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DEVELOPMENT PNEUMATIC OPERATED CORN SHELLER MACHINE

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Abstract:
Corn is grown by farmers in developing countries such as India on a large scale. More maize peeling techniques are used in our daily lives in India. The main problems with these techniques are that the use of old methods leads to more losses in the production rate. Therefore, today's farmers must use the new techniques to increase the production rate and also reduce man's power. But these machines are not affordable for farmers who have fewer farms and do not need these large machines. This is synopsis is about the idea of creating and machine for corn peeling and shelling machine, having compact size, more production rate and provision for separation of cobs and shells from one side at appropriate height and corn seeds from another side.

Keywords: Production, reduce, power, peeling & Shelling.

INTRODUCTION

Corn is one of the agricultural products that have a lot of benefits, such as a staple food, vegetable oil, fodder, various snacks, and corn flour. The background of this research is the ineffectiveness of corn farmers in threshing corn seeds caused in the processing is still done manually. The purpose of this research was to obtain a design and threshing tool for corn seed that fit customer needs. The results of this research are obtained dimensions of the corn thresher size tool with a height of 85 cm, a length of 50 cm and a width of 30 cm. To be adaptable environmental and not noisy, this corn thresher uses a pneumatic operated. One of the advantages of this corn thresher, corn does not scatter because it is made the funnel. What is corn? Corn is a tall annual cereal grass (Zea mays) that is widely grown for its large elongated ears of starchy seeds. The seeds, which are also known as corn, are used as food for humans and livestock and as a source of biofuel and can be processed into a wide range of useful chemicals. India most of the farmer shell corn by mainly three methods namely shelling cob grain by hand; hand operated corn sheller and beating by stick method were carried for removing corn kernel from the cob. For removal of corn shells and deseending of the corns with minimum damage to the corns, people uses various method out of those two methods are described;I.I Manual shelling and threshing: In many regions of the india corn shelling amd threshing is done manually, this method is conventional but productivity and output from that method is low and that's why there is a need to switch mechanical motorized system for corn shelling and threshing. I.II: Mechanical shelling ans threshing; Mechanical motorized corn sheller and thresher gives more desirable results than manual conventional method of corn shelling and threshing. It tends to saving of the time and also leads to save money. It is desirable to use low-cost corn sheller and thresher for economical work and to increase the

productivity. Along with this there are several electrical operated corn shelling machine for mass shelling. Mostly farmers used to take their unshelled corns to such industries were they get their final product that is shelled corn and then they used to shell this product to the market. This incurred the cost of transportation between farms to machine industry increase the cost of product. This research aimed at developing a portable, low cost, locally fabricated machine which can easily maintained by the peasant farmers. Also the machine can perform both shelling and threshing operations simultaneously.

METHODOLOGY

To construct working drawing of assembly by computer aided design procedure. To select optimum compressor for threshing and shelling operation To design a frame to sustain all these accessories and all loads developed by it. To design cutter for shelling operation smoothly To design direction control valve for threshing and shelling operation To design pneumatic cylinder for shelling operation To perform test on corn having different moisture contain form 20% To analyse results test conduct different moisture content and modification Analysis of results obtained To construct working drawing of assembly by computer aided design procedure. To select optimum compressor for threshing and shelling operation To design a frame to sustain all these accessories and all loads developed by it. To design cutter for shelling operation smoothly To design direction control valve for threshing and shelling operation To design pneumatic cylinder for shelling operation To perform test on corn having different moisture contain form 20% To analyse results test conduct different moisture content and modification Analysis of results obtained

RESULT

Results obtained show that the electric corn shelling machine developed in this study is cost effective and has a shelling efficiency of 91.4%, whereas the manual corn sheller was shown to have an efficiency of 45% or less. Because of the high need of corn grains, it leads to the invention of a wonderful tool called the corn sheller which helps in shelling the kernels from the cob as well as makes shelling faster and easier

Sr.	No Name of resources	Specification	Quantity
1	Pneumatic cylinder	Diameter 40 / stroke 200	1
2	Direction control valve	12V D.C power	1
3	Corn sheller die		2
4	Mild steel pipe	1”	20ft

Conclusion

There is a lack of automatic operated, efficient and cheap Corn Sheller m achine in market, which can be afforded by poor andmarginalized farmers in developing countries. Performance of Sheller machine depends on moi sture content in Corn, materialfeed rate and speed of blade. Sheller is design based on physical and mechanical properties of Corn The processing of agricultural product into quality forms not only prolongs the useful life of these products but also increases the net profit farmers make from such products. In this work, emphasis was placed on demand led design an appropriate system that meets that need. Market days would also be used as an opportunity to show the farmers and agroprocessors the advantage of using the corn sheller. The project carried out by us made an

impressing task in the field of agriculture. It is very usefully for the workers to carry out a number of operations in a single machine. This project has also reduced the cost involved in the concern project has been designed to perform the entire requirement task which has also been provided. The de-seeding machine has been designed, Cobbing and Separating Machine" AJER, Vol. developedand fabricatedby keepingin mind, the 03, Issue 06, 2014 The deseeding machine was tested in the machine shop and later taken to the field. It worked well in the field conditions and gives a better output. The manoeuvrability of the device is quite good and the handling is quite simple. The seed discharging mechanism is effective and corn seeds can be discharged off very easily. A single person can efficiently operate this corn shelling and threshing machine. It takes less weeding time compared to manual shelling and threshing of machine. Controlled feed rate and from working as per directions on can achieved greater productivity. It is portable corn shelling and threshing machine with collecting system which can be driven by automatically.

Future Scope

1. We can use hydraulic pressure instead of pneumatic pressure.
2. We can use adjustable die instead of cutter.
3. We can make vertical corn sheller machine.
4. We can use electric corn sheller machine.

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