2017 Sweet Corn

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Sweet Corn is an important crop in both the fresh market and shipping market in Sandusky County and throughout North Central Ohio, where a significant percentage of Ohio vegetables are grown. Many different varieties of sweet corn are grown by producers with fresh market roadside stands, and still others are grown for early, mid, and late season shipping and processing markets, meaning growers demand a diverse selection of sweet corn varieties and maturities. Growers have indicated this diversity should focus on SH2 varieties with different stages of maturity, and variance in other traits. Many new varieties are becoming available to meet these grower demands, and this study sought to determine which ones would perform acceptably in Northern Ohio, and which would have the desired traits growers are seeking. For this trial, 30 SH2 varieties were grown in 4 replicated plots at the Ohio State University’s North Central Agricultural Research Station near Fremont, Ohio.

Materials and Methods

The purpose of this trial was to evaluate a significant number of newer varieties of sweet corn, helping seed companies determine which varieties would be suitable to continue breeding and developing for commercial seed sales, and helping growers determine which currently available varieties would be best suited for their specific market demands, including fresh market, shipping, and processing.

Growers and Seed Companies suggested varieties to be grown, with a strong preference for inclusion given to new and experimental varieties, for comparison alongside industry standard varieties. The evaluation used four replicated plots, grown under best management practices, to give growers a fair comparison of the different varieties grown on lake bed soils, within a normal Northern Ohio growing season. Plots were planted in 35 foot rows, with blocks of 4 rows per variety, replicated 4 times, with randomized variety location within each replication. After germination and stand counts, rows were trimmed to 25 feet and thinned to uniform population across varieties.

The SH2 trial was conducted on Colwood fine sandy loam soil on field AW at the North Central Agricultural Research Station. Best management practices were utilized prior to and during the trial. Field was deep ripped on September 22, 2016 using a 3 shank Landoll ripper. On October 7, 2016 a cover crop of wheat was seeded. On April 12, 2017, the field was sprayed with Roundup Powermax and 8 oz. of Choice AMS to kill the wheat cover crop. Dry fertilizer consisting of 150 lbs / acre of 10-52-0, 200 lbs / acre of 46-0-0, 500 lbs / acre of 0-0-60, and 7 lbs / acre of 14% granular Boron was applied on April 17, 2017. Fertilizer was incorporated immediately using a disk chisel followed by a Landoll Finishall. The field was worked with danishtine field cultivator and packer on May 16. The plots were planted in 30 inch rows with an Almaco cone seeder atop John Deere 7000 planter on May 17, followed by application of 1.25 pts / acre of Dual Magnum and 6 oz/ acre Interlock. The trial was cultivated on June 12 and plants were thinned to a 9 inch spacing leaving 38 to 40 plants per 25 foot of row. This makes a uniform simulated population of 25,000 plants per acre across all varieties and reps. Electric fence was installed around the entire trial on July 20 to protect against wildlife damage. No fungicide applications were made. Insecticide applications were made as follows:

July 6

* 1 qt. / acre Carbaryl 4L

July 18

* 1.92 oz/ acre Warrior II
* 6 oz/acre Radiant SC

July 26

* 5 oz / acre Coragen

July 31

* 5 oz / acre Coragen

For data collection, only the 2 center rows of each variety block were harvested. Harvest dates for individual varieties can be found in the tables below.

Sweet Corn plants were evaluated at harvest for the following characteristics, which are summarized in the tables: ease of harvesting ear (snap rating), ear height, stand population, harvested dozens per acres, and marketable dozens per acre. Immediately following harvest, 5 random marketable ears per variety were evaluated for flags, husk cover, tip fill, number of kernel rows/ear, kernel color, ear length, ear diameter, tenderness, sweetness, and overall flavor.

Results and Discussion

Results of the harvest and ear evaluation for each variety of sweet corn can be seen in the tables below, with total harvest data compiled and averaged from the three highest yielding plots of the 4 harvested. This was to allow for several plots that had significant damage from birds, pests or compaction. When interpreting yield data, it should be noted that with the thinning of the trial to a uniform population in early June, easy comparisons can be made on yield potential by analyzing harvest data. With a uniform 78 data plants present

in each rep of each variety following thinning, and the resulting simulated population of 25,000 plants per acre, a “perfect” yield of one ear per plant would result in 78 ears per variety per rep, or 2100 dozen per acres.

In determining the ear evaluation scores, a team of 5 individuals, including the principal investigator and 2 members of the research station staff and two student employees each made their individual rankings on the 5 ears for each characteristic, and the final reported value was the combined average from all 3 individual scores. This process held true for the tenderness, sweetness, and overall flavor scores as well, determined by raw taste testing of the 5 aforementioned individuals.

The growing conditions during this trial ranged from quite dry in early June to rather wet for most of July with two rain events over two inches. Irrigation of one inch was employed to ensure a uniform start for the plots, but no other irrigation was required.

Rainfall (in inches) from planting May 17 to harvest August 10 –

May 20 - .40 July 7 - .20

May 21 - .35 July 10 - 3.1

May 25 - .10 July 11 - .50

May 26 - .15 July 12 - 1.5

June 14 - .15 July 13 - .80

June 20 - 1.0 (irrigation) July 16 - .35

June 23 - 1.2 July 22 - .50

June 30 - .65 August 2 - 2.0

July 2 - 2.1 August 4 - .20

 August 6 - .20

 **TOTAL 15.45 inches**

**Table 1.** Variety characteristics, emergence, observed maturity, and individual ear yield

All varieties planted on May 14

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variety****#** | **Variety Name** | **Color** | **Listed Maturity** | **Harvest Date** | **Observed Maturity** | **Population data rows June 15** | **Harvested Ears** | **Marketable Ears** |
| 1 | Super Surprise | Bicolor | 76  | 8/02 |  77 | 25,000 | 74 | 72 |
| 2 | BSS1075 | Bicolor | 77 | 8/07 | 82 | 25,000 | 79 | 77 |
| 3 | BSS8021 | Bicolor | 78 | 8/07 | 82 | 25,000 | 74 | 72 |
| 4 | BSS39681 | Bicolor | 78 | 8/07 | 82 | 25,000 | 84 | 82 |
| 5 | BSS31295 | Bicolor | 79 | 8/07 | 82 | 25,000 | 82 | 78 |
| 6 | WSS8072 | Bicolor | 78 | 8/07 | 82 | 25,000 | 72 | 66 |
| 7 | Cumberland | Bicolor | 77 | 7/31 | 75 | 25,000 | 74 | 73 |
| 8 | Raquel | Bicolor | 72 | 7/31 | 75 | 25,000 | 77 | 74 |
| 9 | Rosie | Bicolor | 74 | 8/04 | 79 | 25,000 | 74 | 72 |
| 10 | Kate | Bicolor | 77 | 8/04 | 79 | 25,000 | 74 | 73 |
| 11 | Elle | Yellow | 78 | 8/07 | 82 | 25,000 | 70 | 67 |
| 12 | Obsession | Bicolor | 81 | 8/10 | 85 | 25,000 | 83 | 81 |
| 13 | EX 08767143 | Bicolor | 81 | 8/10 | 85 | 25,000 | 82 | 81 |
| 14 | SC1336 | Yellow | 83 | 8/10 | 85 | 25,000 | 75 | 73 |
| 15 | SVSC 0111 | White | 79 | 8/07 | 82 | 25,000 | 61 | 59 |
| 16 | SVSA4743 | Bicolor | 78 | 8/07 | 82 | 25,000 | 80 | 77 |
| 17 | SV1446SD | Yellow | 78 | 8/04 | 79 | 25,000 | 73 | 69 |
| 18 | Awesome XR | Bicolor | 74 | 7/31 | 75 | 25,000 | 78 | 77 |
| 19 | CAPBF12-525 | Bicolor | 72 | 8/04 | 79 | 25,000 | 72 | 70 |
| 20 | Nirvana | Bicolor | 75 | 7/31 | 75 | 25,000 | 71 | 65 |
| 21 | AP 426 | Bicolor | 79 | 8/04 | 79 | 25,000 | 68 | 66 |
| 22 | Everglades | Bicolor | 78 | 8/10 | 85 | 25,000 | 81 | 79 |
| 23 | Yellowstone | Yellow | 78 | 8/07 | 82 | 25,000 | 81 | 78 |
| 24 | CSAYF13-697 | Yellow | 78 | 8/04 | 79 | 25,000 | 77 | 76 |
| 25 | CSABF13-698 | Bicolor | 78 | 8/02 | 77 | 25,000 | 68 | 66 |
| 26 | Honor XR | Bicolor | 79 | 8/10 | 85 | 25,000 | 78 | 77 |
| 27 | Kickoff XR | Bicolor | 70 | 7/31 | 75 | 25,000 | 74 | 73 |
| 28 | Caliber XR | Bicolor | 75 | 8/02 | 77 | 25,000 | 68 | 67 |
| 29 | American Dream | Bicolor | 77 | 8/02 | 77 | 25,000 | 64 | 61 |
| 30 | Enchanted | Bicolor | 79 | 8/04 | 79 | 25,000 | 74 | 70 |

**Table 2.** Harvest Data. Simulated uniform population of 25,000 by thinning on June 15. “Perfect” yield of 1 ear per stalk in thinned population would equal 2100 dozen.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variety #** | **Variety Name** | **Ear Height (in.)** | **Snap** | **Harvested Dozen/ acre** | **Marketable Dozen/ acre** | **Comments** |
| 1 | Super Surprise | 25 | 3 | 2146 | 2088 |  |
| 2 | BSS1075 | 33 | 3.25 | 2291 | 2233 |  |
| 3 | BSS8021 | 30 | 2.5 | 2146 | 2088 |  |
| 4 | BSS39681 | 30 | 1.5 | 2436 | 2378 |  |
| 5 | BSS31295 | 31 | 2.5 | 2378 | 2262 |  |
| 6 | WSS8072 | 31 | 2.5 | 2088 | 1914 |  |
| 7 | Cumberland | 24 | 3 | 2146 | 2117 |  |
| 8 | Raquel | 28 | 1.5 | 2233 | 2146 |  |
| 9 | Rosie | 23 | 3 | 2146 | 2088 |  |
| 10 | Kate | 28 | 3.75 | 2146 | 2117 |  |
| 11 | Elle | 30 | 3.25 | 2030 | 1943 |  |
| 12 | Obsession | 34 | 2.5 | 2407 | 2349 |  |
| 13 | EX 08767143 | 30 | 3.75 | 2378 | 2349 |  |
| 14 | SC1336 | 28 | 2.75 | 2175 | 2117 |  |
| 15 | SVSC0111 | 30 | 2.5 | 1769 | 1711 |  |
| 16 | SVSA4743 | 31 | 2.25 | 2320 | 2233 |  |
| 17 | SV1446SD | 26 | 3.5 | 2117 | 2001 |  |
| 18 | Awesome XR | 25 | 3.5 | 2262 | 2233 |  |
| 19 | CAPBF12-525 | 20 | 3 | 2088 | 2030 |  |
| 20 | Nirvana | 21 | 2 | 2059 | 1885 |  |
| 21 | AP 426 | 25 | 3 | 1972 | 1914 |  |
| 22 | Everglades | 31 | 3 | 2349 | 2291 |  |
| 23 | Yellowstone | 32 | 3 | 2349 | 2262 |  |
| 24 | CSAYF13-697 | 26 | 3.25 | 2233 | 2204 |  |
| 25 | CSABF13-698 | 26 | 2.75 | 1972 | 1914 |  |
| 26 | Honor XR | 34 | 2.5 | 2262 | 2233 |  |
| 27 | Kickoff XR | 24 | 3 | 2146 | 2117 |  |
| 28 | Caliber XR | 28 | 2.75 | 1972 | 1943 |  |
| 29 | American Dream | 31 | 2.75 | 1856 | 1769 |  |
| 30 | Enchanted | 30 | 2.5 | 2146 | 2030 |  |

**Ear Height** Height in inches (rounded) **Snap** 5 very easy

**Lodge** 5 straight up 1 difficult

 3 leaning

 1 down

**Table 3.** Ear Evaluation. \*All data is reported as the average rating of 5 ears from each variety

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variety #** | **Variety Name** | **Husk Cover** | **Flags** | **Overall Husk** | **Shank** | **Tip Fill** | **Rows\*** | **Rowing** | **Color** | **Length (inches)** | **Diameter (inches)** |
| 1 | Super Surprise | 2.75 | 3 | 3.5 | 2.75 | 5 | 18 | 3.75 | 4 | 8.0 | 1.9 |
| 2 | BSS1075 | 2 | 3 | 4 | 3.25 | 4.25 | 18 | 4.25 | 3 | 8.2 | 1.8 |
| 3 | BSS8021 | 2 | 4 | 4 | 2.25 | 4 | 16 | 3.5 | 3.25 | 8.1 | 1.8 |
| 4 | BSS39681 | 2 | 2.5 | 3 | 2.5 | 3.5 | 16 | 4.25 | 4 | 8.0 | 1.8 |
| 5 | BSS31295 | 2.5 | 3.75 | 4 | 2.25 | 4 | 16-18 | 3.25 | 4 | 7.8 | 1.9 |
| 6 | WSS8072 | 2.5 | 3 | 4 | 2.5 | 4.25 | 16 | 3 | 3 | 8.1 | 2.0 |
| 7 | Cumberland | 2 | 3.5 | 3 | 4 | 4.5 | 16-18 | 3.25 | 3.5 | 8.1 | 1.9 |
| 8 | Raquel | 2.75 | 3.5 | 3.5 | 3.5 | 4 | 18 | 3 | 3 | 8.7 | 2.1 |
| 9 | Rosie | 2 | 3.75 | 4 | 3 | 3.5 | 18 | 3.25 | 3 | 8.2 | 2.0 |
| 10 | Kate | 2.5 | 3.5 | 3.5 | 3.5 | 4 | 18 | 4 | 3.5 | 7.9 | 2.0 |
| 11 | Elle | 2 | 4 | 4 | 3.5 | 4 | 16-18 | 3 | 3 | 8.2 | 1.9 |
| 12 | Obsession | 1.25 | 3.5 | 3 | 2.5 | 4 | 16-18 | 3.5 | 3.5 | 8.1 | 1.9 |
| 13 | EX08767143 | 2 | 3.5 | 3.5 | 2.5 | 3.25 | 16-18 | 3.25 | 3.5 | 8.3 | 2.0 |
| 14 | SC1336 | 1.75 | 3 | 3 | 2.75 | 4 | 18-20 | 2.5 | 3.5 | 8.2 | 2.0 |
| 15 | SVSC0111 | 4 | 3 | 4 | 3.5 | 4 | 16-18 | 3.75 | 3 | 8.1 | 1.8 |
| 16 | SVSA4743 | 1.75 | 3.25 | 3 | 3.25 | 3.75 | 16-18 | 3.25 | 3 | 8.1 | 1.7 |
| 17 | SV1446SD | 3.25 | 3 | 3.5 | 3 | 4.25 | 16-18 | 3.5 | 3 | 8.1 | 1.8 |
| 18 | Awesome XR | 3 | 3.5 | 3.5 | 2.5 | 5 | 16-18 | 3.25 | 4.5 | 7.6 | 2.0 |
| 19 | CAPBF12-525 | 3 | 3.5 | 3.5 | 3.5 | 4.5 | 16 | 3.75 | 4 | 7.8 | 2.1 |
| 20 | Nirvana | 3 | 3 | 4 | 2.75 | 4 | 16 | 4 | 2.5 | 8.3 | 1.9 |
| 21 | AP 426 | 3.75 | 3 | 4 | 3.25 | 4 | 16-18 | 3.25 | 3 | 8.0 | 1.9 |
| 22 | Everglades | 2 | 3.25 | 3.25 | 3 | 4 | 16 | 4 | 3 | 8.1 | 1.9 |
| 23 | Yellowstone | 2 | 3.25 | 4 | 3.25 | 3.75 | 16 | 2.75 | 4 | 8.0 | 1.9 |
| 24 | CSAYF13-697 | 2 | 3.25 | 3.5 | 3.5 | 3.5 | 16 | 3.75 | 4 | 8.1 | 1.9 |
| 25 | CSABF13-698 | 3 | 3 | 3.75 | 2 | 5 | 16 | 3.25 | 3 | 8.3 | 1.9 |
| 26 | Honor XR | 3 | 3.5 | 4 | 3 | 4.5 | 16-18 | 4 | 4 | 8.3 | 1.9 |
| 27 |  Kickoff XR | 3 | 4 | 4 | 3.5 | 4.5 | 18-20 | 3.5 | 4 | 8.2 | 2.0 |
| 28 |  Caliber XR | 1.5 | 3.75 | 3.25 | 2.75 | 4.75 | 18 | 3.25 | 3.75 | 7.7 | 1.9 |
| 29 |  American Dream | 2.25 | 3.5 | 3.5 | 2 | 5 | 16 | 3.5 | 3 | 7.4 | 1.8 |
| 30 |  Enchanted | 2.5 | 3.25 | 4 | 2 | 4 | 18 | 3.5 | 3.5 | 8.1 | 1.9 |

**Rating Scale for Table 3 \*All scores are reported as the average of 5 ears from each variety**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rating Scale** | **1** | **3** | **5** |
| **Husk Cover (at tip)** | Exposed | 2 fingers of cover | 4 fingers of cover |
| **Flags** | None | Noticeable/attractive | Many, long, attractive |
| **Overall Husk** | Poor | Good | Outstanding |
| **Shank** | Short | Average | Long |
| **Tip Fill** | 2 in. blank | 1 in. blank | Complete |
| **Rows** | number of rows around entire cob, rounded to the nearest whole number  |   |
| **Rowing** | Scrambled | Mainly straight | All straight |
| **Color** | Dull/flat | Average | Bright/attractive |
| **Length** | measured from tip to base of shank with husk removed |
| **Diameter** | measured at center of cob with husk removed |   |

**Table 4.** SH2 Ear Evaluation. \*All data is reported as the average rating of 5 ears from each variety

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variety #** | **Variety Name** | **Tenderness** | **Sweetness** | **Flavor** | **Harvest Brix Reading** |
| 1 | Super Surprise | 2.75 | 3.5 | 3.25 |  |
| 2 | BSS1075 | 2.25 | 2 | 2 |  |
| 3 | BSS8021 | 2 | 3 | 2 |  |
| 4 | BSS39681 | 3 | 3.5 | 2.5 |  |
| 5 | BSS31295 | 3 | 3 | 2 |  |
| 6 | WSS8072 | 2 | 3.25 | 3 |  |
| 7 | Cumberland | 4 | 3.25 | 4 |  |
| 8 | Raquel | 3.25 | 3 | 3.5 |  |
| 9 | Rosie | 3.75 | 4 | 3.5 |  |
| 10 | Kate | 3.25 | 3.5 | 3.5 |  |
| 11 | Elle | 4 | 4 | 3.75 |  |
| 12 | Obsession | 3 | 3 | 3 |  |
| 13 | EX 08767143 | 3 | 3 | 2.5 |  |
| 14 | SC1336 | 4 | 4 | 3.5 |  |
| 15 | SVSC 0111 | 3.75 | 3.25 | 2.75 |  |
| 16 | SVSA4743 | 2.75 | 2.5 | 2.5 |  |
| 17 | SV1446SD | 3 | 2 | 2 |  |
| 18 | Awesome XR | 3 | 4 | 3.5 |  |
| 19 | CAPBF12-525 | 2 | 3 | 3 |  |
| 20 | Nirvana | 4.25 | 4.25 | 3.75 |  |
| 21 | AP 426 | 3.75 | 3 | 2.75 |  |
| 22 | Everglades | 2 | 2.5 | 2 |  |
| 23 | Yellowstone | 3 | 3.25 | 2.25 |  |
| 24 | CSAYF13-697 | 2 | 2 | 2 |  |
| 25 | CSABF13-698 | 2.5 | 2.5 | 2 |  |
| 26 | Honor XR | 2.75 | 3 | 3.25 |  |
| 27 | Kickoff XR | 3.75 | 4 | 2.75 |  |
| 28 | Caliber XR | 3 | 3 | 3.25 |  |
| 29 | American Dream | 3.5 | 3.75 | 3 |  |
| 30 | Enchanted | 3 | 3 | 2.5 |  |

**Rating Scale for Table 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rating Scale** | **1** | **3** | **5** |
| **Sweetness** | Starchy/bland | Average | Very sweet/sugary |
| **Tenderness** | Tough | Average | Very Tender |
| **Flavor** | Poor | Good | Outstanding |
| **BRIX (sugar content)** | Refractometer readings at noted interval post-harvest |
| **\*All scores are reported as the average of 5 ears from each variety** |  |

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