



THE EFFECT OF CHICKEN MANURE AND COW URINE ON THE GROWTH AND PRODUCTION OF RED CHILI (*Capsicum annum L*)

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ABSTRACT

*The effect of giving chicken manure and cow urine to the growth and production of red chili (*Capsicum annum L*). This experiment used a factorial randomized block design (RAK), which consisted of 2 treatment factors with 16 combinations and 2 replications. The factors studied were the provision of chicken manure (R) consisting of 4 levels, namely R0 = 0 kg/m², R1 = 1 kg/m², R2 = 2 kg/m² and R3 = 3 kg/m² and the provision of cow urine (S) consists of 4 levels, namely S0 = 0 ml/1000 ml of water/m², S1 = 100 ml/900 ml of water/m², S2 = 200 ml/800 ml of water/m² and S3 = 300 ml/700 ml of water/m². The parameters observed were plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and production per hectare (kg). The results showed that the application of chicken manure and cow urine had an effect on the parameters of plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and production per hectare (kg). The interaction between chicken manure and cow urine did not affect the parameters of plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and red chili production per hectare (kg).*

INTRODUCTION

Red chili is a horticultural commodity that has important economic value in Indonesia. Chili contains nutrients that are very necessary for human health such as protein, fat, carbohydrates, calcium, phosphorus, iron, vitamins and alkaloid compounds such as capsaicin, flavonoids and essential oils (Afdhal, 2020).

Red chili plants (*Capsicum annum L*) originate from the tropics and subtropics of the Americas, especially Colombia, South America, and continue to spread to Latin America. Evidence of chili cultivation was first discovered in Peru's historical excavation sites and seed remains that were more than 5000 years BC in a cave in Tehuacan, Mexico. The spread of chili throughout the world including countries in Asia, such as Indonesia was carried out by Spanish and Portuguese traders (Dermawan, 2013).

Red chili (*Capsicum annum L.*) is one of the important vegetables in Indonesia because of its many uses. Chilies are utilized both in fresh form, processed (sambal and various seasonings) and industrial materials (ground, dried, flour). Chilies can also be utilized as ingredients for medicines, cosmetics, and dyes (Duriat, 2016). research on the application of PGPR organic fertilizer to chili also showed very significant results (Warsito, 2022).

The content contained in cow urine liquid organic fertilizer, cow urine has the potential to be used as fertilizer in plant nurseries. Cow urine is also one of the natural growth regulators that can be used, apart from being relatively easy to obtain and simple to use. The role of growth regulators in nurseries is to stimulate the growth of seedlings (Rosniawaty et al, 2015).

METHOD



Materials and tools

The materials used in this study were red chili seeds, chicken manure, cow urine, brown sugar, EM4, water, papaya leaves and garlic. The tools used in this study were soil pH meter, camera, stationery, plywood, jerry can, hoes, hoe, meter, filter, drum, tarpaulin and wooden stirrer.

Research Methodology

The method used in this study was a factorial randomized block design (RBD) with 2 treatments. 16 treatment combinations and 2 repetitions so that there are 32 research plots, Factor 1 is the provision of chicken manure which is given the symbol "R" which consists of 3, namely: R0 = 0 kg/m², R1 = 1 kg/m², R2 = 2 kg/m², R3 = 3 kg/m². Factor 2 was giving cow urine which was given the symbol "S" which consisted of 3 levels, S0 = 0 ml/1000 ml water/m², S1 = 100ml/900ml water/m², S2 = 200ml/800ml water/m², S3 = 300 ml/700 ml water/m²

Observation parameters

Measurement of parameters is carried out when the plants are 6.10 and 14 Weeks. Measurements are carried out using a ruler and wood. How to measure it by making a standard wood count coupled with the highest leaf length. Standard wood has a length of 6 cm. 3 cm below ground level and 3 cm above ground level. The parameters observed are Number of Branches (Branch) Branching, Interest Amount (Interest), Production Per Sample (g), Production Per Plot (kg), Red Chili Production per Hectare (kg)

RESULTS AND DISCUSSION

Plant Height (cm)

The results of the analysis of variance stated that the application of chicken manure and cow urine had an effect on the plant height (cm) of red chili aged 1, 2 and 3 weeks after transplanting.

The interaction of chicken manure and cow urine had no effect on the plant height (cm) of red chili aged 1, 2 and 3 weeks after transplanting.

The effect of adding chicken manure and cow urine to plant height (cm) of red chilies at 1, 2 and 3 weeks after transplanting that has been tested for Duncant's distance can be seen in Table 1.

Table 1. Average Plant Height (cm) of Red Chili Due to Administration of Chicken Manure (R) and Cow Urine (S) at 1, 2 and 3 Weeks After Transplanting

Treatment	Plant high (cm)		
	1 week	2 week	3 week
chicken manure (R)			
R0 = 0 kg/m ²	12,30 cC	17,07 cC	24,83 cC
R1 = 1 kg/m ²	13,42 bB	18,55 cC	25,73 bB
R2 = 2 kg/m ²	14,85 abAB	19,75 bB	26,90 bB
R3 = 3 kg/m ²	15,76 aA	21,16 aA	29,73 aA
Cow urine (S)			
S0 = 0 ml/1000 ml air/m ²	13,07 cB	18,20 cC	25,51 bB
S1 = 100 ml/900 ml air/m ²	13,08 cB	18,22 cC	25,66 bB
S2 = 200 ml/800 ml air/m ²	14,56 abAB	19,63 abAB	27,06 abAB
S3 = 300 ml/700 ml air/m ²	15,62 aA	20,48 aA	28,95 aA

Description: The numbers in the same column followed by the same letter show unreal differences at the 5% level (lowercase) and very noticeably different at the 1% level (uppercase letters).

Table 1 shows that the application of chicken manure had an effect on the plant height (cm) of red chili aged 3 weeks after transplanting. The highest plant height was found in the treatment R3 = 3 kg/m², namely 29.73 cm, which was very significantly different from R2 = 2 kg/m², namely 26.90 cm, R1 = 1 kg/m², namely 25.73 cm and R0 = 0 kg. /m² is 24.83 cm. Warsito et al. (2022) reported that effect of chicken manure on growth of cocoa plant showed best treatment was obtained on 200 grams/ polybag.

Number of branches



The results of the analysis of variance stated that the application of chicken manure and cow urine had an effect on the number of branches (branches) of red chili plants aged 2, 4 and 6 weeks after transplanting.

The interaction of giving chicken manure and cow urine had no effect on the number of branches (branches) of red chili plants aged 2, 4 and 6 weeks after transplanting.

The effect of giving chicken manure and cow urine to the number of branches (branches) of red chili plants at the age of 2, 4 and 6 weeks after transplanting which has been tested for Duncant's distance can be seen in Table 2.

Table 2. Mean Number of Branches (branches) of Red Chili Plants Due to Administration of Chicken Manure (R) and Cow Urine (S) at the Age of 2, 4 and 6 Weeks After Transplanting

treatment	Number of branches		
	2 MSPT	4 MSPT	6 MSPT
Chicken manure (R)			
R0 = 0 kg/m ²	1,71 cC	4,38 cC	7,00 bB
R1 = 1 kg/m ²	2,00 bB	4,54 cC	7,29 bB
R2 = 2 kg/m ²	2,33 bB	4,94 bB	7,46 bB
R3 = 3 kg/m ²	2,96 aA	5,58 aA	8,46 aA
Cow Urine (S)			
S0 = 0 ml/1000 ml air/m ²	2,04 bB	4,58 bB	7,17 bB
S1 = 100 ml/900 ml air/m ²	2,08 bB	4,63 bB	7,21 bB
S2 = 200 ml/800 ml air/m ²	2,13 bB	4,87 bAB	7,50 bAB
S3 = 300 ml/700 ml air/m ²	2,75 aA	5,34 aA	8,33 aA

Description: Numbers in the same column followed by letters that the same shows unreal differences at the 5% level (lowercase) and very noticeable differences at the 1% level (uppercase letters).

Table 2 shows that the application of chicken manure has an effect on the number of branches (branches) of red chili plants. The highest number of branches was found in the treatment R3 = 3 kg/m², namely 8.46 branches, which was very significantly different from R2 = 2 kg/m², namely 7.46 branches, R1 = 1 kg/m², namely 7.29 branches and R0 = 0 kg. /m² is 7.00 branches.

Interest amount (intert)

The results of the analysis of variance stated that the application of chicken manure and cow urine had an effect on the number of flowers (flowers) of red chili plants.

The interaction of giving chicken manure and cow urine had no effect on the number of flowers (flowers) of red chili plants.

The effect of giving chicken manure and cow urine to the number of flowers (flowers) of red chili plants that have been tested for Duncant's distance can be seen in Table 3.

Table 3. Mean Number of Flowers (flowers) of Red Chili Plants Due to Giving Chicken Manure (R) and Cow Urine (S).

treatment	Jumlah Bunga (bunga)
Chicken manure (R)	
R0 = 0 kg/m ²	6,71 cC
R1 = 1 kg/m ²	7,63 bcB
R2 = 2 kg/m ²	7,92 abAB
R3 = 3 kg/m ²	8,63 aA
Cow Urine (S)	
S0 = 0 ml/1000 ml air/m ²	7,21 bB
S1 = 100 ml/900 ml air/m ²	7,38 bB
S2 = 200 ml/800 ml air/m ²	7,71 bAB



S3 = 300 ml/700 ml air/m ²	8,58 aA
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Description: The numbers in the same column followed by the same letter show unreal differences at the 5% level (lowercase) and very noticeably different at the 1% level (uppercase letters).

Table 3 shows that the application of chicken manure had an effect on the number of flowers (flowers) of red chili plants. The highest number of flowers was found in the treatment R3 = 3 kg/m², namely 8.63 flowers, which was not significantly different from R2 = 2 kg/m², namely 7.92 flowers, but very significantly different with R1 = 1 kg/m² which is 8.63 flowers and R0 = 0 kg/m² which is 6.71 flowers.

CONCLUSIONS

The results of the research and discussion carried out can be concluded that the application of chicken manure has an effect on plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and red chili production per hectare (kg). The results of the research and discussion carried out can be concluded that giving cow urine has an effect on plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and red chili production per hectare (kg). The interaction of chicken manure and cow urine had no effect on plant height (cm), number of branches (branches), number of flowers (flowers), production per sample (g), production per plot (g) and red chili production per hectare (kg).

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