

Selecting the Right Varieties in Riau Main Island: Sweet Corn Context

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Abstract: The Riau Main island long way known has a unique geographic location and minerals contains in its soils. To help in selecting the best varieties that can help to sustain the food security plan in Riau main island is the aims of this study. Corn is a one of the local food that support the coastal and highland community in Riau and Sumatera Islands. Therefore corn was selected to be the object of this study. This experiment was conducted experimentally using a complete randomized environmental design and the treatment design with eight varieties of sweet corns. Data analysis uses Sidik variety and Duncan 5 % distance tes. The parameter observed is sweet corn which deals with the weight of cobs with cornhusk, the weight of cobs without cornhusk, the length of cobs without cornhusk and the sugar content of the seeds. The result shows that the best varieties are Sweet boy, sweet lady and bonanza.

Keywords: sweet corn, varieties, sweet boy, sweet lady, bonanza

1. Introduction

The cultivation of food crops in Pekanbaru always faces the constraints of soil condition. The soil in Pekanbaru is dominated by Red Yellow Podsollic Mineral Soil (RYPMS), a soil that is known to have low fertility and contains very low organic matter and some, even, do not contain organic matter. In order to take advantage of it, it is necessary to add organic materials and nutrients through fertilization to meet the needs of the plants.

The food crop that can be cultivated in RYPMS is sweet corn. Sweet corn is one of food commodities that has bright future because of its sweet taste, soft texture and high market demand so that sweet corn becomes of the commodity choices of food that is feasible to be cultivated. Moreover, sweet corn market is available from traditional to modern market.

The potential yield and sugar content in sweet corn will greatly determine its quality. The quality is measured from the weight of the cobs without cornhusk and sugar content. The higher the cob weight and ther sugar content are, the better quality it gets. Sucrose and reducing sugar (glucose and fructose) of photosynthesis are transferred to various organs which are then used to maintain the integrity of the organ, partly converted to plant structure material and the rest is used as food reserves (Harini, 1993).

Sweet corn varieties have different sugar content. It is influenced by genetic characteristic of each variety, as reported by Siswono (2004) that super sweet variety has sugar content of 16-18 %, colse to sugar cane level 19 %, compared to local sweet corn which only has 9-11 % .Meanwhile, the sugar content of Bisi variety is between 15-16% , sweet boy variety reaches 16% and super honey variety reaches 28 %.

Sweet corn contains energy of 96 cal, 3,9 g protein, 1,0 g fat, 22,8 g carbohydrat, 3,0 mg calcium, 111 g phosphorus, 0,7 mg iron, 400 SI Vitamin A, 0,15 mg vitamin B, 12,0 mg vitamin C and 72,7 g water. (Iskandar, 2006).

Nuhayati and Siti (2002) reported that super sweet varieties harvested in 65 days resulted in the weight of cornhusk cob 355,82 g; the weight of cobs without cornhusk 271,81 g, and sugar content of the seeds is 5,4 %. In different research, Surtinah (2008) indicated that sweet boy harvested in 70 days results the weight the cobs 384,53 g, the weight of the cobs without cornhusk 288,89 g, and sugar content 15,78 %.

Surtinah (2012) reported that Bonanza variety planted in Pekanbaru results 14,82% of sugar content when it is harvested at 17.00 pm in 65 days. In other research (Surtinah, 2013) reported that Bonanza Variety is the best compared to other two varieties, with the weight of the cobs without cornhusk 295 g. Syafruddin, Nurhayati and Wati (2012) reported that Bonanza variety showed high growth and production with NPK liquid fertilizer treatment.

The soil condition of planting sweet corn is very significant in determining the growth and productivity of the plant. In RYPMS soil, sweet corn can grow well with appropriate organic material on the soil. (Lidar % Surtinah, 2012). Dinariani, Heidy dan Guritno (2014) reported that the application of goat manure 10 ton/ha results the highest sugar



content i.e 16,07 brix. The objective of this research is to get the sweet corn variety with the highest production with high sugar content in Pekanbaru.

2. Methodology

This research is conducted in experimental garden of Agriculture department, Lancang Kuning University. Then kind of soil is Yellow Podsolc mineral soil with the height of 20 m dpl.

The research is conducted experimentally by using complete randomized environmental design, done for 3 times, and treatment design with 8 varieties of sweet corns (V): v1= sweet boy variety, v2= sweet lady variety, v3= bonanza variety, v4= secada variety, v5= Bontang Asia variety, v6= valentino variety, v7= master sweet variety, v8= mulia variety.

The population of the plants in each experimental unit is 10 plants and 3 plants are the samples and the numbers of experimental units is 24 units.

Primary data is analyzed by using Sidik Variety with 5 % chance, continued by 5 % Duncan distance test.

3. Result And Discussion

Variety analysis used to conclude the weight of the cobs with cornhusk of each variety is different and is not real at the test level F 5 %, and Duncan distant test is as follows:

Table 1. The weight of the cobs with cornhusk (gram) 8 varieties of sweet corn.

Perlakuan Varietas	rata-rata perlk	uji Duncan
V1 = Sweet Boy	430,00	b
V2 = Sweet Lady	438,83	b
V3 = Bonanza	466,67	b
V4 = Secada	457,17	b
V5 = Bintang Asia	461,33	b
V6 = Valentino	465,00	b
V7 = Master Sweet	462,83	b
V8 = Mulia	375,83	a

The numbers followed by the same letters are different unreal based on Duncan test.

The low weight of the cobs with cornhusk of the sweet corns is only found in Mulia variety. Other varieties show the weights of the cobs with cornhusks which are different unreal. It means the seven varieties, they are: sweet boy, sweet lady, bonanza, secada, valentino, master sweet and Bintang Asia, have the same weight of the cobs. The best weight of the cobs is found in bonanza variety. In a research done by (Surtinah, Susi % Lestari, 2016) it was found that the weight of the cobs of sweet corn with cornhusk from Bonanza variety increased 14,82 %, in Bintang Asia variety, it decreased 9,83%, master sweet variety increased 22,22 %. In other research (Surtinah, 2008) reported that the weight of the cobs with cornhusk of sweet boy variety increased 6,99 % compared to the previous research.

Tabel 2. Berat tongkol tanpa kelobot (gram) delapan varietas jagung manis

Perlakuan Varietas	rata-rata perlk	uji Duncan
V1 = Sweet Boy	275,00	b
V2 = Sweet Lady	292,83	b
V3 = Bonanza	322,83	b
V4 = Secada	300,17	b
V5 = Bintang Asia	294,17	b
V6 = Valentino	298,17	b
V7 = Master Sweet	281,67	b
V8 = Mulia	212,83	a

The numbers followed by the same letters are different unreal based on Duncan test.

The lowest weight of the cobs without cornhusk is Mulia variety, while the other seven varieties show unreal different results. From the seven tested varieties, the best weight of the cob is Bonanza, followed by Secada and Bintang Asia. Surtinah (2013) reported that the weight of the cob without cornhusk of Bonanza variety is 295 g. It means, in this research it occurs the increasing of the result of Bonanza variety 8,62 %. Meanwhile in Bintang Asia variety it decreases 7,29 %. From the research done by (Pradipta, Kruniawan Puji and Guritno, 2014), it showed that the best weight of the cob was 188,90 gram.

Table 3. The Test Result of Duncan's Multiple Distance for sugar content of Sweet corns (%).

Perlakuan Varietas	Kadar Gula	uji Duncan
V1 = Sweet Boy	13,05	d
V2 = Sweet Lady	13,80	d
V3 = Bonanza	13,73	d
V4 = Secada	10,65	a
V5 = Bintang Asia	11,02	abc
V6 = Valentino	12,55	bcd
V7 = Master Sweet	12,83	cd
V8 = Mulia	10,88	ab

The numbers followed by the same letters are different unreal based on Duncan test.

The best sugar contents of the seeds is Sweet Lady, Bonanza and Sweet Boy varieties. There is difference in sugar content compared to the previous research. It is caused by the climate at the moment the research conducted from year to year.

Table 4. the difference of sugar content sweet corn seeds between description and research result (%)

Perlakuan Varietas	Kadar Gula	Kadar Gula Deskripsi
V1 = Sweet Boy	13,05 %	12,1 %
V2 = Sweet Lady	13,8 %	13,8 %
V3 = Bonanza	13,73 %	13 %
V4 = Secada	10,65 %	11,19 %
V5 = Bintang Asia	11,02 %	12 %
V6 = Valentino	12,55 %	Tidak diketahui
V7 = Master Sweet	12,83 %	13,3 %
V8 = Mulia	10,88 %	Tidak diketahui

From the comparison of research results and description of sugar content of sweet corn seeds, it finds out that sugar contents of Sweet boy and Bonanza varieties are better in the research result, while the sugar content of Sweet lady variety is the same between the research result and the description. This can be reference in dertermining conformity grows of sweet corns in an area based on the quality of the seeds related to the sugar content. And Sweet boy, Sweet lady and Bonanza varieties are the chosen varieties to be tested for the next year in various planting locations in Pekanbaru.

4. Conclusion

The Riau Main island long way known has a unique geographic location and minerals contains in its soils. To help in selecting the best varieties that can help to sustain the food security plan in Riau main island is the aims of this study. Corn is a one of the local food that support the coastal and highland community in Riau and Sumatera Islands. From the result, it is concluded that the potential varieties to be developed in Pekanbaru are Sweet boy, Sweet lady and Bonanza varieties.

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