International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435(Online) Volume 4, Issue 4, April 2015)

Recent Development in Agricultural Machine: Cocktail Harvester

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***Abstract*- In this study, the modern machine going to establish for agriculture work easily and effortless with minimum cost and less time as well as less labor requirement engineer are busy in designing separate machine for farm work with different way, such type of machine for harvesting all types of crop are design cocktail harvester.it worked as per manually worked sequenced stepwise while removing crops from farm, it cuts the crop and carry in one side of farm. And machine is in compact size and less costly available, easily handle and fuel also required also less rate. For harvesting, wheat, millet, maize, rice, grass above the ground crops as well as below the ground means potato, onion, carrot, bits also harvest and collects at one side with single labor work in 2 hours for 1 hector in 1 liter fuel.it is more advantages for harvester for farmers with minimum size, less weight, less cost, more time saving machine, easily and effortless operation.**

***Keyword*- Agricultural equipment, harvester, sickle.**

I. INTRODUCTION

As we know harvester is most important machine for farm. Harvester is the machine saving more time of farm work.it is reduce human effort. Harvester also reduce the cost of labor. It is the operation of cutting, picking, plucking and digging or a combination of these operations for removing the crop from under the ground or above the ground or removing the useful part or fruits from plants. Harvesting can be done by:

(i) Manually operated tool
(ii) Animal drawn machine
(iii) Mechanically operated machine.

Cocktail harvester is the mixture of the all type of harvester. It's worked as sequenced such as cut a grass by sickle. Sickle is a simple harvesting tool. It is used for harvesting crops and cutting other vegetation. It essentially consists of a metallic blade and a wooden handle. When sickle is cut a grass at that time the cutting grass collect in a collector.

When cutting grass is drop in collector then collector is full then empty the collector and continues the cutting process. Cocktail harvester is simple working and construction. Cocktail harvester very safe machine while working. Harvesting action can be done by four ways:

1) Slicing action with a sharp tool.
2) Tearing action with a rough serrated edge
3) High velocity single element impact with sharp or dull edge.
4) Two elements scissors type action.

There are a few related terms in connection with harvesting, which are as below:

1) Mower: It is a machine to cut herbage crops and leave them in swath.

2) Reaper: It is a machine to cut grain crops. It is a reaper, which cuts the crops and ties them into neat and uniform sheaves. It cuts the crop at the height of about 10 cm from the ground level. The harvesting capacity is 0.25-0.35 ha/h.

3) Groundnut digger shaker: It is used for digging of groundnut crop. It is a tractor mounted PTO operated machine, suited for harvesting of both erect and spreading varieties of groundnut crop, grown in all types of soil. It consists of digging blade and a spike tooth conveyor.

4) Potato digger elevator: It is used for digging and windrowing the potatoes. The equipment is a PTO operated single row machine. The machine consists of cutting blade and elevator roller chain of iron bars. The potatoes are dug by the blade and lifted to a conveyor which is under periodic shaking. The potatoes are delivered at the rear of machine and collected manually. It is a tractor rear mounted PTO driven machine. Its capacity may be 0.15-0.2 ha/h. It can be operated by a 20-25 hp tractor. The groundnut vines are loosened by the blade and whole crop is lifted and Shaken by conveyor chain to remove all the soils. Thereafter the vines free of soil are dropped and windrowed behind the machine. The vines are collected manually.

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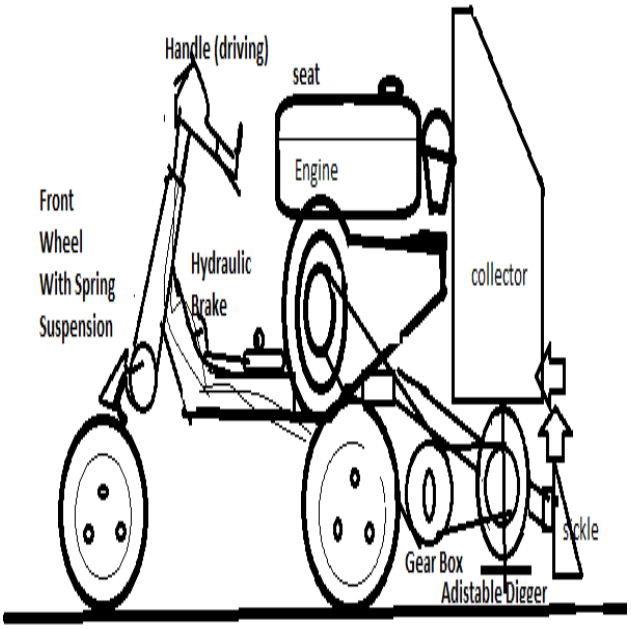

Fig. Model of-Cocktail Harvester m/c

II. In Brief Content Of Project

The cocktail harvester consists of 5.5H.P air cooled diesel engine as power source of machine. Power transmitted to wheel through belt to gear box and axle towards wheel. Gear box for speed control of driving machine, another gear box for to operate cutter magazine and RPM maintain, automated wrapping PLC unit, Axle with bevel gear arrangement housing carrying total machine load near about 200 Kg. all that arrangement on 2 quantity I shape Channel and channel are Align on two wheel basis. Handle for driving machine which content brake, clutch, accelerator, gear shifting, headlight switch and PLC unit ON-OFF operating. Mostly try to machine making easy to operated and mechanically automated with simple linkages.

Plus Point By Using This Setup:

By using this Harvester we can reduces the effort, time, money, fuel, size of machine, labour, etc…

By using Single machine number of crop can be removed, make its bundle, and collect at one side of farm. Machine also Content grass cutter unit for ideally stands condition work.

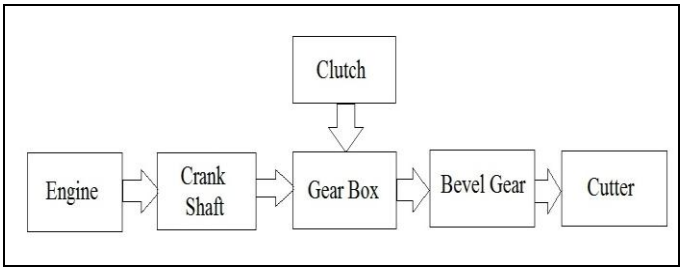

Fig. Block Diagram of Cocktail Harvester Working

III. Objective Of Work

1. towards the innovation through engineering
2. To reduce effort of crop harvesting because it is mostly economically and time consuming process to remove crop from farm rather than the seeding and growth of crops, so cocktail harvester reduce that time, labour.
3. for number of crop harvester single machine used.
4. Initial cost, maintenance cost, running cost as possible as low.
5. Machine easy to operate and understand.
6. Cocktail harvester Very safe machine while working.
7. It also works whenever stand condition means always in engaged with work.
8. We can work day-night with machine.
9. Less weight as compare to other

IV. Advantages

1) To reduce human effort.
2) To reduce cost of farming & availability of harvesting machine towards everyone farmer
3) Number of crops can be harvesting by using single machine such as potato, onion, bits, cauliflower, cabbage, maize, wheat, rice, millet etc.
4) Reduce size, cost, of harvester machine

V. Conclusion

1. Harvesting mechanization for main crops-an urgent demand of agricultural goods production.
2. The study and manufacturing of rice combine harvester with one-step harvesting technology has been carried out by many individuals, mechanical firms as well as scientific institutes. Models like GLH –0.2 and GLH –0.3A finished with relatively perfectiveness, but haven't been mass-produced (lack of taking part of manufacturing industry for improving durability, reliability and reasonable price).

3. Harvesting mechanization for main crops is a large and complex field of science and technology, the international cooperation is essential to satisfy the increasing demand of production.

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