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The Effect Of Liquid Organic Fertilizer And Solid Organic Fertilizer On The Growth And Production Of Eggplant (Solanum melongena L.)

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Abstract. *This study aims to determine the effect of liquid organic fertilizer and solid organic fertilizer on the growth and production of eggplant (Solanum melongena L). This study used a Factorial Randomized Group Design (RAK). The first factor is liquid organic fertilizer (POC) consisting of 4 treatment levels, namely: A0 = 0 ml/l (control), A1 = 2.5 ml/l, A2 = 5 ml/l and A3 = 7.5 ml/l. The second factor is solid organic fertilizer (POP) consisting of 3 treatment levels, namely: P1 = 600 g/plot (3 tons/ha), P2 = 1000 g/plot (5 tons/ha) and P3 = 1400 g/plot (7 tons/ha). The results showed that liquid organic fertilizer had a significant effect on plant height, number of leaves, number of fruits per plant, production weight per plant and production weight per plot but had no significant effect on the number of flowers, fruit length and weight per fruit. Solid organic fertilizer had a significant effect on plant height, number of leaves, number of fruits per plant, production weight per plant and production weight per plot but had no significant effect on the number of flowers, fruit length and weight per fruit. The interaction of liquid and solid organic fertilizers had no significant effect on plant height, number of leaves, number of flowers, number of fruits per plant, production weight per plant, production weight per plot, fruit length and weight per fruit.*

Keywords: ***Liquid organic fertilizer, Solid organic fertilizer, Eggplant***

Abstrak. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian pupuk organik cair dan pupuk organik padat terhadap pertumbuhan dan produksi tanaman terung (*Solanum melongena* L). Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) Faktorial. Faktor pertama adalah pupuk organik cair (POC) terdiri dari 4 taraf perlakuan yaitu: A0 = 0 ml/l (kontrol), A1 = 2,5 ml/l, A2= 5 ml/l dan A3 = 7,5 ml/l. Faktor kedua adalah pupuk organik padat (POP) terdiri dari 3 taraf perlakuan yaitu : P1 = 600 g/plot (3 ton/ha), P2 = 1000 g/plot (5 ton/ha) dan P3= 1400 g/plot (7 ton/ha). Hasil penelitian menunjukkan bahwa pupuk organik cair berpengaruh nyata terhadap tinggi tanaman, jumlah daun, jumlah buah per tanaman, berat produksi per tanaman dan berat produksi per plot tetapi berpengaruh tidak nyata jumlah bunga, panjang buah dan berat per buah. Pupuk organik padat berpengaruh nyata terhadap tinggi tanaman, jumlah daun, jumlah buah per tanaman, berat produksi per tanaman dan berat produksi per plot tetapi berpengaruh tidak nyata jumlah bunga, panjang buah dan berat per buah. Interaksi pupuk organik cair dan padat berpengaruh tidak nyata terhadap tinggi tanaman, jumlah daun, jumlah bunga, jumlah buah per tanaman, berat produksi per tanaman, berat produksi per plot, panjang buah dan berat per buah.

Kata kunci: *Pupuk organik cair, Pupuk organik padat, Terung* liquid

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Introduction

Terung (Solanum melongena L.) is a tropical plant native to India and Bangladesh in Asia. Plants that bloom slowly are able to colonize places with either a temperate (sub-tropical) or hot environment. (tropis). In Southeast Asia, Indonesia has the highest rate of production. Some people find the fruit particularly tasty because it has a mild enough flavor to be used as a base in baking, and it also contains a lot of spicy nutrients; thus, the plant's production has great potential to increase the variety of healthy fruits and vegetables available to the public. Crop yields can be raised through the application of intensification and extension strategies. However, if boosting land production and efficiency is your main concern, intensification is a tactic you may utilize without worry (Sunarjono, 2013). Fertilizer is the only material used in the soil that can fully meet the needs of plants for the element of harness. There are two types of fertilizers: organic and inorganic.

When it comes to the benefits of soil grinding, organic fertilizers stand head and shoulders above the rest. Soil structure is enhanced by organic fertilizers, which also aid in nutrient absorption, temperature elevation, cation exchange capacity, pH-response strength, and energy provision for soil microorganisms. All of this is essential for the degrading and reaping of terrestrial ecosystems. To wit: (Hadisuwito, 2012). Fertilizers with a high concentration of the element hara, found in the middle of most fertilizers, can be utilized for organic plant cultivation; these are known as "organic fertilizers." Organic fertilizers can be either liquid or solid, with the former being the more common form.Chicken, silk, stems, and bananas all contribute to the production of a solid organic compound known as POP. When using solid organic fertilizers, the amount of K accessible in the soil increases, which has a significant effect on the crop. Plants are able to make use of the ocean's obtainable N components because of the availability of K.

By increasing the synthesis and translocation of carbohydrates, which in turn increases cell wall thickness and stem strength, potassium added to the soil through plants can change the osmosis pressure. The biological, chemical, and physical qualities of the soil are crucial to plant growth, and solid organic fertilizers can improve these aspects.Liquid organical fertilizer is a byproduct of the production of organic materials, in particular lindi from waste composition. One variety of coconut water contains this

organic liquid fertilizer. To make liquid organic fertilizer with a higher concentration of microbe-important nutrients, we recommend include coconut water in the process. Coconut water has the potential to enhance the performance of liquid organic fertilizer compounds (Mubarok et al., 2016).

Liquid organic fertilizers in liquid form can provide a harvest that meets the needs of plants in the soil due to their liquid form. Thus, the plant can easily change the composition of the fertilizer it needs if the capacity of soil fertilizers decreases. In fertilization, liquid organic fertilizer is clearly more irregular. There will be no fertilization of fertilizer concentration in one place. Liquid fertilizers have a design that is easier to use and can be used continuously when checking soil humidity. Liquid organic fertilizer can be used repeatedly on the leaves or consistently in the soil, unlike solid organic (Mulyani, 2014). Purchase of organic materials is the only other option to increase land productivity. Based on the description in the previous paragraph, a study on "Effect of Supply of Solid and Liquid Organic Fertilizers on Growth and Production of Solanum Melongena L.) has been conducted. It is a formulation that is expected to use liquid and solid organic fertilizers to help the optimum growth of the crop and improve its output.

Literatur Review

Terung

Terung (*Solanum melongena* **L.**) is one of the fruit plants. Terung is a tropical plant originating in the Asian continent, especially Indonesia, India and Myanmar (T et al., 2014). It has a lot of nutrients, such as low-calorie, fat, sodium, and can be processed as a vegetable. In addition, shrimp has a lot of water, which helps balance a diet rich in protein and fiber. The plant has roots that grow and also the root branches that are found on the main root that can enter the soil about 70-100 cm. The roots of the tree also grow spread at a distance of 40 – 80 cm from the base of the stem (Purba et al., 2019). Flower plants have many parts, including stems, leaves, flowers, fruits, and seeds. The height of the tree ranges between 40 and 150 cm, with a cylindrical-shaped trunk, the direction of vertical growth is straight, while the growth direction of the branches is bending upwards, growing vertically, and the branch is tightly arranged in a round shape. Toughened trunk is a perdu type, with short and branched trunk (Daud, 2017). Round egg-shaped leaves, elliptical or lengthy, have a fairly wide surface (3-15 cm × 2-9 cm), the shape of the thread

resembles the ears, placing the thread of the leaves of the teasbar on the branches of the stem (Wijayanti, 2019). Flowers have double genders because in one flower there are benangsari. Flowers can be crossed or pollinated on their own. Flowers are star-shaped, blue or bright valley. At the time of flowering, the average diameter of the flower is 2.5 – 3 cm (Samadi, 2017).

The fruit is very diverse, either in the shape, size or color of the skin. The fruit can be round-shaped, if viewed from its size, there are small, medium, to large, the color of the skin of the fruit is generally purple, white-white green, white, white white-colored, black or old purple (Nugraheni, 2016). Thistle contains sufficiently high nutrition, especially vitamin A and phosphorus content, so it is quite a potential contributor to the variety of nutritious vegetable ingredients for the population.Thistle also contains many vitamins and high nutritional properties such as vitamin B-complex thiamine, phosphates, manganese and potassium thistle fruit contains high fiber so good for heart health, suppressing cholesterol and diabetes (T et al., 2014).

Solid Organic Fertilizer

Organic fertilizers are the best choice for soil breeders. According to (Hadisuwito, 2012), organic fertilizer improves soil structure, assists in soil absorption,ins soil temperature, increases soil resistance to pH changes, improves cation exchange capacity, reduces P-viksation, and serves as a reservoir of secondary soil elements and microelements. In addition, organic fertilizer is also a source of energy for soil microorganisms, which are responsible for the decomposition and release of harvest elements in the ecosystem. Organic fertilizers can increase soil productivity, prevent degradation, and increase the formation of chlorophyll leaves, in addition to providing plants and land. Grain compost affected corn crop height, number of leaves, stick length, and weight, according to (Samosir et al., 2015). Bananas may generate solid organic fertilizer like chicken and silk earth.Banana stems also produce organic fat. Bananas, which contain several useful components, can be sold as agricultural trash. (Bahtiar et al., 2016) found that composting bananas reduces sugar, sucrose, and color in sweet corn. Bananas include macro and micro minerals like N, P, and K. They contain sugars that attract soil microbes. Research shows bananas contain 3078 ppm NO3, 1120 ppm NH4, 439 ppm P2O5, and 574 ppm K2O. This high macro hare concentration provides K for soil media organic stuff (Bahtiar

et al., 2016). Once the soil is covered with water, solid organic fertilizer can be applied directly to it. Solid organic fertilizers are a type of fertilizer that is produced naturally without industrial processes or machinery. This fertilizer is considered organic because it consists of organic compounds such as lignin cellulose hemicellulose and protein. Chicken cage fertilizer is one of the organic cage types with the highest N content. Whether in solid or liquid form, N content reaches 1% (Mulyani, 2014).

Liquid Organic Fertilizer

Liquid Organic Fertilizer (POC) is a solution or liquid of solid organic fertilizer made from chicken dirt, strawberry, and banana stems irrigated with a bioactivator solution, also known as lindi. This lindi liquid is then mixed with coconut water, thus becoming a liquid organic fertilizer. Liquid fertilizers are easier to use and function to keep soil moisture directly. Compared to solid organic fertilizers, liquid fertilizer can be used repeatedly (Mulyani, 2014). POCs usually do not damage soil and plants even though they are used as often as possible, when compared to inorganic fertilizers. In addition, these liquid organic fertilizers have binders so that plants can directly take advantage of the fertilizer solution given to the soil surface (Hadisuwito, 2012). Benefits of this liquid organic fertilizer include improving the growth and quality of the root performance, increasing the plant strength so that the plant becomes strong and strong, and improving plant resistance. (Harahap, 2021) says liquid Organic fertiliser has several advantages: They're simple.Liquid organic fertilizers can be sprayed or irrigated into the plant; Cheap basics. Organic waste liquid fertilizers are inexpensive and readily available ; Compost fertilizers ferment for a month, but liquid organic fertilizer ferments in one to three weeks ; Liquid organic fertilizer leaves no plant-damaging residue because it is formed of organic components. Plants need the correct amount of liquid organic fertilizer. Studies reveal that leaf-applied liquid organic fertilizer (POC) boosts plant growth and output more than soil-applied POC. The plant's haricot element content and leaf fertilizer frequency increase with POC concentration or dose. The plant also produces hera element with a lesser fertilizer dose.

Research Method

The design used in this study is a factorial randomized group design (RAK) consisting of 2 levels, namely:

1. Liquid organic fertilizer (POC) consists of 4 treatment levels, namely:
   A0: 0 ml/L (control) ; A1 : 2.5 ml/L; A2 : 5 ml/L ; A3 : 7.5 ml/L
2. Solid organic fertilizer (POP) consists of 3 treatment levels, namely:
   P1: 600 g/plot (3 tons/ha) ; P2 : 1000 g/plot (5 tons/ha) ; P3 : 1400 g/plot (7 tons/ha)

The number of treatment combinations is 4 x 3 = 12 treatment combinations, namely:
A0P1 A1P1 A2P1 A3P1 ; A0P2 A1P2 A2P2 A3P2AOP3 A1P3 A2P3 A3P3

After the results of the research data are obtained, data analysis will be carried out using a factorial Randomized Group Design (RAK) with the following formula:

$$Yijk = \mu + \alpha i + \beta j + (\alpha\beta)ij + \varepsilon ijk$$

Where:

Yijk : The results of observations from the i-th level of chicken POC at the j-th level and the provision of chicken POP at the k-th level.
M : Treatment center value
αi : Response to the application of chicken POC at level i
βj : Response to the application of chicken POP at the jth level
(αβ)ij : Interaction effect of chicken POC at level I and chicken POP at level j
εijk : Effect of experimental error due to the application of chicken POC at level I and the application of chicken POP at level j.

Data were analyzed by analysis of variance (Anova), the significant variance was continued by using Duncan's Multiple Range Test (DMRT) at the α = 5% level to see the differences between treatments.

Result and Discussion

Table 1. Average Eggplant Plant Height (cm) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments Age 2, 3, 4 and 5 Weeks After Planting

Treatment	Plant Height (cm)			
	2 MST	3 MST	4 MST	5 MST
A0	5,37	7,57	10,87	15,21a
A1	5,52	7,72	11,02	15,90a
A2	5,59	7,79	11,09	16,16a
A3	5,91	8,11	11,41	17,52b
P1	5,31	7,51	10,81	15,68a
P2	5,49	7,69	10,99	15,93a
P3	5,99	8,19	11,49	16,98b

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 1 shows that due to the application of liquid organic fertilizer on plant height at the age of 5 weeks after planting, the highest average was obtained in A_3 significantly different from A_0, A_1 and A_2 and the lowest average was found in A_0 significantly different from A_3 but not significantly different from A_1 and A_2

Table 2. Average Number of Eggplant Leaves (strands) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments Age 2, 3, 4 and 5 Weeks After Planting

Treatment	Number of Leaves (blade)			
	2 MST	3 MST	4 MST	5 MST
A0	2,66	4,46	6,86	8,83a
A1	2,68	4,64	7,04	9,14ab
A2	2,69	4,49	7,07	9,36ab
A3	2,90	4,73	7,13	9,66b
P1	2,73	4,53	6,93	8,89a
P2	2,73	4,53	6,95	9,10a
P3	2,74	4,69	7,20	9,75b

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 2 shows that due to the application of liquid organic fertilizer on the number of leaves at the age of 5 weeks after planting, the highest average was obtained in A_3, significantly different from A_0 but not significantly different from A_1 and A_2 and the lowest average was found in A_0.

Table 3. Average Number of Flowers (stalks) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments Age 6 and 7 Weeks After Planting

Treatment	Number of Flowers (stalk)	
	6 MST	7 MST
A0	8,11	11,00
A1	8,22	11,22
A2	8,44	11,44
A3	8,67	11,78
P1	8,17	11,08
P2	8,42	11,33
P3	8,50	11,67

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 3 shows that due to the application of liquid organic fertilizer on the number of flowers, the highest average was obtained in A_3 and the lowest average was found in A_0. The highest number of flowers in the solid organic fertilizer treatment was found in P_3 and the lowest in P_1.

Table 4. Average Number of Fruits per Plant (fruit) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments

Treatment	P1	P2	P3	Rataan
A0	16,56	17,00	19,89	17,81a
A1	16,56	19,33	21,56	19,15b
A2	19,22	21,44	22,67	21,11c
A3	20,00	22,44	24,33	22,26d
Average	18,08a	20,06b	22,11c	

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 4 shows that the effect of liquid organic fertilizer on the number of fruits per plant is highest in A3, significantly different from A_0, A_1 and A_2.

Table 5. Average Fruit Length (cm) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments

Treatment	P1	P2	P3	Rataan
A0	19,23	19,63	19,33	19,40
A1	20,20	21,40	19,27	20,29
A2	20,30	19,73	20,93	20,32
A3	20,13	20,73	22,30	21,06
Average	19,97	20,38	20,46	

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 5 shows that the effect of liquid organic fertilizer on fruit length obtained the highest average in A_3 followed by A_2, A_1 and the lowest average is found in A_0. The effect of solid organic fertilizer on fruit length obtained the highest average in P_3 followed by P_2 and the lowest average is found in P_1.

Table 6. Average Weight per Fruit (g) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments

Treatment	P1	P2	P3	Rataan
A0	123,73	127,63	125,63	125,67
A1	131,33	139,10	125,27	131,90
A2	131,97	128,30	136,07	132,11
A3	130,90	134,80	144,97	136,89
Average	129,48	132,46	132,98	

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 6 shows that the effect of liquid organic fertilizer on weight per fruit obtained the highest average in A_3 followed by A_2, A_1 and the lowest average is found in A_0. The effect of solid organic fertilizer on weight per fruit obtained the highest average in P_3 followed by P_2 and the lowest average was found in P_1.

Table 7. Average Production Weight per Plant (g) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments

Treatment	P1	P2	P3	Rataan
A0	2047,82	2169,62	2498,58	2238,67a
A1	2180,10	2692,49	2699,59	2524,06b
A2	2537,33	2750,16	3085,50	2790,99c
A3	2618,43	3024,39	3533,29	3058,71d
Average	2345,92a	2659,17b	2954,24c	

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 7 shows that the effect of liquid organic fertilizer on the weight of production per plant is heaviest in A3 significantly different from A_0, A_1 and A_2.

Table 8. Average Production Weight per Plot (kg) Effect of Liquid Organic Fertilizer and Solid Organic Fertilizer Treatments

Treatment	P1	P2	P3	Rataan
A0	10,29	13,02	14,99	12,76a
A1	13,08	16,15	16,20	15,14b
A2	15,23	16,50	18,52	16,75c
A3	15,71	18,15	21,20	18,35d
Average	13,58a	15,96b	17,73c	

Description: Numbers followed by the same letter in the same column means not significantly different in Duncan test at 5% level.

Table 8 shows that the effect of liquid organic fertilizer on the weight of production per plot is heaviest in A_3 significantly different from A_0, A_1 and A_2.

Effect of Liquid Organic Fertilizer on Growth and Production of Eggplant Plants (*Solanum melongena* L.)

The results of the variance test showed that the application of liquid organic fertilizer had a significant impact on plant height, number of leaves, number of fruits per plant, production weight per plot, and number of fruits per plant; however, it did not have a significant impact on flower length, weight per fruit, and number of flowers. The results of the study on plant height at the age of 5 weeks after planting showed that the concentration of 7.5 ml/L (A3) produced the higher plant height, 17.52 cm, followed by 5.0 ml/L (A2), which reached 16.16 cm, 2.5 ml/L (A1) which reached 19.90 cm, and the lowest at 0 ml/L (A0), which reached 15.21 cm. This shows that the more liquid organic fertilizer given, the more elemental content (Munawar, 2014) states that plant growth, development, and yield.

The results showed that A3 (7.5 ml/L) produced the highest number of leaves with 9.66 strands, followed by A2 (5.0 ml/L) with 9.36 strands, A1 (2.5 ml/L) with 9.14 strands, and A0 with the lowest number of leaves with 8.83 strands. The content of

phosphorus elements in liquid organic fertilizer helps plants in providing food for cells, so that the energy in the cells is sufficient for a faster process of stem division and extension. Phosphorus nutrients also play a role in the phosphorylation of various compounds that interact with photosynthesis and respiration (Ayunda, 2014). Sufficient nitrogen will encourage the growth of plant organs related to photosynthesis, namely leaves. The number of leaves and leaf area are the result of vegetative growth (Jumini & Marliah, 2015).

Liquid organic fertilizer improved plant production. A3 yielded 5.26 fruits per plant, followed by A2, 4.26, A1, 3.33, and A0, 2.82. Liquid organic fertilizer increased plant yield statistically. At 7.5 ml/L (A3), plants yielded 585.19 g more than at 0 ml/L (control). Here, concentration indicates nutrient content. Cell division and maturation cause fruit growth. Sugar and protein make fruits heavier. According to (Johan, 2015), nitrogen, phosphate, and potassium deficiency can stunt fruit growth. Phosphorus grows flowers, fruits, and seeds, while nitrogen synthesizes protein. Cell development and expansion before fruit ripening require potassium. Potassium aids glucose transport.

The findings indicated that the production weight per plot rose as liquid organic fertilizer concentration increased. With a concentration of 7.5 ml/L (A3), the maximum production weight per plot was 6205.68 g. This was followed by concentrations of 5.0 ml/L (A2), 5022.12 g, 2.5 ml/L (A1), 3923.38 g, and 0 ml/L (control), which had the lowest production weight per plot of 3394.10 g. This demonstrates the rise in liquid organic fertilizer concentration. The faster plants complete the photosynthesis process to generate the carbohydrates, lipids, and proteins necessary to build fruit, the more nutrients, particularly N, P, and K elements, are absorbed by plant roots. (Hendri et al., 2015) assert that giving plants the appropriate fertilizer will boost the soil's capacity for production. This may ultimately lead to a potential rise in agricultural productivity.

Effect of Solid Organic Fertilizer Supply on Growth and Production (*Solanum melongena* L.)

The test results demonstrated that the availability of solid organic fertilizer had a significant impact on plant height, leaf count, fruit production, production weight per plot, and production mass per plant. The study's findings at 5 MST indicated that the plant's height was raised by the amount of organic fertilizer applied. The dosage of 600 Gplot A1 achieves its lowest point at 15.68 cm, the dosage of 1400 Gplot P3 reaches its greatest

point of 16.98 cm, and the dosage of 1000 Gplot P3 reaches 15.93 cm. This is because the organic fertilizer used in chicken cages contains a complete harvest of N 1,5, P 1,3, K 0,8, and organic C 4,0. Additionally, compared to other types of cage, chicken cage fertilizer includes three times as much N elements due to the mixing of the liquid and solid components of chicken urine (Roidah, 2013).

Solid organic fertilizer increases plant nitrogen, phosphorus, and potassium. According to (Sarief, 2015), plants develop and yield better with enough heating components. According to (Waskito et al., 2017), nitrogen stimulates plant growth, especially vegetative development.The literature suggests organic fertilizer may affect laying hen leaf production. Chicken coops receive more organic fertilizer than leaves. The best dau dose is 1400 g/plot, yielding 9.75 threads. The minimum dose is 600 g/plot, yielding 8.89 strands. According to (Hendri et al., 2015), plants need nitrogen (N) and phosphorus (P) to make chlorophyll and grow stems, branches, and leaves.

In terms of yield, 1400 g/plot produces the most fruit, while 600 g/plot produces the least (3.61 fruits). As terong plants start their generative phase, they require K (calcium) and posphorus, and 1400 g/plot contains enough of these components to meet their demands. In addition to a rise in the percentage of flowers that develop into fruit, (Rajiman, 2020) states that plants can better eliminate and cook macro components like P. K reduces photosynthesis and enhances fruit taste and appearance.These findings suggest organic fertilizer affects plant productivity. Cell division and development and fruit growth were strongly correlated at 1400 g/plot (132.98 g) and 600 g/plot (129.48 g). (Johan, 2015) says fruit growth requires hazardous substances including nitrogen, phosphate, and potassium. Organic fertilizer doses of 600 and 1,400 grams per plot (4894.69 and 4274.43 grams) affected yields differently. Fruit development shows how hera components in organic fertilizer help plants reproduce. According to (Rochayati, 2018), fertilizer application increases soil productivity and plant potential. Organic fertilizers improve soil's physical, chemical, and biological qualities.

Interaction of Liquid and Solid Organic Fertilizer Delivery with Growth and Production of Laminated Plants (*Solanum melongena* L.)

The variety footprint experiments demonstrated that the interaction between liquid and solid organic fertilizer had no significant effect on plant height, leaf count, flower count, fruit count, fruit length, fruit weight, plant yield, or plot yield. Contrary to all

expectations, the combination of liquid organic fertilizer and solid organic grain did not enhance crop growth and development and production. This was because the two treatments were unable to fully synergize (co-operate) to interact with each other (in reverse). According to (Rahmah et al., 2014), the lack of an interaction between two treatment factors can indicate that the two factors are unable to synergize (cooperate) because the mechanisms of their work are different or one of the factors does not play an optimal or even antagonistic role, i.e., suppress each other's influence or have a similar role in improving the growth and yield of plants. In this experiment, there was no causality between the treatments because they were identical.

CONCLUSIONS AND RECOMMENDATIONS

Liquid organic fertilizer had a significant effect on plant height, number of leaves, number of fruits per plant, production weight per plant and production weight per plot but had no significant effect on number of flowers, fruit length and weight per fruit. Solid organic fertilizer had a significant effect on plant height, number of leaves, number of fruits per plant, production weight per plant and production weight per plot but had no significant effect on the number of flowers, fruit length and weight per fruit. The interaction of liquid and solid organic fertilizers had no significant effect on plant height, number of leaves, number of flowers, number of fruits per plant, fruit length, weight per fruit, production weight per plant and production weight per plot. Further research is needed to obtain the optimum concentration and dose of organic fertilizer to support the growth and production of eggplant plants.

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