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THE EFFECT OF CROP SPACING AND DOSSAGE OF POTASSIUM FERTILIZER ON GROWTH AND YIELD OF SWEET CORN (ZEA MAYS VAR. SACCHARATA STURT) BONANZA CULTIVAR

[1]Gita Nurliawati, [2]Achmad Faqih
[1,2] Agronomy Study Program, Graduate School, Swadaya Gunung Jati University, Indonesia
Email: gitanurliawati1903@gmail.com, achmad.faqih@ugj.ac.id

KEYWORDS
Sweet corn; Crop spacing; Potassium

ABSTRACT

The development of sweet corn in Indonesia using cultivation techniques in the form of crop spacing is expected to affect the plant population and affect the competition between plants in using water and nutrients, and the application of potassium fertilizer functions in the formation of sugar and starch, sugar translocation, enzyme activity and stomatal movement. The research was conducted in Gombang Village, Plered District, Cirebon Regency from March to June 2023. The treatment used a Randomized Group Design (RAK) factorial pattern consisting of two factors, namely crop spacing and potassium fertilizer dose, obtained 9 treatment combinations and repeated 3 times, so that in total there were 27 experimental plots. The results showed that the spacing of 50 cm x 40 cm (J2) and potassium fertilizer dossage of 100 kg K2O/ha (K2) showed the best effect on the weight of the corn cob with husks per plot which produced 31.85 kg/plot or equivalent to 21.23 tons/ha. There was a significant correlation between the growth components of plant height at 5 weeks and 6 weeks and the number of leaves at 4 weeks and 5 weeks with the weight of the corn cob with husks per plot.

INTRODUCTION

Sweet corn (*Zea mays* Var. *saccharata* Sturt) began to be developed in Indonesia in the early 1980s. Sweet corn can grow in temperate to tropical climates. The best growth is obtained in tropical climates (Thompson & Kelly, 1957 in Arwani et al. 2013). As people's purchasing power increases, so does the demand for sweet corn. This means that the development of sweet corn in Indonesia has good prospects.

According to data from the Central Bureau of Statistics (2023), sweet corn production in Indonesia from 2020 to 2023 fluctuated and was unstable. Sweet corn production in Indonesia in 2022 reached 16,527,272.61 tons, but decreased in 2023 to 14,460,601.32 tons.

In Indonesia, the development of sweet corn is still limited. This is due to the relatively expensive seed price, intensive irrigation and maintenance requirements, and high fertilizer requirements. There is also a lack of information and knowledge about sweet corn cultivation, as well as marketing difficulties.

Plered Subdistrict is a medium-altitude area and has the potential for sweet corn development. A common constraint for farmers in Plered is that sweet corn cultivation techniques are not well mastered, especially regarding the treatment of crop spacing and fertilizer use.

Plant yield is always influenced by plant growth, while plant growth itself is a manifestation of various factors that limit it. Among the factors that limit plant growth are genetic factors, the environment in which it grows and plant cultivation techniques. The use of plant cultivation techniques through crop spacing and potassium fertilizer is expected to increase the growth and yield of sweet corn.

The spacing system is related to the population density in the land area, the reception of sunlight which is closely related to the photosynthesis process of plants and competition in obtaining plant nutrients (Trinia, 2019 in Kantikowati and Khotimah, 2022). The application of effective crop spacing basically aims to provide the possibility of plants growing well without experiencing much competition in terms of water availability, nutrients, and sunlight (Ikhwani et al., 2013 in Kantikowati and Khotimah, 2022).

Increasing the plant population will increase yields, but if the population continues to increase the yield of corn decreases, thus an optimum population of the right planting distance is needed to achieve maximum yield (Djauhari et al, 1987 in Kartika, 2018). According to Harjadi (1999) in Saputra et al. (2013), crop spacing affects the plant population and light use coefficient and affects the competition between plants in using water and nutrients, thus affecting yield. Planting density must be regulated by planting distance so that there is no competition between plants, easy to maintain and reduce competition costs.

In general, high production per unit area is achieved with a high population, because maximum light utilization is achieved early in growth. Eventually, individual plant performance declines due to competition for light and other growth factors. Plants respond by reducing the size of both the whole plant and certain parts (Setyati, 1983 in Prabowo et al. 2013). Therefore, the use of the right spacing will provide high yields.

In addition to spacing, fertilization also affects sweet corn yield, one of which is potassium fertilizer. Potassium is one of the macro nutrients that are important for plants. Potassium is needed by plants for various physiological functions, including carbohydrate metabolism, enzyme activity, osmotic regulation, water use efficiency, nitrogen uptake, protein synthesis and assimilate translocation. Potassium also has a role in increasing resistance to certain plant diseases and improving the quality of crop yields (Kenzie, 2001 in Rahmawan et al., 2019). Plants that lack this nutrient show symptoms of yellowing and death on the lower leaves, then spread to the edges of the leaves. Although potassium deficiency is still able to change, but the cobs produced are small and the ends are tapered.

Potassium in soil is often found as a limiting factor, because K is a mobile nutrient and very sensitive to leaching, especially in tropical areas with high rainfall. Potassium is absorbed by plants in a large enough amount or even sometimes exceeds the amount of nitrogen, especially in root crops, although the available K is limited (Hakim et al., 1986).

This study aims to determine the interaction between crop spacing and potassium fertilizer dossage on the growth and yield of sweet corn (*Zea mays* Var. *sacharata* Sturt) Bonanza cultivar, to determine what crop spacing and potassium fertilizer dossage have the most effect on the growth and yield of sweet corn (*Zea mays* Var. *sacharata* Sturt) Bonanza cultivar, and to determine the correlation between growth and yield of sweet corn (*Zea mays* Var. *sacharata* Sturt) Bonanza cultivar.

RESEARCH METHOD

The research was conducted in Gombang Village, Plered District, Cirebon Regency from March to June 2023. The research site is located at an altitude of 50-60 meters above sea level. The soil at the experimental site is a latosol soil type, the soil texture is clayey loam, the soil structure is crumbly, and the chemical analysis results show that the potassium content in the soil is very low.

The materials used in this study were: sweet corn (*Zea mays* Var. *sacharata* Sturt) Bonanza cultivar, urea fertilizer (45% N), SP-36 (36% P_2O_5), KCl (60% K_2O), Furadan 3G insecticide. The tools used included: soil cultivator, hoe, corn seed planter, stake, nameplate for treatment, measuring tool, vernier calliper, water sprinkler, rope, scales, and stationery.

The method in the study used a Randomized Group Design (RAK) factorial pattern. The treatment consisted of two factors, namely planting distance and potassium fertilizer dose, each factor as follows: J_1 (Crop spacing 50 cm x 30 cm or equal to 80 plants per plot); J_2 (Crop spacing 50 cm x 40 cm or equal to 60 plants per plot); J_3 (Crop spacing 50 cm x 50 cm or equal to 48 plants per plot); K_1 (80 kg K_2O/ha or equal to 134 kg KCl/ha); K_2 (100 kg K_2O/ha or equal to 167 kg KCl/ha); K_3 (120 kg K_2O/ha or equal to 200 kg KCl/ha). From these two factors, 9 treatment combinations were obtained and repeated 3 times, so that in total there were 27 experimental plots.

RESULTS AND DISCUSSION

Supporting Observations

The results of soil analysis from the Soil Fertility Laboratory of Padjadjaran University Bandung showed that the soil pH of the research site was 6.70 (neutral), the content of organic matter expressed by C-organic 1.98% (low), the content of N-total 0.36% (medium), the content of C/N ratio 5.50 (low). P_2O_5 content 5.04 ppm P (low), Cation Exchange Capacity 16.51 cmol.kg-1 (low). Latosol soil type with a texture of 27% sand, 33% dust, and 40% clay. While rainfall observations from UPTD SDAP Plered, it can be seen that the type of rainfall according to Schmidt-Ferguson (1951) in the vicinity of the research area including rain type D (33.30 $< Q <$ 60.00) which is rather wet.

Plant growth during the study was generally good, out of 3,384 sweet corn seeds planted, 3,250 grew, while 134 seeds did not grow. This indicates that the seeds had 96% germination. The seeds started to grow at the age of 5 days after planting, marked by the emergence of shoots to the soil surface. Thinning and replanting were done 7 days after planting to reduce the population and maintain the plant population.

The results of visual observations showed that the weeds that grew in the experimental field included the most teki (*Cyperus rotundus*), kakawatan (*Cynodon dactylon*). In order to avoid competition with sweet corn plants, weeding was done twice, at the age of 20 and 41 days after planting.

Pests that attacked the plants during the study were locusts that attacked/eaten the young leaves or the growing point of the plant, so that the plants that were attacked had their leaves torn. The attack occurred at the age of 20 days after planting, but it was not widespread because at the time of planting prevention was carried out by giving Furadan 3G as much as 1 gram per planting hole.

The disease that attacked the plants during the study was downy mildew, which attacked 0.5% of the plant population, namely 1,692 sweet corn plants. The symptoms of the disease attack were abnormal plant growth, pale-white leaves on the plants. Control of the disease is done by eradicating the plants so that it does not spread to other plants.

The flowering time of sweet corn plants in this study occurred when the plants were 53 days after planting and harvested when the plants were 76 days after planting. Harvesting was done by picking the cobs. The cob picking was done carefully so that the stalks of the sweet corn cobs would not separate.

Plant Height (cm)

The results of static analysis showed that the treatment between spacing and potassium fertilizer did not interact with the average height of sweet corn plants at the age of 4, 5, and 6 weeks after planting. The independent effect between crop spacing and potassium fertilizer had no effect on plant height. The results of statistical analysis are listed in Table 1.

In Table 1, it can be seen that the plant height at the age of 4, 5, 6 weeks after planting in each treatment did not have a significant difference. This shows that potassium fertilizer is sufficient for the growth needs of sweet corn plants. The application of potassium fertilizer with different doses cannot increase the height of sweet corn plants.

Table 1. Effect of Planting Distance and Potassium Fertilizer on Plant Height Age 4, 5, 6 Weeks After Planting (cm)

Treatments	Average Plant Height (cm)		
	4 Weeks	5 Weeks	6 Weeks
J_1	80,26 a	152,20 a	191,64 a
J_2	79,84 a	151,31 a	190,02 a
J_3	77,53 a	144,80 a	183,24 a
K_1	78,21 a	149,51 a	187,44 a
K_2	81,58 a	149,91 a	189,47 a
K_3	77,84 a	148,89 a	188,00 a

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

Number of Leaves (strands)

The results of static analysis showed that the treatment of crop spacing and potassium fertilizer did not interact with the average number of leaves of sweet corn plants at the age of 4, 5, and 6 weeks after planting. The independent effect between crop spacing had a significant effect on the number of leaves at the age of 5 weeks after planting, but the application of potassium fertilizer had no significant effect. The results of statistical analysis are listed in Table 2 below.

Table 2: Effect of Planting Distance and Potassium Fertilizer on Number of Leaves Age 4, 5, 6 After Planting (strands)

Treatments	Average Number of Leaves (strands)		
	4 Weeks	5 Weeks	6 Weeks
J_1	8,13 a	10,80 a	11,71 a
J_2	8,36 a	11,27 b	11,92 a
J_3	7,91 a	10,24 a	11,51 a
K_1	8,14 a	10,78 a	11,62 a
K_2	8,09 a	11,04 a	11,88 a
K_3	8,17 a	10,49 a	11,64 a

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

In the table above, it can be seen that the number of leaves at 4 and 6 weeks of age in each treatment did not have a significant difference. This also shows that the application of potassium fertilizer is sufficient for the growth of sweet corn plants. The application of potassium fertilizer with different doses has not been able to increase the number of leaves of sweet corn plants. According to Adam et al. (2011) in Mutaqin et al. (2018), the number of leaves cannot be used as a reference for determining the optimum dose because the number of leaves is more influenced by genetic factors than environmental factors.

The results of the analysis of the number of leaves at the age of 5 weeks after planting, there was an independent effect of crop spacing in the J_2 treatment (50 cm x 40 cm spacing) which was significantly different from the other treatments. This is in accordance with the statement of Djauhari et al. (1987) in Kartika (2018), that the addition of plant population will increase yield, but if the population continues to increase the yield of corn decreases, thus an optimum population of the right spacing is needed to achieve maximum yield.

Andrews and Newman (1970) in Aprilyanto et al. (2016) stated that fertilizer application has a significant effect on plant height, number of leaves, and stem diameter. The increase in fertilizer dose is directly proportional to the increase in the number of leaves. The greater the dose of fertilizer, the greater the plant height and number of leaves.

Stem Diameter (cm)

The results of static analysis of stem diameter in Table 3 show that the treatment of spacing and potassium fertilizer did not interact with the average stem diameter of sweet corn plants at the age of 4 and 5 weeks after planting. The independent effect of crop spacing and potassium fertilizer significantly affected the stem diameter at the age of 6 weeks after planting.

An adequate supply of potassium will help corn plants form sturdy and large stems (Mutaqin et al., 2018). According to Utomo et al. (2015), the element potassium can increase the synthesis and translocation of carbohydrates, thereby increasing the thickness of cell walls and stem strength. However, in the table above, it can be seen that the diameter of the stem at the age of 4 and 5 weeks after planting in each treatment does not have a significant difference. This could be caused by the less than optimal spacing treatment and potassium fertilizer dossage.

Based on Table 3, it can be seen that the treatment of spacing and potassium fertilizer on sweet corn plants showed an independent effect on the average diameter of the stem at the age of 6 weeks after planting, namely at the level of treatment J_2 (50 cm x 40 cm spacing) and J_3 (50 cm x 50 cm spacing). This occurred allegedly because the population was not too dense so that it could make sweet corn plants more optimal in absorbing nutrients. According to Sulaeman et al (1987), in high populations there is an increase in plant height followed by cob length due to competition between plants for sunlight and growing space, thus affecting morphological characteristics including the diameter of the plant stem.

Table 3. Effect of Planting Distance and Potassium Fertilizer on Stem Diameter Leaves Age 4, 5, 6 After Planting (cm)

Treatments	Average Stem Diameter (cm)		
	4 Weeks	5 MST	6 Weeks
J_1	1,96 a	2,43 a	2,42 a
J_2	2,02 a	2,53 a	2,81 b
J_3	1,91 a	2,39 a	2,63 b
K_1	1,95 a	2,46 a	2,59 a
K_2	2,03 a	2,49 a	2,76 b
K_3	1,91 a	2,39 a	2,50 a

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

Diameter of Corn Cob With Husks (cm)

The results of statistical analysis of the corn cob with husks diameter of sweet corn plants can be seen in Table 4. Based on the table, it can be seen that the treatment of crop spacing and potassium fertilizer in sweet corn plants showed an interaction effect on the average diameter of the corn cob with husks, the best interaction effect was shown in the treatment of J_2 (Crop spacing 50 cm x 40 cm) and K_1 (80 kg K2O /ha) and in the treatment of J_2 (Crop spacing 50 cm x 40 cm) and K2 (100 kg K_2O /ha), which gave the best effect on the average diameter of the corn cob with husks respectively 6.0 cm and 6.05 cm. The interaction occurred in K_1 (80 kg K_2O/ha) and K_2 (100 kg K_2O/ha) plant population increased in J_2 (Crop spacing 50 cm x 40 cm) except J_3 (Crop spacing 50 cm x 50 cm) corn cob with husks diameter decreased. At J_2 (50 cm x 40 cm spacing) the level of K_2O dosage from 100 kg K_2O/ha to 120 kg K_2O/ha decreased the diameter of the cob.

Table 4. Effect of Planting Distance and Potassium Fertilizer on Diamater of Corn Cob With Husks (cm)

Treatments	K_1		K_2		K_3	
J_1	5,30	a	5,58	a	5,31	a
	A		A		A	
J_2	**6,00**	**b**	**6,05**	**b**	5,70	a
	B		**B**		B	
J_3	5,92	a	5,85	a	6,00	a
	B		B		B	

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

This is thought to be because crop spacing affects the plant population and the coefficient of light use, affecting the competition between plants in using water and nutrients, thus affecting yield (Harjadi, 1999 in Saputra, 2014). Increasing the weight and sugar content in the corn cob can be done by streamlining the photosynthesis process in plants and increasing the translocation of photosynthate to the corn cob by providing balanced potassium fertilizer. (Setyono, 1986 in M. Yusuf, 2015).

Length of Corn Cob With Husks (cm)

The results of the static analysis showed that the treatment of crop spacing and potassium fertilizer did not interact with the average length of the sweet corn cob with husks. The independent effect on the length of the corn cob with husks occurred in the planting distance treatment. The results of statistical analysis are listed in Table 5.

Table 5. Effect of Planting Distance and Potassium Fertilizer on the Length of Corn Cob Wit Husks (cm)

Treatments	Corn Cob Length (cm)
J_1	30,56 a
J_2	32,51 b
J_3	33,58 b
K_1	32,29 a
K_2	31,96 a
K_3	32,40 a

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

The independent effect of crop spacing treatment on corn cob length was significantly found at the treatment level J_2 (Crop spacing 50 cm x 40 cm) and J_3 (Crop spacing 50 cm x 50 cm) with cob length of 32.51 cm and 33.58 cm, respectively.

Crop spacing affects plant population, plant competition and efficient use of light, affects competition in using water and nutrients, thus affecting yield. Generally, high production per unit area is achieved with a high population as well, due to the achievement of maximum light use at the beginning of growth but eventually, the appearance of each individual plant will decrease due to competition for light and other growing factors. The ideal crop spacing pattern is when the plant's need for environmental conditions (light, humidity, air aeration and rooting) can be fulfilled (Muhammad et al, 1993 in Sultan et al, 2016).

Weight of Corn Cob With Husks Per Plant (kg)

The results of statistical analysis showed that the treatment of crop spacing and potassium fertilizer did not interact with the average weight of the corn cob with husks per plant. The independent effect on the weight of the corn cob with husks per plant occurred in the treatment of crop spacing. The results of statistical analysis are listed in Table 6.

Table 6: Effect of Planting Distance and Potassium Fertilizer on Weight of Corn Cobs With Husks Per Plant (kg)

Treatments	Weight of Cobs Per Plant (kg)
J_1	0,35 a
J_2	0,44 b
J_3	0,44 b
K_1	0,40 a
K_2	0,42 a
K_3	0,40 a

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

The independent effect of crop spacing treatment on the weight of the corn cob with husks per plant gave a real effect at the level of treatment J_2 (Crop spacing 50 cm x 40 cm) and J_3 (Crop spacing 50 cm x 50 cm) with the same weight of the corn cob with husks per plant which was 0.44 kg. This means that the potassium fertilizer given can increase the weight of the corn cob with husks. Nugroho et al. (1999) in Setiono and Azwarta (2020), stated that the increase in corn cob weight in sweet corn plants is in line with the increasing efficiency of the photosynthesis process and the rate of translocation of photosynthate to the cob.

According to Subandi et al, (1988) in Kantikowati and Khotimah, (2022), increasing the level of density in plants per unit area to a certain extent can increase seed yield, but the addition of the number of plants will further reduce yields due to competition for nutrients, water, solar radiation and growing space so that it will reduce the number of seeds per plant.

Setting the population per unit area by setting the crop spacing can affect the high and low productivity of plants. In general, the higher the plant density up to a certain limit, the higher the productivity, but too dense crop spacing will increase humidity, affect the use of sunlight, nutrient use, land use efficiency, plants grow thin and less productive.

Weight of Corn Cob With Husks Per Plot (kg)

The results of statistical analysis of the weight of the corn cob with husks per plot of sweet corn plants can be seen in Table 7 below:

Table 7: Effect of Planting Distance and Potassium Fertilizer on Weight of Corn Cobs With Husks Per Plot (kg)

Treatments	K_1	K_2	K_3
J_1	26,73 a B	29,68 a B	27,10 a B
J_2	24,75 a B	**31,85 b B**	22,83 a A
J_3	20,81 a A	20,29 a A	21,61 a A

Notes: Mean numbers followed by the same letter in the column are not significantly different according to Duncan's Multiple Range Test at the 5% level.

Based on Table 7, it can be seen that the treatment of crop spacing and potassium fertilizer in sweet corn plants showed an interaction effect on the average weight of the cob per plot. The best interaction effect was shown in the treatment of J_2 (50 cm x 40 cm spacing) and K_2 (100 kg K_2O/ha) with an average weight of corn cob with husks per plot of 31.85 kg/plot or equivalent to 21.23 tons/ha, assuming an effective area of 80%. The interaction occurred in K_2 (100 kg K_2O/ha) from J_1 (50 cm x 30 cm spacing) to J_2 (50 cm x 40 cm spacing) increased the weight of the cob per plot and from J_2 (50 cm x 40 cm spacing) to J_3 (50 cm x 50 cm spacing) decreased the weight of the cob per plot. At J_2 (50 cm x 40 cm spacing) from K_1 (80 kg K_2O/ha) to K_2 (100 kg K_2O/ha) increased the weight of weighted cob per plot and from K_2 (100 kg K_2O/ha) to K_3 (120 kg K_2O/ha) decreased the weight of corn cob with husks per plot.

This is thought to be because an increase in plant population density per unit area can increase maize yield to a certain extent. However, further increase in the number of plants will reduce yield due to competition for nutrients, water, growing space and sunlight. The main factor that causes a decrease in the number of cobs with seeds per corn plant is the shading of the leaves (Mintarsih et al. 1989 in Bilman WS, 2001).

Correlation Analysis Between Growth Componen and Yield Per Plot

The real correlation between plant height and the weight of the corn cob with husks per plot is only found at the age of 5 and 6 weeks of planting, because after the t test is obtained that tcount > ttable. While the correlation value between plant height at the age of 4 weeks after planting and the weight of the cob per plot produced showed an unreal relationship, because after the t test was obtained that tcount < ttable.

Based on the calculation of the coefficient of determination (r^2) successively: 0.117, 0.164, 0.171 meaning that the weight of the corn cob with husks per plot is not influenced by the height of the plant at the age of 4 weeks of planting by 11.7%, at the age of 5 weeks of planting the weight of the corn cob with husks per plot is influenced by 16.4%, while the weight of the corn cob with husks per plot is influenced by the height of the plant at the age of 6 weeks of planting by 17.1%. The correlation category of plant height at 4 weeks of planting is low and the correlation of plant height at 5 and 6 weeks of planting is medium.

The real correlation between the number of leaves and the weight of the cob per plot is only found at the age of 4 and 5 weeks of planting, because after the t test was conducted, it was found that $t_{count} > t_{table}$. While the correlation value between the number of leaves at the age of 6 weeks after planting and the weight of the corn cob with husks per plot produced showed not significantly different, because after the t test was conducted, it was found that $t_{count} < t_{table}$.

Based on the calculation of the coefficient of determination (r^2) successively: 0.219, 0.428, 0.127 meaning that the weight of the corn cob with husks per plot is influenced by the number of leaves at the age of 4 weeks of planting by 21.9%, at the age of 5 weeks of planting the weight of the corn cob with husks per plot is influenced by 42.8%, while the weight of the corn cob with husks per plot is not influenced by the number of leaves at the age of 6 weeks of planting by 12.7%. The correlation category of the number of leaves at 4 and 6 weeks of planting is low and the correlation of the number of leaves at 5 weeks of planting is medium.

While the correlation that is not real between is found in the diameter of the stem and the weight of the cob per plot, because after the t test is obtained that $t_{count} < t_{table}$. Based on the calculation of the coefficient of determination (r^2) successively: 0.078, 0.079, 0.043 meaning that the weight of the corn cob with husks per plot is not influenced by the diameter of the stem at the age of 4 weeks of planting by 7.8%, at the age of 5 weeks of planting the weight of the corn cob with husks per plot is not influenced by 7.9%, while the weight of the cob per plot is not influenced by the diameter of the stem at the age of 6 weeks of planting by 4.3%. The correlation category of stem diameter at 4, 5, and 6 weeks of planting is low.

Table 8. Recapitulation of Correlation Analysis Results Between Growth Components and Weight of Corn Cobs With Husks Per Plot

Growth Component	Plant's Age	Description					
		r Value	r Value	r^2 Value	t Value	$t_{0,025(25)}$ Value	Statistical Analysis
Plant Height	4 Weeks	0,341	Low Correlation	0,117	1,816	2,060	Not Significantly Different
	5 Weeks	0,405	Medium Correlation	0,164	2,216	2,060	Significantly Different
	6 Weeks	0,413	Medium Correlation	0,171	2,270	2,060	Significantly Different
Total Leaves	4 Weeks	0,468	Medium Correlation	0,219	2,650	2,060	Significantly Different
	5 Weeks	0,654	Medium Correlation	0,428	4,322	2,060	Significantly Different
	6 Weeks	0,356	Low Correlation	0,127	1,904	2,060	Not Significantly Different
Stem Diameter	4 Weeks	0,279	Low Correlation	0,078	1,455	2,060	Not Significantly Different
	5 Weeks	0,281	Low Correlation	0,079	1,465	2,060	Not Significantly Different
	6 Weeks	0,206	Low Correlation	0,043	1,055	2,060	Not Significantly Different

Thus, it can be concluded that the height of the plant at the age of 6 weeks and 5 weeks and the number of leaves at the age of 4 and 5 weeks, are indications of an increase in the weight of the corn cob with husks per plot. So, the higher the plant height and the number of leaves will increase the production of sweet corn plants.

CONCLUSION

Based on the results of the study it can be concluded that: There is an interaction between crop spacing and potassium fertilizer dossage on the average cob diameter and weight of corn cob with husks per plot, but there is no significant interaction effect between crop spacing and potassium fertilizer on the parameters of average plant height, number of leaves, cob diameter at 4, 5 and 6 weeks of planting, length and weight of weighed corn cob with husks per plant, and there is an independent effect on the treatment of crop spacing and potassium fertilizer dossage on plant height at 6 weeks of planting, length and weight of corn cob with husks per plant.

Crop spacing of 50 cm x 40 cm (J_2) and potassium fertilizer dossage of 100 kg K_2O/ha (K_2) showed the best effect on the weight of the corn cob with husks per plot which produced 31.85 kg/plot or equivalent to 21.23 tons/ha. There was a significant correlation between the growth components of plant height at 5 weeks and 6 weeks and the number of leaves at 4 weeks and 5 weeks with the weight of the corn cob with husks per plot.

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