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Direct Utilization of Dry Goat Manure as Base Fertilizer on Dry Land for Eggplant Plants in Majene Regency

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Abstract
Majene Regency, West Sulawesi, is a region with dry agro-climate characteristics that are challenging for the growth of horticultural crops such as eggplant. The decline in eggplant productivity in West Sulawesi is suspected to be due to dependence on synthetic chemical fertilizers that damage soil structure and are not adaptive to dry land conditions. Based on sustainable agriculture theory, dry goat manure is considered an alternative organic fertilizer rich in macronutrients and granular texture that supports soil aeration and drainage. This study aims to assess the effectiveness of direct use of dry goat manure as a base fertilizer to increase eggplant plant growth using a field experiment method consisting of five dry goat manure dosage treatments: K0 = Control, K1 = 208g/Polybag, K2 = 416g/Polybag, K3 = 624g/Polybag, K4 = 832g/Polybag. The results showed that the K3 treatment had a significant effect on plant height, number of leaves, and stem diameter compared to all other treatments. The novelty of the study lies in the approach of direct use of dry goat manure without a modern fermentation process, which is considered more practical and efficient for local farmers. This finding opens up opportunities for optimizing livestock waste as an environmentally friendly agricultural input, while also addressing agronomic challenges in dry land areas such as Majene. This study recommends the use of dry goat manure as a base fertilizer in horticultural cultivation in dry areas.

Keywords: Eggplant Growth; Goat Manure; Majene; Organic Fertilizer

Introduction

Drylands are areas characterized by sandy to clayey soil, poor in organic matter, and susceptible to degradation such as erosion and drought, and generally less fertile soil conditions. In Indonesia, drylands cover a fairly large area, covering 144 million hectares out of a total of 192 million hectares. Drylands present unique challenges in agricultural management, as they experience changes in environmental suitability, which can impact production yields (BRIN, 2024).

Majene Regency, West Sulawesi, is an area with dry land characteristics that make it challenging for the growth of horticultural crops such as eggplant (Solanum melongena). According to data BPS, (2024) that eggplant productivity in the West Sulawesi region experienced a decline from 2,250 tons/1,110.5 ha in 2020 to 1,661 tons/4,742 ha in 2022, this indicates a decline in yield increases (Ratule, 2024).

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One of the causes of low productivity is farmers' dependence on the use of synthetic chemical fertilizers which are not environmentally friendly and can damage soil structure, thus affecting soil fertility in the long term (Indriyati et al., 2024). The soil in the Majene region is mostly classified as Alfisol. This type of soil is characterized by low fertility, particularly in terms of nutrient availability (Syamsiyah et al., 2023).

Various efforts can be made to increase the availability of nutrients in the soil, one of which is by providing organic materials as a more adaptive and sustainable fertilizer, such as dry goat manure. Direct use of dried goat manure in cultivation activities is a practical solution for farmers. This is because dried goat manure is a source of organic material rich in macronutrients such as nitrogen (N), phosphorus (P), and potassium (K), and has a texture suitable for sandy or light clay soils (Sabania et al., 2024).

On the other hand, Majene Regency is one of the centers for goat livestock development with a population of 69,222 and is ranked second in West Sulawesi.(BPS, 2022)This population is considered quite high, but the waste is generally not utilized and is often left in livestock areas for extended periods, allowing the natural decomposition of goat manure. This is evidenced by the physical characteristics of goat manure, which is blackish-brown in color, has an earthy odor, and is crumbly (Surya et al., 2021). The longer the composting process, the lower the C/N ratio, as the C content in the compost material decreases significantly and the nitrogen content increases (Maula, 2023).

Using goat manure that has not been completely dried without prior decomposition can cause serious problems. To accelerate the decomposition of goat manure, certain microorganisms are usually added as activators. However, the fertilizer produced from composting with these additives has not had much of a significant effect on plant growth. This is in line with the results of previous research conducted by Abdillah et al. (2023), which showed that the use of goat manure fertilizer decomposed with the help of microorganisms did not significantly increase vegetative growth in eggplant plants. This is because the addition of goat manure was not fully mature and the dosage was still insufficient to support the generative growth of eggplant plants, which require more nutrients.

Therefore, the direct use of dried goat manure supports the principles of sustainable agriculture and a circular economy, where livestock waste is converted into productive inputs, particularly in Majene. This aligns with the environmentally friendly agricultural development agenda promoted by the Ministry of Agriculture and various international organizations, such as the FAO. The use of organic fertilizer can also increase soil microbial activity and improve nutrient uptake efficiency by plants.

Based on the above description, this research is crucial for scientifically assessing the effectiveness of directly using dried goat manure as a base fertilizer in dryland eggplant crops in Majene Regency. This research not only addresses agronomic challenges but also provides practical solutions for local farmers to increase productivity sustainably and based on local resources.

Literature Review

Goat manure is a livestock waste product that has significant potential as a raw material for organic fertilizer. In the context of sustainable agriculture, the use of organic fertilizer from goat manure is an important alternative to reduce dependence on chemical fertilizers, which can damage soil structure and fertility (Maula, 2023).

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Goat manure is granular, resulting in well-drained soil. Goat manure contains various types of microbes, including Lactobacillus sp., Bacillus sp., Saccharomyces, Actinomycetes, and Aspergillus. The process of decomposing goat manure into manure involves complex and synergistic microbial activity. Microbes such as Lactobacillus sp. and Saccharomyces sp. play a role in the initial stages of fermentation, especially under anaerobic conditions. Lactobacillus produces lactic acid, which lowers pH and inhibits the growth of pathogenic microorganisms, while Saccharomyces ferments simple sugars into alcohol and organic acids, which accelerate the softening of organic matter. Research by (Jesvica et al., 2024) shows that the use of fermentative microbes can increase composting efficiency and accelerate decomposition time by up to 30% anaerobically compared to conventional methods. Anaerobic conditions can lead to the dominance of Lactobacillus sp. and Saccharomyces sp. microbes, which are effective in initial fermentation, but are unable to completely decompose complex compounds such as lignocellulose. As a result, the composting process does not reach optimal maturity, and the resulting fertilizer tends to have a high C/N ratio and an unpleasant aroma. This is in line with research conducted by (Prayoga et al., 2022) which states that composting goat manure under anaerobic conditions produces fertilizer with lower soil aggregate stability than aerobic processes. Therefore, although anaerobic microbes play an important role, the presence of oxygen remains crucial to support the activity of complex decomposing microbes and produce high-quality manure.

On the other hand, the activity of microbes such as Bacillus sp., Aspergillus sp., and Actinomycetes tends to decrease because aerobic microorganisms require oxygen for optimal metabolism. The presence of Bacillus and Aspergillus is essential for producing important enzymes such as proteases and cellulases in oxygenated environments. When under anaerobic conditions, the production of these enzymes is drastically reduced, so the decomposition process of organic matter becomes slower and inefficient in producing nutrients in organic matter. In line with studies by Lu et al. (2021) shows that the presence of Bacillus and Aspergillus in goat manure can increase the nitrogen content and improve the texture of the fertilizer, making it more easily absorbed by plants.

In addition, actinomycetes, which play a role in lignin decomposition and humus formation, also experience decreased activity because they are classified as facultative aerobic microbes that are more active in conditions with sufficient oxygen. In the final stages of composting, actinomycetes play a crucial role in humus formation by decomposing lignin and durable organic compounds. These microbes produce the enzymes lignase and cellulase, which are capable of breaking down hard materials such as straw and coarse fiber in goat manure. Research by Nurkanto (nd) Studies have shown that actinomycete activity contributes to increased organic carbon content and soil structural stability. This microbial combination makes goat manure not only a nutrient source but also an environmentally friendly and sustainable soil conditioner.

The presence of these microbes in goat manure added to the soil not only accelerates the composting process but also improves fertility, soil health, and nutrient uptake efficiency by plants. Mucus secretions can cause soil particles to become granular due to the microbial activity in goat manure, which can improve aeration and soil quality (Suarmaprasetya et al., 2021). Furthermore, goat manure contains macronutrients such as nitrogen (N), phosphorus (P), and potassium (K), which are essential for plant growth. This makes it a good source of nutrients for plants. Furthermore, goat manure's drier texture compared to cow or chicken manure makes it easier to process and store (Ziyad et al., 2024).

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The novelty of this research, the direct application of dried goat manure as a growing medium, offers a new approach that differs from conventional methods that first involve fermentation or further composting. This novelty lies in exploring the potential of naturally dried goat manure as a primary component or mixture in growing media without further decomposition. This approach is considered more practical and time-saving, especially for smallholder farmers or urban farming communities with limited processing facilities. Dried goat manure has a porous texture and low water content, thus improving aeration and drainage of the growing medium. Furthermore, the remaining nutrients can be directly utilized by plants, although further study of their impact on soil microbiota and potential ammonia residues is needed. This research opens new opportunities in optimizing livestock waste as an efficient agricultural input, while supporting the principles of regenerative agriculture and a circular economy.

Research Method

The research was conducted in Lembang Village, East Banggae District, Majene Regency, West Sulawesi in April - June 2025. The materials and tools used in this study were arrow brand eggplant seeds, dry soil, dry goat manure (Kombiker), rice husks, hoes, stationery, meters, hand sprayers, watering cans, vernier calipers, and polybags. The research method used was a field experiment using a non-factorial randomized block design (RAK) consisting of 5 treatments of dry goat manure, namely: K0 = Control, K1 = 208g/Polybag, K2 = 416g/Polybag, K3 = 624g/Polybag, K4 = 832g/Polybag. Each treatment consisted of 3 plant units and was repeated 4 times each so that the total number of experiments was 60 experimental units. This study used the analysis of variance (ANOVA) method with Excel software to test differences between treatments. If the analysis results show a significant difference, then it is continued with testing using the Honestly Significant Difference (HSD) method at a significance level of 5%.

Research Implementation

Preparation

The initial stage of the research began with seed preparation. The seeds used were eggplant seeds with a 90% viability rate, obtained from an agricultural supply store in packages containing 400 seeds. The sowing process was carried out systematically using 10 x 15 cm polybags filled with a 1:1 mixture of dry soil and organic matter. After the seeds were planted, the surface was covered with a thin layer of soil and watered carefully every morning and evening. The seedlings were considered ready to be transplanted to the planting area when they showed good growth and had 3 to 4 leaves (Haris et al., 2024).

Making Planting Media

The planting medium used in the polybags was dryland soil mixed with rice husks in a 1:1 ratio. Goat manure was then added to the medium, according to the treatment applied in the study. The mixed medium was then placed into 35 cm x 35 cm polybags. After the filling process was complete, each polybag was labeled based on the treatment combination and the number of replicates that had been previously designed.

Planting

The seeds that have been sown are transferred to the planting medium in polybags according to the specified treatment, with a planting hole depth of between 5 and 10 cm. Each polybag is filled with one seed, then watered sufficiently to maintain humidity. After the planting process is complete, the polybags are arranged with a distance between units of 30 cm x 30 cm to provide

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optimal growing space for the plants.

Maintenance

Plant maintenance activities include watering, weeding, pest control, and the installation of stakes. Watering is done routinely every morning and evening to maintain soil moisture. Weeding involves removing weeds growing around the plants to prevent them from interfering with their growth. Pest and disease control is carried out by spraying pesticides according to the recommended dosage. Stakes are installed 7 days after planting (DAP) to prevent physical damage from mechanical disturbances or wind.

Harvesting

Harvesting begins when the plants reach 60 days after planting (DAP). Harvesting is carried out three times, with a seven-day interval between the first and the next. Fruit ready for harvest is characterized by a shiny surface, optimal size, and an early stage of ripeness. The recommended time for harvesting is morning or evening. Harvesting involves picking the fruit along with the stalk using a sharp tool to avoid damaging the plant.

Observation

Observation parameters included plant height (cm), number of leaves (leaflets), stem diameter (cm), and number of fruits per plant. Measurements of plant height, leaf number, and stem diameter were taken from 7 to 49 days after planting at 14-day intervals. Observations of the number of fruits per plant were made by counting all harvested fruits per plant.

Results and Discussion

Plant Height (cm)

Based on the analysis of variance, the direct application of goat manure as a base fertilizer significantly affected the growth of eggplant plants (cm). The average plant height for each treatment using dry goat manure as a planting medium is shown in Table 1.

Tabel 1. Average Plant Height with Direct Application of Dry Goat Manure (cm)

Treatment	Observation (DAP)			
	7	21	35	49
K0	7.69b	12.62ab	16.45a	24.75a
K1	3.00a	10.34a	21.17ab	25.37ab
K2	13.12d	29.73c	35.05c	39.78c
K3	10.29bc	34.80d	39.58c	44.84c
K4	11.18 cd	31.23 cd	37.77c	38.79c
BNJ	2.79	4.94	4.91	6.35

Description: Numbers followed by different letters are significantly different, and numbers followed by the same letters are not significantly different based on the 5% BNJ test.

Based on the results of statistical analysis, it shows that the average height of eggplant plants showed a significant difference in the treatment compared to the control. This is suspected to be due to the effect of goat manure with different concentration levels having good effectiveness on eggplant plant growth. Soil conditions that are given dry goat manure as a base fertilizer can increase nutrient availability so that the addition of goat manure shows a significant effect on the growth of eggplant plant height. Plant height is greatly influenced by metabolic processes within the plant itself. In the process of metabolic

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activity, plants are influenced by nutrients contained in added organic materials. Nitrogen (N) plays a role in chlorophyll formation and protein synthesis, which encourages rapid stem growth. Phosphorus (P) supports the development of strong and efficient roots in absorbing water and nutrients to support the process of plant vegetative growth. Plant height growth is an indicator of plant growth that determines the productivity of a plant. Nitrogen contributed from goat manure is broken down by microorganisms into inorganic forms that can be absorbed by plants to stimulate vegetative growth of plants (Peni et al., 2023).

Eggplant plant height at 35 and 49 days after planting showed that the treatment K3 (624g/polybag) produced the highest yield, at 44.84 cm. This indicates that this dose optimally provides nutrients to support stem growth. (Sinuraya & Melati, 2019) confirmed that decomposed goat manure produces nitrogen in the form of ammonium and nitrate, which are excellent for the formation of vegetative tissue, including stems and leaves. Although K3 showed the highest results, it was not statistically significantly different from the K2 (412g/polybag) and K4 (832g/polybag) treatments, which produced plant heights of 39.78 cm and 38.79 cm, respectively. This indicates that both medium and high doses are able to support plant growth effectively. Research by Pratiwi & Maghfoer (2019) stated that goat manure improves soil structure and increases the availability of water and macronutrients such as N, P, and K, which contribute directly to plant growth.

The K0 (Control) and K1 (208g/polybag) treatments produced significantly lower plant heights, at 24.75 cm and 25.37 cm, respectively. This indicates that without sufficient nutrient supply, plants experience limitations in vegetative tissue formation. In this study, Stiawan et al. (2024) confirmed that goat manure can increase soil microbial activity and accelerate nutrient release, which is very important in the early and advanced growth phases. Interestingly, at 7 days after planting, the K2 treatment showed a very significant difference compared to the other treatments (K0, K1, K3), but not significantly different from K4. This indicates that the 412g/polybag dose of goat manure has a level of nutrient availability that is quickly absorbed in the early growth phase. According to Siregar et al. (2024) that moderate doses of fertilizer tend to decompose more quickly and are available to plants compared to high doses which require a longer decomposition time.

A good composition for plant height is the K3 treatment (624 g per polybag). The growth of plant height occurs well because the nutrients contained in the organic material provided in dry land are in balanced quantities and are ready for use by the plants. Conversely, the growth rate will decrease if the necessary nutrients are not available (Tampinongkol et al., 2021). This is also in line with Toor et al., (2021) said that plants will grow well because the nutrients provided are in the right amount and balanced with the plant's needs.

Microorganisms in goat manure help mineralize organic matter into plant-available nutrients. Microorganisms such as Bacillus and Aspergillus act as decomposers, breaking down organic matter in manure into nutrients readily absorbed by plants. This mineralization process produces compounds such as nitrate (NO_3^-), ammonium (NH_4^+), phosphate (PO_4^{3-}), and potassium (K^+), which are essential for stem and leaf growth in the early stages of growth. According to Mangungsong et al., (2020) Microbial activity in organic fertilizer increases nutrient availability in alluvial soil and has a direct impact on plant growth.

Dried goat manure as a base fertilizer improves soil structure by increasing porosity and water retention capacity in dry areas where soil moisture is limited. Furthermore, adding goat manure as fertilizer creates a looser and more moist soil structure, allowing plant roots to develop deeper and absorb nutrients efficiently, thus supporting stem growth. Soil microbial activity is increased by the organic matter in the fertilizer, producing growth hormones such as auxin and cytokinin, which stimulate stem

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cell elongation. This is in line with research conducted by Ishfaq et al. (2023) showed that application of organic fertilizer significantly increased plant height by increasing nutrient efficiency and soil biological activity.

Number of leaves (blades)

Based on the analysis of variance, the direct application of goat manure as a base fertilizer significantly affected the number of eggplant leaves (leaflets). The average number of leaves for each treatment using dry goat manure in the growing medium can be seen in Table 2.

Tabel 2. Average Number of Eggplant Leaves for each treatment during the study (sheets)

Treatment	Observation (HST)			
	7	21	35	49
K0	3.58a	4.34a	8.33[a]	9.83a
K1	6.75b	21.17b	32.75bc	42.50bc
K2	6.50b	22.17b	32.59bc	40.17b
K3	6.75b	26.50b	51.75d	63.33d
K4	6.75b	21.00b	32.25b	47.34bc
BNJ	1.50	5.78	7.28	6.35

Description: Numbers followed by different letters are significantly different, and numbers followed by the same letters are not significantly different based on the 5% BNJ test.

Based on the table above, it can be seen that the direct application of goat manure as a base fertilizer significantly affected the number of leaves on eggplant plants in dry land. The K3 treatment produced a significantly different number of leaves compared to all other treatments (K0, K1, K2, and K4) at 35 and 49 days after planting. This indicates that a dose of 624 g of goat manure is able to provide optimal nutrients to support leaf formation. According to Ni et al., (2024),The increase in the number of leaves is directly correlated with the availability of sufficient nitrogen and phosphorus, which play a role in the formation of chlorophyll and leaf cell division.

The initial growth response to dry goat manure as a base fertilizer in dry land showed no significant differences between treatments K1, K2, K3, and K4, except with the control (K0) at 7 and 21 days after planting. This indicates that in the early growth phase, plants have not fully responded to the different doses of organic fertilizer. Liufeto (2024) in his report explains that organic fertilizers such as goat manure require a decomposition time of 1 month before the nutrients are available and ready to be used by plants.

The K0 (Control) treatment consistently showed the lowest leaf count, underscoring the importance of organic matter as fertilizer in supporting vegetative plant growth. Lower doses like K1 and K2 were unable to provide maximum effect in the later phase.This is in line with the findings Sufardi (2020) that the dose of manure that is too low is not enough to meet the nutritional needs of plants on a sustainable basis.

Goat manure contains the nutrients N, P, K which can enrich the nutrients in the soil and can also play a role in improving the physical properties of the soil so that the nutrients in the soil will be easily absorbed by plants for the photosynthesis process and increase the number of leaves (Trivana & Pradhana, 2017). In addition, the nitrogen element in goat manure is very necessary for the formation of leaf organs so that it will have an impact on the growth of a good number of leaves (Abdillah et al., 2023).

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The K3 treatment (624g/polybag) produced a higher number of leaves than the other treatments, indicating that this treatment was able to provide nutrients in a more balanced manner. This condition is closely related to the function of nitrogen (N) as a major component in chlorophyll formation. Increased nitrogen levels in the soil contribute to chlorophyll synthesis in leaves, thereby accelerating the photosynthesis process and encouraging leaf growth. Furthermore, phosphorus (P) plays a crucial role as part of the ADP and ATP molecules that support photosynthesis and ion absorption. The combined role of these two elements is believed to significantly increase leaf number. Adequate availability of N and P elements can support optimal plant growth, resulting in an increased number of leaves (Ismail et al., 2024).

Applying dried goat manure as a base fertilizer can increase nutrient levels in dry land. This is because the goat manure, decomposed by microorganisms, supplies the nutrients needed by plants, resulting in vegetative growth, as seen in this study, in the increase in the number of plant leaves. This is in line with Hidayati et al., (2021) stated that the availability of N nutrients contained in goat manure is able to meet the needs of plants during their growth.

Microbes in goat manure mineralize nitrogen, phosphorus, and potassium, which influence plant vegetative growth. Nitrogen is released in the form of ammonium and nitrate, which are essential for chlorophyll formation and leaf tissue. Phosphorus supports cell division and root formation, while potassium enhances cell turgor and photosynthetic efficiency. In dryland areas, the availability of these nutrients is often limited, so microbial activity from goat manure has a positive effect on increasing leaf productivity. This is in line with research by Siregar et al. (2024) Studies have shown that the use of goat manure compost significantly increases the number of leaves on tomato plants in dryland areas. This is because the microbes and nutrients in goat manure work synergistically to improve soil conditions and support vegetative plant growth.

Microorganisms in goat manure, such as Bacillus and Actinomycetes, are active in the decomposition of organic matter. In dryland soils, these microbes accelerate the decomposition of organic matter and produce humic compounds that improve soil structure and water retention. This process also produces enzymes such as cellulase and protease, which break down complex compounds into forms more easily absorbed by plant roots. By increasing soil microhumidity and porosity, plant roots can develop optimally, thus supporting the growth of more abundant and healthy leaves (Muhammad et al., 2017).

Stem Diameter (cm)

Based on the analysis of variance, the direct application of goat manure as a base fertilizer significantly affected the stem diameter of eggplant plants (cm). The average stem diameter for each treatment using dry goat manure in the growing medium can be seen in Table 3.

Tabel 3. Average diameter of eggplant stems for each treatment during the study (cm)

Treatment	Observation (HST)			
	7	21	35	49
K0	1.92a	3.24a	4.65a	6.56a
K1	2.47ab	6.43b	7.64b	8.19ab
K2	2.78b	6.66b	9.63c	9.38bc
K3	2.38ab	7.88b	10.26c	12.68d
K4	2.71b	6.62b	8.88bc	9.28bc
BNJ	0.60	1.92	1.95	1.94

Description: Numbers followed by different letters are significantly different, and numbers

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followed by the same letters are not significantly different based on the 5% BNJ test.

Based on the table above, it can be seen that the direct application of goat manure as a base fertilizer in dry land has a significant effect on the diameter of eggplant plants. The K3 treatment showed a significant difference compared to the other treatments (K0, K1, K2, K4) at 49 days after planting (DAP). This indicates that the dose of 624 g of goat manure per polybag is the optimal point that can effectively provide nutrients to support stem enlargement. Larger stem diameter reflects more efficient photosynthetic activity and nutrient transport, so that plants have better growth potential.

At 21 and 35 days after planting, the K3 treatment showed no significant differences compared to K2 and K4, indicating that in the early growth phase, the plants had not fully responded to the differences in organic fertilizer doses. This is in line withn with findings Azizatul & Barunawati (2023) that plant response to organic fertilizer tends to increase over time because the process of decomposition and release of nutrients occurs gradually.

The K0 treatment (Control) produced diaThe lowest eggplant stem height, underscoring the importance of nutrient availability in supporting vegetative growth. Without a nutrient supply, plants experience limitations in stem and leaf tissue formation. This was also conveyed by Sufardi (2020) said that if nutrients are a limiting factor in plant growth, then the plants will respond to the addition of these elements which follows the law of diminishing returns.

Optimal stem growth in the K3 treatment indicates that goat manure nutrients, such as nitrogen, phosphorus, and potassium, are available in sufficient and balanced amounts. Plants with sufficient nutrient intake will exhibit good vegetative growth, especially in the stems and leaves, even on marginal land. These nutrients support cell division, tissue formation, and increased cell turgor, which directly contribute to stem diameter (Sofyan et al., 2019).

The increase in plant stem size is due to the sufficient supply of nutrients, particularly nitrogen, which is produced from goat manure through the decomposition process of microorganisms within it. Plants with sufficient nitrogen will experience good vegetative growth, characterized by greener leaves and a greater number of leaves.(Derantika & Nihayati, 2018). This is in line with Suarsana et al., (2019) Adequate nitrogen will increase plant height, stem circumference, and leaf number. Optimal vegetative growth occurs at medium N doses, which are essential for plant growth and development.

Conclusion

Direct application of dry goat manure as a base fertilizer in dry land can significantly influence the vegetative growth of eggplant plants in dry land, namely plant height, number of leaves, and stem diameter. Nutrient content such as nitrogen (N), phosphorus (P), and potassium (K) contained in goat manure improves the physical properties of the soil and increases nutrient availability for plants. Nitrogen plays a vital role in plant metabolism, chlorophyll formation, and leaf organ growth, while phosphorus supports photosynthesis and ion absorption through ADP and ATP molecules. Direct applicationdry goat manure with a dose of 624 g per polybag (K3) on dry landis the best result in all growth parameters compared to other treatments, including the control (K0) which showed the lowest growth, which confirms that the optimal dose of organic fertilizer from goat manure is very important in determining the success of eggplant plant growth.

Direct use of dried goat manure without modern fermentation processes is considered more practical and efficient for local farmers. However, the dried goat manure used must have the following physical characteristics: It is blackish-brown in color, smells earthy, and crumbles easily. This finding opens up opportunities to optimize livestock waste as an environmentally

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friendly agricultural input, while also addressing agronomic challenges in dry areas like Majene. This study recommends the use of dried goat manure as a base fertilizer for horticultural cultivation in dry areas.

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