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Growth and yield of beans (*Phaseolus radiatus* L) planted in Malang urban farming

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A study in a greenhouse / plastic house in urban areas analogous to the organic urban farming system (using soil media, mixed soil media and rice husk charcoal with a volume ratio of 1: 0; 0.75: 0.25 and 50:50) and using green beans (*Phaseolus vulgaris* L.). treated with manure (cow) manure and doses of manure (5, 10, 15, 20 and 25 tons / ha). Beans have a potential economic value, high in Jakarta the price is Rp 60 000 / kg while in Malang is recorded at Rp. 29 500 / kg). Beans are a vegetable source of protein, vitamins, minerals, and contain other substances which are efficacious for drugs that can be consumed young or consumed in seeds. This research will be conducted in June-October 2019. in the green house of Jatimulyo Malang garden, near Griya Shanta housing with a height of ± 500 m above sea level and Laboratory of Environmental Resources, Agricultural Cultivation, Faculty of Agriculture, Universitas Brawijaya. The study used a factorial completely randomized design (RAL) consisting of two factors. The first factor is the planting media consisting of 3 levels of soil, a mixture of 75% + 25% rice husk charcoal, and a mixture of 50% + 50% rice husk charcoal and the second factor is the dose of manure consisting of 5 levels, namely: 5 tons / ha , 10 tons / ha, 15 tons / ha, 20 tons / ha and 25 tons / ha, from these two factors, 15 (fifteen) treatments were repeated 3 times.

Keywords: Growth, yield, beans, planting media, cow manure doses and urban farming

INTRODUCTION

Background of beans (*Phaseolus vulgaris* L.) are legumes from the family of leguminocae that contain a source of protein, carbohydrates, vitamins, minerals, dietary fiber and other beneficial substances, such as iron, selenium, potassium, thiamine, molybdenum and in acids (Wondimu and Tana, 2017). The need for beans is increasing with'; the increasing population, especially in urban areas, so that the needs of vegetables, especially beans and other vegetables can be met by the community itself by utilizing narrow and limited land that is often found in villages or in simple urban housing. (Alaimo, et al,.2008 ; Arenas, et al., 2013).

Central Statistics Agency (2017), reported that the production of bean vegetable plants in Indonesia for the period of 2012 to 2016 respectively 322,145 tons, 327,378 tons, 318,218 tons, 291,333 tons and 275,535 tons. Based on these statistical data, bean production in Indonesia is declining. In terms of community needs for beans continue to increase from year to year in line with population growth. The decline in production from year to year is caused by several factors, including decreasing agricultural land due to land use change, soil quality which is declining due to too many inorganic inputs, the lack of application of organic technology in the cultivation of beans.

Planting beans in urban areas by residents of urban villages or who inhabit simple or medium

housing, this in addition to being able to meet the needs of green beans for daily food needs, can also meet the needs of forage that refreshes the environment, cool and healthy air, the value of beauty, reduce hotter temperatures (Widaryanto et al., 2017) besides meeting the need for the nutritional value of food, vitamins. minerals and other substances that function as drugs that can be consumed young or consumed in seeds (Santoso and Anggita, 2019). conducted with the aim to determine the growth and yield of beans (*Phaseolus vulgaris* L.) in the city's organic farming system using planting media (soil and rice husk charcoal) and doses of cow manure.

In general in urban agriculture there are some climate constraints such as solar radiation which decreases its incomplete initivity value, many buildings are too close together and too high so that it reduces the duration of solar radiation, air becomes stuffy, temperature increases (inside and outside the home yard). Cahyono, 2007: Elisabeth, et al., 2013. Most urban communities use concrete or ceramic floors so that the temperature of the yard is hotter, increases humidity, without air circulation so that by planting green plants such as vegetables, it is hoped that the microclimate conditions will be fresh and comfortable and keep the environment healthy and sustainable (Santoso and Romadhon, 2018). To increase the production of green beans as an effort to meet the needs in the country, especially plants that are organically cultivated in urban areas is a separate issue, one way that can be done is the development of techniques for cultivating beans. To increase the growth and yield of beans can be applied organic fertilizer, to maintain a healthy environment (Widaryanto et al., 1917). Planting beans in an urban area with limited land can be done simply by utilizing artificial planting media provided in pots, polybags or empty cans, tubes that are not used, house yards or vacant lands in unoccupied housing complexes.

Planting media can be found easily, cheaply and saving water usage as can the use of local soil mixed with husk (easily available, cheap, efficient use of water, soil aeration and porosity of the planting media better. Solid waste from livestock in the form of manure (cow) has a nutrient content, especially% N for the needs of plants so that it can be used as a source of organic plant nutrition. Manure is a type of organic fertilizer that has a lot of available and easy-to-obtain nutrients which according to Lingga and Marsono (2013), the application of organic fertilizer can improve soil structure, increase soil absorbency of water, improve living conditions in the soil, and as a food source for plants. This research was conducted with the aim to determine the growth and yield of beans in the organic system of urban agriculture with the treatment of the use of growing media (soil and rice husk charcoal) and doses of cow manure.

MATERIALS AND METHODS

Time and Place of Research This research will be carried out in June-November 2019. The research was conducted in the greenhouse garden of the Faculty of Agriculture in the Lowokwaru sub-district of Malang with types of Alluvial soil temperatures ranging from 22^{o}C to 31^{o}C, humidity 63%-98%, medium altitude (445 m asl), and the sun rises between 7.15 - 7.30 WIB and sets at 15:15 - 15:30 WIB. And the Laboratory of Resources Environment, Agriculture Cultivation, Faculty of Agriculture, Brawijaya University.

Tools and Materials. Tools used include polybags measuring 35 cm x 35 cm, measuring cups, analytical scales, LAM, oven, sprayer, meter, marker, stationery, ruler, slide calipers, calculators, brown paper envelopes, label boards or alvaboard, scissors , raffia cords and digital cameras. The materials used include the seeds of Tala variety beans (can grow in the highlands to the highlands), cow manure, soil, husk charcoal and water. Research methods This research uses factorial completely randomized design (FCRD) which consists of two factors. The first factor is the planting media which consists of 3 levels, namely: (1) soil (2) soil mixture with husk charcoal (0.75: 0.25) and (3) soil mixture with husk charcoal (0.50: 0.50). The second factor is the dose of manure consisting of 5 levels, namely: (1) 5 tons / ha, equivalent to 50 g / polybag (containing 5 kg of planting media) (2) 10 tons / ha, equivalent to 100 g / polybag (containing 5 kg planting media) (3) 15 tons / ha, equivalent to 150 g / polybag (containing 5 kg of planting media) (4) 20 tons / ha, equivalent to 200 g / polybag (containing 5 kg of planting media) and (5) 25 tons / ha, equivalent to 250 g / polybag (containing 5 kg of planting media). From these two factors, there are15 treatments were repeated 3 times (obtained 45 treatment units). Each treatment consists of 10 polybags containing one plant per polybag so that the plant population becomes 450 plants.

Table 1: Treatments of media planting and fertilizer dosage

Number	Code	Treatments of media planting and fertilizer dosage
1	MS1 CM1	Media Soil + Cow manure 5 tons / ha.
2	MS1 CM2	Media Soil + Cow manure 10 tons / ha.
3	MS1 CM3	Media Soil + Cow manure 15 tons / ha.
4	MS1 CM4	Media Soil + Cow manure 20 tons / ha.
5	MS1 CM5	Media Soil + Cow manure 25 tons / ha.
6	MS2 CM1	Media Soil Media 75% mixed Media Husk 25% + Cow manure 5 tons / ha
7	MS2 CM2	Media Soil Media 75% mixed Media Husk 25% + Cow manure 10 tons / ha
8	MS2 CM3	Media Soil Media 75% mixed Media Husk 25% + Cow manure 15 tons / ha
9	MS2 CM4	Media Soil Media 75% mixed Media Husk 25% + Cow manure 20 tons / ha
10	MS2 CM5	Media Soil Media 75% mixed Media Husk 25% + Cow manure 25 tons / ha
11	MS3 CM1	Media Soil Media 50% mixed Media Husk 50% + Cow manure 5 tons / ha
12	MS3 CM2	Media Soil Media 50% mixed Media Husk 50% + Cow manure 10 tons / ha
13	MS3 CM3	Media Soil Media 50% mixed Media Husk 50% + Cow manure 15 tons / ha
14	MS3 CM4	Media Soil Media 50% mixed Media Husk 50% + Cow manure 20 tons / ha
15	MS3 CM5	Media Soil Media 50% mixed Media Husk 50% + Cow manure 25 tons / ha

The combination of the first factor treatment and the second factor is presented in table 1.

Manure application.

The application of manure is done during planting or before the beans are planted. Application of cow manure, carried out by mixing the planting media with manure and each dose.

Maintenance

Watering the beans is done once a day, in the morning. Watering is done from planting until the beans are harvested. Water is given directly to plants and the planting media uses a measuring cup so that all plants get the same dose of water.

Transplanting is done on seeds that do not grow. Transplanting is done until the seeds grow into plants, then do the transplanting at the age of 8 DAP (Days after planting), so that the growth of the plants do not differ much and facilitate maintenance.

Weeding is done manually by pulling weeds that grow around the crop in a polybag so that it does not interfere with the growth of the crop.

Harvesting of beans is done when the plant has reached the age of 52 DAP as the first harvest and continued until the plant is 72 DAP. Criteria or characteristics of ready-to-harvest beans, namely light green fruit, smooth skin surface, greenish-white seeds, and if the bean pods are broken will cause a popping sound. Harvesting is done by picking by hand which is done in the morning.

Research Observations

The observations made consisted of growth observations, harvest observations and supporting observations. Growth observation is carried out at observed time intervals, namely at 14, 28, 42, 56 and 72 DAP, including:

Plant Length (cm) Measure plants from the ground surface to the longest leaf tips that have been straightened using a meter.

Number of leaves. Count the number of leaves per plant by counting the leaves that have opened perfectly. The leaves of the compound bean plant are compound leaves.

Leaf area per plant (cm2). Select a large, medium and small leaf sample per plant, each amounting to one leaf, then calculate the length and width of the leaf sample. The yield of leaf area (LA) is multiplied by the correction factor value obtained from 10 leaf samples using the LAM (Leaf Area Meter) method to get the average leaf area per leaf. The average yield of leaf area per leaf multiplied by the number of leaves per plant, the leaf area per plant (cm2) will be obtained.

Leaf area (LA) per plant is calculated as follows:

LA per plant = $\bar{x}$ LA/ leaf × ∑ plant leaves

With the translation of the formula as follows: $\bar{x}$ LA/ leaf = ($\bar{x}$ lengthxwidth of leaf) per plant × CF(Correction Factor)

CF = LAM / (leaf length x width)

Age of flowering (DAP). Age of flowering is calculated per plant to determine the age of the plant after planting when it starts flowering. The number of flowers is calculated per plant to find out the flowers that grow by counting the flowers that have opened perfectly. Age at which pods form (DAP) The age at which pods begin to form

is calculated per plant to determine the age of the plant after the plant when pods begin to form.

Harvest observations were made with observational time intervals, i.e. 52, 57, 62, 67 and 72 DAP, including: Fresh weight of total pods per plant (g) Weigh all harvest pods per crop. Number of total pods per plant The number of pods was calculated to determine the pods produced in one sample plant. Pod length (cm) Measure pod length using a ruler. Pod diameter (cm) Measure pod diameter using calipers. The measurement of plant wet weight was carried out at 73 days after weighing each plant part consisting of roots, stems and leaves, then totaling the whole of each plant part.

NPK analysis on initial soil and mixed planting media This analysis was conducted to determine the NPK content in the initial soil without mixture and mixed planting media used for research. Planting media analysis was carried out three times, including at the beginning (before the application of manure for cows, goats and chickens respectively), in the middle when the plant was 44 DAP, and at the end when the plant was 72 DAP.

Observation of temperature and humidity is done in the morning (at 8.30 a.m.) and noon (at 12,00 a.m.) and afternoon (at 15.30 a.m.) with a Thermohygrometer. This observation aims to determine the temperature and humidity of the air inside the green house as a place of research, as well as outside the green house. Solar intensity (Lux) Observation of sun's intensity is done in the morning, noon and afternoon using Lux Meter. This observation aims to determine the magnitude of the intensity of sunlight in the green house as a place of research, as well as outside the green house.

Data analysis

Data obtained from observations were analyzed using Variance Analysis (ANOVA) with a level of 5% aimed to determine the real or not real effect of the treatment in this study. If it is significantly different, then it is continued with a further test of Honestly Significant Difference (HSD) 5% level to find out the difference between treatments.

RESULTS AND DISCUSSION

Soil treatment of 100 and 15 tons ha-1 gives the best results followed by treatments containing value b in notation such as 100% soil treatment and 10 tons of ha-1, manure; 75% soil and 25% husk charcoal, and the above treatments

such as the use of higher manure a nor the use of a 1: 1 mixture of soil and charcoal. (Table 1)

The use of planting media treatment affects the number of leaves at the age of 14 and 28 days after planting while after 42 days after planting does not show any difference. The use of cow drums fertilizer increasingly a lot is getting better (Table 2). There are even interactions (Tables 3,4 and 5). Evidently the higher the use of cow drum fertilizer, the better the leaf area of bean plants, which is treated by the media. The mixed of 50% soil and 50% husk charcoal by giving cow manure 20 and 25 tons per ha give good results for leaf area of bean plants (Table 3 4. and 5)

In Table 7, which provides information on the formation of flowers for the first time, it turns out that the formation of the first flowers in bean plants is not affected by the treatment of planting media or the treatment of cow manure given.

In Table 8, which provides information on the average weight of pods per plant shows an interaction where the treatment of planting media mixed soil 75% with 25% husk charcoal gives the best average weight yield of pods although it is followed by the treatment of mixed soil with 25 tons per ha. The yield of crop pods seems to be in line with the yield of leaf area per plant, especially those aged 42 dap, this shows the existence of a relationship between the two (Table 10).

On the other hand the formation of flowers is the first time and the number of planting pods is not affected by the treatment of planting media and the amount of manure given.

Table 2: Plant length

Treatment Planting Media (%)	Plant length cm/plant				
	5 ton ha^{-1}	10 ton ha^{-1}	15 ton ha^{-1}	20 ton ha^{-1}	25 ton ha^{-1}
Soil 100	41.67 a	48.33 ab	54.56 b	57.44 b	50.44 b
Soil 75 + Rice husk 25	40.67 a	48.44 ab	51.33 b	49.78 b	53.44 b
Soil 50 + Rice husk 50	41.78 a	41.44 a	47.33 ab	46.44 ab	47.78 ab
LSD 5%	7,86				

Note : the number accompanied with the same word mean did not different

Table 3: Number of leaves per plant

Treatment	Number leaf/plant (leaf) (dap)		
Planting Media (%)	14	28	42
Soil 100	9.13 a	16.84 a	32.53
Soil 75 + Rice husk 25	9.96 a	18.17 b	33.47
Soil 50 + Rice husk 50	10.18 b	18.09 b	33.71
LSD 5%	0.84	1.13	tn
Manure of cow (ton ha^{-1})			
5	7.81 a	15.00 a	29.82 a
10	8.74 a	16.67 a	31.26 a
15	10.62 b	18.96 b	34.75 b
20	10.70 b	18.74 b	34.63 b
25	10.89 b	19.15 b	35.75 b
LSD 5%	1.58	2.12	4.15

Note: the number accompanied with the same word mean did not different

Table 4: Leaf area/Plant at age 14 dap

Treatment Planting Media (%)	**Leaf area/Plant at age 14 dap**				
	5 ton ha^{-1}	10 ton ha^{-1}	15 ton ha^{-1}	20 ton ha^{-1}	25 ton ha^{-1}
Soil 100	176,6 a	203,3 ab	218,3 ab	329 bc	328 bc
Soil 75 + Rice husk 25	136,3 a	134,3 a	238,6 ab	299 ab	398 bc
Soil 50 + Rice husk 50	105 a	132,3 a	266,3 b	415,3 c	419,3 c

Note: the number accompanied with the same word mean did not different

Table 5: Leaf area/Plant at age 28 dap

Treatment Planting Media (%)	**Leaf area/Plant at age 28 dap**				
	5 ton ha^{-1}	10 ton ha^{-1}	15 ton ha^{-1}	20 ton ha^{-1}	25 ton ha^{-1}
Soil 100	883,3 c	1016,6 d	1091,6 d	1645 ef	1640 ef
Soil 75 + Rice husk 25	681,6 b	671,6 ab	1193,3 d	1495 e	1993,3 g
Soil 50 + Rice husk 50	525 a	661,6 ab	1331,6 d	2076,6 g	2086,6 g
LSD 5%	152,6				

Note: the number accompanied with the same word mean did not different

Table 6: Leaf area/Plant at age 42 dap

Planting Media (%)	Leaf area/Plant at age 42 dap				
	5 ton ha^{-1}	10 ton ha^{-1}	15 ton ha^{-1}	20 ton ha^{-1}	25 ton ha^{-1}
Soil 100	1325bc	1525c	1637,5cd	2467,5f	2460f
Soil 75 + Rice husk 25	1022,5b	1007,5b	1790,0d	2242,5ef	2990,0g
Soil 50 + Rice husk 50	787,5a	992,5ab	1997,5de	3115,0g	3125,0g
LSD 5%	242,5				

Note: the number accompanied with the same word mean did not different

Table 7: Flowering Pods are formed

Treatment	Flowering Pods are formed
Planting Media (%)	
Soil 100	33.26
Soil 75 + Rice husk 25	35.80
Soil 50 + Rice husk 50	35.33
LSD 5%	ns
Manure of cow (ton ha^{-1})	
5	33.22
10	33.78
15	33.44
20	35.22
25	38.33
LSD 5%	ns

Table 8: Number of crop pods (pods)/plant

Treatment	Number of crop pods (pods)/plant
Planting Media (%)	
Soil 100	33.26
Soil 75 + Rice husk 25	35.80
Soil 50 + Rice husk 50	35.33
LSD 5%	ns
Manure of cow (ton ha^{-1})	
5	33.22
10	33.78
15	33.44
20	35.22
kk	38.33
LSD 5%	ns

Table 9: Weight of pod/Plant

Treatment Planting Media (%)	Pod weight/plant (g/plant)				
	5 ton ha^{-1}	10 ton ha^{-1}	15 ton ha^{-1}	20 ton ha^{-1}	25 ton ha^{-1}
Soil 100	189,3 b	185,3 ab	224,3 c	264,3 d	300,3 ef
Soil 75 + Rice husk 25	179,3 ab	164,3 a	321,3 f	279,3 d	297,3 ef
Soil 50 + Rice husk 50	174,3 ab	189,3 ab	242,3 c	286,3 de	274.3 de
LSD 5%	24,2				

Note: the number accompanied with the same word mean did not different

Table 10: Matrix correlation

	Pod weight	Number of leafs	Leaf area 14	Leaf area 28	Leaf area 42	Plant height	Flowering pod	Number pod
Pod weight	1							
Number leafs	0,65	1						
Leafs area 14	0,82	0,68	1					
Leafs area 28	0,83	0,68	0,99	1				
Leafs area 42	0,81	0,68	0,99	0.99	1			
Plant height	0,59	0,67	0,54	0,54	0,52	1		
Flowering pod	0,62	0,49	0,78	0,78	0,75	0,22	1	
Number pod	0,55	0,35	0,51	0,51	0,48	0,05	0,65	1

This type of bean has many advantages in addition to the high enough results this type can be developed in the middle to highland areas, this type is also the type that does not require bamboo sticks to propagate. So that the planter does not incur costs to make a milestone.

Planting beans in urban areas by residents of urban villages or who inhabit simple or medium housing, this in addition to being able to meet the needs of green beans for daily food needs, can also meet the needs of forage that refreshes the environment, cool and healthy air, the value of beauty, reduce hotter temperatures (Widaryanto et al., 2017) besides meeting the need for the nutritional value of food, vitamins. minerals and other substances that function as drugs that can be consumed young or consumed in seeds (Santoso and Anggita, 2019). conducted with the aim to determine the growth and yield of beans (*Phaseolus vulgaris* L.) in the city's organic farming system using planting media (soil and rice husk charcoal) and doses of cow manure.

In general in urban agriculture there are some climate constraints such as solar radiation which decreases its incomplete initivity value, many buildings are too close together and too high so that it reduces the duration of solar radiation, air becomes stuffy, temperature increases (inside and outside the home yard). Most urban communities use concrete or ceramic floors so that the temperature of the yard is hotter, increases humidity, without air circulation so that by planting green plants such as vegetables, it is hoped that the microclimate conditions will be fresh and comfortable and keep the environment healthy and sustainable (Santoso and Romadhon, 2018).

Alaimo (2008), stated the application of urban agriculture can provide a direct impact on the economic, social, energy use, pollution (air and ground) as well as an increase in the availability and quality of food. In addition to that urban agriculture can provide a cheap solution for the people that financial difficulties by making use of plantings in yard house (Julie, 2013) as well as in

the Improvement of nutrition and income generated for the poor population. (Midmore, 1996).

Planting beans in polybag(one of planting system in organic urban tarming) can be done with the use of organic in the form of solid and liquid organic for improving growth and yield of beans. to Nathania et al., (2012). of fermented urine if cow (biourine) the planting media can improve the physical chemical properties of this media. The advantage of using cow biourine is that it is easily absorbed by plants directly and contains plant growth hormones. Ignatius et al., (2014) indicated that fermented of cow biourine contains a hormone that stimulates plant growth and development, namely AA hormone which can stimulate plant roots and affect the process of cell extension, cell division, cell wall plasticity and increase water absorption into cells.

According to Setiawan (2011), that liquid fertilizer is relatively more efficient and quickly shows results. in addition to livestock urine, solid waste from livestock can be used as manure. Manure IS a type of organic fertilizer which has a lot of availability and is easy to obtain. According to Lingga and Marsono (2013), the provision of organic fertilizers can improve soil structure, increase soil absorbency in water, improve living conditions in the soil, and as a source of food for plants. One of the sources of livestock solid waste that can be used as manure is solid goat waste. Hartatik and Widowati (2006) suggest that goat manure has high nitrogen levels (around 0.83 0.95% N total, Musnamar, 2004), and the water content is lower than other manure so that the weathering process of goat manure is more run fast and mature faster. In addition, goat manure also contains high enough potassium which is beneficial to plants in the generative phase.

Maske et al., (2009), stated that the addition of nitrogen element in plants through the application of organic fertilization proved to be beneficial in improving results higher. The solid organic fertilizers of goat manure that is embedded in the media cropping. goat manure useful to plants because it contains soil microorganisms can be certain compounds and synthesizes enhance water retention (Syukur and Harsono. 2008.). can be planted intercrop Rihana et al., (2013), shows the use of manure the goat until a dose of 60 ton/ha, resulted the highest of pod fresh weight of beans Lebat-3, an average of 330.3 g/plant (34.55 ton/ha).

Organic beans cultivation can be done in a green house, and able to avoid rainfall that can cause obstruction of the formation of flowers into pods, drifting the provision of additional nutrients both liquid and solid which is added through the planting media or nutrition of the planting media itself (Effendi, 2003) The purpose of this research was to get the right application of cow biourine and goat manure for improving growth and yield of beans plan. Besides these the bean business also has a promising economic value potential, in Jakarta the price is Rp. 50 000 / kg ($ 3,55 /kg) while in Malang in May 2019 it was recorded as Rp. 29 500 / kg ($ 2,11 / kg) in case of a simple home yard or suburban areas has the potential as an area that can be planted with green beans that are able to grow in the lowlands and moderate as a type of Tala beans. (Setianingsih, T. and Khaerodin. 2000; Walelign, et al., 2004).

As well as a source of income for people in the area. To increase the production of green beans as an effort to meet the needs in the country, especially plants that are organically cultivated in urban areas is a separate issue, one way that can be done is the development of techniques for cultivating beans. To increase the growth and yield of beans can be applied organic fertilizer, to maintain a healthy environment (Widaryanto et al. 1917).Planting beans in an urban area with limited land can be done simply by utilizing artificial planting media provided in pots, polybags or empty cans, tubes that are not used, house yards or vacant lands in unoccupied housing complexes. Planting media can be found easily, cheaply and saving water usage as can the use of local soil mixed with husk (easily available, cheap, efficient use of water, soil aeration and porosity of the planting media better. (Hartatik, and Widowati. 2006; Hidayat. 2006; and Irianto and Riduan. 2014).

Solid waste from livestock in the form of manure (cow) has a nutrient content, especially% N for the needs of plants so that it can be used as a source of organic plant nutrition. Manure is a type of organic fertilizer that has a lot of available and easy-to-obtain nutrients which according to Lingga and Marsono (2013), the application of organic fertilizer can improve soil structure, increase soil absorbency of water, improve living conditions in the soil, and as a food source for plants. This research was conducted with the aim to determine the growth and yield of beans in the organic system of urban agriculture with the treatment of the use of growing media (soil and rice husk charcoal) and doses of cow manure. (Navazio, et al., 2007; Pitojo,. 2004).

For urban farming farmers are very profitable

because of the limited area and limited costs. The use of planting media and rice husk charcoal is cheap and widely available so that urban farming farmers have no difficulty in obtaining these materials so that planting urban farming models that use polybags can be easily done, so will planting for the vegetable business in the city. More so with the existence of government policies that encourage activities at home only in connection with the existence of a covic 19.

CONCLUSION

Based on the research conducted it can be concluded that Use of 75% soil planting media with a mixture of 25% husk charcoal And with the provision of manure as much as 15 tons per ha is able to provide the best bean yield that is 312.3 g per plant or 190.0% more than the lowest yield of beans (164.3 g per plant) produced 75% soil planting media treatment with 25% husk charcoal and by giving 10 tons per ha of manure..

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

ACKNOWLEGEMENT

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AUTHOR CONTRIBUTIONS

MS designed the research and performleed the experiments and wrote the manuscript. NY performed the preparing of greenhouse experiment, to set up the media of planting, to provide seed, planting, to maintain plant grows. And observed the growth and yield of plants and analysis data. MS and NY designs experiments and reviewed the manuscript. All authors read and approved the final version.

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