
THE RESPONSE OF SEVERAL TYPES OF LIQUID ORGANIC FERTILIZER (POC) TO GRASS GROWTH ODOT (Pennisetum Purpureum CV. Mott)**By****Roynaldi¹, Meriksa Sembiring²****^{1,2} Program Studi Peternakan Fakultas Sains dan Teknologi, Universitas Pembangunan Panca Budi Mesan****Email: ¹roynaldi1102@gmail.com**

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Abstract: *The purpose of this study was to determine the response of several types of liquid organic fertilizer (POC) to the growth and productivity of odot grass (Pennisetum purpureum cv. Mott).. The design used a non-factorial Group Random Design (RAK) with 4 treatments and 6 repeats. Treatment consists of: Po (without POC), P1 (POC Naturageen), P2 (D' Boostefer), and P3 (Pamorganic mas). The POC response to odot grass was carried out by applying a spray solution of 50 ml of liquid organic fertilizer (POC) then watering each plot and 4.5 liters of water for each treatment using POC. The parameters observed were the height of odot grass, number of tillers, leaf length, number of leaves, and production of segat odot grass. Observations were made from 2 WAP (week after planting) until 8 WAP. The data generated through measurements was analyzed statistically and tested with DMRT. From the results of the research analysis, it was found that the use of odot grass POC had a significant effect ($p < 0.05$) on the growth and productivity of odot grass compared to the control (without POC), with the effectiveness or good effect being $P2 > P3 > P1$, while $P0$ was growth and the lowest production.*

INTRODUCTION

In the world of animal husbandry, especially ruminants, what must fulfilled is feed, where forage is the very important main factor in ruminant farming in addition to genetic and management factors. At this time the availability of forage is decreasing due to the increase in planting food crops. For small farmers to get forage they look for any grass whose nutritional value is insufficient for the needs of their livestock. Larger farmers generally get forages that have high nutritional value by trying to plant grass types first before starting their livestock that have high nutritional value obtained from the results of

research from scientists. One type of grass that has the potential for livestock as forage is not grass (*Pennisetum purpureum* cv. Mott).

This grass can live in various places and is resistant to protection, response to fertilization, and high production. For planting land, for one cutting, ordinary odot plants produce about 36 kg/year and with a fairly low height average height of 1 Meter. Almost all parts of odot grass can be eaten by cows, goats, sheep, and buffaloes, (Purwangsa and Putera, 2014).

METHODS

This research was conducted in Sunggal District, Deli Serdang Regency, North Sumatra Province. The method used is a non-factorial Complete Randomized Design (RAL) experimental method consisting of 4 treatments in the form of hormones from plants with 6 repeats so that there are 24 research plots. The treatment in this study consists of:

P0: (control) without treatment,

P1: POC Naturagen

P2: POC D'Boostefer

P3: POC Pamorganik mas.

Sample Preparation

A total of 24 treatment plots with a plot size of 100 cm x 100 cm each. Each application of liquid organic fertilizer is adjusted to its treatment. P0 treatment without POC, P1 giving POC Nature GEN, P2 giving D'Boostefer, and P3 giving POC Pamorganik Mas. How to apply it to plants is by using 50 ml of liquid organic fertilizer and 4.95 liter of water then watering each plot and 50 ml to plants. Application is carried out 1 week after planting and repeated once every 2 weeks until the plant is 6 weeks old. The variables observed in this study were Plant Height (cm), Leaf Length, Number of Leaves (Strands), Fresh Production (kg). The data was then analyzed using Analysis of by statistical analysis.

RESULTS AND DISCUSSION

Height growth of odot grass

Odor grass height growth from the effect of giving several types of POC was obtained, and the results of statistical analysis resulted in 2 weeks after planting (MST) to 4 MST each type of POC given showed no real difference ($p > 0.05$) where the average grass height was 17.67 cm – 18.87 cm can be seen more in Table 1.

Table 1, Average growth rate of odor grass height (cm) from the influence of several POCs

Treatment	Plant Height			
	2 MST	4 MST	6 MST	8 MST
P ₀	8,02 ^a	17,67 ^a	49,27 ^c	74,40 ^c
P ₁	7,97 ^a	18,58 ^a	59,30 ^b	89,55 ^b
P ₂	7,06 ^a	19,24 ^a	64,98 ^a	101,41 ^a
P ₃	6,54 ^a	18,87 ^a	62,38 ^{ab}	94,20 ^{ab}

Note; The notation of the same letter in the same column differs markedly at the level of 5%

The three types of POC that can stimulate and provide the highest growth are POC D'Boostefer (P2) with the highest height at the age of 8 on average 101.41 cm with no real difference to the use of POCs Pamorganic MAS (P3) with a slight lower average with an average of 94.2 cm and (P2) significantly different from the use of POCs Nature Gene (P1) average height of odot grass 89.55 cm. The control treatment (P0) had the lowest average of 74,4 cm where the P0 (control) treatment was significantly different from the use of the three POCs but the three types of POCs were seen as P1 (Nature Gene) with the lowest height that differed not significantly from the treatment using P3 treatment (Pamorganic MAS).

The use of POC in fertilizing odot grass plants has the potential to increase the availability of forage for farmers, especially ruminants. Of the three types of POC tested on odot plants, it was seen that the P2 (D'Boostefer) treatment was superior for all parameters observed, followed by the use of POC Pamorganik MAS (P3), this can be seen from the results of research the average plant height reached 101.41 cm, slightly higher than Sirait et al., (2015) the average plant height was 96.3cm at the age of two months. According to Rica (2012) stated that if the soil is not fertile, plants cannot meet their nutritional needs, the successful growth of forage feed requires the support of the physical environment of the soil and ideal climate, therefore one way to get good forage growth and development is to fertilize.

Length and number of leaves

The length and number of leaves of odot grass in the field from the effect of fertilization with POC are carried out after the plant is 8 months old. The results of measurement, calculation, and analysis of the effect of using POC on the length and numbers of odot odot rump leaves can be seen in Table 2.

Table 2. Average length (cm) and Number of odot grass leaves (strands) from the influence of some POCs

Treatment	2 MST	4 MST	6 MST	8 MST
P ₀	45,80	c	49,78	a
P ₁	54,24	b	42,82	a
P ₂	61,43	a	57,49	a
P ₃	57,10	ab	53,08	a

Note; The notation of the same letter in the same column differs markedly at the level of 5%

The length of odot grass leaves from the influence of giving several types of POC was obtained and the results of statistical analysis resulted in the age of 8 weeks after planting (mst) each type of POC given showed a real difference ($p < 0.05$) where the average leaf length of 61.43 cm was found in the use of POC D'Boostefer (P2), not real difference to P3 (POC Pamorganik Mas) with an average leaf length of 57.1 cm, but P2 differs markedly from (P1) with the use of POC Nature GEN.

The P0 (Control) treatment was the lowest result with an average odot grass leaf length of 45.8 cm ($P < 0.5$) significantly different from all POC treatments, but of the three types of POC tested on odot grass leaf length, the best was to use P2 (D' Boostefer).

The number of leaves of odot grass in the field from the effect of applying POC fertilizer at the age of 8 weeks after planting (mst), based on statistical analysis showed an intangible difference ($p > 0.05$) with an average number between 42.82 – 57.49 strands, with the lowest number of leaves found in the P1 (Nature Gen) treatment with an average number of leaves of 42.82 strands, while the highest number of leaves was found in the P2 (D'Boostefer) treatment with an average number of 57.49 strands.

The increase in plant height indicates the vegetative growth activity of a plant, as long as the needs of nutrients, water, and light are fulfilled in plants and there is no competition between plants, then the rate of photosynthesis in the growth process is relatively the same and causes plant height to also be relatively the same (Sutedjo, 2002). In this study, the number of leaves of odot plants had no effect due to the use of POC, while the number of saplings had a noticeable effect, but slow growth. The opinion of Santia, Anis, & Kaunang (2017) states that the number of shoots or saplings is an indicator of the ability of forage feed to grow again as well as a sign of the potential to produce high biomass.

Number of saplings

Calculation of the number of odot grass saplings carried out in the field from the effect of POC fertilization at the age of 8 weeks after planting (MST). The results of measurement, calculation, and analysis of the effect of using POC on the number of odot grass saplings can be seen in Table 3.

Table 3, Average number of odot grass saplings from the influence of several POCs

Sum		
Treatment	Tiller	Notation
Po (Kontrol}	1,19	c
P ₁ (Nature Gen)	1,34	bc
P ₂ (D'Boostefer)	1,66	a
P ₃ (Pamorganik MAS)	1,53	ab

Note; The notation of the same letter in the same column differs markedly at the level of 5%

From Table 3, it can be seen that the number of odot grass saplings from the effect of giving several types of POC obtained, and the results of statistical analysis show a real difference ($p < 0.05$) between treatments using POC, with the use of POC D'Boostefer (P2) can stimulate the formation of the most number of saplings with an average of 1.66 number of saplings, in contrast not significantly to (P3) with the use of Pamorganic POC with an average number of saplings of 1.53 saplings. Of the three types of POC tested, the use of POC Nature Gene (P1) resulted in the lowest number of saplings with an average number of 1.34 saplings but differed insignificantly from (P3) and (P0) controls. The P0 (Control) treatment obtained the least number of odot grass saplings with an average number of 1.19 saplings, with no real difference to P1, but significantly different to P2 and P3.

Fresh Weight Production

The results of fresh weight weighing of odot grass at the age of 8 weeks after planting (MST) from the effect of using several types of POC can be seen in Table 4.

Table 4, Average Fresh weight of odot grass (kg/clump) from the influence of several POCs at the age of 8 weeks after planting (MST)

Treatment	Fresh weight	Notation
Po (Kontrol}	0,91	c
P ₁ (Nature Gen)	0,98	bc
P ₂ (D'Boostefer)	1,19	a
P ₃ (Pamorganik MAS)	1,11	ab

Note; The notation of the same letter in the same column differs markedly at the level of 5%

From Table 4, it can be seen that the fresh production of odot grass from the effect of giving several types of POC shows a real difference ($p < 0.05$) between treatments using POC, with the use of POC D'Boostefer (P₂) able to produce the highest fresh leaves with an average of 1.19 kg/clump, different intangible ($p > 0.5$) with the use of POC Pamorganik (P₃) with an average fresh weight of 1.11 kg/clump. Of the three types of POC tested, the use of POC Nature Gene (P₁) resulted in the lowest fresh weight with an average of 0.98 kg/clump but differed insignificantly from P₃ and P₀ (control). The P₀ (Control) treatment is the lowest production of fresh odot grass with an average production of 0.91 kg/clump, not significantly different from P₁, but significantly different from P₂ and P₃.

Planting odot grass using POC D'Boostefer mas (P₂) produces fresh leaves with an average amount of 1.19 kg/clump (47.6 tons/ha) slightly lower than the opinion of the results of research by Sada et al., (2018) that odot grass has a high production capability of an average of 49.39 tons / Ha per harvest, this grass can live and adapt to the tropics. When odot grass harvesting occurs in the dry season, this allows odot grass production to be slightly lower. Compared also from the results of research by Fitriana Akhsan (2020) who tested using POC from goat urine mixed with MOL with an average result of 52.39 tons/ha, while without POC obtained 43.98 tons/ha

The maintenance of odot grass carried out in this study was only carried out within a month so the nutrients in the POC have not been absorbed optimally, so the effect of the POC is not visible. According to Parnata (2010), the weakness of organic fertilizer is that the speed of nutrient absorption by plants is longer than the absorption of nutrients from inorganic fertilizers. Factors affecting the growth rate of plants are internal and external factors. Internally the quality of cuttings and the time between cutting seedlings and planting, while external factors are in the form of temperature, humidity, planting media, hormonal, sunlight, and water (Mufarihin et al., 2012).

CONCLUSION

1. The use of several types of POC produces a markedly different influence on the growth and production of odot grass.
2. The use of POC treatment P₂ and P₃ (D'Boostefer and Pamorganik mas), can increase the growth and production of fresh leaves that are quite high

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