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Evaluation of Fresh Ear Yield And Quality Performance In Super Sweet Corn

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ABSTRACT

Aim of this study is determine to fresh ear yield and quality characters of sweet corn varieties which Vega, Challenger, Sentinel, HYRIX 39, and HYRIX 53 in two location in Turkey. The research was conducted on randomised blocks design with four replication in Bafra and Tekkekoy location. The experiment was caried out evaluate the yield and quality performance of some sweet corn genotypes as well as demonstrate unfamiliar supersweet corn concept in Turkey. In the research were obserwed some yield component and quality characters such as flowering time, plant length, first cob length, grain yield, cob diameter, cob length, number of rows in the cob, amount of grains in row, number of marketable cobs per plant, wet cob harvest time, wet cob yield, grain cob ratio, grain moisture, dry grain yield. It was found that sweet corn genotype are significantly different in terms of yield and quality characteristics. The highest wet cob yield was 24.238 t ha^{-1} in Hybrix 39 super sweet. Super sweet corn has an important potential in sweet corn cultivation due to high yield of dry grains and its high maintenance rate of sugar raito in the long term after harvesting. Statistical analysis showed that the effect of genotype and the environment, as well as their interactions, had a significant impact on the yield of sweet corn hybrids. The presented results have demonstrated the poerformance of some sweet corn in Turkey. This work is intended to inspire similar studies using other sweet corn varieties and also to encourage the wide-scale production sweet corn in Turkey.

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Introduction

Sweet corn [*Zea mays* (L.) var. *saccharata*] is cultivated plant for human consumption and it is a raw or processed material of the food industry throughout the world. It is popular with the consumer for its unique taste, pleasant flavour and sweetness. Sweet corn plays an important role in the human diet because of its health-promoting nutritional characteristics. The nutritional value of sweet corn kernels is related to the content of water (72.7%) and the total content of solid parts (27.3%). Solid parts include hydrocarbons (81%), proteins (13%), lipids (3.5%) and others (2.5%). Starch is the dominant hydrocarbon component [1]. Sweet corn kernels are moderately high in calories in comparison to other vegetables. Corn features high-quality phyto-nutrition profile

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comprising of dietary fibre, vitamins, and antioxidants in addition to a reasonable proportion of minerals. Sweet corn contains a significant amount of lutein, zeaxanthin and other carotenoids [1]. Sweet corn is widely consumed as a healthy food since it is rich in carotenoids.

The world sweet corn cultivation area is 1444037 ha, production is 18841356 tons, and yield is 13.029 tha^{-1}. Moreover, worldwide sweet corn producing area ocure that Africa (32.3%), European Union Countries (27.7%), America (24,7%) and Asia (12,6%), respectively. European Union countries (52.4%), then America (29.5%), Africa (9.1%) and Asia (6.9%), respectively, are the top producer's countries in terms of production of sweet corn. Similar to production, the European Union Countries with 24.745 tha-1and the United States with 15.552 t/ha-1 have the highest yield. Nowadays, its biggest producers are Ukraine (6967780 t), USA (3838630 t), Croatia (1283068 t), and Mexico (898793 t). Moreover, the USA and UK are the most significant exportercountries. Sweet corn is consumed as a human food in the worldwide, which approximately 21% of total production [1]. Sweet corn production has dramaticaly increased by the 250% in the last 30 years [1]

The sweet corn is divided into three groups according to the sugar content and its storage ability. The first group is named as a sugar corn. Sugar corn after the grain maturation, it is necessary to harvest corn spadix and sequentially process or consume by 24 hours. When reached this stage, the content of sugars very quickly decreases and they are converted to starch [1]. The second group is tagged as SE (sugary enhanced). SE corn is more slowly convert sugars to starch after harvest is slow. The corn spadix is possible to storage about three days after harvest in good taste quality [1]. The third group is named as sh-2 (super sweet, shrunken) and spadix has the highest sugar content, and its storage ability after harvest is about seven days in cold conditions. After that, the grain quality is decreased. The grain starts to shrivel because of water lack, despite preserving sweet taste. This variety group is the most preferred variety by producers and consumers [1].

The consumption of sweet corn as fresh in the form of canned or frozen food is increasing extremely quick in all over the world. Although sweet corn is produced with contract farming model intensively in Aegean, Marmara and the west part of Turkey, demand for sweet corn is not reached by domestic production in Turkey. Turkey's frozen-canned sweet corn imports in 2016 are approximately 8 thousand tons. In addition, although the

value of imports is approximately $ 10 million, the cost of export is about $ 0,95 million [1] Turkey sweet corn yield potential is close or higher than world avarage statistics. Since Turkey is a country that exports most of its agricultural products abroad, there is the potential to move from importer to exporter position with the increase in sweet corn production areas. The research carried out to evaluate the yield, yield component and quality of widely planted sweet corn genotypes and supersweet genotypes at ecological conditions in Bafra and Tekkekoy locations in Turkey.

Materials and Methods

Experimental site and material

The field trials were conducted on Bafra and Tekkeköy location in Blacksea Agricultural Research Institution (Bafra; 41^{O} 36'N, 35^{O} 55' E; Tekkeköy 41^{O}.13 N', 36^{O} 30' E; 16 m evaluation Bafra, E; 7 m evaluation) during to 2018 cropping seasons as a double crop. The sweet corn varieties in the research and their some characteristics are presented Table 1.

Table 1 Sweet corn varieties and their some charectiscs

Variety Name	Sweet corn	Ear colour	Origin	Growing period (days)
Vega	Super Sweet (Sh2)	Yellow	USA	70-80
Challenger	Super Sweet (Sh2)	Yellow	USA	80-85
Sentinel	Super Sweet (Sh2)	Yellow	Australia	80-85
HYRIX 39	Super Sweet (Sh2)	Yellow	Thailand	120-130
HYRIX 53	Super Sweet (Sh2)	Yellow	Thailand	120-130

The soil of the experimental area is clayed-loamy and little alkaline. Total salt and the amount of takable phosphor were low, but the plant was rich in terms of nutrition elements and potassium and lime, but low in terms of organic matter (Table2).

Table 2 Some properties of study soil *

Parameter	Bafra	Tekkeköy	
Soil texture (%)	66	68	Clay Loam
pH	7,2	7,4	Slightly alkaline
P_2O_5 (kg ha^{-1})	25,2	25	Very Low
K_2O (kg ha^{-1})	940	920	High
Organic Matter (%)	1,76	1,7	Low
$CaCO_3$ (%)	6,76	7,5	Medium
EC (%)	0,054	0,061	Nonsaline

*(Samsun, Blacksea Agrıcultural Research Institute, Soil Department Laboratory, Analyze Number:183,2018)

Winter and summer in Samsun are temperate and rainy, which is a type of a Black Sea climate. The mean monthly air temperature during the research period (May- October) was 15.9 - 23.8 C^o in Tekkekoy location, whereas it was 17.4 - 24.6 C^o in the Bafra location. Total rainfall was 317.7 mm in Tekkekoy and 208.6 mm in Bafra during the growing periods in 2018. In addition, the average relative humidity was ranged from77.5-80.0 % in Tekkekoy location, 74.8-78.6% in Bafra location (Table 3, Table 4).

Whilistmoisture and temperature values relatively had the close values each other in cultivating season (2018) differed from long term averages. Average temperatures in Bafra location was measured 1-1.5 °C higher than long term averages. Significant differences were measured in total rainfall and distribution of rainfall into months.

Table 3 The climate conditions in 2018 and long term in Tekkekoy location (1970-2018)*

Months	Mean temperature (ºC)		Relative humidity (%)		Precipitation (mm)	
	Long Term	2018	Long Term	2018	Long Term	2018
May	15,9	16,9	77,5	79,9	49,0	65,2
June	20,1	21,0	77,5	78,0	45,4	57,5
July	23,4	23,8	77,5	77,5	32,0	37,5
August	23,8	24,0	78,5	78,8	40,1	72,0
September	20	20,5	79,5	80	51,7	85,5

Table 4 The climate conditions in 2018 and long term in Bafra location (1970-2018)*

Months	Mean temperature (ºC)		Relative humidity (%)		Precipitation (mm)	
	Long Term	2018	Long Term	2018	Long Term	2018
May	15,4	17,4	78,6	78,5	46,3	15,3
June	20,1	21,8	74,5	76,5	44,9	38,4
July	22,8	24,6	72,5	74,8	29,9	23,5
August	22,7	24,5	73,9	77,5	44,4	50,0
September	19,2	20,9	76,3	76,5	58,5	81,6

* X Meteorologi Regional Directorate Data

The experiment treatments

The experiment was conducted on a Randomized Complete Block design with four replications in the main crop separately. Seeds were sown by hands as spreading two seeds in per growing bed, and every plot had four lines, and plot area was 14 m^2 plot dimensions inter-rows was 70cm and within rows was 18cm and the length of plot 5m. When the plants reached knee-deep (40-50cm) in the experiment, the weak one from two plants in the growing bed was thinned. Irrigations were applied with drum irrigation systalk and earthing up was applied with hoeing regularly [1]

The dressing was made as pure 80 kg ha^{-1} P_2O_5 and 200 kg N ha^{-1} totally per hectare according to soil analysis. All phosphorised manure and 80 kg ha^{-1} of nitrogenous manure were given at the cultivating period as bottom fertiliser, the rest of the nitrogenous was given when the plants became 4-6 leafed (V4-V6 phase), reached approximately 40-50cm. Two lines in the middle were harvested for fresh ear yield another two lines in the middle were harvested for dry grain yield. Corn was sowed in one day at both locations on 12 May 2018. Wet cob harvests between the dates of 4-21 August 2018, the dry crops were harvested between 18 September 2018 and 16 November2018. Wet cob was harvested when the grain moisture of the cobs is 70-75 %, while dry grain was harvested when grain moisture was close to 20%. Dried grain yield per decare was calculated after the grain moisture was adjusted to 15%. During the growing period, some cultural practices such as weed control, irrigation, pesticide and fungicide were applied at the proper time intervals for each experiment.

Data collection and measurement

Besides, the number of days for %50 flowering, plant height, Phenological and morphological observations taken during the research were made based on technical order of agricultural values evaluation testings by Ministry of Agriculture and Forest [1]. Data obtained from the research were subjected to the variance analysis [1] using JMP 7.0 statistical software with Split Plot Design. Obtained data were statistically processed by the two-factorial analysis of variance, where the factor A was genotype and the factor B environment. Least Significant Differences (LSD) test was used to compare the treatments at the probability level of 0.05.

Results and Discussion

There are a statistically significant difference (p>0.05) between location, genotype and location genotype interaction among sweet corn genotypes. Flowering times are avarege 52.7 and 58.4 days Bafra and Tekkeköy location, respectively. Among the genotypes, the earliest flowering time was observed in Sentinel super sweet, as 47 days and the latest flowering time was observed in Hyrix 39 super sweet corn. Differences in flowering times between locations are thought to be caused by climatic conditions. The average temperature values between sowing and flowering period in Bafra location were relatively 1-1.5 C^{o} higher 1-1.5 than Tekkeköy location (Table 5). The reason for the difference in flowering time among genotype is the genetic structure. As Hyrix 39 and Hyrix 53 sweet corn genotypes were tropical origins, they showed later flowering. Many researchers have reported that there are differences between genotypes in their studies [1].

Table 5 The flower days and plant height belonging to some sweet corn variety in location

Variety	**% 50 Flower (day)**						**Plant height (cm)**					
	TKKY		**BAFRA**		**Av.**		**TKKY**		**BAFRA**		**Av.**	
HYRIX 39	72,5	a	62,8	b	67,5	***A***	316,3	a	305,0	ab	310,6	***A***
HYRIX 53	72,0	a	63,0	b	66,0	***A***	298,8	b	305,0	ab	304,2	***A***
VEGA	50,0	c	45,8	ef	48,1	***B***	221,3	c	185,0	d	201,9	***B***
SENTINEL	48,8	d	45,3	f	47,0	***C***	228,8	c	173,8	d	201,3	***B***
Challenger	48,5	d	46,5	e	47,5	***BC***	225,0	c	181,3	d	203,1	***B***
Mean	58,4	A	52,7	B			258,0	A	230,0	B		
CV (%)	1,42						3,54					
LSD (Location)	1,05	F(L)	628,84	P(L)	<,0001		LSD (L)	38,25	F(L)	30,95	P(L)	0,0001

There is a statistically significant difference (p>0.05) between the average plant height of the sweet corn genotypes and location, the interaction genotype and location ×genotype. The average plant height at Tekkekoy location as 258 cm was measured higher than Bafra (230cm). Among the genotypes, the highest height was measured in Hyrix 39 sweet corn as 310.6 cm, and the shortest height was measured in Sentinel variety as 201.3 cm. The differences in plant height between the locations are thought to be caused by climatic conditions. The total precipitation in the area of Tekkekoy is 313.7 mm and is about 100 mm more rainfall than Bafra location. The differences in plant height among genotypes are due to the genetic structure of the species. Hyrix 39 and Hyrix 53 sweet corn genotypes are tropical species, so it stands out as tall and quite fast growing sweet corn species. Many researchers have reported that there are differences between genotypes in their research [1].

Table 6 The grain/ear ratio and grain moisture belonging to some sweet corn variety in location

Variety	**Grain/Ear ratio (%)**					**Grain moisture (%)**					
	TKKY	**BAFRA**		**ORT**		**TKKY**		**BAFRA**		**ORT**	
HYRIX 39	81,7	82,6		82,2	**B**	22,3		22,7		22,5	**AB**
HYRIX 53	82,0	82,3		81,9	**B**	22,9		22,9		22,9	**A**
VEGA	82,5	81,4		82,1	**B**	19,9		22,3		21,3	**AB**
SENTINEL	82,6	82,9		82,8	**AB**	20,1		21,4		20,7	**B**
CHALLENGER	82,4	85,6		84,0	**A**	20,1		22,0		21,0	**AB**
AVERAGE	82,2	83,0				21,1	B	22,2	A		
CV (%)	1,7					6,17					
LSD (Location)	-	F(L)	5,88	P(L)	0,05	LSD (L)	0,72	F(L)	6,63	P(L)	0,04
LSD (Variety)	1,44	F (V)	2,81	P (V)	0,05	LSD (V)	1,34	F (V)	4,56	P (V)	0,01
LSD (L×V)	-	F (LXV)	2,50	P (LXV)	0,07	LSD (LXV)	ns	F (LXV)	1,20	P (LXV)	0,34

The rate of grain tocobs is a critical selection criterion for breeders, and it is desired to be 80% or more. Among the genotypes, the grain/cob ratio was measured from the highest Challenger sweet corn genotype with 84% and from the lowest, Hyrix 53 corn species 81.9%. The grain/cob ratios are directly related to the grain length among genotypes, and there can be differences between genotypes. The findings of the research are consistent with the studies, and the differences between genotypes have been reported by many researchers [1].

There was a statistically significant difference (p>0.05) between grain moisture of sweet corn varieties and the location and genotypes. The Bafra location with an average rate of

21.1% of grain moisture was measured relative lower than the Tekkekoy location (22.2%). Among the genotypes, the highest amount of grain moisture was measured in Hyrix 53 super sweet corn with 22.9%, while the lowest amount of grain moisture in the Sentinel super sweet corn with 20.7%. Differences in grain moisture between locations are thought to be caused by climatic conditions. The average temperature values during the growing period of Bafra location were 1-1.5 C higher than Tekkeköy location. The differences in grain moisture between genotypes are due to the fast drying time between grain bonding and harvest and total temperature requirement. Many researchers have reported that there are differences between genotypes in their research [1].

Table 7 The number of row per ear and number of kernel per ear belonging to some sweet corn variety in location

Variety	Number of row per ear					Number of kernel per ear					
	TKKY	**BAFRA**		**ORT**		**TKKY**	**BAFRA**		**ORT**		
HYRİX 39	18,0	19,5		18,8	a	36,8	46,5		41,6		
HYRİX 53	17,0	19,0		17,3	a	34,3	41,0		36,8		
VEGA	16,0	16,5		16,0	b	38,5	38,3		42,0		
SENTİNEL	16,5	16,0		16,3	b	38,8	36,8		37,8		
CHALLENGER	15,5	16,5		16,0	b	39,5	39,0		39,3		
AVERAGE	16,6 B	17,5 A				37,6	40,3		39,5		
CV (%)	7,62					12,24					
LSD (Location)	0,88	F(L)	7,83	P(L)	0,03	LSD (L)	-	F(L)	20,5	P(L)	0,052
LSD (Variety)	1,34	F (V)	7,26	P (V)	0,00	LSD (V)	-	F (V)	18,7	P (V)	0,074
LSD (LXV)	---	F (LXV)	1,08	P (LXV)	0,38	LSD (LXV)	-	F (LXV)	5,89	P (LXV)	0,068

It is found that statistically significant differences ($p>0.05$) between row number in cob, location and genotypes among sweet corn varieties. The average number of rows in cob in Bafra location was measured 17.5 rows/cobs, and it is higher than Tekkekoy location (17.5 rows/cobs). It was measured that Hyrix 39 super sweet corn variety has the highest number of rows in the cob as 18.8 rows/cob and Challenger has the lowest amount of grain in the row as16 grain/rows. The number of rows in the cob is under the influence of genetic structure and varies according to the genotypes. The findings obtained from the experiment show similarities and differences with the studies [1]. These differences are thought to be caused by genotypes.

Table 8 The ear diameter and ear length belonging to some sweet corn variety in location

Variety	Ear diameter (mm)			Ear length (cm)		
	TKKY	BAFRA	ORT	TKKY	BAFRA	ORT
HYRİX 39	47,0	50,8	48,9	21,3	23,3	22,3
HYRİX 53	44,8	47,3	45,8	20,3	21,3	20,8
VEGA	46,8	50,3	48,3	21,3	22,5	21,9
SENTİNEL	49,8	46,0	47,9	21,3	21,0	21,1
CHALLENGER	47,5	46,3	46,9	22,0	21,8	21,9
AVARAGE	47,2	48,1	47,5	21,2	22,0	21,6
CV (%)	7,03			9,65		

LSD (Location)	-	F(L)	1,06	P(L)	0,34	LSD (L)	-	F(L)	2,38	P(L)	0,17
LSD (Variety)	-	F (V)	0,97	P (V)	0,43	LSD (V)	-	F (V)	0,60	P (V)	0,66
LSD (LXV)	-	F (LXV)	1,91	P (LXV)	0,14	LSD (LXV)	-	F (LXV)	0,38	P (LXV)	0,81

There was no statistically significant difference in cobs height between the location and genotypes of sweet corn genotypes ($p > 0.05$). The average height of the cobs among genotypes ranged between 20.8-22.3 cm. Breeders working on sweet corn take into account the cob height as an important selection criterion. The sweet corn consumed as fresh is preferred 18 cm and above for being marketable. The findings obtained from the experiment show similarities and differences with the studies [1]. These differences are thought to originate from genotypes and cultural processes such asfertilisation and irrigation.

Table 9 The first ear height and number of row per ear belonging to some sweet corn variety in location

Variety	First Ear height (cm)						number of row per ear					
	TKKY		BAFRA		Av.		TKKY		BAFRA		ORT	
HYRİX 39	165,0	a	122,5	c	143,8	a	661,5	bc	906,8	a	780,5	a
HYRİX 53	137,5	b	122,5	c	135,0	b	582,3	c	779,0	b	638,4	b
VEGA	72,5	d	61,3	d	66,3	c	616,0	c	631,1	c	672,0	b
SENTİNEL	72,5	d	52,5	f	62,5	c	639,4	c	588,0	c	613,4	b
CHALLENGER	70,0	de	66,3	de	68,1	c	612,3	c	643,5	c	628,0	b
AVARAGE	103,5	A	85,0	B			622,3	B	709,7	A	666,5	b
CV (%)	12,88						13,51					

LSD (Location)	17,72	F(L)	37,00	P(L)	0,001	LSD (L)	13,04	F(L)	10,55	P(L)	0,017
LSD (Variety)	7,66	F (V)	222,20	P (V)	<,0001	LSD (V)	92,82	F (V)	5,09	P (V)	0,004
LSD (LXV)	14,48	F (LXV)	7,75	P (LXV)	0,001	LSD (LXV)	131,26	F (LXV)	4,06	P (LXV)	0,011

There is no statistically significant difference in cob diameter between the location and genotypes of different sweet corn genotypes ($p>0.05$). The average diameter of the cobs was varied between 45.8-48.9 mm among the genotypes. The breeders working on sweet corn take into account cob diameters as an essential selection criterion in parallel with the height of the cob. The sweet corn consumed as fresh, it is preferred to be 38 mm and above for being marketable. The findings obtained from the experiment show similarities and differences with the studies. [1] These differences are thought to originate from genotypes and cultural processes (sowing frequency, fertilisation).

There is a statistically significant difference in first cob height between the location, genotype and location x genotype interactions in different sweet corn genotypes ($p> 0.05$). Among the genotypes, the first cob heights were measured from Hyrix 39 sweet corn with the highest average height of 143.8 cm and from Sentinel variety with the lowest average height of 62.5 cm. Since sweet maize is usually harvested by hand, the varieties, which do not give cob from the bottom or top, are ideal. The findings obtained from the experiment show similarities and differences with the studies [1]. These differences are thought to be caused by differences in genotypes and cultural processes.

There is a statistically significant difference in different genotype in the number of rows in cob between location, genotype, and location x genotype interactions ($p> 0.05$). In genotypes, the highest the average amount of grain in the cob was measured in Hyrix 39 with 780.5 grain/ cob, while the lowest the average number of grain in the cob was measured in Sentinel with 613.4 grain/cob. There is a significant positive correlation in the number of grains in the cob, the number of rows in the cob and the number of grain in the row. The findings obtained from the experiment show similarities and differences with the studies [1]. These differences are thought to be caused by differences in genotypes and cultural processes.

Table 10 The fresh ear yield and dry ear yield belonging to some sweet corn variety in location

	Fresh ear yield (kg/ha)						Dry ear yield (kg/ha)					
Variety	**TKKY**		**BAFRA**		**ORT**		**TKKY**		**BAFRA**		**ORT**	
HYRİX 39	18413	c	30064	a	24238	***A***	3884	bc	5522	s	4703	***A***
HYRİX 53	18480	c	22786	b	20173	***B***	3536	cd	4300	b	3841	***B***
VEGA	12843	f	16961	d	14995	***C***	2669	ef	3376	d	3014	***C***
SENTİNEL	12193	f	14200	e	13196	***D***	2439	f	2801	ef	2620	***D***
CHALLENGER	12643	f	15743	d	14193	***C***	2513	ef	2881	e	2697	***D***
AVERAGE	14914	B	19951	A			3008	B	3776	A		
CV (%)	5,16						8,75					
LSD (Location)		F(L)	157,80	P(L)	<,0001		62,42	F(L)	37,92	P(L)	0,00	
LSD (Variety)	93,73	F (V)	220,77	P (V)	<,0001		30,59	F (V)	72,71	P (V)	<,0001	
LSD (LXV)		F (LXV)	35,06	P (LXV)	<,0001		43,21	F (LXV)	6,14	P (LXV)	0,00	

There is a statistically significant difference in the fresh cob yield of different sweet corn genotypes between the location, genotype and location x genotype interactions ($p > 0.05$). It was measured that the highest average fresh cob yield is in Hybrid 39 with 24.238 tha-1, whereas the lowest fresh cob yield is in the Sentinel with 13.196 tha-1. In terms of locations, the highest yield was obtained at Bafra location with 19.951 tha-1. Hyrix 39 and Hyrix 53 varieties, which have the tropical origin, are more productive than early varieties because they are late flowering. There is a positive correlation between maturity groups and yield in corn breeding. The findings obtained from the experiment show similarities and differences with the studies. These differences are thought to be caused by genotypes and climatic variations. The grain proportion, weight and length of ears belong to basic parameters influencing the total yield of cultivated sweet corn varieties. This fact was presented in the research works of several authors which stated significant impact of variety to the yield quantity of sweet corn [1].

There is a statistically significant difference in the dry grain yield of different sweet corn genotypes between the location, genotype, and location x genotype interactions ($p > 0.05$). It was measured that the highest average dry grain yield is in Hybrid 39 with 4.703 tha-1, whereas while the lowest dry cob yield is in the Sentinel with 2.620 tha-1. In terms of locations, higher yield was obtained at Bafra location with 3.776 tha-1. The dry grain yields of Hyrix 39 and Hyrix 53 were found to be high in parallel with the yields of the wet cob. Although sweet corn is mostly consumed fresh, dry grains of sweet corn are also consumed as snacks after different processes. As well, the yield per unit area is an

essential factor for the producers who produce sweet corn as a snack. The findings obtained from the experiment show similarities and differences with the studies [1]. These differences are thought to be caused by genotypes and climatic variations.

Table 11 The number of marketable ears, days to fresh maturity and Days to dry maturity belonging to some sweet corn variety in location

Variety	**number of marketable ears**			**Days to fresh maturity**			**Days to dry maturity**		
	TKKY	**BAFRA**	**ORT**	**TKKY**	**BAFRA**	**ORT**	**TKKY**	**BAFRA**	**ORT**
HYRİX 39	1,8	2,0	1,9	99,8	102,0	100,9	154,0	154,3	154,1
HYRİX 53	1,6	1,8	1,7	99,8	102,0	100,5	154,0	154,3	154,2
VEGA	1,1	1,2	1,2	82,5	84,0	83,1	125,5	126,0	125,9
SENTİNEL	1,0	1,0	1,0	82,0	84,3	83,1	125,5	125,8	125,6
CHALLENGER	1,1	1,2	1,2	82,5	84,0	83,3	125,8	127,8	126,8
AVARAGE	1,3	1,5	1,4	89,3	91,3	90,2	137,0	137,6	137,3

The number of cobs in crop, fresh cob harvest dates and dry grain harvest times of different sweet corn genotypes are of great importance in terms of production. The number of cobs in the crop is directly related to the yield. The sweet corn has the potential to show the second cob in general similar to that of flint corn. Since the sweet corn is mostly produced for fresh consumption purposes, the number of marketable cobs obtained by evaluating the cob height with the cob diameter is of great importance. The highest number of marketable cobs per plant were collected from Hyrix 39 and Hyrix 53 varieties with 1.9 and 1.7, respectively.

One of the essential elements in sweet corn cultivation is to provide products to the market as early grown. The wet cob harvest times are of great importance for the producers. Super sweet corn varieties in the temperature group were determined to be grown on average between 80-85 days, while tropical varieties were determined to be grown on average between 99-102 days. In addition, dry grain harvests were also determined as 125 days in temperature group and 155 days in tropical varieties under Samsun conditions.

Conclusion

In the study, five sweet corn varieties were agronomicaly tested in two locations where Samsun, Turkey ecological condition. Vega variety, which is in the early maturity group, came to the forefront in terms of the number of marketable cobs and the yield of wet cob. It was determined that two tropical origin sweet corn varieties have a very significant advantage in terms of the high wet cob yield and the number of marketable cobs. It was noted that the remaining part after the wet cob harvest could have a significant silage feed potential. Especially, Hyrix 35 and Hyrix 53 have an advantages for silage feed because of number of leaves and higher plant length compare the other varieties. It is essential for the sweet corn breeders that their genetic pool has to copmrise advantages both the fresh ear yield and silage feed potential. The presented results have demonstrated the fresh ear yield of sweet corn is significantly influenced by genotype. It may have affected metrological conditions in different environments and the interaction of those two factors.

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