



DESIGN AND FABRICATION OF COW DUNG POT MAKING MACHINE

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Abstract : *The purpose of this study is to make an environment healthy, pollution free and depreciate animal atrocity for this we have to make an alternative thing such as it will be non-hazardous to environment so by being this some amount of nature will be pure. Using a cross-sectional analysis, this study analyzed that Dung is an available by product of livestock, farmer's use them as a various way such as fuel, flooring, plastering of house and it has environmental value. Cows dung is used as a source of bio-fertilizer as it is very effective's alternative to chemical fertilizers. Cow dung manure and vermicompost increase soil organic matter content, and this leads to amend water infiltration and water storage capacity as well as raised cation interchange capacity. Application of cow dung in proper and sustainable way which enhance productivity in long term and microbial population but also minimizes bacterial and fungal pathogenic diseases. This study definitively answers the question regarding environmental effects by designing a machine to address these characteristics. Our creativity idea and technical knowledge can afford low cost solution towards improving livelihood options and their economic condition to enhance environmental value of dung in farmer's life.*

Keywords – *Atrocity, Depreciate, Livestock, Microbial, Pathogenic.*

I. INTRODUCTION

In India as we known there is a deforestation and artificial things as increases due to which it affect on environment in such a situation we have to make solution by alternating and avoiding artificial things. Changing times and degree of urbanization had resulted in observing and experimenting cow dung as raw material for new use of application. In fact national program were launched like zero waste management. Howsoever creative idea for enhancing the scope of environmental and for addressing society requirements need to continuously emerge. It involves a technology that can able to hold and get the same percentage value in the scale of production as required by market capital. As India is Agriculture based country many people live on agriculture for income resources. many farmers have cow for their income source by selling Milk based products. But cow dung is getting waste. We can use this dung for making products from it. So by using this cow dung we are making a pot. As this pot is beneficial towards environment and also one helping hand for farmer. The pots are Make from natural way and there Is no additives are added so there is ho hazardous to environment. As this is an organic way of making pot we can see that plants growth are much better due to getting proper nutrients to stem. So by making solution on it we try to reduce some amount of problem which are facing by environment.

1.1 Objective of study

- It will provide alternative income source to farmers.
- The cow dung pot can be useful for tree plantation and decoration purpose.
- Utilize maximum byproduct to earn maximum profit.

- Ecofriendly product had great value in society.
- Keep cost of machine is low so everyone can afford it.

1.2 Constraints and requirements

As the pot makes from cow dung but for making pot we required a manually operating machine which can hold the compressive strength and gives good finishing. For making pot machine we have to consider various parameter. The machine is mainly consist of hydraulic jack, extension or tension spring and the body is made up of mild steel. To get a proper structure of pot we are using mold as a EN8 material. Before making this machine we have to make calculation and Ansys so that we will know that we are getting proper structure as per are requirement. But as we using an hydraulic jack we as to check its maintenance as per production unit. As for making pot we cannot use the fresh cow dung we have to kept this cow dung for 3 to 4 days for make it dry. For making dry we have to check twice a day so that it make as same as soil and also do watering in between those days that will help to get good finishing structure and some amount of stiffness. Thus making pot from cow dung will helps the environment and nature.

II. METHODOLOGY

We study some reference paper of cow dung pot making machine and we improve the results and by considering their work we come to following methodology.

2.1 Design process

Design plays important role in project. Initially we go through with rough design in which we check that our design will satisfy our requirement or not. Then we Ansys each and every term. In optimum design process were we select the best possible design which satisfying certain criteria from adequate rough design. After finalization of design we use solid works for cad model and Ansys for analysis of design. In which if we found our design is safe then only we proceed for further procedure. In next step we can select materials as per our requirement.

2.2 Fabrication process

After completion of design process we move towards the fabrication process. In which material selection is important because we have to select a long lasting material with low cost but durable and strong.

To design the machine following operation are carried out such as:

1. Selection of material which is easily available and have high strength and toughness.
2. Machinability to get required output.
3. Drilling operation are carried out such as the structure get proper aligned by nut and bolt.
4. To manufacture designed structure grinding operation are used initially to cut the part as per measured value.
5. position of hydraulic jack should be adjusted in such a way that it should balanced the structure.
6. Tension spring are used so that hydraulic jack should gain original position after releasing it.

Procedure for raw material cow dung as follows:

- Take bucket or drum, Add cow dung cakes at level of bucket. Add water into to it till cake completely submerged into it.
- After submerging, cover the mixture and leave it for 20-24 hrs. until water color does not change brown or blackish color.
- Uncover the mixture, Drain water into other containers. We can use that water as a fertilizer for plants.
- Then crush them until it became a powder.
- After that add mud into it to make it more and durable. We can also cow urine into it.
- Then mix the mixture well and leave into sunlight for 20-24 hrs.
- Now, we can use this material for making our pot.



Fig 2.2 Dry cow dung

2.3 Final process

In the last stage we will check our machine working as per our requirement. Then we go for checking of product obtain from machine. After that if machine and product we get are proper then only we proceed for final touch and quality check.

STRENGTH AND DURABILITY TEST:

- For performing this test, we need to perform experiment such as finding density, water absorption capillary, effect of weather conditions.
- To perform this experiment we will increase the percentage of cow dung with soil to find effect of cow dung on density of pot.
- To check effect of weather condition on pot we will perform abrasive to check is their effect on pot or change in quality of pot and is sustainable or not. By increasing percentage of cow dung, we will conclude the results.
- To check water absorption, we soaked pot in water to check is their any effect of water on the pot.

III .FIGURES AND TABLES

EN8 carbon steel: EN8 carbon steel is common medium carbon, which show strength over mild steel , through hardening medium carbon steel. EN8 carbon steel is also manually machinable in any operation.

Tensile strength	550 MPa at normalized
Yield stress *10 ⁶ Pa	280 Pa at normalized
Tensile strength	660 MPa at cold drawn(thin)
Yield stress *10 ⁶ Pa	530 Pa at cold drawn(thin)

TABLE 3.1 Properties of EN8 material



Fig 3.1 EN8 material

Mild Steel: 2.1% carbon contain in carbon steel and enhances the properties of pure iron. The carbon content varies depending on the requirements for the steel. Carbon contain 0.05 to 0.25 percent are categorized Low carbon steels

TABLE 3.2 Properties of Mild steel material

Tensile strength(ultimate)	44 MPa
Tensile strength(yield)	370 MPa
Hardness	131
Elongation at break (in 50mm)	15.0 %



Fig 3.2 Mild Steel material

Spring Steel: Spring steel are usually low alloy manganese, medium carbon steel or high carbon steel with a very high yield strength. This allows structure which manufacture by spring steel to return to there elasticity despite significant deflection or twisting.



Fig 3.3 Spring steel

Hydraulic jack: We are going to use hydraulic jack in our machine which is generally use for lifting purpose. Its parts are manufactured by steel material and rubber, plastic.in hydraulic jack, uses a liquid which is incompressible. After that manufacturing of no of components with proper dimension using above materials. Then final assembly of parts as per CAD model. At last in the fabrication process we check working of each and every part properly so that if any error is there we can solve it within time. We have to make a soil like loose cow dung material in which no foreign particles present.



Fig 3.4 Hydraulic jack

IV. CONCLUSION

The research study had illustrated that depreciate the artificial things and helpful to environment. As cow dung is naturally good fertilizer so the output come from this is beneficial to environment and human health. Due to this we will increase greenery to our society. This had enhanced the naturally value of livestock byproduct Dung. These low cost locally available technologies will be provided opportunity for diversified farm income and enable inclusive growth of development. The research also showcased their ability to act as interface to produce environment friendly value added product.

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