

# Sweet Corn Variety Trial Safford Agricultural Center, 1999

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## **Abstract**

*Sixteen sweet corn varieties were grown in replicated small plot trials with two dates of planting at the Safford Agricultural Center in 1999. Candy Corner ranked number one and two in the early and late dates of planting, respectively, and FMX 413 ranked number one in the later date of planting study. Both varieties produced over 2,500 dozen ears per acre. Sugar readings were made and tabulated for all varieties using a portable refractometer.*

## **Introduction**

Sweet corn has been a small scale cash crop in Graham County for many years. As more area farmers are looking for crops to provide an alternative from the cotton monoculture, it was decided to look at different varieties of sweet corn to find which one would do best under our salty soil and arid growing conditions. This trial is a follow-up on the sweet corn variety study conducted at the Safford Agricultural Center in 1998.

## **Materials and Methods**

This variety trial was performed on the Safford Agricultural Center at an elevation of 2954 feet above sea level. Corn seed for the sixteen varieties was planted in a replicated small plot study using a John Deere 7100 planter with cone-hoppers. Cultural practices and inputs are listed below in the crop history.

### *Crop History - First planting date:*

Soil type: Pima clay loam variant  
Previous crop: Vegetables  
Experimental design: Randomized complete block  
with 4 replications  
Planting date: 30 April 1999  
Fertilizer: 400 pounds/ac soil sulfur and 244  
pounds/ac 16-20-0 applied 3/13/98, 100  
lbs/ac urea applied 6/14/99  
Irrigation: Watered up, furrow irrigated 9 times (ca.  
36 inches of water)  
Herbicide: None  
Insecticide: None  
Harvests: 7 July  
Heat units (50/86°F): 1614

### *Crop History - Second planting date:*

Soil type: Grabe clay loam  
Previous crop: Vegetables  
Experimental design: Randomized complete block  
with 4 replications  
Planting date: 11 May 1999  
Fertilizer: 100 lbs/ac urea applied 5/27/99 and  
6/14/99  
Irrigation: Watered up, furrow irrigated 10 times (ca.  
40 inches of water)  
Herbicide: None  
Insecticide: None  
Harvests: July 20<sup>th</sup>, 23<sup>rd</sup>, 26<sup>th</sup>, and 30<sup>th</sup>.  
Heat units (50/86°F): 1806, 1891, 1978, 2087

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Harvests were done manually and different varieties were harvested as they came to maturity. Ears were counted, measured and weighed from each plot.

## Results and Discussions

Table 1 contains the yield data from the first date of planting. Only one picking was done on this experiment, so the data favor the varieties that were earlier maturing. Snow White, the highest yielding variety in the 1998 study (1), is found on the bottom third of the ranking list because it is not in the early maturing group. This study was planted on the 30<sup>th</sup> of April and matured in early July, just as the monsoons were beginning. Candy Corner, an early maturing variety, produced the best yield with the most ears per acre and a good weight and size per ear. Percent sugar, as measured by a hand held, temperature compensated, refractometer, placed this variety number four, being 1.8 points behind the leader and 1.5 points above the average. Insecticides were not applied to protect the ears, so percent worm damage was reported. Significant differences were seen between varieties.

Table 2 shows data from the second date of planting. This study was placed on a field across the road from the first date of planting and sulfur had not been applied to remediate the salt problems. The reduction in yield was considered to be due to the salt content in the soil. FMX 413 had the highest production, but with ears much smaller than in the earlier planting. Candy Corner, the top producer in the first planting, was number two in this planting. Four pickings were recorded from this planting, 3 or 4 days apart, so each ear could be picked when it was of optimal maturity. The number of ears harvested per plot by variety and harvest date are displayed in Figure 1. The figure is a bit busy but with care the reader can trace each variety through the harvest season. The first harvest separates the varieties into three categories, early, medium or late. FMX 413, Candy Corner, Candy Store, HMX 535BS, Konfection, GSS 1526 and Sweet Ear were in the early category. HMX 3360S, Snow White, GSS-0966, Bandit and Victor were in the medium maturity category; and Prime Plus VP, Silver Dollar and Sweet Magic were the latest in maturing.

Ear characteristics in the later date of planting study were much smaller and contained lower sugar content than those harvested in the earlier date of planting. Even though the sweet corn tasted very good it was not in the same class as sweet corn available in the local grocery stores. This means that if it were sold commercially, it would be sold at discount prices and probably not be an economically viable crop. Maas (2) has shown that sweet corn is moderately susceptible to salt damage with a threshold value of 1.7 dS/m and a slope of 12. This is probably the main factor in reduced quality in sweet corn in this field.

Sweet corn is commercially grown on small acreages in this valley and in home gardens. This trial serves to indicate which varieties will be most successfully grown in the saltier fields and gardens and is probably a good indicator of the best varieties throughout the valley.

## References

1. Clark, L.J., R. Walser and E.W. Carpenter. 1999. Sweet corn variety trial, Safford Agricultural Center, 1998. Vegetable Report, College of Agriculture, The University of Arizona, Tucson, AZ. Series P-117, pp. 197-199.
2. Maas, E.V. 1986. Salt tolerance of plants. Applied Agricultural Research Vol. 1, No. 1, pp. 12-16. Springer-Verlag New York.

**Table 1. Yield and related agronomic data from first planting of sweet corn variety study grown on the Safford Agricultural Center, 1999.**

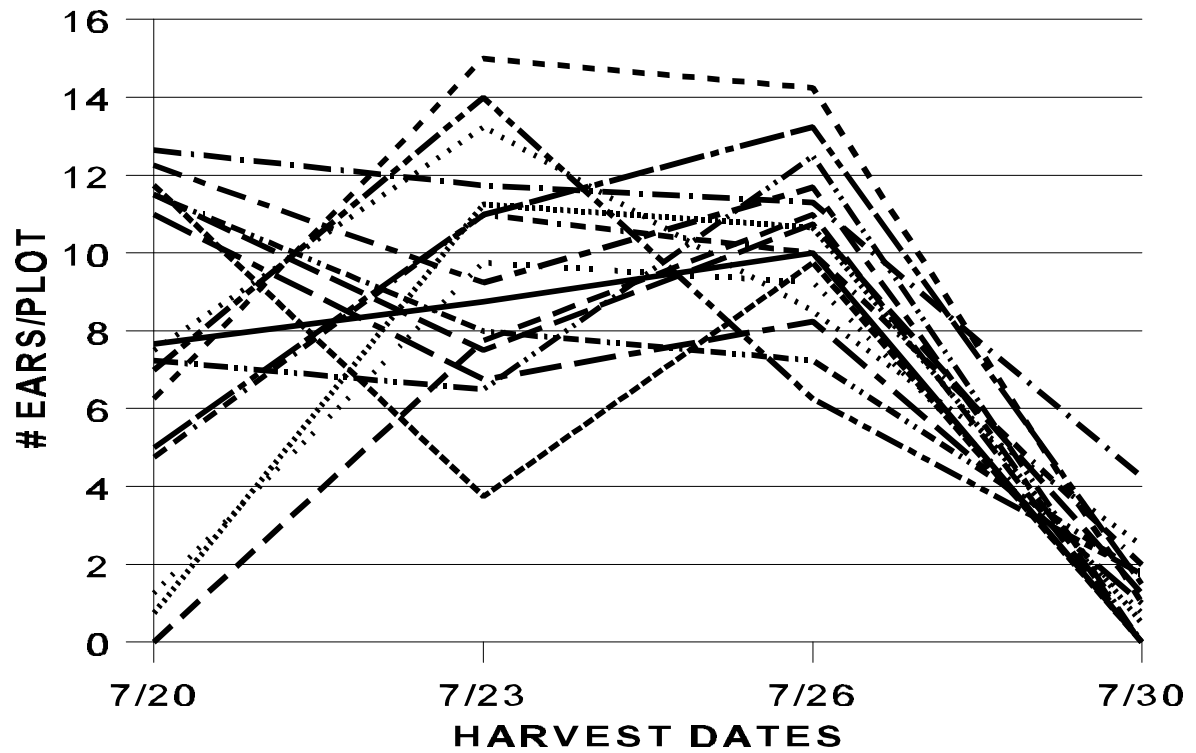
Variety	Ears per acre	Total Ear Wt/acre (lbs)	Ear Weight (pounds)	Percent Sugar	Ear Length (inches)	Ear Diameter (inches)	Percent Worm Damage
Candy Corner	31,944 a <sup>1</sup>	16,929 a	0.53 ab	15.5 abc	9.3 ab	2.1 a	15.0 abc
Sweet Magic	23,958 ab	9,621 bc	0.42 def	13.0 abc	8.4 bc	1.9 abc	20.0 a
Silver Dollar	21,962 abc	11,572 ab	0.54 a	13.5 abc	8.7 abc	2.1 a	18.8 ab
HMX 535BS	21,054 abc	9,339 bc	0.49 a-e	14.8 abc	9.5 ab	2.0 ab	14.3 abc
FMX 413	18,150 a-d	7,317 bcd	0.40 ef	14.5 abc	8.8 abc	1.8 bcd	12.5 abc
Sweet Ear	13,976 bcd	7,010 bcd	0.49 a-d	16.3 ab	7.7 c	2.0 ab	15.0 abc
Bandit	11,798 bcd	5,161 cd	0.45 a-e	13.0 abc	8.7 abc	1.6 d	8.8 c
Konfection	11,435 bcd	5,836 bcd	0.51 abc	15.7 abc	9.8 a	1.9 abc	13.3 abc
GSS-0966	9,620 bcd	4,262 cd	0.44 cde	17.3 a	9.3 ab	1.8 a-d	5.3 c
GSS 3587	9,438 bcd	4,459 cd	0.47 a-e	11.3 c	8.7 abc	2.0 ab	6.7 c
Snow White	9,257 bcd	4,199 cd	0.46 a-e	13.7 abc	8.9 abc	2.0 ab	11.7 abc
HMX 3360S	8,894 cd	4,362 cd	0.48 a-e	12.3 bc	9.8 a	1.9 abc	8.3 c
Victor	7,986 cd	3,357 cd	0.40 def	15.0 abc	8.6 abc	1.7 cd	15.0 abc
Prime Plus VP	7,442 cd	2,466 d	0.34 f	14.7 abc	9.8 a	1.7 cd	15.0 abc
Candy Store	4,901 d	2,163 d	0.44 cde	12.0 bc	9.5 ab	1.7 cd	6.7 c
GSS-1526	4,719 d	2,161 d	0.45 b-e	11.7 c	8.7 abc	1.8 bcd	9.0 bc
Average	13,533	6,263	0.456	14.0	9.0	1.87	12.2
LSD(05)	12,647	5,410	0.08	3.8	1.2	0.26	8.4
CV(%)	66	61	11.5	19.1	9.1	9.7	48.4

1. Numbers followed by the same letter, within a column, are not significantly different at the 95% level of confidence using Duncan's Multiple Range Test.

**Table 2. Yield and related agronomic data from second planting of sweet corn variety study grown on the Safford Agricultural Center, 1999.**

Variety	Ears per acre	Total Ear Wt/acre (pounds)	Ear Weight (pounds)	Percent Sugar	Ear Length (inches)	Ear Diameter (inches)	Percent Worm Damage
FMX 413	30,492 a <sup>1</sup>	11,058 a	0.37 abc	14.6 a-e	5.8 def	1.6 ab	30.4 ab
Candy Corner	27,951 ab	10,088 ab	0.35 a-d	13.3 def	5.8 def	1.4 ab	16.8 ab
HMX 3360S	27,588 ab	10,073 ab	0.37 a-d	12.7 ef	6.65 abc	1.5 ab	15.9 ab
GSS 3587	27,044 ab	9,645 ab	0.36 a-d	15.6 a-d	6.4 bcd	1.6 ab	23.7 ab
Prime Plus VP	25,229 ab	8,720 ab	0.35 a-d	16.3 ab	5.7 ef	1.6 ab	33.7 a
Snow White	24,684 ab	9,384 ab	0.38 a	14.4 b-e	6.0 cde	1.5 ab	27.9 ab
Candy Store	24,140 ab	8,615 ab	0.36 a-d	12.5 ef	5.9 def	1.6 ab	28.3 ab
GSS-0966	23,595 ab	7,554 ab	0.31 bcd	13.3 def	7.3 a	1.5 ab	24.3 ab
HMX 535BS	23,595 ab	7,948 ab	0.34 a-d	13.9 b-f	5.6 ef	1.4 ab	30.1 ab
Konfection	22,688 ab	6,577 b	0.30 d	16.0 abc	5.3 f	1.6 ab	17.9 ab
Bandit	21,417 ab	7,747 ab	0.36 a-d	17.0 a	6.2 cde	1.5 ab	14.1 ab
GSS-1526	20,691 ab	6,190 b	0.30 cd	13.5 c-f	6.3 b-e	1.6 ab	25.8 ab
Victor	20,328 ab	7,264 ab	0.35 a-d	13.3 def	5.9 def	1.6 ab	16.0 ab
Sweet Ear	19,058 ab	6,274 b	0.33 a-d	12.9 ef	5.8 def	1.7 a	17.8 ab
Silver Dollar	18,150 ab	6,841 ab	0.37 abc	11.7 f	6.1 cde	1.3 b	24.1 ab
Sweet Magic	17,424 b	6,215 b	0.37 ab	--	6.9 ab	1.4 ab	11.1 b
Average	23,379.5	8,137.0	0.348	13.2	6.09	1.53	22.36
LSD(05)	10,678	3,594.6	0.056	2.2	0.62	0.25	18.0
CV(%)	32.1	31.0	11.5	11.9	7.1	11.4	56.5

1. Numbers within a column followed by the same letter are not significantly different at the 95% level of confidence using Duncan's Multiple Range Test.



- |          |            |                   |          |
|----------|------------|-------------------|----------|
| —————    | Victor     | - · - · - · - · - | FMX413   |
| -----    | HMX5352    | - · · · - · - · - | SwtEar   |
| -----    | SwtMag     | - · - · - · - · - | Bandit   |
| -----    | HMX3360    | - · - · - · - · - | CndyStor |
| -----    | Konfec     | - · - · - · - · - | CndyCorn |
| ········ | SlvrDollar | - · - · - · - · - | SnwWht   |
| ········ | G0966      | -----             | G1526    |
| ········ | P Plus     | -----             | G3587    |

Figure 1. Number of ears harvested per plot by variety and harvest date.