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# CARABAO MANURE AS MAIN COMPONENT IN MAKING POT

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**Abstract**

Carabao manure is an organic factor contributing to the improvement of soil structure and has been proven to be a beneficial fertilizer for plants. For this reason, the researchers proposed the use of a garden pot made primarily from carabao manure, which is not only cost-effective but also durable, eco-friendly, and biodegradable. This innovation aims to promote healthier plant growth, reduce transplant shock, and minimize waste. To investigate the feasibility of using carabao manure as the main component in pot-making, a research study titled "Carabao Manure as the Primary Ingredient in Pot Production" was conducted at Cagayan Valley Computer and Information Technology College, located at #28 Carreon St., Cento East, Santiago City, Isabela. To assess the acceptability of the manure pots, the researchers conducted a survey, randomly selecting five participants for each of the three treatments. These treatments included: Treatment 1: Comprising 70% carabao manure, 30% clay, and water; Treatment 2: Comprising 70% carabao manure, 30% cement, and water; and Treatment 3: Consisting of 100% carabao manure and water. The findings indicated that Treatment 1 was rated as 'Less Accepted' for scent and texture but 'Very Much Accepted' for durability. Treatment 2 received a 'Less Accepted' rating for scent and texture and a 'Not Accepted' rating for durability. Treatment 3 was rated as 'Less Accepted' for scent, texture, and durability. In conclusion, the researchers found that carabao manure is a viable main component for making pots, especially when mixed with clay."

**Keywords:** Carabao manure, Pot-making, Claypots, Experimental research

## 1. INTRODUCTION

A pot is a receptacle used for cultivating and displaying flowers and various plants. Garden pots typically found in the market are typically constructed from materials such as ceramic, metal or plastic (Freund & Freund, 2015). Ceramic pots are classic choices due to their neutral, warm colors that complement almost any plant. However, unlined ceramic pots can quickly dry out once filled with soil. Metal

pots, when exposed to sunlight, can become hot and potentially harm plants by drying out the soil too rapidly (Chhogyel, et. al., 2015).

Manure pots will serve as garden containers made from carabao manure, rich in nitrogen, and compared to conventional pots, they are biodegradable. They offer an eco-friendly alternative to plastic waste and are particularly well-suited for starting or transplanting plants, resulting in minimal waste (Odivilas, 2012). The process of creating manure pots involves the initial digestion of carabao manure, generating biogas for farm use while simultaneously improving soil health. Furthermore, manure pots prove to be a cost-effective alternative to pricier options like ceramic and metal pots. Additionally, they can be produced in one's backyard, utilizing readily available components found in the surroundings, especially on farms (Kumar, 2015).

On the other hand, plastic pots are known for their lightweight nature and diverse options. However, they are susceptible to being knocked over and can become brittle, easily cracking outdoors. One drawback of using plastic pots is their tendency to retain excess moisture, potentially leading to over-watering and damage to plant roots, especially when they have insufficient drainage holes (Odivilas, 2012).

To address these issues, the researchers have proposed an innovative approach to pot production, distinct from traditional pots. With the well-being of both plants and gardeners in mind, they have conceived the idea of crafting organic pots. These organic pots, to be named "manure pots," will be crafted using readily available carabao (water buffalo) manure as the primary component. Carabao manure is abundant in the local area and is rich in essential elements for plant growth, including Phosphorus, Nitrogen, Potassium, and micronutrients. Its organic carbon content provides a valuable environment for enhanced nutrient absorption, contributing significantly to plant health.

## 2. RESEARCH METHODOLOGY

This study is experimental in nature, as it employs a scientific approach to assess the acceptability of carabao manure as the primary component in pot-making. The data collection methods utilized include group discussions, observations, and individual interviews. Random participants were selected to respond to questionnaires as part of a survey for each treatment, with five participants completing the survey for each treatment. In total, there were 15 participants in this study.

The researchers themselves were responsible for observing the product. This study was conducted at Cagayan Valley Computer and Information Technology College, situated at #28 Carreon St., Cento East, Santiago City, Isabela. The experiments and observations were carried out outside the campus at the most convenient times for the researchers.

Before gathering data, the researchers followed several preliminary procedures. These included instrument preparation, questionnaire development, and planning strategies for distributing the product and questionnaires to the respondents. They also completed the data collection process. The researchers initiated the data gathering process by distributing the product and questionnaires to the respondents. These respondents evaluated the acceptability of the manure pot and rated each treatment separately. Following the data collection and testing phase, respondents returned the questionnaires to the researchers who had provided them. The researchers then analyzed the results of the product testing to determine which treatment was deemed the most acceptable. It's important to note that all answers were treated with strict confidentiality. The following are the materials used in the study:

| **Materials** | **Quantity** | **Image** | **Description/ Use** |
|---|---|---|---|
| Carabao Manure | 2kg |  | Manure is a solid waste from farm animals that is used to make soil fr better growing plants. Dry manure is a used as the main component in making a manure pot. |
| Cement | 600g |  | Cement is a soft gray powder that is mixed with water and other substances to make it concrete. It is used to be added on the main component to make sure that the pot will not be easy to be broken. |
| Clay | 600g |  | Clay is a heavy and sticky type of soil that becomes hard when dried. It is used to be added on the main component so that it will be easier to be molded and so that the pot will not be easy to shatter. |
| Water | 250ml |  | Water is a clear liquid that has no colour, taste, or smell. In this study, it is used as a solvent to mix the components that is used on making the manure pot. |

## 3. RESULTS AND DISCUSSION

| Photo of the Finished Product | Treatment | Observation/Findings |
|---|---|---|
|  | ***Treatment#1:*** *70% Carabao Manure + 30% Clay + Water* | The scent and texture of treatment 1 were Less Accepted while its Durability was Very Much Accepted. |
|  | ***Treatment#2:*** *70% Carabao Manure + 30% Cement + Water* | The scent and texture of treatment 2 were Less Accepted while its Durability was Not Accepted. |
|  | ***Treatment#3:*** *100% Carabao Manure + Water* | The scent, texture and durability of treatment 3 were Less Accepted. |

A. Acceptability of Carabao Manure using the Treatment No.1 (70% carabao manure + 30% clay + water)

**Table 1.1**

*Acceptability of Treatment No. 1 in terms of Scent*

| Scent | Mean | DI |
|---|---|---|
| Odorous | 1.60 | Less Accepted |
| Odorless | 3.60 | Very Much Accepted |
| Stinky | 1.20 | Not Accepted |
| Grand Mean | **2.13** | **Less accepted** |

Results on Table 1.1 shows that Odorless was Very Much Accepted with mean score of 3.60, Odorous was Less Accepted with mean score of 1.60, and stinky was Not Accepted with mean score of 1.20. It also shows that the total descriptive interpretation was Less Accepted with Grand mean score 2.13.

**Table 1.2**

*Acceptability of Treatment No. 1 in terms of Texture*

| Texture | Mean | DI |
|---|---|---|
| Rough | 2.60 | Accepted |
| Soft | 1.00 | Not Accepted |
| Hard | 3.80 | Very much Accepted |
| Smooth | 1.80 | Less Accepted |
| Grand mean | **2.30** | **Less accepted** |

Results on Table 1.2 shows that Hard was Less Accepted with mean score of 3.80, Rough was Accepted with mean score of 2.60, Smooth was Less Accepted with mean score of 1.80, and Soft was Not Accepted with mean score of 1.00. It also shows that the total descriptive interpretation was Less Accepted with Grand mean score 2.30.

**Table 1.3**

*Acceptability of Treatment No. 1 in terms of Durability*

| | Mean | DI |
|---|---|---|
| **Durability** | 3.80 | Very Much Accepted |
| Grand Mean | **3.80** | **Very Much Accepted** |

Results on Table 1.3 shows that the of Durability of treatment 1 was Very Much Accepted with Mean score and Grand mean score of 3.80.

B. Acceptability of Carabao Manure using the Treatment No. 2 (70% carabao manure + 30% cement + water)

**Table 2.1**

*Acceptability of Treatment No. 2 in terms of Scent*

| Scent | Mean | DI |
|---|---|---|
| Odorous | 1.40 | Not Accepted |
| Odorless | 1.00 | Not Accepted |
| Stinky | 3.60 | Very Much Accepted |
| Grand Mean | **2.00** | **Less Accepted** |

Results on Table 2.1 shows that Stinky was Very Much Accepted with mean score of 3.60 While Odorless and Odorous were Not Accepted with mean scores of 1.40 and 1.00 respectively. It also shows that the Total descriptive interpretation was Less Accepted with Grand mean of 2.00.

**Table 2.2**

*Acceptability of Treatment No. 2 in terms of Texture*

| Texture | Mean | DI |
|---|---|---|
| Rough | 3.40 | Accepted |
| Soft | 1.00 | Not Accepted |
| Hard | 3.20 | Accepted |
| Smooth | 1.00 | Not Accepted |
| Grand mean | **2.15** | **Less Accepted** |

Results on Table 2.2 shows that Rough and Hard were Accepted with mean scores of 3.40 and 3.20 respectively while Soft and Smooth were Not Accepted with mean scores of both 1.00. It also shows that the total descriptive interpretation is Less Accepted with Grand mean of 2.15.

**Table 2.3**

*Acceptability of Treatment No. 2 in terms of Durability*

| | Mean | DI |
|---|---|---|
| **Durability** | 1.40 | Not Accepted |
| Grand Mean | **1.40** | **Not Accepted** |

Results on Table 2.3 shows that the of Durability of treatment 2 was Not Accepted with Mean score and Grand mean score of 1.40.

C. Acceptability of Carabao Manure using the Treatment No. 3 (100% carabao manure + water)

**Table 3.1**

*Acceptability of Treatment No. 3 in terms of Scent*

| Scent | Mean | DI |
|---|---|---|
| Odorous | 1.00 | Not Accepted |
| Odorless | 1.00 | Not Accepted |
| Stinky | 3.20 | Accepted |
| Grand Mean | **1.73** | **Less Accepted** |

Results on Table 3.1 shows that Stinky was Accepted with mean score of 3.20 while Odorous and Odorless were Not Accepted with both mean scores of 1.00. It also shows that the total descriptive interpretation is Less Accepted with Grand mean of 1.73.

**Table 3.2**

*Acceptability of Treatment No. 3 in terms of Texture*

| Texture | Mean | DI |
|---|---|---|
| Rough | 1.00 | Accepted |
| Soft | 3.40 | Accepted |
| Hard | 1.80 | Accepted |
| Smooth | 1.00 | Accepted |
| Grand mean | **1.80** | **Less Accepted** |

Results on Table 3.2 shows that Rough, Soft, Hard and Smooth were Accepted with mean scores of 1.00, 3.40, 1.80, and 1.00 respectively. It also shows that the total descriptive interpretation was Less Accepted with Grand Mean score of 1.80.

**Table 3.3**

*Acceptability of Treatment No. 3 in terms of Durability*

| | Mean | DI |
|---|---|---|
| **Durability** | 1.80 | Less Accepted |
| Grand Mean | **1.80** | **Less Accepted** |

Results on Table 3.3 shows that the Durability of treatment 3 was Less Accepted with Mean and Grand mean score of 1.80.

## 4. CONCLUSIONS AND FUTURE WORKS

Based on the objectives and findings of the study, the following are drawn:

1. Treatment 1 emerged as the most favorable option, earning high marks in terms of scent, texture, and durability. Following closely, Treatment 2 garnered the second-highest acceptance, particularly excelling in texture and scent, albeit falling short in terms of durability. Meanwhile, Treatment 3 demonstrated the second-highest level of durability acceptance but was rated lower in terms of scent and texture.
2. Overall, these results affirm the viability and acceptance of carabao manure as a primary component in pot production.
3. The study underscores that further studies like this have the potential to address concerns related to plant health, environmental sustainability, and cost-effectiveness, offering a promising alternative to conventional pot materials. These type of research studies not only contribute to the field of gardening and horticulture but also encourages the utilization of organic resources in innovative ways to enhance plant cultivation practices.

## References

Ali, M. and Narciso, J. (2016). Economic evaluation and farmer's perception of green manure use in rice based farming system. Manila: International rice Research Institute.

Chhogyet N. (2015). Effect of organic fertilization on rice crop performance, soil animal population and microbial diversity in organic and conventional soils. Australia. University of New Zealand.

Chhogyet N. (2015). Effect of organic fertilization on rice crop performance, soil animal population and microbial diversity in organic and conventional soils. Pak. J. Agri., Agril. Engg., Vet. Sci., 31(2), 159-170.

Freund Matthew R. and Freund Benjamin J. (2015). Agricultural products developed from manure. IFI CLAIMS Patent Services.

Kumar, A. (2015). Effect of Organic Manures on the Growth of Cymbopogon citratus and Chrysopogonzizanioides for the Phytoremediation of Chromite-Asbestos Mine Waste: A Pot Scale Experiment. National library of medicine.

LPELC Admin. (2019). Environmental benefit of manure application. National Institute of food and agriculture 1-2. March 2019, https://lpelc.org/environmental-benefits-of-manure-application/

Micahels, Kerry. (2021). 7 materials used for plat containers. The spruce, 1-7. March 2021, https://www.thespruce.com/all-about-choosing-plant-containers-847998

Odivilas, O. Florita. (2016). Organic Fertilizer Vis-d-vis Growth performance of Euphorbia fulgens. Philippines. Eastern Samar State University.