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| RESEARCH ARTICLE

Effect of Various Types of Organic Mulch on Growth and Yield of Soybean (*Glycine max* L. Merril) Anjasmoro Variety

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| ABSTRACT
Cultivation of soybean is currently planted using ground cover as a solution to increase crop productivity. So it is necessary to research the effect of various types of organic mulch on the growth and yield of soybeans (Glycine *max* L. Merril). This study aims to determine the effect of various types of organic mulch on the growth and yield of soybeans (*Glycine max* L. Merril). This study was laid out in Randomized Block Design 1 factor, which was composed of 6 levels, with 5 replications, so there are 30 experimental units. There was no mulch, rice straw mulch, coconut coir powder mulch, bamboo leaf litter mulch, wood sawdust mulch, and rice husk mulch. The application during soybean cultivation observed parameters were plant height (cm), number of leaves (leaves), fresh header weight (g), fresh root weight (g), root dry weight (g), root dry header (g), number of pods (fruit), pod weight (g), and weight of 100 seeds (g). Rice straw mulch affected the growth and yield of soybeans on plant height 5-6 weeks after planting with average (40.95; 49.18 cm), header fresh weight (43.04g), number of pods (71.40 fruit), and pod weight (36.02g).

| KEYWORDS

Bamboo leaf litter mulch, coconut coir powder mulch, rice husk mulch, rice straw mulch, soybeans, wood sawdust mulch.

| ARTICLE INFORMATION

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1. Introduction

Soybeans are one of the plant commodities that have an essential role after rice and corn, as well as an ingredient in Indonesia's processed and feed industry. In addition, soybeans are a legume crop and are the primary source of vegetable oil and protein. Soybean consumption by the Indonesian people will continue to increase every year by considering several considerations, such as public awareness of nutrition in food, increasing per capita income, and increasing population. Soybeans can also be used as food ingredients. Foods made from soybeans include boiled soybeans, fried soybeans, sprouts, tempeh, tofu, tauco, and soy sauce. One processed food derived from soybeans is a staple food for Indonesian people example, tempeh, tofu, and soy sauce (Abdillah, 2015).

Based on data from the Central Statistics Agency (BPS) 2020, the demand for soybeans in Indonesia for consumption and industrial raw materials in 2020 will reach 3 million tons (Abdillah, 2015). In 2018 domestic soybean production reached 0.98 million tons and could only meet 30% of national needs (Ministry of Agriculture 2020), so the shortfall was met by imports of around 2.58 million tons (BPS 2020). The low national soybean production is due to a decrease in the planted area by 3-38%/year in the last ten years. Yield productivity is still relatively low at 1.44-1.56 t/ha (BPS 2020; Ministry of Agriculture 2020). Banten Province's soybean production in 2018 reached 18,093.56 tons, while in 2019, soybean production only reached 1,202.00 tons, which means Banten Province's soybean production decreased from 2018 to 2019. The soybean crop area in Banten Province also decreased; in 2018, it was 23,593.90 hectares, while in 2019, it only reached 1,803.00 hectares (BPS Banten Province, 2019).

Currently, many plant cultivation uses ground cover as a solution to increase crop productivity. Many farmers apply mulch as a material layer to the soil surface to reduce or save maintenance costs and obtain maximum results (Samiati *et al* ., 2012). *Mulch* is

a material or material used in plant cultivation to cover the surface of the soil or land for plant cultivation so that the moisture and temperature of the soil are maintained stable. Generally, mulch is divided into two types: organic mulch and inorganic mulch. Inorganic mulch is derived from synthetic materials that are not easily decomposed; one example is silver, black plastic mulch. Organic mulch is derived from plant residues, for example, rice straw, cocopeat husks, bamboo leaf litter, wood sawdust, and so on (Akbar et al., 2014). The advantage of mulch is that it saves water by reducing the evaporation rate on the land surface, can overcome soil erosion, suppress weed growth, and reduce soil temperature fluctuations that can benefit roots and soil microorganisms. After the mulch is decomposed, it can provide organic matter to the soil (Sudarmini, 2015).

The results of the study by Setiawan et al. (2018) treatment of rice straw mulch, rice husk mulch, and leaf litter mulch with a combination of 15x20cm spacing can increase plant height, leaf area, total plant dry weight, number of filled pods per plant, number of seeds per plant. Plant, seed weight per plant, and seed yield per soybean plant. The results of research by Umi *et al* . (2015) showed that the treatment of rice straw mulch weight had a significant effect on the average plant height at the age of 14.21, and 28 days after planting, the number of leaves at the age of 14.21, and 28 days after planting, number of productive branches, number of pods per plant, number of seeds per plant, dry seed weight per plant, dry seed weight per plot, and weight of 100 dry seeds. The results of the research by Asamin and Noer (2018) showed that the treatment of wood sawdust mulch and paddy straw mulch had a significant effect on plant height three weeks after planting, plant stem diameter 3 and 6 weeks after planting, the number of branches 6 weeks after planting, yield 1, and total yield per plot. This study aimed to determine the effect of various types of organic mulch on the growth and yield of soybeans (Glycine *max* L. Merril).

2. Materials and Methods

The research was conducted from October 2021 to January 2022. It was carried out on the experimental land of the Faculty of Agriculture, Sultan Ageng Tirtayasa University, KP. Cikuya Karang Kitri, Sindang Sari Village, Pabuaran District, Serang Regency, Banten Province. The tools used in this study were: hoe, stationery, camera, ruler, tape measure, bucket, emrat, analytical scale, oven, knife/cutter, and scissors. The materials used in this study were: soybean seeds of the Anjasmoro variety, animal manure fertilizer, rice straw mulch, cocopeat mulch, bamboo leaf litter mulch, wood sawdust mulch, NPK fertilizer, pesticides, and water. This research consists of 1 factor. The experimental design used in this study was a factorial randomized block design (RAK). The factor is (M) organic mulch which consists of 6 levels, namely:

M1: Control (without mulch)
M2: Rice straw mulch
M3: Coconut coir powder mulch
M4: Mulch of bamboo leaves
M5: Wood sawdust mulch
M6: Rice husk mulch

It was repeated five times to obtain 30 experimental units. Each experimental unit is a plot of land with an area of 160 x 75 cm. There were 20 planting holes in each plot with a spacing of 40 x 25 cm, so the whole seeds needed were 1200 soybean seeds (*Glycine max* L. Merril). The response design used were: plant height (cm), number of leaves (strands), wet canopy weight (g), root wet weight (g), dry canopy weight (g), root dry weight (g), and pod weight per plant. (g), weight of 100 seeds (g), number of pods per plot (fruit). This study analysed the data using ANOVA (Analysis of Variance) with a 95% confidence level. If there is a significant difference, it is continued with Duncan's multiple distance test.

3. Results and Results

The study's results revealed that the treatment of various types of organic mulch on soybean plants (Glycine *max* L. Merril) had no significant effect on plant height. MST to 4 MST, number of leaves 1 WAP to 6 WAP, root wet weight, shoot dry weight, root dry weight, and 100 seed weight. At the same time, a significant effect was shown in the parameters of plant height 5 WAP and 6 WAP, canopy wet weight, number of pods per plant, and pod weight per plant.

Table 1. Average Plant Height (cm) on the Effect of Various Types of Organic Mulch on the Growth and Yield of Soybean Plants (Glycine *max* L. Merril)

Treatment	Plant Height (cm)					
	1 MST	2 MST	3 MST	4 MST	5 MST	6 MST
Control (M1)	10.76	15.05	19.43	26.86	38.68c	47.80b
Rice straw mulch (M2)	12.24	20.64	24.30	31,285	49.43a	57.28a
Coconut coir powder mulch (M3)	11.41	17.25	22.30	28.63	38.85c	48.13b
Bamboo leaf litter mulch (M4)	12.32	17.92	22.95	28.98	38.98c	48.23b
Wood sawdust mulch (M5)	11.55	17.06	21.67	30,30	41.65b	48.30b
Rice Husk Mulch (M6)	10.59	14.99	19.74	27.20	38.23c	45.35b

Note: the numbers followed by the same letter in the same column show no significant difference based on the DMRT test at a 5% level

The results of the average plant height presented in table 1 show that the application of organic mulch to soybean plants had a significant effect at the ages of 5 and 6 WAP. At the age of 5 and 6, WAP soybean plants gave the best results on rice straw mulch treatment, with the highest yield at 5 WAP, 49.43 cm, and at 6 WAP, 57.28 cm. It is suspected that organic mulch has begun to decompose at the bottom of the mulch so that it can support soybean plant nutrients. Damayanti *et al* . (2013) explained that the supply of nutrients for plants could occur from the decomposition of organic mulch material, as well as facilitate the use of minerals from organic matter in plants.

Based on the results, it can be seen that straw mulch tends to have a better effect than other types of mulch. This is because using rice straw mulch on cultivated land can help keep the soil from being washed away by rainwater and help maintain soil aggregation. Saraswati *et al.* (2021) explained many benefits of using rice straw mulch for plants, including increasing water availability, controlling weed growth around plants, reducing soil temperature fluctuations, and improving soil physical properties. By straw mulch.

From 1 MST to 4, WAT showed no significant effect on the height of soybean plants. The absence of this natural effect could be due to the incomplete decomposition of the mulch material. This is because organic mulch takes time to reach its function.

Table 2. Average Number of Leaves (strands) on the Effect of Various Types of Organic Mulch on the Growth and Yield of Soybean Plants (*Glycine max* L. Merril)

Treatment	Number of Leaves					
	1 MST	2 MST	3 MST	4 MST	5 MST	6 MST
Control (M1)	2.20	3.80	4.65	5.65	8.00	12.80
Rice straw mulch (M2)	2.35	4.90	5,10	6.90	8.60	15.00
Coconut powder mulch (M3)	2.25	4.50	5.00	6.25	8.35	13.00
Bamboo leaf litter mulch (M4)	2.35	4.80	5.05	6.35	8.95	15.00
Wood sawdust mulch (M5)	2.15	4.30	4.65	6.45	8.95	13.45
Rice Husk Mulch (M6)	2.20	4.35	4.55	6.10	8.40	12.85

Note: the numbers followed by the same letter in the same column show no significant difference based on the DMRT test at a 5% level

Table 2 shows that all types of organic mulch did not significantly affect the number of leaves on soybean plants (*Glycine max* L. Merril). It can be seen in the table of results 1 WAP to 6 WAP during the observation that there was no significant effect on the number of leaves. At the age of 1 MST, the highest average number of leaves was 2.35 leaves. At the age of 2 MST, the highest average number of leaves was 4.90 leaves. At the age of 3 WAP, the highest average number of leaves was 5.10. At the age of 4 MST, the average number of leaves was 6.90. At 5 WAP, the highest average number of leaves was 8.95. At the age of 6 WAP, the highest average number of leaves was 15.00.

No significant effect on the number of leaves due to pest attacks on soybean leaves affects leaf growth. In addition, it can be assumed that organic mulch begins to decompose, but the nutrients to increase the number of leaves are not available to plants but only suppress plant growth. According to Karowa et *al* . (201 5), pest attacks on soybean plants can reduce crop yields due to the removal of plant parts, especially leaves, resulting in reduced photosynthesis for distribution to each partition. Damage to leaves due to pest attacks, in principle, can disrupt the process of photosynthesis.

Table 3. Average Wet Weight of Canopy (g) on the Effect of Various Types of Organic Mulch on Growth and Yield of Soybean Plants (*Glycine max* L. Merril)

Treatment	Head wet weight (g)
	13 MST
Control (M1)	39.20c
Rice straw mulch (M2)	51.93a
Coconut powder mulch (M3)	44.74b
Bamboo leaf litter mulch (M4)	40.62c
Wood sawdust mulch (M5)	42.16bc
Rice Husk Mulch (M6)	39.56c

Note: The numbers followed by the same letter in the same column are not significantly different based on the 5% DMRT TEST

The results shown in table 3 show that the use of various types of organic mulch on soybean plants (*Glycine max* L. Merril) had a significant effect on plant wet weight. Rice straw mulch gave the highest yield at the wet canopy weight, 51.93g. Meanwhile, the control gave the lowest result, which was 39.20g. This significant effect can be due to organic mulch can help plants to absorb water and retain soil moisture. Wiryanta (in Pradana *et al.,* 2015) explained that organic mulch has several positive impacts or influences on plant growth, including maintaining humidity, stabilizing temperature, and maintaining soil water content that can be absorbed by plants, so plants can easily carry out water absorption activities from the roots to other parts. Rice straw mulch produced the highest canopy wet weight because, according to Chaerunnisa et al. (2016), straw mulch can maintain soil temperature and humidity by preventing excessive direct sunlight. So that soil moisture can be maintained, plants can absorb nutrients and water well.

Table 4 . Average Root Wet Weight (g) on the Effect of Various Types of Organic Mulch on Growth and Yield of Soybean Plants (*Glycine max* L. Merril)

Treatment	Root wet weight (g)
	6 MST
Control (M1)	7.80
Rice straw mulch (M2)	10.76
Coconut powder mulch (M3)	9.73
Bamboo leaf litter mulch (M4)	11.50
Wood sawdust mulch (M5)	7.36
Rice husk mulch (M6)	8.14

Note: The numbers followed by the same letter in the same row are not significantly different based on the 5% DMRT TEST

Table 4 shows that the results of using various organic mulches on the wet weight of the roots have no significant effect. The largest average on the wet weight of the roots is 11.5 0g. Moreover, the lowest average on the wet weight of the roots is 7.36g. This unreal influence can be assumed that the soil temperature is not optimal, and the planting time, which coincides with the rainy season, causes water to always be sufficient. The soil condition is always moist, so applying organic mulch types has no visible effect. According to Widyasari *et al.* (2011), the use of mulch on plants will have an effect if the plant's environmental conditions are under stress.

Table 5. Average canopy dry weight (g) on the effect of various types of organic mulch on the growth and yield of soybeans (*Glycine max* L. Merril)

Treatment	Plant dry weight (g)
	6 MST
Control (M1)	13.71
Rice straw mulch (M2)	24.06
Coconut powder mulch (M3)	17.81
Bamboo leaf litter mulch (M4)	17.12
Wood sawdust mulch (M5)	18.53
Rice husk mulch (M6)	16.90

Note: The numbers followed by the same letter in the same row are not significantly different based on the 5% DMRT TEST

Table 5 above shows that various types of organic mulch had no significant effect on dry canopy weight. The highest average canopy dry weight was 24.06g. Moreover, the lowest average canopy dry weight is 13.71g. This insignificant effect could be caused by the number of leaves that were not significantly different in the study, where the low number of leaves produced affected the dry weight of the plant crown. The growth and development of a plant are determined by the amount of assimilation produced by the plant. The total dry weight of the plant is an indicator of the amount of assimilating produced based on the rate of photosynthesis.

A higher average dry weight of plants was obtained from a high number of leaves because a higher number would produce more assimilation. Putri *et al. (* 2015) explained that if the number of leaves is low, the photosynthate produced is also low. The total dry weight of the plant was influenced by the amount of assimilating produced by the plant. If the dry weight of the resulting plant is low, the assimilation produced is also low. A plant's growth and development are determined by the amount of assimilation produced.

Table 6. Average Dry Root Weight (g) on the Effect of Various Types of Organic Mulch on the Growth and Yield of Soybean Plants (*Glycine max* L. Merril)

Treatment	Plant dry weight (g)
	6 MST
Control (M1)	6.63
Rice straw mulch (M2)	7.04
Coconut powder mulch (M3)	5.85
Bamboo leaf litter mulch (M4)	6.89
Wood sawdust mulch (M5)	4.66
Rice husk mulch (M6)	5.09

Note: The numbers followed by the same letter in the same row are not significantly different based on the 5% DMRT TEST

Table 6 shows the results of observing the dry weight of soybean (*Glycine max* L. Merril) on the use of various types of organic mulch. The results shown in Table 7 using various types of organic mulch gave no significant effect on the root dry weight of soybean (*Glycine max* L. Merril). The highest average root dry weight yield was 7.04 g. The lowest average root dry weight yield was 5.09 g. The insignificant effect of root dry weight is thought to be due to the relatively the same plant growing environment and related to plant height. According to Fadli *et al.* (2016), the growth of other plants will follow the growth of a plant. The environmental conditions of a plant significantly affect plant physiology, such as the absorption of nutrients and water in the soil, photosynthesis, and photosynthetic translocation, which is used for the growth of plant crown organs and plant roots.

Table 7. Average pod weight per plant (g) on the effect of various types of organic mulch on the growth and yield of soybeans (*Glycine max* L. Merril)

Treatment	Pod weight (fruit)
	6 MST
Control (M1)	42.68c
Rice straw mulch (M2)	108.87a
Coconut powder mulch (M3)	71.84b
Bamboo leaf litter mulch (M4)	71.86b
Wood sawdust mulch (M5)	68.16b
Rice husk mulch (M6)	65.01b

Note: The numbers followed by the same letter in the same column are not significantly different based on the 5% DMRT TEST

Table 7 shows the average pod weight of soybean (*Glycine max* L. Merril) as a result of treatment given various organic mulches. These results showed that the treatment of various organic mulches on the weight of soybean pods (*Glycine max* L. Merril) had a significant effect. The highest effect was given to the rice straw mulch treatment, with 108.87, and the lowest effect was given to the control mulch treatment, which was 42.68. It is suspected that rice straw mulch can increase the P nutrient in the soil to form optimal fruit. In line with the opinion of Juanda and Bambang (2010), giving organic straw mulch adds to soil organic matter, controls weed growth, prevents erosion and evaporation by sunlight, increases soil biological activity, and increases P nutrients. is for the growth of flowers, the formation of fruit and seeds. P element also plays a role in the synthesis of carbohydrates in the plant body so that P can increase the weight of plant pods.

Rice straw mulch gave the highest yield on pod weight compared to other types of organic mulch because rice straw mulch had a role in increasing the number and weight of plant pods. Dewi *et al. explained* (in Saraswati *et al.,* 2021) that the use of straw mulch can help reduce soil temperature, so that fruit formation time and plant growth can occur faster and better, so that fruit weight and production per plant plot can increase.

Table 8. Average Weight of 100 Seeds per Plot (g) on the Effect of Various Types of Organic Mulch on the Growth and Yield of Soybean Plants (*Glycine max* L. Merril)

Treatment	Weight 100 Seeds (g)
	6 MST
Control (M1)	29.66
Rice straw mulch (M2)	40.08
Coconut powder mulch (M3)	35,086
Bamboo leaf litter mulch (M4)	38.42
Wood sawdust mulch (M5)	36.84
Rice husk mulch (M6)	36,032

Note: Numbers followed by the same letter in the same column are not significantly different based on the 5% DMRT TEST

Table 8 shows the weight yield of 100 soybean seeds treated with various organic mulches. Based on the results shown, it can be seen that the treatment of various organic mulches did not significantly affect the weight of 100 soybean seeds (*Glycine max* L. Merril). The highest average weight of 100 seeds per plot was 40.08 g, and the lowest average weight of 100 seeds per plot was 29.66 g. The absence of this natural effect can be suspected as the lack of effectiveness of mulch to suppress weed growth. Soybean plants are very susceptible to weed growth which affects soybean yields. Various types of mulch are also not optimal for increasing the yield of the same seed size because genetic factors influence the size of soybean seeds. The small size of soybean seeds affects the weight of 100 plant seeds to be low. According to Resdiar (2016), the provision of organic mulch has not improved the quality of soybean seeds, such as seed size. In his research, the treatment of straw mulch, husk mulch, moonlit mulch, and rice did not significantly differ from the treatment without mulch. The weight of 100 seeds reflects the large variety of sizes of each plant seed, the weight of 100 seeds is more influenced by genetic conditions than environmental conditions.

Table 9 . Average number of pods per plant (fruit) on the effect of various types of organic mulch on growth and yield of soybeans (*Glycine max* L. Merril)

Treatment	Number of pods (fruit)
	6 MST
Control (M1)	44.15d
Rice straw mulch (M2)	95.60a
Coconut powder mulch (M3)	70.60b
Bamboo leaf litter mulch (M4)	65.15bc
Wood sawdust mulch (M5)	58.25c
Rice husk mulch (M6)	57.60c

Note: The numbers followed by the same letter in the same column are not significantly different based on the 5% DMRT TEST

Table 9 shows data on the average number of pods in soybeans (*Glycine max* L. Merril) treated with various types of organic mulch. The results in Table 8 show that the treatment of various types of organic mulch significantly affected the number of pods in soybean plants (*Glycine max* L. Merril). The most significant yield was shown in rice straw mulch, with a figure of 95.60 fruit on the average number of pods. The lowest yield was shown in the control treatment, with a figure of 44.15 fruit on the average number of pods. This can happen because straw mulch has an essential role in the formation or production of the number and weight of pods and can improve the soil's physical, chemical, and biological properties, which facilitates the supply of nutrients needed by plants. Sontesby *et al.* (Saraswati *et al.,* 2021) described that straw mulch could significantly increase the available potassium and phosphorus in plants. This causes an increase in NPK elements (Sodium, Protein, and Potassium) in plants, affecting the increase in carbohydrates in the photosynthesis process. The element N is essential in forming chlorophyll and vital in light absorption for photosynthesis. While the element K has an essential role in increasing CO absorption, which can help the opening and closing of leaf stomata, the plant will store carbohydrates obtained in the fruit in the reproductive phase. Therefore, the number of fruits can increase due to an increase in absorbing nutrients in plants.

Table 10. Summed Dominance Ratio (SDR) Weeds Before Planting

no	Weed type	SDR Value (%)
1	*Ageratum conyzoides*	37.32
2	*Celosia cristata*	7.25
3	*Arachis hypogaea*	9.72
4	*Cyperus rotundus*	16.86
5	*Virginiana stickseed*	13.9
6	*Spermacoce ocymoides*	9.14
7	*Richardia scabra L*	5.81

Based on the table above, there were 7 types of weeds before planting, namely *Ageratum conyzoides, Celosia cristata, Arachis hypogaea*, *Cyperus rotundus, Virginia stickseed, Spermacoce ocymoides, Richardia scabra* L. Weed type *Ageratum conyzoides* has the highest value, which is 37.32%. The existence of *Ageratum conyzoides weed* grows dominantly because this weed grows fast, has a strong enough competitiveness to fight for the factors of its life needs, and has a large vegetative and generative breeding power.

Table 12. Summed Dominance Ratio (SDR) of Weeds After Planting

no	Weed Type	SDR Value (%)					
		M1	M2	M3	M4	M5	M6
1	*Ageratum conyzoides*	20	10.5	22	28.5	55	17.5
2	*Cyperus rotundus*	17	43	38	52.5	25	5.5
3	*Cosmos caudatus*	17	46.5	0	0	0	38.5
4	*Spermacoce ocymoides*	34	0	34	19	20	38.5
5	*Blumea Balsamifera*	0	0	4	0	0	0
6	*Celosia cristata*	12	0	2	0	0	0

In the table above, it is known that in control, the highest SDR value is found in *Spermacoce ocymoides weed*, which is 34. In straw mulch, the highest SDR value is found in *Cosmos caudatus weed*, which is 46.5. In coconut coir powder mulch, the highest SDR value is found in *Cyperus rotundus weed*, which is 38. In bamboo leaf litter mulch, the highest SDR value is found in *Cyperus rotundus*, 52.5. In bamboo sawdust mulch, the highest SDR value was found in *the Ageratum conyzoides weed*, which was 55.

Furthermore, in rice husk mulch, the highest SDR value was found in *Cosmos caudatus,* and *Spermacoce ocymoides* is 38.5. Compared with weed types, the highest number of weeds was in the control and coconut coir powder mulch with 5 types of weeds. At the same time, the lowest number of weeds was in rice straw mulch, bamboo leaf litter mulch, and wood sawdust, with 3 types of weeds. There are also types of weeds found in mulch: Ageratum *conyzoides* and *Cyperus rotundus*.

Weeds that grow dominantly can be caused by the large number of weed seeds stored in the soil at a depth of 25cm or more. Weed seeds stored in the soil are lifted so that they grow into weeds and competition between weeds and cultivated plants. The large percentage of puzzle weeds is because they have extraordinary growth resistance properties that can last for months on cultivated land. In addition, this puzzle weed carries out the C4 photosynthesis pathway, making it efficient in quickly controlling the cultivated area. According to Djahidun (2014), competition between cultivated plants will increase if the density level of puzzle weeds is high. The morphology of the puzzle with seeds and the method of dispersal seeds in the soil is quite large, resulting in the population of puzzle weeds after weeding continuing to grow and spread and competing again with cultivated plants.

4. Conclusion

). This study aims to determine the effect of various types of organic mulch on the growth and yield of soybeans (Glycine max L. Merril). This study was laid out in Randomized Block Design 1 factor, which was composed of 6 levels, with 5 replications, so there are 30 experimental units. There was no mulch, rice straw mulch, coconut coir powder mulch, bamboo leaf litter mulch, wood sawdust mulch, and rice husk mulch. The results of the study revealed that the treatment of rice straw mulch can significantly affect the growth and yield of soybeans (*Glycine max* L. Merril), namely the plant height parameters 5-6 WAP with an average (of 40.95cm; 49.18cm); canopy wet weight with an average (43.04g); the number of pods per plant with an average (71.40 pieces), pod weight per plant with an average (36.02g).

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