DOI 10.18551/rjoas.2021-12.20

EFFECT OF SOIL AND INORGANIC FERTILIZERS ON SOIL PROPERTIES, ONION GROWTH AND YIELD OF ALLIUM ASCALONICUM L. AT DRY LANDS

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ABSTRACT

Dryland in West Nusa Tenggara (NTB) is generally a marginal land with soil fertility, water availability, and low organic C levels so that productivity is low. This study analyzed changes in soil properties on dry land due to soil destruction and different doses of inorganic fertilizers, as well as their effect on the growth and yield of onion plants. The experiment was conducted from September to November 2020 in Labuhan Lombok Village, Pringgabaya Subdistrict, East Lombok Regency, on land with inceptisol soil type and a place height of 22.3 m above sea level. The experiment was designed based on a factory Randomized Design Group (RAK) of two factors, namely soil destruction and inorganic fertilizer dosage. The first factor of soil destruction consists of 4 levels of treatment, namely without soil destruction (P0), manure 20 tons/ha (P1), biochar 5 tons/ha (P2), and waste backlog mushrooms 10 tons/ha (P3) while inorganic fertilizer dose consists of 3 levels, namely NPK 150 kg/ha (N1), NPK 300 kg/ha (N2) and NPK 450 kg/ha (N3), produced 12 combinations of treatments repeated 3 times so that the experiment was conducted on 36 plots. The results showed that there was an interaction between soil destruction and inorganic fertilizer doses to C-organic (P3N1) and soil KTK (P1N2). The provision of soil destruction affects the nature of the soil, namely pH, N-Total, K-Total, and soil type weight while the dose of inorganic fertilizer has no real effect on the chemical and physical properties of the soil. The provision of soil waste backlog mushrooms 10 tons/ha can increase the content of C-organic soil by 1.33%. There is no interaction between the administration of soil and the dose of inorganic fertilizers to the growth and yield of onion plants. Soil destruction affects the height of plants aged 42 hst and the number of leaves aged 49 and 56 hst while the dose of inorganic fertilizer affects the height of the plant aged 49 hst and the number of leaves at the age of 49 and 56 hst as well as the results of onion plants. The dose of inorganic fertilizer NPK 450 kg/ha affects the yield of onion plants, which is 1.67 kg/plot.

KEY WORDS

Soil, inorganic fertilizers, onions.

The development of dryland agriculture in West Nusa Tenggara province is a future investment because most of the area is a dry land with an area of 1,807,463 ha or 84% of the land area in NTB. The land has the potential to be developed into more productive agricultural land for various types of agricultural commodities (Suwardji, 2006). However, the potential of dry land has not been utilized optimally due to soil fertility constraints, layers of processing, and low levels of soil organic matter (Suriadikarta et al, 2002). The content of organic matter owned by dry land is generally less than 1% (Samosir, 2000).

Efforts to maximize the potential of dry land can be done by increasing the content of organic matter and nutrients through the provision of soil-clearing materials combined with inorganic fertilizers. Soil destruction is a natural or organic and synthetic material to overcome soil damage or degradation (BBSDLP, 2012). Soil repair can be used to improve the chemical, physical and biological properties of soils. The use of soil soil soil is reported to strengthen soil aggregates to change hydrophobic and hydrophilic properties to change the capacity of soil holding water and increase the cation exchange capacity (KTK) (Arsyad, 2000). In sandy soil, organic matter can enlarge the binding power of water so that the soil structure becomes more compact. In addition, organic matter improves heavy soil drainage and aeration systems.

The ability of soil repairers to improve the physical, chemical, and biological properties of the soil depends on the type of material in its application dose as well as the type of soil treated. There are many types of soil soil soil in NTB such as manure, biochar, and mold backlog waste. According to Subekti (2005) the application of manure can add nutrients, increase humus levels, improve soil structure and encourage the life of trace bodies. In Indonesia, most of the soil is in a condition of lack of nutrients and the structure is dense because it is dominated by clay fractions so that it takes a large enough amount of manure, namely 10-20 tons/ha (Lingga san Marsono, 2002).

Biochar is a natural soil builder made from imperfect combustion from residues and agricultural waste that is difficult to decompose such as rice husks, wood, coconut shells, and others (BBSDLP, 2012). Biochar can improve soil quality so that it can increase crop productivity. Other soil fixers, namely mold backlog waste containing lignin and cellulose are quite high and consist of a mixture of 80% sawdust, 10% bran, 1.8% lime, 1.8% gypsum, and 0.4% TS (Ghazali *et al.*, 2009).

Soil soil soil can not replace the role of inorganic fertilizers as suppliers of nutrients, because the nutrient content in organic materials is relatively low, but organic materials can increase the efficiency of the use of inorganic fertilizers (Soedarjo and Mashuri, 2000). Therefore, the maximum inorganic fertilizer given by farmers should be combined with soil to lower the dose of inorganic fertilizer from the recommended dose, with results that remain high (Juarsah, 2016). The use of soil soil soil in combination with inorganic fertilizers on dry land is expected to increase the holding power of water and nutrients in the soil to increase its productivity.

In this study, soil-fixing applications combined with doses of NPK fertilizer were tested on onion plants (*Allium ascalonicum* L.). Onion is one of NTB's flagship crops, whose development has increased significantly with a harvest area from 11,518 ha in 2015 to 17,570 ha in 2020 (BPS, 2020). Onions are plants that require enough nutrients to obtain certain productions. The main nutrients that need to be added to the fertilization of onion plants are N, P, and K fertilizers. The results of the Study Mehran *et al* (2012) showed that the provision of NPK fertilizer 600 kg/ha produces a wet-bulb weight of 8.92 tons/ha, while the provision of NPK fertilizer 200 kg/ha is to produce a wet-bulb weight of 7 tons/ha. The combination of NPK fertilizer with appropriate soil on dry land is expected to improve the nature of the soil and reduce the dose of NPK fertilization in the cultivation of onion plants.

MATERIALS AND METHODS OF RESEARCH

The experiment was conducted at the Bptp Balitbangtan NTB Agricultural Technology Research and Assessment Installation (IP2TP) in Labuhan Lombok Village, Pringgabaya Subdistrict, East Lombok Regency, on land with inceptisol soil type and a place height of 22.3 m above sea level. This experiment was conducted from September to November 2020. Fertilizer and soil analysis was conducted at the Laboratory of Soil, Plants, Fertilizers, Balitbangtan Water BPTP NTB.

The materials used in the form of manure, charcoal husk (biochar), mushroom backlog, NPK fertilizer 16-16-16, fungicides, pesticides, and onion seeds of header varieties. The tools used are drums, stakes, funnel, hoe, plastic, paper, plywood, cheers, rope, meter, sack, sying, brown envelope, analytical scales, oven, stationery, and camera.

The experimental design used is a Group Random Design (RAK) which is arranged factorially consisting of two factors, namely soil destruction and inorganic fertilizers. Soil destruction consists of 4 treatments, namely without soil (P0), manure 20 tons/ha (P1), biochar 5 tons/ha (P2), and mushroom waste baglog 10 tons/ha (P3). Inorganic fertilizer consists of 3 treatments namely NPK 150 kg/ha (N1), NPK 300 kg/ha (N2), and NPK 450 kg/ha (N3), the combination of the two factors obtained 12 combinations of treatment and repeated 3 times so that prepared 36 plots of experiments.

The experiment began with the preparation of soil clearing, land preparation, and soil sampling before and after the application of treatment to find out the status of soil nutrients. The experimental land is processed, made with planting (trial plot) then giving soil according to treatment on the trail map by spreading flat on the bed then silenced for a week and irrigated, then onion seeds are planted. Small scatter seeds (blue label) ($\varnothing = < 1.5$ cm) are planted by 2/3 of the bulbs immersed into the soil, 1 bulb per planting hole with a planting distance of 20 x 15 cm (65 plants per plot). Plants are maintained by watering with a system, weeding, and OPT controlled periodically. Inorganic fertilization treatment is carried out following the treatment with NPK doses of 150 kg/ha, 300 kg/ha, and 450 kg/ha. Inorganic fertilizers are applied twice (age 15 and 35 days after planting) by sowing in grooves dug between rows of onion plants evenly.

Growth parameters (plant height and number of leaves) are observed 7 times, namely, at the time of 14, 21, 28, 35, 42, and 56 hst, while the results are observed after harvest (number of bulbs, fresh weight of bulbs and crop yields). The soil parameters analyzed (before and after treatment) are pH, N, P, K total, C-organic, KTK, BV, and BJ soil. The collected data is analyzed with diversity analysis (ANOVA) and continued with a real difference test honestly at a real level of 5%, using the Costas for Windows ver.6.303 programs.

RESULTS AND DISCUSSION

The results of the various analyses showed that the treatment of soil destruction and inorganic fertilizer doses had a real effect on pH, N-total, K-total, and soil BJ, but did not affect the P-total of the soil. There is no real interaction of soil destruction with inorganic fertilizer doses in affecting soil properties, except against KTK and C-organic soil.

The interaction between soil soilers and inorganic fertilizer doses in affecting KTK and C-organic soil is shown in Tables 1 and 2.

Table 1 – Soil KTK on interactions between soil soilers and inorganic fertilizer doses

Land-Fixing	Inorganic Fertilizer Dose		
	N1	N2	N3
P0	16.63 ab	12.89 c	17.25 ab
P1	15.41 bc	19.42 a	15.58 ab
P2	14.31 bc	16.99 ab	15.51 ab
P3	17.10 ab	17.18 ab	13.03 bc
BNJ 0.05	4.40		

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the 5% level.

In soil treated with soil, KTK increases by increasing the dose of NPK fertilizer to 300 kg/ha, and after that decreases. But in soils that are not given soil, KTK continues to increase with increasing doses of inorganic fertilizers. P1N2 treatment has a real difference KTK to P0N2 treatment but is not different from P2N2 and P3N2 treatment. The treatment of P1N2, P2N2, and P3N2 is a treatment with soil destruction and inorganic fertilizer dose of 300 kg/ha, meaning that the treatment on the land gets enough organic material input so that the soil KTK also increases. The increase in KTK is due to the addition of organic matter due to weathering of organic matter that produces humus (organic colloids) that have a wide surface that can withstand nutrients and water. The vast colloidal surface increases the

cation in the interchangeable soil (Pramono, 2004). The factors that can increase KTK are based on the amount of clay and organic matter. Low clay content (6%) is low in KTK. However, the value of KTK produced after the treatment is thought to come from the donation of organic matter in the form of manure applied at a dose of 20 tons/ha.

Table 2 – C-organic soil on the interaction between soil soil soil and inorganic fertilizer doses

Land-Fixing	Inorganic Fertilizer Dose		
	N1	N2	N3
P0	1.03 bc	0.96 c	1.21 ab
P1	0.94 c	1.30 ab	1.02 bc
P2	1.00 bc	0.98 c	1.04 bc
P3	1.33 a	1.11 abc	1.31 a
BNJ 0.05	0.22		

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the 5% level.

Soil-fixing combined with inorganic fertilizers at P3N1 and P3N3 treatments produce soil with the highest C-organic levels, while the lowest is in P0N2 and P1N1 treatments. Hanafiah (2005) stated that the provision of organic matter will increase the C-organic soil because organic matter contains carbohydrates, proteins, lignin, and cellulose dominated by C, H, and O. The higher the C / N ratio of material then the slower to be converted into compost instead of materials with a low C / N ratio will speed up the composting process, but if the value of the C / N ratio is too low then the composting process will produce byproducts that are ammonia gas that smells bad (Aminah, 2005).

Furthermore, the singular influence of soil-fixing treatment and inorganic fertilizer doses on soil properties is shown in Figure 2 and Table 3.

Figure 2 – Effect of soil destruction and inorganic fertilizer doses on soil type weight

In Figure 2, the treatment of soil destruction lowers the weight of the soil type. Treatment without soil (P0) has a larger soil type weight and is different from the treatment of mold baglog waste (P3) but is not different from the treatment of manure (P1) and biochar treatment (P2). Nevertheless, the weight of soil types of manure treatment of 20 tons/ha (P1) and biochar 5 tons/ha (P2) tends to be lower than without soil destruction. This is alleged because the provision of soil has changed the fraction of sand, dust, and clay so that it has an impact on changes in the air, solids, and water systems (Partoyo, 2005). According to Hardjowigeno (2003), the high content of organic matter causes the soil to have a low grain weight, added also by Blake (1986) states that the amount of the weight of agricultural soil species ranges between 2.6 to 2.7 g / cm³. Islami and Utomo (1995) suggest that soil pores are influenced by the arrangement of particles and soil structures that have a role in water and air supply power and root growth that is directly useful for plant growth.

Table 3 – pH, N-total, P-total, and K-total soil on onion soil due to soil-fixing treatment and inorganic fertilizer dosage

Treatment	pH-H ₂ O	N-total (%)	P-total (%)	K-total (%)
Land-Fixing				
P0	7.36 b	0.05 b	0.27	0.17 a
P1	7.50 b	0.04 b	0.25	0.16 ab
P2	7.43 b	0.08 a	0.25	0.17 a
P3	7.72 a	0.08 a	0.27	0.14 b
BNJ	0.18	0.01	-	0.02
Inorganic Fertilizer Dose				
N1	7.55	0.06	0.27	0.16
N2	7.54	0.06	0.24	0.16
N3	7.41	0.06	0.26	0.16
BNJ	-	-	-	-

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the level of 5%.

Table 3 shows that the soil pH at all treatments ranges from 7.36 to 7.72. The treatment of mold baglog waste (P3) is higher than other treatments. While the pH of the soil in the treatment of manure and biochar is not different from the treatment without soil destruction. In addition, the application of NPK fertilizer doses with different doses does not significantly affect the pH of the soil. The increase in pH in the provision of soil waste baglog mushrooms is suspected due to the decomposition process of organic matter in the soil. These organic materials undergo humification to form humus. Mineralization of humus will produce a cation-base cation that can increase the pH of the soil so that nutrients are more easily absorbed by plants Hardjowigeno (2007).

The treatment of soil-fixing affects N-total soil. The treatment of mold baglog waste (P3) and biochar (P2) has higher N-total levels and is in stark contrast to manure treatment (P1) and without soil destruction (P0). In all treatments, N-total levels after the experiment were quite low, ranging from 0.04 – 0.08%. Low levels of N-total in the soil is one proof that N is a mobile element, does not get trapped in the soil, and is easily lost. Wardani (1990) said that N-total accumulates a lot at the surface of the soil so that with the dispersion process, the soil covered by erosion is more and more and N-total is lost through erosion as well. The addition of N fertilizer with different doses should not be followed by an increase in the total N content in the soil. This is thought to be because the N given has been absorbed by the onion plant (lost in the crop) or lost through twisting and evaporation.

Soil-fixing treatment and inorganic fertilizer doses do not have a noticeable distinct effect on total P. Foth (1995) state that P (Phosphorus) availability is strongly influenced by soil stress levels, generally available at very low to neutral soil times. In all treatments, the pH tends to be somewhat alkaline so the P content is less available to plants so that the levels at the end of the experiment remain high.

The treatment of soil destruction affects the total K-soil. Treatment without soil soil (P0) and biochar 5 tons/ha (P2) produces a total K level of 0.17%. The value is markedly higher than the treatment with mold baglog waste (P3) with a total K of 0.14% but not really different from the treatment of manure (P1) with a total K of 0.16%. The administration of various doses of NPK does not affect the total K in the soil. This is alleged because the K given according to Pire et al (2001) onion plants absorb K in almost the same amount as N.

The results of the diversity analysis showed that the treatment of soil destruction had a real effect on the height of plants aged 42 hst and the number of leaves aged 49 hst, while the treatment of inorganic fertilizer doses had a real effect on plant height and the number of leaves at the age of 49 and 56 hst, but there was no interaction between soil thickeners and inorganic fertilizer doses of plant height and the number of onion leaves at all times of observation.

The treatment of soil soil soil and inorganic fertilizer doses have no real effect on the number of bulbs and the fresh weight of the bulbs. Likewise, there is no interaction between

soil soil soil and inorganic fertilizer doses against onion plants. However, the dose of inorganic fertilizer affects the yield (kg/plot).

Plant height as a plant size is often observed as an indicator of growth as well as parameters used to measure the effect of applied treatment. The height of plants on soil-fixing treatment and inorganic fertilizers is listed in Table 4.

Table 4 – The average height of onion plants aged 14 hst to 56 hst on soil-fixing treatment and inorganic fertilizer dosage

Treatment	Plant height (cm) at the age of observation (hst)						
	14	21	28	35	42	49	56
Land-Fixing							
P0	11.06	19.53	22.97	24.59	26.40 a	27.14	27.78
P1	11.86	19.58	22.93	24.41	25.42 ab	26.63	27.08
P2	12.13	19.66	22.41	23.83	25.09 ab	26.12	27.02
P3	10.71	17.72	20.53	21.91	22.61 b	23.37	23.94
BNJ	-	-	-	-	3.61	-	-
Inorganic Fertilizer Dose							
N1	11.13	19.09	22.00	23.37	23.74	24.15 b	24.28
N2	11.88	19.03	22.26	23.70	24.99	26.67 ab	26.51
N3	11.31	19.25	22.38	24.09	25.91	27.38 a	27.82
BNJ	-	-	-	-	-	3.01	-

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the 5% level.

Table 4 shows the height of onion plants on dry land increases with the age of the plant. At the age of 42 days after planting, the highest plant is indicated by without soil destruction (P0) which is 26.40 cm but is not different from 20 tons/ha (P1) manure which is 25.42 cm, and biochar 5 tons/ha (P2) which is 25.09 cm while the lowest plant in P3 (10 ton/ha mushroom baglog waste) is 22.61 cm which is different from P0. The dose of inorganic fertilizer has a real effect on the height of plants aged 49 days after planting, namely at the administration of doses N3 (NPK fertilizer 450 kg/ha) produces the highest plant 27.38 cm and the lowest at the dose of N1 (NPK fertilizer 150 kg/ha), while the dose of N2 (NPK fertilizer 300 kg/ha) is not different from N1 and N2. This is because the provision of follow-up fertilizer is done when the plant is 35 days old after planting so that the impact of after-fertilizer has not been seen in real terms. P0 has a higher plant height compared to P1, P2, and P3 allegedly the initial soil content is enough to meet the needs of onion plants while when viewed in high P3 plants produce the lowest crop because the C /N content of mold baglog waste ratio is high so that the availability of nutrients released slowly has not been able to be responded by plants.

Table 5 – The average number of onion leaves aged 14 hst to 56 hst on soil-fixing treatment and inorganic fertilizer doses

Treatment	Number of leaves (strands) at the age of observation (hst)						
	14	21	28	35	42	49	56
Land-Fixing							
P0	9.19	13.69	20.39	22.88	24.65	25.09 a	25.31 a
P1	9.66	14.79	20.31	22.19	23.57	24.14 ab	24.31 ab
P2	9.96	14.46	20.11	22.63	23.91	24.98 a	25.11 a
P3	9.19	13.38	16.84	17.68	18.52	18.81 b	18.95 b
BNJ	-	-	-	-	-	6.01	6.02
Inorganic Fertilizer Dose							
N1	8.94	13.43	18.24	19.83	20.12	20.12 b	20.23 b
N2	10.07	14.28	19.44	21.88	23.33	24.65 ab	24.86 ab
N3	9.49	14.52	20.56	22.33	24.54	25.00 a	25.16 a
BNJ	-	-	-	-	-	4.71	4.72

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the 5% level.

Table 5 shows the number of leeks of the onion plant between the ages of 14 and 42 hst, with the number of leaves not differing markedly until the age of 42 hst. The impact of

soil-fixing treatment and inorganic fertilizer doses was seen after the plant was 49 hst old. At the age of 49 hst and 56 hst, the higher number of leaves in plants without soil soil soil (P0) is 25.09 strands but is not different from 20 tons/ha (P1) manure which is 24.98 strands and biochar 5 tons/ha (P2) which is 24.14 strands while the lowest is in the waste baglog mushrooms 10 tons/ha (P3). The administration of different doses of inorganic fertilizers showed producing plants with different numbers of leaves at ages 49 and 56 hst. The largest number of leaves in the treatment of NPK fertilizer dose of 450 kg/ha (N3) is 25 strands that are different from the NPK fertilizer dose of 150 kg/ha (N1) which is 20.12 strands but is not different from the dose of NPK fertilizer 300 kg/ha (N2) which is 24.65 strands.

As the age of the plant, the height of the plant, and the number of leeks of the onion plant continue to grow from the age of 14 hst - 56 hst. According to Fatmawaty (2015) the height of the plant and the number of plant leaves are parameters that can indicate plant growth. Leaf formation is influenced by the genetic nature of the plant and its growing environment. In this study, the number of leaves was affected by soil destruction and the dose of inorganic fertilizer NPK applied. Plant growth is inhibited by the provision of soil soil soil in the form of mold baglog waste due to growing conditions that are not following onion plants such as a somewhat alkaline pH. The nutrients contained in NPK fertilizer are N 16%, P 16%, and K 16%. NPK fertilizer as a source of inorganic materials contains nutrients that can increase plant growth and productivity, including N, P, and K levels also increase. Lingga and Marsono (2007) say that N's main role for plants is to stimulate overall growth, particularly stems, branches, and leaves. In addition, N plays an important role in the formation of leaf forage which is very useful in the process of photosynthesis.

Table 6 – The average number of bulbs, fresh weight of bulbs, and crop yields on soil-fixing treatment and inorganic fertilizer dosage

Treatment	Number of bulbs (clumps)	Fresh weight bulbs (g)	Crop (kg/plot)
Land-Fixing			
P0	9.17	32.27	1.65
P1	8.92	31.25	1.53
P2	9.22	29.32	1.42
P3	8.63	22.88	1.34
BNJ	-	-	-
Inorganic Fertilizer Dose			
N1	8.34	24.85	1.31 b
N2	9.33	29.94	1.48 ab
N3	9.28	31.99	1.67 a
BNJ	-	-	0.31

Description: The numbers followed by the notation of different letters in the same column and row are real different based on the Tukey test at the 5% level.

The number of bulbs produced is relatively uniform between treatments, ranging from 8.33 to 9.33 bulbs per clump. This is thought to be because the number of bulbs is more controlled by genetic character, not the cultivation environment. Onion bulbs come from the lateral shoots of the bulbs on the bulbs. Gunawan (2010) states that the number of plant bulbs depends on the ability of the parent bulb and lateral bulbs to form new bulbs.

Table 6 also shows that the fresh weight of bulbs tends to decrease with soil-fixing treatment, and tends to be lowest on treatment with mold baglog waste. In treatment without soil soil soil (P0), the fresh weight of the bulbs is 32.27 g followed by the treatment of manure (P1) 31.25 g, biochar treatment (P2) 29.32 g, and the treatment of fungal baglog waste (P3) 22.88 g, although statistically not different from other archers. Treatment of inorganic fertilizer dose, NPK fertilizer dose treatment of 150 kg/ha (N1) shows a lower fresh weight than the treatment of inorganic fertilizer NPK 450 kg/ha (N3). This suggests that the fresh weight of bulbs without soil-fixing treatment (P0) of 32.27 g combined with inorganic fertilizer NPK 450 kg/ha (N3) 31.99 g produces a higher fresh weight of bulbs than plants with mold baglog waste treatment (P3) weight of 22.88 g. The fresh weight of bulbs at P0 treatment is higher compared to other soil-fixing treatments indicates that the plant's response to the dose of

NPK fertilizer is given. This is because the nutrients in NPK can increase plant growth and yield.

Treatment without soil destruction (P0), manure 20 tons/ha (P1) and biochar 5 tons/ha (P2) has a better potential yield compared to 10 tons/ha (P3) mushroom baglog waste. The dose of NPK fertilizer 450 kg/ha (N3) is different from the NPK treatment of 150 kg/ha (N1) but is not different from the NPK treatment of 300 kg/ha (N2) produces lower crop yields. The data showed that fertilization with a dose of NPK 450 kg/ha from the recommendation has been able to increase the yield of onions, but the results are still lower than the potential yield of the onion of the header variety. The results of abdulrachman and susanti (2004) study said the provision of K fertilizer insufficient soil causes more optimal onion growth. The addition of high doses of potassium shows good results because potassium plays a role in helping the process of photosynthesis, namely the formation of new organic compounds that are transported to the organ where the hoarding, namely tubers. Another influence of potassium fertilization is to produce quality bulbs (Bybordi dan Malakouti 2003).

CONCLUSION

The provision of soil land is influential on the nature of the soil, namely pH, N-total, K-total, and soil type weight. The dosing of inorganic fertilizers has no real effect on the nature of the soil. There is an interaction between soil fixing and inorganic fertilizer doses of C-organic (P3N1) and soil KTK (P2N1).

Soil destruction affects the high growth of plants aged 42 hst and the number of leaves aged 49 and 56 hst. The dosing of inorganic fertilizers affects the height of the leaves aged 49 hst and the number of leaves at the age of 49 and 56 hst as well as the yield of onion plants. There is no interaction between the administration of soil soil and the dose of inorganic fertilizer to the growth and yield of onion plants.

The provision of soil soil destruction baglog mushroom baglog 10 tons/ha can increase the content of C-organic soil by 1.33%.

The dose of inorganic fertilizer NPK 450 kg/ha affects the yield of onion plants, namely the yield of 1.67 kg/plot.

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