THE EFFECTIVENESS OF GIVING BANANA HULL POC AND FERTILIZER COW MANURE ON THE GROWTH AND PRODUCTION OF PEANUT (Arachis hypogeae L)

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ABSTRACT

Efforts to improve the peanut cultivation system (Arachis hypogaea L) need to be done to increase peanut productivity in order to reduce imports. One way that can be done is by using organic materials such as POC banana hump and cow dung fertilizer. This study aims to determine the effect of giving POC banana weevil and cow dung fertilizer on the growth and production of peanuts (Arachis hypogaea L). This research was conducted at Jln. Milkfish, East Binjai District, North Sumatra by using a factorial randomized block design consisting of the first factor, namely the provision of banana weevil POC (P) consisting of 3 levels, namely P0 (0 liters/plot), P1 (1 liter/ liters of water/plot).) and P2 (1 liter/liter of water/Plot). The results showed that the application of POC banana weeds had no significant effect on all observation parameters and cow dung had a very significant effect on wet peanut production per sample and wet peanut production per plot but had no significant effect on plant height parameters, number of leaves, number of pods. per sample and number of pods per plot. From the application of cow dung fertilizer to the production of peanut plants, the best was in K3 (3 kg/plot) and the lowest production of peanuts was in k0 (0 kg/plot).

INTRODUCTION

Peanut is a potential commodity to be developed in Indonesia. Peanuts can be a source of vegetable protein, raw materials for the food industry, household needs, and processed directly. The demand for peanuts continues to increase along with the increasing population in Indonesia, thus requiring sufficient availability both in quality and quantity (Ministry of Agriculture, 2016).

The productivity of peanuts per hectare obtained by farmers is still far from what was expected, so efforts are needed to obtain high yields and high quality seeds so that market demand can be fulfilled (Sofiana et al, 2017).

The problems faced in increasing national peanut production are caused by several things including: a) The application of technology has not been carried out properly, so that productivity has not been optimal, for example, land management is not optimal so that drainage is poor and soil structure is dense, plant maintenance is not optimal so OPT attacks are high b) The use of quality seeds is still low, c) The use of biological and organic fertilizers is still low (Director General of Food Crops 2012) .

One of the liquid organic fertilizers that can be used for peanut plant research to achieve desired growth and production of peanut plants is using banana weevil POC. Banana weevils have many ingredients such as water, phosphorus, calcium, carbohydrates, calories and protein, so that banana weevils can be used as organic fertilizer for plants. Organic fertilizers are fertilizers that are solid or liquid. Liquid organic fertilizers containing lots of organic matter are used to improve the physical, chemical and biological properties of the soil, or in another sense as soil fertilizer (Rini, 2012).

Cow dung has the potential to be used as fertilizer because it has the following chemical content: nitrogen 0.4 - 1%, phosphorus 0.2 - 0.5%, potassium 0.1 - 1.5%, moisture content 85 - 92%, and several elements -other elements (Ca, Mg, Mn, Fe, Cu, Zn). However, to produce good compost requires additional materials, because the pH of cow dung is 4.0 - 4.5 or too acidic so that the microbes that can live are limited. These additional materials that are easy to obtain from research locations include: rice bran and rice straw (Dewi et al., 2017).

METHOD

1. Materials and tools

The materials used in this study were Bima variety of peanut seeds, cow manure, banana weevil liquid organic fertilizer, papaya leaf pesticide, and water . The tools used in this study were hoe, machete, bucket, measuring tape, rope, scales, plywood, markers, sprayer, paper, pens, wood, measuring cups.

2. Research Methodology

This research was conducted at Jln . Milkfish, East Binjai District, North Sumatra by using a factorial randomized block design consisting of the first factor, namely the provision of banana weevil POC (P) consisting of 3 levels, namely P0 (0 liters/plot), P1 (1 liter/ liters of water/plot).) and P2 (1 liter/liter of water/Plot). The second factor is the provision of cow dung fertilizer (K) consisting of 4 levels, namely K0 (0 kg/plot), K1 (1 kg/plot), K2 (2 kg/plot) and K3 (3 kg/plot) .

3. Observation parameters

The parameters observed were plant height (cm), number of leaves (strands), number of pods per sample (pods), number of pods per plot (pods), production of wet peanuts per sample (g), and production of wet peanuts per plot (g).

RESULT AND DISCUSSION

1. Plant Height (cm)

The results of statistical analysis of variance showed that the application of hump poc had no significant effect on plant height (cm) at 3, 4, 5 weeks after planting (MST). While the application of cow manure and the interaction between the two showed no significant effect on plant height (cm) at 3, 4, 5 weeks after planting (MST).

The average yield of peanut plant height (cm) at 3 , 4, 5 weeks after planting (MST) due to the treatment of banana weevil poc and cow dung fertilizer can be seen in Table 1 .

Table 1. Average Plant Height (cm) of groundnut (A. hypogeae L) due to the treatment of banana weevil poc (P) and cow manure (K) Age 3, 4, 5 Weeks After Planting (MST)

Treatment	Plant Height (cm)		
	3 MST	4 MST	5 MST
P = POC Banana Weevil			
P0 = 0 liters/plot	13.44 aA	17.04 aA	20.29 aA
P1 = 1 liter/liter of water/plot	13.38 aA	16.43 aA	19.46 aA
P2 = 2 liters/liter of water/plot	13.86 aA	16.37 aA	19.61 aA
K = Cow Manure			
K0 = 0 kg/plot	13.20 aA	16.23 aA	19.60 aA
K1 = 1 kg/plot	13.76 aA	17.07 aA	20.08 aA
K2 = 2 kg/plot	13.37 aA	16.56 aA	19.55 aA
K3 = 3 kg/plot	13.91 aA	16.59 aA	19.92 aA

Note : The numbers in the same column followed by the same letter show no significant difference at the 5% (lowercase) level and 1% (uppercase) level based on Duncan's Distance test

Table 1. Shows that the highest average plant height at 3-5 WAP was in the treatment of banana weevil liquid organic fertilizer P0 (0 L) which was 20.29 cm, while the lowest plant height was at 3-5 MST in the treatment of banana weevil liquid organic fertilizer P1 is 19.46. Meanwhile, the highest average plant

height for cow dung fertilizer was in treatment K1 (1 kg), which was 20.08, while the lowest was in treatment K2 (2 kg), namely 19.55 .

2. Number of branches

The results of statistical analysis of variance showed that the application of weevil poc had no significant effect on the number of leaves (strands) at the age of 3, 4, 5 weeks after planting (MST). While the application of cow dung fertilizer and the interaction between the two showed no significant effect on the number of leaves (strands) at the age of 3, 4, 5 weeks after planting (MST).

The average yield of the number of leaves (strands) of peanut (A. hypogeae L) at the age of 3, 4 , 5 weeks after planting (MST) due to the treatment of poc banana weevil and cow dung fertilizer can be seen in Table 2.

Table 2. Average number of leaves (strands) of groundnut (A. hypogeae L) due to the treatment of poc banana weevil (P) and cow manure (K) Age 3, 4, 5 weeks after planting (MST)

Treatment	Number of Leaves (strands)		
	3 MST	4 MST	5 MST
P = POC Banana Weevil			
P0 = 0 liters/plot	56.32 aA	68.76 aA	81.71 aA
P1 = 1 liter/liter of water/plot	56.45 aA	69.57 aA	81.64 aA
P2 = 2 liters/liter of water/plot	54.35 aA	67.36 aA	80.39 aA
K = Cow Manure			
K0 = 0 kg/plot	52.89 aA	67.33 aA	80.32 aA
K1 = 1 kg/plot	55.95 aA	69.33 aA	82.51 aA
K2 = 2 kg/plot	57.41 aA	70.98 aA	83.48 aA
K3 = 3 kg/plot	56.57 aA	66.60 aA	78.70 aA

Note: The numbers in the same column followed by the same letter show no significant difference at the 5% (lowercase) level and 1% (uppercase) level based on Duncan's Distance test

Table 2. Shows that the highest average number of leaves at 3-5 WAP was in the treatment of banana weevil liquid organic fertilizer P0 (0 L), namely 81.71 leaves, while the lowest number of leaves was at 3-5 MST in the treatment of banana weevil liquid organic fertilizer P2 (2 L) is 80.39 strands. While the average number of leaves given the highest cow dung fertilizer was in the K2 treatment (2 kg), namely 83.48 leaves, while the lowest was in the K3 treatment (3 kg), namely 78.70 leaves. .

3. Interest amount (intert)

The results of statistical analysis of variance showed that the addition of weevil poc had no significant effect on the number of pods per sample (pods). While the application of cow manure and the interaction of the two showed no significant effect on the number of pods per sample (pods) of peanut plants.

The average yield of the number of pods per sample (pods) of peanut (A. hypogeae L) due to the treatment of banana weevil poc and cow manure can be seen in Table 3.

Table 3. Mean Number of Pods Per Sample (Pod) of groundnut *(A. hypogeae* L *)* as a result of treatment with poc banana weevil (P) and cow manure (K).

Treatment	Number of Pods Per Sample (pods)
P = POC Banana Weevil	
P0 = 0 liters/plot	19.69 aA
P1 = 1 liter/liter of water/plot	19.54 aA
P2 = 2 liters/liter of water/plot	20.98 aA
K = Cow Manure	
K0 = 0 kg/plot	18.73 aA
K1 = 1 kg/plot	20.65 aA

K2 = 2 kg/plot	20.16 aA
K3 = 3 kg/plot	20.73 aA

Note: The numbers in the same column followed by the same letter show no significant difference at the 5% (lowercase) level and 1% (uppercase) level based on Duncan's Distance test

Table 3. Shows that the highest average number of persel pods was in the P2 banana weevil liquid organic fertilizer treatment (2 L), namely 21.10 pods, while the lowest was in the P0 treatment (0 L) which was 19.43 pods. While the average number of persel pods given the highest cow dung fertilizer was in the K3 treatment (3 kg), namely 21.46 pods, while the lowest in the K0 treatment (0 kg) was 18.24 pods.

CONCLUSION

The treatment of banana weevil POC showed no significant effect on all parameters such as plant height, number of leaves, number of pods per sample, number of pods per plot, wet peanut production per sample and wet peanut production per plot in peanut plants. The banana weevil POC treatment that gave the best results was P2 (2 liters/liter water/plot).

The application of cow manure showed a very significant effect on the parameters of wet peanut production per sample and wet peanut production per plot but showed no significant effect on plant height, number of leaves, number of pods per sample and number of pods per plot, the treatment that gave the best results namely K3 (3 Kg/plot).

The interaction between the treatment of banana weevil POC and cow manure showed no significant effect on the parameters of plant height, number of leaves, number of pods per sample, number of pods per plot, production of wet peanuts per sample and production of wet peanuts per plot.

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