip irrigation pipe roller, motor, axle and wheels etc.

This is our cross section of pipe used for fabrication of chassis of mulching machine. It is 1 inch and 1 mm thick square cross section pipe of M. S. material.

WORKING

The main purpose of the machine is to lay the mulching paper on the beds of the soil as well as the drip pipe with it. reducing the capital cost and time of laying the mulching paper using the most convenient methods well placing the drip irrigation pipe in one pass of the machine.

When the motor start rotating it transmits the rotary motion towards the axle through the chain drive and the whole machine starts moving.

Though the wheels starts rotating and at the same time paper is placed under the front wheels because of that the mulching paper roll is also starts rotating and starts unwound. As machine moves forward the paper is also continues un-wounding and lay on the beds.

As we know the paper cutting wheel is mounted on the front wheel which rotates with the axle it also starts making holes on the paper and as the machine speed varies at the same rate the cutting wheels speed varies and hence the hole are made at specified fixed length at any speed.

Objective

Reducing the capital cost and time of laying the mulching paper using the most convenient method **a**s well placing the drip irrigation pipe in one pass of the machine. Making a compact system of laying the mulch paper and irrigation pipe which will suit Indian small size land conditions.

Typically, the use of plastic mulches results in higher yields, improvement of yields quality and decreased need of irrigation and pesticides and reduced leach of fertilizers to water systems.

Basically, there are two types of mulches depending upon the material used as mulching.

1) Organic Mulches

The organic materials such as crop residues & by-products, farm yard manure & by-products of timber industry, when used for mulching, are known as organic mulches. Organic mulches create no post utilization disposal problem but their availability is an issue.

2) In-Organic Mulches (Plastic Mulches)

The in-organic materials such as plastic films, when used for mulching, are known as in-organic mulches. While natural mulches may not be available at all times & places, plastic mulches can be made available in different colours& thickness to obtain the desired results.

FUTURE SCOPE

A. More Efficient

We can implement it on solar for reducing fuel cost required for working to mulch paper laying.

Automatic Mulch Paper Cutting Mechanism we can provide while it goes to end of sari in the farm instead of Manually.

So, we can reduce the working cost.

The cover disc mechanism is mounted on the both side of the frame just behind the front tyres are collecting the soil and covering the mulching paper under it. The height of the cover discs can be arranged as per requirement as per the amount of the soil.It is the mechanism which is used for covering the mulching paper with the soil to avoid the disturbance of paper from its position. Basically job of this mechanism is collect the soil and cover the paper at its both ends.

CONCLUSION

In this paper, we designed a "Advance Mulching Paper Laying Machine" application which is in a Agriculture, which is going to Laying a paper with reducing human effort and also cost required for employee for laying Mulch Paper on Bed. This system does not need more human labour, Mulch paper avoid the waste water, and Stop the growth of grass. Also in this method we use some Mechanical Mean so the working time is less as compared to the conventional method.

REFERENCES

[1] M. J. Lawrence, D. R. Buckmaster,W. J. Lamont, Jr.[1], "a pneumatic dibbling machine for plastic mulch", American society of agricultural and biological

[2] Cirujeda , A. Anzalone , J. Aibar , M.M. Moreno , C.

Zaragoza [3], "control with paper mulch in processing tomato", Crop Protection ,vol.39, year 2012 , page 66-71.