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Development and Fabrication of Innovative Plough

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Abstract: *Farming to feed families is becoming increasingly difficult, time-consuming, and labor intensive in village communities With difficulty in obtaining and carrying equipment to the field, farmers are reliant on using traditional hand equipment, which is laborious*
The farmer would farm in the village with the old type of ploughing and there would be no type of comfortable space to sit and do the farming. We studied those problems and designed an innovative plough for the farmers for comfortable or continuous farming without any stress. To help overcome this problem, the research/project "Design, Design and Evaluation of Portable Plows" will introduce the "portable plow", a lightweight, simple and inexpensive metal plow. The plow was created by modifying and building an old scooter, removing unnecessary parts and placing the modification in the appropriate location on the plow. time The aim of the program is to make small but significant changes in the way of agriculture by revolving around these elements. This project is just a prototype and the design can later be used for mass production/commercial use.

Keywords: Farming

I. INTRODUCTION

1] Agriculture sector Plough is one of the most important agricultural equipment for farmers. It helps to break up the soil, remove weeds, and prepare the ground for planting. provides approximately one-third of global employment; More than half are in sub- Saharan Africa and nearly 60% are in low-income countries. As the country grew,labor-saving innovations increased agricultural production by reducing the low demand for labor per unit of output, while other jobs had previously drawn workers away from agriculture. At the same time,the combination of labor and labor demand has led to a decrease in the number of workers working in agriculture.

2] Farming varies from farm to farm depending on resource availability and constraints;
Permaculture practices are not only beneficial for the environment but also for the farmer's profit. Innovation can contribute to the economic and long-term success of the agricultural sector by reducing input costs, increasing yield and quality, and increasing resilience to climate change Plow designs can meet the changing needs of farmers and the environment while eliminating the limitations of traditional designs.

3] This guide provides a comprehensive overview of the innovative development and production of embroidery designs; It covers a wide range of topics such as designs, product production technology, technology thinking about integration and ergonomics, safety, regional testing and agricultural issues. The overall purpose of this article is to provide an in-depth exploration of the various processes involved in the development and production of new plow designs. Examining everything in detail and utilizing a variety of sources including educational materials, business materials, research materials and experts' opinions, Create and innovate plow designs covering design, data science, manufacturing techniques, technology integration, ergonomic considerations, sustainability, field testing methodology and a variety of agriculture- related topics. The overall purpose of this article is to provide an in-depth exploration of the various processes involved in the development and production of new plow designs. Analyzing everything in detail and drawing from a variety of sources, including academic papers, business papers, research papers and experts, these papers are designed to provide insight into the challenges and opportunities associated with new technologies.

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II. LITERATURE REVIEW

According to

1] International Rice Research Institute, many constraints limit the introduction of machines into the agriculture of developing countries. Small land holdings, excess labor in the agricultural sector, and the lack of capital have limited the adoption of mechanization. Above all, the introduction of mechanization should not create serious problems where rural labor is plentiful. The impact of agricultural mechanization on female labor needs particular attention. The aim should be to reduce drudgery, improve efficiency 2]Ethiopian Ard plough is the most commonly used farm tool in Ethiopia. Nevertheless, using this plough as farm tool is labour intensive, time taking, making shallow depth and narrow cutting width. Thus, this research is initiated to come up with a solution to the aforementioned problems. Therefore, the objectives of this research were to model the basic components of animal drawn multiple mouldboard plough, to fabricate and test the prototype.

1](P.Vijay, 2013 In their project, the shaft carried all the main of the mechanical plough cum seed like the wheels, pull rod, basins and the plough rods. The design of this shaft was done in a way that it should have the strength and the stress was developed at all the joins equally. Specially, the plough rods were clamped to the bearings of the shaft and were designed in as C-clamps that they have been made of cast iron. These were at an angle and are placed somewhat back to the seeding position that after seeding this plough will be levelling the ground and then ploughs the field. The design was of low cost comparatively and accounts less than 50% of the existing costs

2] practices; these practices are suitable for a whole chain of actors, including public and private institutions, agro - based industries, manufacturers, service providers, and extension officers, to name several. The fact that these technologies are being used and developed in Bangladesh farm settings highlights the important role of the manufacturing industry as the provider and developer of technologies suited to farmers in developing countries. (Krupnik, et al., 2013) 3]In 1892 john Froelich invented & built the first gasoline/petrol powered tractor

4] mouldboard is the part of the heavy plow from which its principal advantages on clay soils derive. The first advantage is that it turns the soil, which allows for both better weed control on clay soil in damp climates and incorporation of crop residues, green manure, animal manure, or other substances into the soil (Guul-Simonsen et al., 2002;Richerson, 2001). The second advantage is that mouldboard plowing produces high-backed ridges, which contributes to more efficient drainage of clay soils. ..

5] Holland J.M (2002) The Environmental consequences of adopting conservation tillage in Europe: reviewing the evidence. Agricultural Ecosystems & Environment 103 (2004) 1-25 (Nonorganic) Conservation Tillage (CT) reduces soil erosion and pollution through run-off by between 15% and 89% and so nutrient and pesticide pollution such that fertiliser application rates can be reduced leading to a reduction in P loading in run-off of 24%. Further where CT is practiced streams support

greater levels of insect life

III. METHODOLOGY WITH DESIGN

Literature. International Rice Research Institute, many constraints limit the introduction of machines into the agriculture of developing countries. Small land holdings, excess labor in the agricultural sector, and the lack of capital have limited the adoption of mechanization. Above all, the introduction of mechanization should not create serious problems where rural labor is plentiful. The impact of agricultural mechanization on female labor needs particular attention.

2] Ethiopian Ard plough is the most commonly used farm tool in Ethiopia. Nevertheless, using this plough as farm tool is labour intensive, time taking, making shallow depth and narrow cutting width. Thus, this research is initiated to come up with a solution to the aforementioned problems. Therefore,the objectives of this research were to model the basic components of animal drawn multiple mouldboard plough, to fabricate and test the prototype

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IV. DESIGN

BYCYLE CUTTING PIPE

ANGLE JOINED METAL WELDED FRAME

1] bycycle we cut the part which has 1] 22cm breath
Sit and Shock up mechanism which is used breath 2]96cm leg pipe thickness
for Sitting and which is going to use for length

1]5.5mm of thickness

2] 5cm

3]36cm
3]2pipe 3mm 1inch pipe

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FINAL DESIGN OF INNOVATIVE PLOUGH

Figure.3:- FABRICATION OF INNOVATIVE PLOUGH

V. FUNCTION

The new plow can break up the soil and turn it into agriculture. However, depending on the specific design and operation of the plow, its capabilities will vary. Here are some possibilities of the new plow:

1] Soil Aeration: Mash compacted soil to improve aeration, promote good root growth and overall soil health. : Some new designs may include methods or features that effectively eliminate weeds when laying the soil, thus reducing the need for additional weed control. Minimizing soil impact when performing seed preparation and weed management. This also helps reduce soil erosion and improve soil health. Overlap.

2] Versatility: Some of the new farming designs are versatile enough to adapt to different soil types, terrain and tillage methods, allowing farmers to develop their operations according to specific conditions.

3] Increase yield: Finally, the main function of the new plow is to make the farm more productive by preparing the land for planting, thus reducing the environmental and economic impact of resource use while maximizing yield.

TESTING:

1] Soil Aeration: Break up compacted soil to improve aeration and promote good root development and overall soil health. mechanisms or plant functions, thus reducing the need for additional plant control. Turf management. This also helps reduce soil erosion and improve soil health. overlapping.

2 Conservation tillage: Use conservation tillage that minimizes soil disturbance while also allowing for efficient seed preparation and weed control. This also helps reduce soil erosion and improve soil health.

3] Environmental Impact Assessment: Assess the environmental impact of the new facility, including carbon emissions, energy consumption, and potential impact on biodiversity and ecosystem services.

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APPLICATIONS: Tillage: In degraded or compacted soils, new plowing with subsoil can help create the compacted layer and improve soil aeration and drainage. This helps rehabilitate the soil and encourages agricultural regeneration. Continuous innovation in plow design and operation contributes to the advancement of permaculture practices.

MODIFICATION: 1]Improvements in new plows can result from many factors, including user input, technological advances and agricultural changes. Here are some changes that can improve the performance and performance of your new plow:

Improve blade design: Experiment with different blades, materials and upgraded settings to increase soil penetration, cutting efficiency and durability. The blades are designed to minimize the impact of soil while keeping the soil compacted. . This may include hydraulic or mechanical means to control depth during operation.

2] Modular Design: Design new plows with modular components that can be easily replaced or adapted to different tillage methods, soil types and areas. Farmers can mix and match mods to create a farm that suits their specific needs.

ADJUSTABLE DEPTH CONTROL: It has a mechanism that easily adjusts the depth to suit different soils and crop types. This may include hydraulic or mechanical means to control depth during operation.

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