

Evaluation of Sweet Corn Varieties for Processing - 1960

by
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Department of Horticulture Mimeo Series No. 207

The sweet corn evaluation trials included thirteen varieties. The corn was planted June 1, 1959 in rows (2 rows each with 296 hills per row). Each variety was harvested at various stages of maturity as cream style corn. All the corn was canned using the following standard formula:

corn	- - -	74.0%
water	- - -	18.5%
sugar	- - -	5.0%
salt	- - -	0.5%
starch	- - -	1.5%

Quality was determined as follows (the results as reported in the following tables are the average values):

Growth Degree Days - Calculated by using 50° F. as the base temperature using the Columbus, Ohio Weather Bureau Data.

Specific Gravity - Determined on a 100 gram sample of cut corn as follows:

$$\frac{\text{wt. of corn in air} \times \text{specific gravity of water}}{\text{Specific gravity} - \text{wt. of corn in air} - \text{wt. of corn in water}}$$

Succulence - Determined with Succulometer - values are cc. of juice extracted from a 100 gram sample of cut corn.

Percent AIS - Determined on a 10 gram sample in accordance with the F & DA Alcohol Insoluble Solids (AIS) method for the minimum standards of Quality for Canned Sweet Corn.

Diameter of Kernels - Determined by measuring the total width of 20 kernels.

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Consistency - Determined with the aid of the Adams Consistometer. The Adams consistometer values range from 1 (thin) to 18 (thick). The filler samples were determined on hot samples at the filler and the canned product was determined after approximately 3 months storage.

WDR Values - The Washed Drained Residue (WDR) was determined by washing a sample of corn on an eight mesh screen and weighing the residue remaining on the screen and calculating the percent remaining on the screen.

U. S. Grade - The U. S. Grade was determined in accordance with the U. S. Standards for Grades of Canned Cream Style Corn.

Ave. Ear Width - Determined by measuring the total width of 20 ears and dividing the total by 20.

Ave. Ear Length - Determined by measuring the total length of 20 ears and dividing the total by 20.

Seed Source and Lot Number - The seed source and lot number are listed below each variety in Table 1. The abbreviations are as follows:

W = Woodruff
FM = Ferry - Morse
A = Associated
H = Harris
C = Corneli
R = Rogers
ML = Michael - Leonard
NK = Northrup King

Table 1 - Raw Product Data for Sweet Corn Varieties by Harvests
Columbus, 1959

Variety	Grow- ing Days	Growth	Spec. Gravity	Suc- culence (cc)	%AIS	Dia- meter 20 Kernels	Ave. Ear Length	Ave. Ear Dia- meter
Deep Gold W(49261R)	82	2043.5	1.069	29	24.9	7"	8.5"	1.7"
	86	2182.0	1.093	19	22.0	6 3/4"	8.5	2.0
	89	2278.0	1.108	25	-	6 1/4	7.1	1.9
Victory Golden W(50375R)	78	1917.0	1.066	26	16.4	6 1/2	8.4	1.4
	83	2043.5	1.075	26	27.2	8 1/2	8.2	1.7
	86	2182.0	1.110	18	-	8	8.0	1.9
Hybrid 102A FM (28415)	75	1829.0	1.075	23.5	17.9	7 1/2	8.4	2.1
	79	1944.5	1.092	22	21.0	7 1/2	8.5	1.8
	85	2146.5	1.122	20	-	7 1/2	8.5	2.2
Asgrow Golden 60 A(74568)	78	1917.0	1.065	24.5	18.6	6 3/4	9.3	1.8
	82	2043.5	1.081	27	29.3	6 3/8	8.4	1.8
	86	2182.0	1.116	16	-	7 1/2	8.8	2.0
Gold Cup H(1812T)	75	1829.0	1.075	25	11.7	6 1/4	7.4	1.6
	79	1944.5	1.101	22.5	22.5	7 1/8	7.3	1.7
	85	2146.5	1.116	17	-	7 1/4	7.6	1.8
Superchief C	75	1829.0	1.054	28	16.0	7 1/2	8.1	1.7
	79	1944.5	1.069	26.5	20.4	6 1/6	7.6	1.7
	85	2146.5	1.141	10	-	8	8.0	1.8
Mellowgold W.S. R-(st. 88039)	75	1829.0	1.079	25.5	28.1	7 1/2	9.4	1.8
	79	1944.5	1.109	21	26.6	8	9.0	1.9
	85	2146.5	1.116	25	-	8 3/4	9.2	2.0
Hybrid 2378 R-(st-88044)	78	1917.0	1.074	25	19.8	6 3/4	7.8	1.8
	82	2043.5	1.090	33.5	25.4	6 3/4	7.7	1.7
	86	2182.0	1.111	17	-	7 1/2	6.9	1.9
Golden Sensation ML(35782)	85	2146.5	1.112	21	27.1	9 1/4	8.5	1.4
	89	2278.0	1.124	3	-	8	8.0	2.3
NK81 NK(1987F19)	85	2146.5	1.122	13	29.7	7 1/2	8.6	2.0
	89	2278.0	1.119	3	-	6 3/4	7.4	1.2
NK87 NK(1994F20)	82	2043.5	1.054	37	21.6	6 1/2	8.8	1.8
	86	2182.0	1.101	22	24.5	7 1/4	8.3	2.0
	89	2278.0	1.114	23	-	7 1/4	8.1	2.1
Tendermost C ML(20548)	78	1917.0	1.064	23	16.8	7 1/4	8.0	1.7
	82	2043.5	1.084	28	22.1	7 1/2	7.7	1.6
	86	2182.0	1.097	20	-	8	7.2	1.9
Finegold ML (20738)	85	2146.5	1.087	25	-	6 3/4	8.8	2.0

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Table 2 - USDA Grades by Factors of Quality and Other Quality Data for Each Variety at Each Harvest for Canned Cream Style Corn - Columbus, 1959

Variety	Harvest	U. S. D. A. Grade Factors					Total Score	Grade	Adams Consistency			
		Color	Consistency	Absence of Defects	Tenderness & Maturity	Flavor			Filler	Canned	% AIS	% WDR
Deep Gold	1	10	19	18	28	19	94	A	4.5	9.0	16.60	37.5
	2	10	20	18	26*	18	92	A	2.2	9.5	14.60	31.25
	3	10	19	18	23**	18	88	C	0	10.	18.30	31.25
Victory Golden	1	7	16	18	28	14**	83	C	1.0	4	13.25	28.12
	2	6	14**	18	28	15**	81	C	0	1	14.50	21.88
	3	9	18	18	25*	18	88	B	4.5	8	19.65	31.25
Hybrid 102A	1	8	16	18	29	16	87	B	0	5	16.25	31.25
	2	8	16	18	27	17	86	B	2.8	5	17.50	21.88
	3	8	18	18	23**	15**	82	C	9.0	13	26.55	37.50
Asgrow Golden 60	1	9	17	18	28	18	90	A	1.0	6	15.30	43.75
	2	8	17	18	26*	17	86	B	0	6	16.85	31.25
	3	8	19	18	23**	16	84	C	7.5	11	21.45	40.62
Gold Cup	1	5**	15**	17**	28	14**	79	D	3.2	2	12.10	28.12
	2	8	15**	17**	27	17	84	C	0	2	17.55	25.00
	3	8	19	18	23**	17	85	C	5.5	11	21.65	46.88
Superchief	1	7	15**	18	28	18	86	C	0	3	13.35	28.12
	2	8	17	18	27	18	88	B	2.2	6	14.45	31.25
	3	8	19	18	23**	17	85	C	11.0	11	21.25	37.50
Mellowgold W.S.	1	9	19	18	27	18	91	A	6.5	10	15.90	25.00
	2	9	18	18	26*	18	89	B	7.2	12	18.55	34.38
	3	8	13**	18	22**	14**	75	D	9.2	Too thick	20.55	46.88

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Table 2 continued -

Variety	Harvest	U. S. D. A. Grade Factors					Total Score	Grade	Adams Consistency				
		Color	Consistency	Absence of Defects	Tenderness & Maturity	Flavor			Filler	Canned	% AIS	% WDR	
Hybrid 2378	1	7	17	18	28	16	86	B	0	7	15.50	40.62	
	2	8	15**	18	26*	16	83	C	1.8	3	15.00	25.00	
	3	9	19	18	23**	15**	84	C	4.2	11	17.95	40.62	
Golden Sensation	1	8	16	18	26*	17	85	B	0	4	16.95	28.12	
	2	9	18	18	24*	18	87	B	0	12	18.85	28.12	
NK81	1	9	18	18	24*	18	87	B	3.8	8	20.30	37.50	
	2	8	17	18	24*	18	85	B	0	6	-	37.50	
	2***	8	19	18	22**	17	84	C	0	9	20.15	40.62	
NK87	1	7	16	18	28	15**	84	C	1.8	5	14.05	25.00	
	2	8	18	18	23**	15**	82	C	2.2	8	17.80	31.25	
	2***	8	19	18	26*	18	89	B	0	9	17.65	28.12	
	3	8	19	18	25*	17	87	B	0	11	18.80	28.12	
	3***	8	18	18	24*	16	84	B	0	12	18.50	34.38	
Tendermost C	1	7	15**	18	28	18	86	C	0	2	14.30	34.38	
	2	7	13**	18	27	17	82	C	0	0	14.00	25.00	
	3	8	18	18	26*	18	88	B	1.0	8.5	17.80	34.38	
	3***	8	17	18	24*	18	85	B	0	7	17.60	28.12	
Finefold	1	9	19	18	28	18	92	A	7.5	10	-	31.25	
	1***	9	19	18	26*	17	89	B	0	10	18.60	25.00	

* - Indicates partial limiting rule within grade classification.

** - Indicates limiting rule within grade classification.

*** - When sufficient quantity of sweet corn was obtained, a duplicate batch was processed using a different starch ingredient.

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