

Increased Production Of Corn (*Zea Mays*, L) Varieties Lamuru, Bisma, Sukmaraga In Marginal Critical Land With The Use Of Cow Manure In North Aceh Regency

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Abstract.

*This study aims to determine the technique of increasing the production of corn (*Zea mays*, l) varieties of lamuru, bisma, sukma raga with marginal critical land with the use of cow manure by North Aceh District. This research was carried out from June to November 2021, at the West Reuleut Gampong Garden, Muara Batu District, North Aceh Regency. This study used a 3 x 2 randomized block design and replicated 3 times. The first factor is varieties with 3 levels, name-ly: Bisma, Lamuru, and Sukmaraga varieties. The second factor is cow manure with 2 levels, namely 15 tons/ha and 20 tons/ha. Parameters observed were plant height, stem diameter, number of leaves, time of flower emergence, cob length, cob weight, length without cob, weight without cob, and weight of 1000 seeds. The results showed that the treatment of several varieties showed a very significant effect on almost all of the observed variables. The use of bisma varieties showed the best growth. The use of cow manure 15 tons/ha also gives the best growth on almost all variables.*

Keywords: Corn, Varieties, Cow Manure, and Marginal Critical Land

I. INTRODUCTION

Increased corn production in marginal critical land is sought by the cultivation of superior varieties and the use of cow manure. The constraints of the management of sour dry land are the high levels of Al and Fe that can be exchanged, nutrients easily carried by surface water, erosion and leaching and low levels of soil organic matter. Low levels of nitrogen in the soil are caused by its soluble and lost properties evaporating into the air, leached and carried by surface flow (Suharta, 2010) Corn is a seasonal crop whose production is influenced by the variety and environment in which it grows and the adequacy of nutrients starting from the breeding phase to entering the reproductive phase. The selection of good varieties and according to the local climate is one of the factors of increased production (Aribawa, 2012) Morphologically corn includes a type of grass (graminae) that has a single stem, although there is a possibility of the appearance of sapling branches in certain genotifs and environments. Corn is a short day plant, the number of leaves is determined at the initiation of male flowers and is controlled by genotif, length of irradiation, and temperature (Aqil *et al.*, 2012) Understanding the growth phase of corn is very helpful in identifying crop growth, related to the optimization of agronomic treatment. On marginal critical land that occurs water, nutrients, exposed to herbicides or pest attacks and diseases will cause plants to grow abnormally, so it is not in accordance with plant morphology.

It will also have an impact on the production and final yield of corn crops later (Catharina, 2009) Corn production will increase along with increasing yields and high biomass weight will be obtained at optimal crop growth. However, the problems that are often faced in this regard are influenced by varieties of corn crops and poor land of nutrients. For this reason, nutrient management is needed on land, especially on marginal critical land and water rationing and proper crop management. Nutrient and plant management that includes the time, place, and dose of fertilization, irrigation and weed control should be in accordance with the growth phase of the plant (Hadijah *et al.*, 2009). Critical land is one of the components of natural resources that play an important role in the process of increasing corn production. Critical land resource parameters include soil, climate, nutrients, topography and vegetation including grasslands and reeds. Any activities that transform natural resources including landscapes for development such as agriculture, mining, industry, as well as housing, and infrastructure that can cause damage to land resources and productivity decline due to the loss of a fertile top soil (Hidayat and Mulyani, 2002) Thus the damage to agricultural soil

caused by rain erosion and the decline in soil quality and productivity is not the same depending on the nature of the soil, the intensity of erosion and human activities in managing the land.

Differences in soil properties such as solum depth, topsoil thickness, soil C-organic content and soil density, can be used as indicators of the extent of soil damage which ultimately the properties of the soil can also affect crop production. Therefore, it is necessary to do various efforts and techniques that can increase the production and end result of the corn crop. One of the efforts that can be done in overcoming these problems is to use cow manure as an alternative to organic fertilizers that can improve the physical, chemical, and biological properties of the soil. Cow manure also contains macro and micro nutrients that are also quite high and can improve water absorption. Cow manure is fertilizer derived from livestock waste in the form of cow manure. The content of nutrients in cow dung is great for nourishing plants, so plant growth will be more optimal. Cow dung contains nutrients Nitrogen, Phosphorus, and Potassium which are quite high. This can be a solution and alternative in increasing corn production and yields on marginal critical land that is poor in nutrients. Based on the description above, the author is interested in conducting research on "increasing corn production (*Zea mays*, L) varieties of lamuru, bisma, sukma raga in marginal critical land with the use of cow manure in north Aceh regency".

II. RESEARCH METHODOLOGY

Place and Time of Research

This research will be conducted in June to November 2021, located in Gampong Reuleut Barat Garden, Muara Batu District, North Aceh Regency.

Materials and Tools

The ingredients used in the study were the corn seeds of lamuru BS Composit varieties from Balit Serea Maros, Bisma varieties and Sukma Raga varieties. Cow manure (15 and 20 tons/ha). The equipment used is hoe, machete, crew, tugal, portable scales capacity 50 kg, digital scales capacity

0.5 kg, triplkex, lat board, meter, plastic hose, gembor, plastic bucket, raffia rope, sprayer and han sprayer, Erlenmeyer measuring glass, chlorophyll meter, and oven.

Research Methods

This study uses the method of Randomized Design Group (RAK) Faktorial Factors studied consisting of 2 treatment factors namely Variety (V) and Cow Manure (P).

The first factor of corn variety (V) consists of 3 levels:

V1 = Bisma Variety V2 = Lamuru Variety

V3 = Sukmaraga Variety

The cow manure factor (P) consists of 2 levels:

P1 = 15 tons/ha P2 = 20 tons/ha

Thus obtained 6 combinations of treatments that each treatment repeated 3 times so that 54 sample plants obtained from a total of 90 plants planted. The combination of treatments can be seen in Table 1.

Table 1. Combination of Variety Treatment and Cow Manure

Varieties	Cow Manure	
	P1	P2
V1	V1P1	V1P2
V2	V2P1	V2P2
V3	V3P1	V3P2

The mathematical model used for the factorial Random Group Design (RAK) is as follows:

$$Y_{ijk} = \mu + \beta_i + V_j + P_k + (VP)_{jk} + \epsilon_{ijk}$$

Information:

Y_{ijk} = Observational values for the i varietie factor and the j and k nd cow manure factors

μ = Common middle value

β_i = From the block i

V_k = Influence of i level varieties

P_j = Influence of j level cow manure factor

$(VP)_{ij}$ = Influence of the interaction of varieties factor at the i th level and cow manure factor at j and k level

ϵ_{ijk} = Random influence

The data of the study results is analyzed statistically using the F test. If the results obtained on the fingerprint differ markedly at the level of 5% then further tests are carried out. The number of combination treatments used was 6 so it was tested with Duncan. Statistical data testing is conducted using SAS V9 13

Data Analysis Procedure

All observational data were further analyzed using variety analysis at the alpha test level = 0.05 and further analysis using Duncan's Multiple Range Test (DMRT). Data processing uses the Windows version of the SAS statistics program (Version 9). Next to see the flatness between variables conducted a correlation test.

III. IMPLEMENTATION OF RESEARCH

Research Land Preparation

Research land is cleaned of vegetation and weeds manually by hoeing and babaed, which can be the host of pests and diseases. Then the soil is processed with a hoe as deep as 25 cm in both treatments and mixed with cow manure and make draenase trenches to drain rainwater and the remnants of watering.

1. Preparation of Planting Materials

For the uniformity of sprout power, the corn seeds are soaked for two hours. Seeds that have undergone seed treatment are dug as deep as 3 cm and inserted 2 seeds each planting hole. To maintain moisture before seed seeding, the land is watered first until the capacity is roomy, then the seeds are seeded into a polybag measuring 10 kg in the afternoon starting at 15.00 Wib. The distance between polybags is 60 x 30 cm, repeat area one, repeat two and repeat three are 200 x 200 cm each.

2. Fertilization

Cow manure is given one week before planting around the planting hole with the appropriate dose of treatment, namely: 15 tons/ha and 20 tons/ha.

3. Looting and Maintenance

Looting is carried out two weeks after planting, left 1 plant per plant whose growth is best. Crop maintenance includes the eradication of biologically controlled pests and diseases, if the attack is already dangerous will be controlled chemically using atracol 70 WP, score 250 Ec, Benlate, Furan 3 G, Trimetix, petrogenol (fruit fly), curater, damek, marsal, dithane M 45.

4. Watering

Watering is done twice a day, morning and evening, if it rains then watering does not need to be done

5. Harvesting

The characteristic of corn that is ready to be harvested is the age of 90-100 days after planting, corn is ready to be harvested with cobs and kelobot begins to dry out which is characterized by the presence of a black

layer on the seeds of the institution. The seeds are dry, hard and shiny, if pressed do not imprint. The way to harvest physiologically ripe corn is by turning the cob along with its kelobot or can be done by breaking the fruit stalk.

6. Observations

In this study, experimental observations were conducted on three main benchmarks, namely agronomy character, physiology character and results.

A. The growth of agronomic character includes:

1. Plant Height (cm)

Measurement of plant height is done by measuring from the neck of the root to the point of growing with a meter. To avoid measurement errors, each sample plant is given a standard patok as high as 10 cm. Measurement of plant height using cm units. Measurements are taken at plant age 15, 30, 45, 60 days after planting (HST)

2. Stem Diameter (mm)

The diameter of the base of the stem is measured from the base of the stem. To avoid measurement errors beside the base of the stem on all plants the sample is given a standard mark as high as 10 cm. Measurements are taken at the age of 15, 30, 45 and 60 days after planting.

3. Number of leaves (strands)

The number of leaves of each plant is observed by counting the number of leaves that have opened. The calculation of the number of leaves begins after the plant is 2 weeks old after planting until harvesting at an observation interval of 2 weeks.

4. Flowering Time (day)

On the corn plant there are male flowers and female flowers, having different pop times between the two. The appearance of male flowers is known by calculating the length of time it takes for the plant from the beginning until the appearance of male flowers with the characteristics of the presence of pursing leaves such as wrapping. While female flowers with the characteristics of the appearance of stems / crushing silk / hair

B. The result change includes:

1. Length of Cob With Cornhusk (cm)

Measurement of the length of the weighted cob is carried out starting from the bottom base of the kelobot to the top end of the kelobot. Measurements are taken with a meter.

2. Weight of Cob With Cornhusk (g)

The weight of a weighted cob is known by weighing all parts of the cob with a weight on each sample. Done using analytical scales.

3. Length of Cob Without Cornhusk (cm)

Measurement of the length of the cob without the weight is measured from the base of the cob to the end of the cob using cm units. Measurements are made of all sample crops after harvest.

4. Weight of Cobs Without Cornhusk (g)

The weight of the cob without the kelobot is calculated from the corn that has been discarded which is further weighed. Measurement of the weight of the cob without kelobot is done at the time of harvest on all sample plants and expressed in grams.

5. Weight 1000 Seeds (g)

Measurements of the weight of 1000 seeds on each cob experiment conducted after harvest. Corn that has been harvested is winded for 24 hours by opening the corn kelobot, after which the selection is done. The taking of seeds is done by counting 1000 seeds in a cob taken randomly and then weighed in grams.

IV. RESULTS AND DISCUSSIONS

Plant Height

The results of the variety analysis showed no interaction between varieties and cow manure against the height of the plant. Further test data on plant height changer is presented in Table 2

Table 2. Average Crop Height Due to The Use of Several Varieties and Cow Manure

Treatment	Plant Height (cm)			
	2 MST	4 MST	6 MST	8 MST
Varieties (V)				
V1 (Bisma)	59,66 a	133,77 a	190,39 a	219,77 a
V2 (Lamuru)	55,83 b	128,27 a	177,22 b	205,44 b
V3 (Sukmaraga)	43,38 c	112,11 b	174,88 b	196,44 b
Cow Manure (P)				
P1 (15 tons/ha)	52,635 a	125,18 a	182,63 a	209,40 a
P2 (20 tons/ha)	53,290 a	124,25 a	179,03 a	205,03 a

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on data on the average yield of plant height in Table 2 shows that the Bisma Variety factor (V1) gives the highest plant height value of 219.77 cm and the lowest average value in (V3) Sukmaraga variety is 196.44 cm, thus giving a very real influence on plant height. This is because each test of several varieties of corn plants has different abilities in adapting to the environment. This is in line with Pratikta *et al.* (2013) which states that the research of the variety of a plant aims so that each variety of plants cultivated in one region can adapt well because each variety has different adaptable abilities. The treatment of cow manure has no real effect on the high rate of the plant. In terms of treatment, the provision of 15 tons / ha (P1) of cow manure provides the highest average value of 209.40 cm and the lowest at (P2) with a value of 205.03 cm, so that it has no significant effect on plant height variables. This may be due to insufficient or excessive availability of nutrients for plants. According to Nasrudin *et al.* (2015) stated that the availability of nutrients that are fulfilled will facilitate the process of plant metabolism including the process of photosynthesis, so that the resulting photosynthetic is higher which is then translocated to all parts of the plant that will affect growth and production. If the metabolic process goes well, then plant growth will be good (Sonbai *et al.*, 2013).

Stem Diameter

The results of the analysis showed that there was an interaction between varieties and cow manure against the diameter of the stems. Further test data of interactions between varieties and cow manure against stem diameter can be seen in Table 3 and the average value of a single factor can be seen in Table 4.

Table 3. Interaction of Stem Diameter 2, 6, and 8 MST Due to The Use of Several Varieties and Manure of Cows

Treatment	2 MST	6 MST	8 MST
V1P1	10,46 a	29,95 a	34,68 a
V1P2	9,14 b	29,07 ab	33,29 a
V2P1	8,68 bc	27,78 b	31,64 b
V2P2	8,41 c	25,72 c	29,12 c
V3P1	6,00 d	23,53 d	27,61 d
V3P2	5,83 d	24,33 d	27,41 d

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test.

Table 4. Average Stem Diameter Due to The Use of Several Varieties and Cow Manure

Treatment	Stem Diameter (mm)		4 MST
	Varieties		
V1 (Bisma)		24,10	a
V2 (Lamuru)		21,06	b
V3 (Sukmaraga)		17,62	c
	Cow Manure (P)		
P1 (15 tons/ha)		21,53	a
P2 (20 tons/ha)		20,32	b

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the results of the analysis of rod diameter interactions in Table 3 showed that there was an interaction between the use of Bisma varieties with 15 tons / ha of cow manure at the ages of 2, 6, and 8 MST. It is suspected that the use of varieties of corn crops and cow manure contributes to the growth and development of corn crops against the diameter of the stems. This is in line with the opinion of Nasution *et al.* (2014) which states that the process of growth and production of plants utilizes resources around them or environmental factors, such as light, water, air, nutrients. The use of cow manure as a mixture of planting media acts as an excellent soil aggregate deposition material and contains organic nutrients that can store more water so that soil moisture will be maintained so that seed growth becomes better. Based on a single factor the average yield of stem diameter in table 4 shows that the Use of Bisma Variety (V1) has a very real effect on the change of trunk diameter at the age of 2, 4, 6, and 8 MST which gives the highest average value of 9.80 cm, 24.10 cm, 29.51 cm and 33.98 cm.

This is due to the encouragement and influence of genetic factors found in each variety. This is in line with the study of Laksono *et al.* (2018) which states that the difference in growing power between different varieties is determined by genetic factors, besides the potential of genes from a plant will be maximized if supported by environmental factors. The use of cow manure with a dose of 15 tons / ha (P1) has a very real effect on the change of trunk diameter at the age of 2 and 8 MST and has a real effect on the age of 4 and 6 MST which gives the highest value of 31.24 mm. This is because the provision of cow manure is influential in improving physical, chemical, and biological properties so that nutrient-poor soils can change their properties for the better. This is in accordance with Suryanto's statement (2016) that cow manure can be an alternative fertilizer in corn cultivation, this is because cow manure contains high nitrogen nutrients. In line with the results of Wayah *et al.* (2014) research that showed that corn crops given cow manure are higher compared to corn crops that are not given cow manure, cow manure provides an advantage.

Number of Leaves

The results of the variety analysis showed no interaction between varieties and cow manure on the number of leaves. Further test data on the number of leaves can be presented in Table 5.

Table 5. Average Number of Leaves Due to Use of Several Varieties and Cow Manure

Treatment	Number of Leaves			
		4 MST	6 MST	8 MST
Varieties (V)				
V1 (Bisma)	6,33 a	9,16 a	12,50 a	15,50 a
V2 (Lamuru)	6,16 a	8,66 a	12,16 a	15,00 a

V3 (Sukmaraga)	5,00 b	8,16 a	10,83 b	14,16 b
Cow Manure (P)				
P1 (15 tons/ha)	5,88 a	9,00 a	11,88 a	15,11 a
P2 (20 tons/ha)	5,77 a	8,33 a	11,77 a	14,66 a

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the results of the analysis of the average number of leaves in Table 5 shows that the factor of the variety of bisma (V1) has a very real effect on the ages of 2, 4, and 6 MST and a real effect of 8 MST with the highest average values (6.33, 9.16, 12.50, and 15.50 strands). This is suspected to be the influence of genotype and environmental factors that are displayed in the increase in the number of leaves, thus contributing greatly to the photosynthetic activity of plants, because the leaves are plant organs that serve as the site of photosynthesis. This is in line with the results of karim *et al.* (2020) research which states that the number of leaves used to determine the growth and yield of corn crops, as well as affect the amount of sunlight in each variety of corn plants through leaf chlorophyll in seed formation. The use of cow manure with a dose of 15 tons / ha (P1) has a very real effect on the number of leaves at the age of 4 and 6 MST with the highest average value of 15.11 strands. This is because the N content contained in cow manure used in this study is fulfilled for leaf formation. This is in line with the results of husnaeni *et al.* (2020) stated that in his research hara N is directly involved in the formation of amino acids, proteins, nucleic acids, enzymes, nucleoproteins and alkaloids, which are needed by plants, especially leaf development, increasing the green color of leaves. According to Hidayat *et al.* (2020) that subsoil improvements to planting media can be done through the application of soil-fixing organic materials such as manure that is relatively easy to obtain and can also improve soil structure (soil aggregation).

Flower Time

The results of the variety analysis showed no interaction between varieties and cow manure against the time of flower appeared. Further test data on plant height changer can be presented in Table 6.

Table 6. Average Flower Appearance Time Due to The Use of Several Varieties and Cow Manure.

Treatment	Flower Time (HST)	
	Male	Female
Varieties (V)		
V1 (Bisma)	47,16 c	48,33 c
V2 (Lamuru)	49,66 b	51,16 b
V3 (Sukmaraga)	52,83 a	53,16 a
Cow Manure (P)		
P1 (15 tons/ha)	49,55 a	50,55 a
P2 (20 tons/ha)	50,22 a	51,22 a

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results of the appearance of flowers in Table 6 shows that the use of Sukmaraga Variety (V3) has a very real effect on the time of appearance of male and female flowers with the highest average values of 52.83 HST and 53.16 HST. This is suspected superiority of genetic factors found in sukmaraga varieties which are the biggest factors in stimulating and encouraging flowering in corn crops, both at the speed of the appearance of male and female flowers. In line with the opinion of Subaedah *et al.* (2018) which states that the time of appearance of male and female flowers is highly determined in the genotype factor, each genotype has a different vegetative growth period so that the flowering time is also different. The factor of the use of cow manure has no real effect on the changer when male and female flowers appear. This is because the dose given has not been manifest in supplying nutrients that function in stimulating flowering, so it has not shown a significant effect. This is in line with the results of Azis and Hasanuddin's research (2014)

which states that manure has not been able to meet the nutrient needs needed by corn crops, so the response of corn plants to the application of manure is not significant even at the highest doses. According to Azwarta (2020) that the growth and development factors of roots as well as the root's ability to absorb nutrients are influenced by fine soil structure, crumb soil texture, and availability of appropriate macro and micro nutrients.

Lenght of Cob with Cornhusk

The results of the variety analysis showed no interaction between varieties and cow manure against the length of the weighted cob. Further test data on plant height changer can be presented in Table 7.

Table 7. Average Length of Cobs with Cornhusk Due to The Use of Several Varieties and Ma-nure of Cows

Treatment	Lenght of Cob With Cornhusk (cm)
Varieties	
V1 (Bisma) V2 (Lamuru)	31,72 a
V3 (Sukmaraga)	30,16 b
	27,16 c
Cow Manure (P)	
P1 (15 tons/ha)	30,40 a
P2 (20 tons/ha)	28,96 b

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results in Table 7 shows that the Bisma Variety (V1) factor has a very real effect on the weighted cob length changer that gives the highest value of 31.72 cm. It is suspected that the use of several varieties of corn plants also has a very real influence, because each genotif contained in each variety determines the production and yield in the plant itself in adapting to the environment and also the ability to absorb nutrients found in cow manure, so that in the bisma variety has a genotif that is superior in the formation of corn plant cobs. This is in line with Srrapa and Nurdin's (2010) research which states different genotifs will give different responses even in the same environment. In accordance with Pratikta *et al.* (2013) states that the research of the variety of a plant aims so that each variety of plants cultivated in an area can adapt well, because each variety has different adaptable abilities. The factor of using the composition of cow manure 15 tons / ha (P1) has a real effect on the weighted cob length changer that makes the highest average value of 30.40 cm. It is suspected that the provision of cow manure can supply some of the water and nutrients needed by corn crops, thus increasing the process of hoarding asymptom which has an effect on the lengthening of cobs. In line with the opinion of Wayah *et al.*, (2014) states that the use of organic fertilizers including manure provides several advantages, one of which increases the ability of soil to store water so as not to evaporate quickly or evaporate. In the opinion of Rosadi *et al.* (2019) also stated that the provision of sufficient and appropriate cow manure can provide nutrients into the soil, so that the condition of nutrients contained in the soil can be available. This can encourage the growth and development of corn crops.

Weight of Cob with Comhusk

The results of the variety analysis showed no interaction between varieties and cow manure against the weight of the weighted cob. Further test data on weighted cob weight changer can be presented in Table 8.

Table 8. Average Weight of Cobs With Cornhusk Due to The Use of Several Varieties and Manure of Cows

Treatment	Weight of Cob with Cornhusk (g)
Varieties	
V1 (Bisma) V2 (Lamuru)	345,15 a
V3 (Sukmaraga)	328,73 b
	307,55 c
Cow Manure (P)	

P1 (15 tons/ha)	330,50 a
P2 (20 tons/ha)	323,78 b

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results in Table shows that the use factor of some varieties of corn crops has a very real effect on weighted cob weight changer. The use of the Bisma Variety (V1) gives the highest average value of 345.15. This is suspected by the genotif of corn plants that have the ability of speed in absorbing nutrients that will have an impact on the filling of corn cobs, because absorbed nutrients can stimulate the formation of asimilat during periods of growth and filling of cobs. In line with the opinion of Haryati and Sinaga, (2016) which states that adequate asympto- late supplies, cobs growth and optimal seed filling can increase corn productivity. The factor of using 15 tons / ha (P1) of cow manure has a real effect on the weight of the weighted cob length with the highest average value of 330.50.

It is suspected that the cow manure provided is able to contribute to the provision of nutrients that support in the growth of plants, especially in the provision of asymptolate that has an impact on filling cobs. This is in accordance with Sitepu *et al.* (2018) stated that the use of organic fertilizers can increase soil microbiological activity, so that the use of organic fertilizers such as manure can help the soil in improving the physical, biological, and chemical properties of the soil. In the opinion of Setiono and Azwarta (2020) also stated that the availability of nutrients in the soil greatly affects the growth and development of plant roots as well as the ability of roots in absorbing nutrients. Nutrients absorbed by the roots will affect the yield of the plant. Length of Cobs Without Cornhusk The results of the variety analysis showed no interaction between varieties and cow manure against the length of the cob without the cornhusk. Further test data on the length of the cob without cornhusk can be presented in Table 9.

Table 9. Average Length of Cobs Without Cornhusk Due to The Use of Several Varieties and Manure of Cows

Treatment	Length of Cob Without Cornhusk (cm)
Varieties	
V1 (Bisma) V2	24,66 a
(Lamuru)	23,55 b
V3 (Sukmaraga)	19,00 c
Cow Manure (P)	
P1 (15 tons/ha)	23,03 a
P2 (20 tons/ha)	21,77 b

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results in Table 9 shows that the use factor of some varieties of corn crops has a very real effect on the length of cobs without cornhusk. The use of Bisma Variety (V1) gives the highest average value of 24.66 cm. It is suspected that the bisma variety has a superior and dominant genetic to the development of chlorophyll which has an impact on the process of good photosynthesis. This is in line with the results of research on the weighted cob length, which is where the genotive factor greatly affects the growth and yield of the corn crop. This is in accordance with research Syofia *et al.* (2014) which states many factors that can affect the length of the cob itself, those factors such as genetics. According to Sur-tinah and Lidar, (2017) that corn cornhusk has chlorophyll that plays a role in the process of photosynthesis, because cornhusk acts as a light catcher to break down water molecules in bright reactions in the process of photosynthesis and the resulting photosynthetics will be stored in storage organs such as cobs to be allocated to the generative process of seed growth and development.

The factor of using cow manure of 15 tons/ha (P1) has a very real effect on the length of the cob without cornhusk with the highest average value of 23.03 cm. It is suspected that the nutrients contained in cow manure are able to have a good influence on the growth of corn crops that have an impact on the formation of cobs. This is in line with the opinion of Setiono and Azwarta, (2020) who stated that potassium contained in

cow manure includes essential nutrients after N. Potassium in plants is involved in photosynthetic activity through its role in spurring the process of opening and closing stomata. This will have an impact on the accumulation of asymptomatics that affect the formation and enlargement of cobs. According to Wayah *et al.* (2014) also stated that the provision of cow manure on soil media will provide additional higher N,P and K elements.

Weight of Cobs Without Cornhusk

The results of the variety analysis showed no interaction between varieties and manure of cattle weight of cobs without cornhusk. Further test data on plant height changer can be presented in Table 9

Table 10. Average Weight of Cobs Without Cornhusk Due to The Use of Several Varieties and Manure of Cows

Treatment	Weight of Cobs Without Cornhusk (g)
Varieties	
V1 (Bisma) V2	323,95 a
(Lamuru)	308,22 a
V3 (Sukmaraga)	265,68 c
Cow Manure (P)	
P1 (15 tons/ha)	302,08 a
P2 (20 tons/ha)	296,48 a

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results in Table 10 shows that the use factor of some varieties of corn crops has a very real effect on the weight of cobs without cornhusk. The use of Bisma Variety (V1) gives the highest average value of 323.95 g. This is correlated with weighted cob weight changer and the use of cow manure where the difference between the weight of the weighted cob with the weight of the cob without the weight does not give a very significant influence or difference. According to the ethical penenlitian *et al.* (2017) which states the weight of seeds is affected by the pile of asymptolate results from the photosynthesis of the leaves. The pile of asymptolate in the seeds increases as the rate of photosynthesis increases. The use of cow manure has no real effect on the weight of the cob without kelobot. It is suspected that the provision of cow manure has not been fully supplied in supplying enough nutrients for the photosynthetic process, so it has not shown a significant effect on the formation of seeds that have an impact on the weight of the cob without cornhusk. This is in line with the opinion of Pasaribu *et al.* (2011) explained that the application of organic fertilizers does not always provide effective results because it is influenced by dosing, so it can affect the availability of nutrients to the maximum. According to Sitepu *et al.* (2018) states that the use of appropriate organic fertilizers can increase soil microbiological activity. So that the use of organic fertilizers can help the soil in improving the soil. The increase in the fresh weight of the cob without the cornhusk is thought to be closely related to the magnitude of the photosynthetics translocated to the cob section. The larger the photosintat translocated to the cob, the more the fresh weight of the cob increases. The provision of manure can increase the fresh weight of the cob without the cornhusk.

Weight 1000 Seeds

results of the variety analysis showed no interaction between varieties and cow manure against the weight of 1000 seeds. Further test data on the weight of 1000 seeds can be presented in Table 11.

Table 11. Weight of 1000 Seeds Due to The Use of Several Varieties and Manure of Cows

Treatment	Weight 1000 Seeds
Varieties (V)	
V1 (Bisma) V2	395,46 a
(Lamuru)	384,73 b
V3 (Sukmaraga)	369,76 c

Cow Manure (P)	
P1 (15 ton/ha)	387,51 a
P2 (20 ton/ha)	379,13 b

Description: The numbers followed by the same letter in the same column are not real different according to the 5% DMRT test. Based on the average results in table 11 shows that the use factor of some varieties of corn crops has a very real effect on the weight of 1000 seeds, where the use of Bisma Variety (V1) gives the highest average value of 395.46 g. It is suspected that some varieties including the bisma variety used have genetics that are able to adapt well to the environment and absorption of nutrients, thus increasing and spurring the siring process in seed formation. This is in accordance with the opinion expressed by Simanungkalit *et al.* (2014) which states that genitive factors in some varieties are more dominant to environmental factors of growth or growing environmental factors such as daylight, air temperature, rainfall, relative humidity (RH) and soil temperature are suitable for the development of genitive factors.

In line with Haruna *et al.* (2018) which also states that the genetic makeup of each variety is different. Genetics that will be expressed in different growth phases, it can be expressed in various plant traits that will produce a variety of plant diversity. The use of cow manure with a dose of 15 tons / ha (P1) has a very real effect on the weight of 1000 seeds with the highest average value of 387.51 g. It is suspected that one of the nutrients contained in cow manure is able to stimulate and cool the process of seed formation. According to taufik *et al.* (2010) which states that the absorbed nutrients will be accumulated in the leaves into proteins that can form seeds, with the fulfillment of plant nutrient needs causing optimal metabolism to run, so that the formation of proteins, carbohydrates and starches is not inhibited, as a result of which the accumulation of metabolic material in the formation of seeds will increase causing the seeds formed to have maximum size and weight. The weight of the seeds will also affect the yield of corn (Noviana and Ishaq, 2011).

V. CONCLUSIONS AND SUGGESTIONS

1. The use of varieties can increase the growth of plant height, stem diameter, number of leaves, time of appearance of male flowers, female flowers, weighted cob weights, weighted cob length, weight of cobs without saboteurs, length of cobs without saboteurs and weight of 1000 seeds. Bisma variety is the best variety for growth and yield.

2. Treatment of the use of cow manure can increase the growth of stem diameter, number of leaves, weighted cob weight, weighted cob length, length of cob without weight and weight of 1000 seeds. The best use of cow manure is found in P1 (15 tons/ha).

3. There is an interaction between the use of several varieties of corn planting and the use of planting media composition to the diameter of the stem.

VI. SUGGESTIONS

Based on the results of the study can be advised to use bisma varieties in low-lying areas and use cow manure with a dose of 15 tons/ha that can increase the production and yield of corn crops.

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