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sh2 Sweet Corn Variety Trial for Southeast Michigan, 2018

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Southeast Michigan is home to both large acreage sweet corn growers that ship long distances and smaller acreage growers serving local Ann Arbor, Detroit, and Toledo markets. These growers plant primarily bicolor varieties, but often have a mix of early, mid- and late-season varieties. Sh2 varieties are often used for their high sugar content, longer harvest windows, and shipping tolerance. With many varieties entering the market every year, this study was conducted to see what varieties work well under Southeast Michigan growing conditions.

This report includes the yield, ear characteristics, and taste evaluation of 22 sh2 bicolor sweet corn varieties. The trial was set up as randomized complete block design with four replications at Monroe Community College in Monroe, Michigan.

Materials and Methods

The trial was conducted in a 1-acre plot of Selfridge loamy sand and Selfridge-Pewamo complex located at Monroe (Mi.) County Community College. Field was worked May 29th and 100 lbs/acre of Urea (46-0-0) and 100 lbs/acre of 8-0-25 were applied. A post-planting urea application (100 lbs/acre) was applied June 17th. A final 50 lbs/acre of urea was broadcast on July 19th.

The trial was set up as a randomized complete block design with four replications. Sweet corn entries were assigned to plots that were 4 rows wide (30 inches between rows) by 30 feet long. Corn was planted June 1, 2018 with an EARTHWAY Seeder set to drop seeds 7.2 inches apart (29,040 plants/acre) and 1.5 inches in the soil. On June 11th, a majority of the plants had emerged and areas where the planter had skipped were hand planted (primarily in blocks 1 and 2). Areas where population was too dense were thinned by hand to the 7.2 inch spacing on June 22nd. In the two middle rows of each plot, the middle 20 feet were flagged, and this was the area where measurements were taken. Plant height measurements were taken from three random plants in the flagged area at harvest.

Weeds were controlled with a post-planting application of atrazine (AAAtrex4L at 2.4 pts./acre.) (June 21) and hand-weeding. Grass weed pressure was high later in the season. The trial was not irrigated and minimal rain fell between mid-June through the last weeks of July (Table 1).

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Table 1. Weather conditions for Monroe, MI during the time the trial was conducted.

Month	Rainfall Totals <i>in</i>	Avg. Maximum Daily Temperature <i>F</i>	Avg. Minimum Daily Temperature <i>F</i>
June	2.69	77.6	60.3
July	0.94	83.9	62.2
August	4.65	83.0	64.1

No fungicide or insecticide treatments were made. Corn earworm pressure in the county, as monitored by Hartstack Traps, was low. Western bean cutworm was the most commonly encountered insect pest. Raccoons were also an issue.

Harvest occurred when a majority of the ears in that plot were considered mature. Maturity was checked approximately every other day. For yield measurements, the flagged area (20ft in inner two rows of plot) was harvested. Because population was not always equal, the number of plants were also counted. All marketable ears from this inner 20 feet were weighed and counted. A subset of 3 ears was selected at random and ear length (from shank to tip of husk), width (taken at widest point), tip fill (ranked from 1 to 5), and tip exposure (Yes or No) were evaluated. Due to variability in plant population in each plot, the number of plants in the harvested 20 feet was counted and accounted for in presented yield calculations.

For taste evaluations, two tasters sampled an uncooked ear from each plot and evaluated its sweetness, tenderness, and overall flavor by ranking it from 1 to 5. Rating scales are described in the footnotes of Table 4.

Results and Discussion

Weed pressure and lack of rainfall hindered plant growth and yield. Raccoon feeding was also an issue. These results are most applicable to years where plants are environmentally stressed and under heavy weed, insect and/or mammal pest pressure.

Data on plant characteristics, yield, ear characteristics, and taste can be found in tables 2, 3, and 4, respectively.

There were no statistical differences in yield either in tons/acre or dozen/acre between varieties (Table 1). Yield (in tons per acre) ranged from 0.15 to 5.4 tons/acre with a mean yield across all varieties of 1.8 tons/acre, while yield in dozens of ears per acre ranged from 72.8 to 1273.1, with a mean of 553.9. These wide variations without significant differences between treatments indicate wide variability within treatments, which made it difficult to statistically separate varieties.

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Plant height ranged from 43.5 inches to 80 inches, with an average plant height across the trial being 62.9 inches (Table 1).

The only ear characteristic where differences were present was in diameter (Table 2). Generally, all varieties provided adequate tip cover, and there were no significant differences in the tip fill rating among varieties.

In regards to taste, some varieties were rated as being sugary and tender with good overall flavor. These varieties included Affection, Caliber XR, CAPBF13-710i, Euphoria, Kate, Nirvana, and Snack Pack (Table 3).

Acknowledgements

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Table 2. Supplier, maturity, and yield information for 22 sh2 bicolor sweet corn varieties grown in Southeast Michigan. Bolded values indicate that the variety was statistically similar to the variety with the highest value for the measure (LSD, alpha=0.05). Plant population was approximately 29,000 plants per acre.

Variety	Supplier ¹	Listed Maturity	Observed Maturity	Plant Height <i>in</i>	Tons/ Acre	Dozen/ Acre
Affection	MO	78	75-82	64.4	0.92	336.47
AP426	SDW	78	80-84	66.6	1.53	445.59
Awesome XR	SDW	74	70-75	63.3	2.99	954.84
BSS0761	SY	80	77-84	64.5	1.30	363.75
Cabo	SY	78	77-84	53.5	1.51	545.63
Caliber XR	SDW	76	75-80	64.0	1.74	563.81
CAPBF13-710i	CR	76	70-80	59.7	1.23	454.69
CSABF13-698	CR	76	70-75	67.5	2.46	745.69
Cumberland	HM	77	75-77	58.8	2.55	772.97
Euphoria	CR	72	70-77	54.7	0.86	300.09
Everglades	CR	77	75-82	64.8	1.78	691.13
EX087671	MO	81	82-84	69.5	2.00	600.19
HMX59BS603	HM	75	70-82	60.5	1.81	627.47
HMX59BS605	HM	77	77-82	64.4	1.85	436.50
Kate	HM	77	77-82	68.5	2.74	791.16
Nirvana	CR	75	70-75	59.6	1.15	418.31
Raquel	HM	72	70	68.3	1.42	536.53
Rosie	SDW	74	70-75	59.1	1.77	618.38
Seminole Sweet XR	SI	90	80-89	60.8	0.91	309.19
Snack Pack	SI	79	70-84	58.4	1.05	327.38
SVSA2234	MO	83	82-84	69.1	2.78	763.88
SVSA6954	MO	78	77-82	63.9	2.29	582.00
LSD 0.05	–	–	–	NS	NS	NS

¹ CR=Crookham Co.; HM=HM Clause, Inc.; MO=Monsanto Company; SDW=Seedway, Inc.; SI=Siegers Seed Company; SY=Syngenta

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Table 3. Ear characters for 22 sh2 bicolor sweet corn varieties grown in Southeast Michigan. Numbers in bold are not statistically different from the highest number in that column (LSD, alpha=0.05).

Variety	Ear Length <i>in</i>	Ear Diameter <i>in</i>	% Tip Exposed ²	Tip fill Rating ³
Affection	10.60	2.05	8.3%	3.9
AP426	12.07	2.07	0.0%	3.4
Awesome XR	11.73	1.86	0.0%	4.0
BSS0761	10.54	2.11	0.0%	3.9
Cabo	10.96	2.14	0.0%	4.2
Caliber XR	10.53	2.21	16.7%	4.2
CAPBF13-710i	15.81	1.84	0.0%	4.2
CSABF13-698	11.79	1.90	0.0%	4.3
Cumberland	11.38	2.04	0.0%	4.7
Euphoria	10.93	1.86	9.1%	4.1
Everglades	11.46	2.06	0.0%	3.5
EX087671	10.42	1.93	0.0%	3.0
HMX59BS603	11.53	1.93	0.0%	4.8
HMX59BS605	10.61	2.20	0.0%	4.5
Kate	10.89	2.26	8.3%	3.9
Nirvana	10.65	1.88	0.0%	4.5
Raquel	10.27	1.65	0.0%	4.8
Rosie	10.94	1.60	0.0%	4.0
Seminole Sweet XR	10.59	2.06	0.0%	4.7
Snack Pack	13.01	1.96	8.3%	4.8
SVSA2234	11.44	2.11	0.0%	4.6
SVSA6954	11.32	2.18	0.0%	4.7
LSD 0.05	NS	1.99	NS	NS

² Percentage of measured ears with tip of ear exposed

³ 5=kernels filled to tip of cob; 4=less than 0.5 inch unfilled; 3=0.5-1 inch unfilled; 2=more than 1 inch unfilled; 1=more than 2 inches unfilled.

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Table 4. Average flavor rating of bicolor sh2 sweet corn varieties. Numbers in bold are not statistically different from the highest number in that column.

Variety	Sweetness ⁴	Tenderness ⁵	Flavor ⁶
Affection	3.8	3.4	3.6
AP426	2.8	2.4	3.0
Awesome XR	2.8	3.5	2.9
BSS0761	4.2	2.7	3.8
Cabo	2.8	3.3	2.8
Caliber XR	3.6	3.3	3.8
CAPBF13-710i	3.9	3.9	3.9
CSABF13-698	2.4	2.4	2.1
Cumberland	2.4	3.4	2.8
Euphoria	4.3	3.8	4.3
Everglades	2.5	2.8	2.5
EX087671	3.0	2.0	2.9
HMX59BS603	2.6	3.0	2.8
HMX59BS605	4.0	3.1	4.0
Kate	4.4	4.1	4.5
Nirvana	4.0	4.3	4.4
Raquel	3.0	3.1	3.4
Rosie	3.6	3.6	3.4
Seminole Sweet XR	4.4	3.0	4.0
Snack Pack	3.4	3.9	3.6
SVSA2234	2.8	2.6	2.9
SVSA6954	3.9	2.8	3.6
LSD 0.05	1.08	1	1.99

⁴ 5=very sweet/sugary, 4=somewhat sugary, 3=average 2=only some sugar taste detected, 1=starchy/bland

⁵ 5=not tough and tender; 4=more tender than not, 3=somewhat tough; 2=tough; 1=very tough.

⁶ 5=excellent; 4=very good; 3=good; 2=medium; 1=poor