2020 SH2 Sweet Corn

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Sweet corn is an important crop in both the fresh market and shipping market in 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, 34 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 lakebed soils, within a normal Northern Ohio growing season. Plots were planted in 30-foot rows, with blocks of 2 rows per variety, replicated 4 times, with randomized variety location within each replication. 2 row boundaries of variety 274A were planted between each test variety. This change was made this year to accommodate worker protection. After germination and stand counts, rows were trimmed to 25 feet. Plots were not thinned this year.

The SH2 trial was conducted on Colwood fine sandy loam soil on field HE of the North Central Agricultural Research Station. Best management practices were utilized prior to and during the trial. On October 25, 2019 the test site was disked and seeded to a cover crop of winter wheat. The cover crop was terminated on April 23, 2020 using a treatment of 32 oz/acre Roundup Powermax and 8 oz/ acre Choice Weathermaster. On May 4, 2020 dry fertilizer consisting of 250 lbs./ acre 46-0-0, 100 lbs./acre 10-52-0, 500 lbs./acre 0-0-60, and 10 lbs./acre 10% granular boron was spread on the test site. The site was worked the following day using a disk- chisel. On May 6, 2020 the test site was finish tilled using a Landoll Finish-All with rolling baskets. A rain event occurred following soil preparation, so a final light tillage was performed on 5/12/2020 with a Kongslide Danish tine finisher and packer.

On May 27, 2020 the test plot was planted in 30” rows using a John Deere 7000 planter with Almaco units for the test varieties. The boundary rows were planted using standard John Deere 7000 finger units. A herbicide application of 20 oz/ acre Dual II Magnum, 22 oz/acre Roundup Powermax, 8 oz/acre Choice Weathermaster and a drift guard was made immediately after planting. On June 12, 2020, the plot was cultivated using a Danish tine cultivator. Test plot was side dressed with 40 gallons/ acre 28% N on June 15, 2020 and was cultivated with a Danish tine cultivator immediately after.

A second herbicide application consisting of 16 oz/acre Basagran, 16 oz/acre Atrazine 4L, and 27 oz/acre Crop Oil. On 6/24/2020 the plot was cultivated for weed control and aeration.

Because of adverse conditions directly after planting, stands were less than desirable for many varieties. On June 25, 2020 stand counts were made on every plot. Those stands can be seen in Table 1 of report. Although poor stand counts do not necessarily indicate that a particular variety performs poorly under stressful conditions, it is a good indication of the strength of a particular seed lot. In our plot 4 test varieties were of particular concern in terms of emergence.

Electric fence was installed around the entire trial on July 13 to protect against wildlife damage. No fungicide applications were made.

Insecticide applications were made as follows:

July 8

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

July 13

* 6 oz/acre Radiant

July 17

* 5 oz/acre Coragen

July 21

* 5 oz/acre Coragen

July 24

* 10 oz/acre Hero

August 5

* 5 oz/acre Coragen

August 7

* 1.92 oz/acre Warrior II

Harvest data was collected from all rows of test varieties. Harvest dates can be found in Table 1.

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 all four plots harvested. When interpreting yield data, it should be noted that populations varied significantly in our plot this season. Populations in the plot were less than ideal due to adverse conditions soon after planting. Yields did not necessarily reflect this however. Many of the varieties that had a low stand count produced multiple ears.

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 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.

Rainfall (in inches) from planting May 27 to August 12 –

May 29- .2 July 9 - irrigated with 1.0” water

June 5 - .5 July 10 - .1

June 9 - .01 July 12 - .3

June 10 - .5 July 16 - .1

June 13 - .2 July 19 - .35

June 21 - .15 July 22 - .35

June 23 - .6 July 23 - .1

June 27 - .1 July 26 - .45

July 1 - irrigated with 1.0” water July 28 - .4

July 8 - .05 August 1 - .9

 August 10 - .05

**TOTAL: 7.0 (includes 2” irrigation)**

**Table 1.** Variety characteristics, emergence, observed maturity, and individual ear yield. All varieties planted on May 27, 2020.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety # | Variety Name | Color | Listed Maturity | Harvest Date | Observed Maturity | Population data row  | Harvested Ears | Marketable Ears |
| 1 | Coastal | bi-color | 77 | 8/7 | 72 | 20,000 | 69 | 68 |
| 2 | Apollo | bi-color | 81 | 8/12 | 77 | 17,000 | 86 | 88 |
| 3 | SVSA 0313 | bi-color | 74 | 8/5 | 70 | 20,000 | 68 | 66 |
| 4 | SAVSA0646 | bi-color | 79 | 8/7 | 72 | 17,000 | 69 | 66 |
| 5 | SVSA7611 | bi-color | 73 | 8/3 | 68 | 16,000 | 63 | 61 |
| 6 | EX08767143 | bi-color | 80 | 8/10 | 75 | 14,000 | 66 | 65 |
| 7 | Takeoff | yellow | 69 | 8/3 | 68 | 18,000 | 55 | 53 |
| 8 | Freedom | white | 73 | 8/3 | 68 | 20,000 | 65 | 64 |
| 9 | Kickoff | bi-color | 69 | 7/31 | 65 | 14,000 | 44 | 42 |
| 10 | Xtra Tender 20173 | bi-color | 73 | 8/3 | 68 | 18,000 | 64 | 63 |
| 11 | Xtra Tender 274A | bi-color | 74 | 8/3 | 68 | 20,000 | 68 | 67 |
| 12 | American Dream | white | 77 | 8/10 | 75 | 12,000 | 58 | 55 |
| 13 | Caliber | bi-color | 75 | 8/5 | 70 | 20,000 | 74 | 72 |
| 14 | Catalyst | bi-color | 66 | 7/31 | 65 | 19,000 | 59 | 57 |
| 15 | XTH 3674 | white | 74 | 8/5 | 70 | 20,000 | 65 | 63 |
| 16 | Xtra Tender 1572 | yellow | 72 | 8/3 | 68 | 19,000 | 77 | 76 |
| 17 | Anthem XR | bi-color | 73 | 8/4 | 69 | 21,000 | 73 | 72 |
| 18 | Bullet | yellow | 76 | 8/4 | 69 | 15,000 | 64 | 62 |
| 19 | 2578XR | bi-color | 78 | 8/10 | 75 | 18,000 | 73 | 70 |
| 20 | Sprinter XL | yellow | 68 | 7/31 | 65 | 19,000 | 61 | 59 |
| 21 | Platinum | white | 80 | 8/12 | 77 | 17,000 | 62 | 61 |
| 22 | BSS32198 | bi-color | 80 | 8/12 | 77 | 19,000 | 68 | 65 |
| 23 | Crave | bi-color | 79 | 8/10 | 75 | 18,000 | 67 | 65 |
| 24 | BSS32755 | bi-color | 79 | 8/10 | 75 | 17,000 | 64 | 63 |
| 25 | BSS37115 | bi-color | 74 | 8/5 | 70 | 20,000 | 79 | 76 |
| 26 | HMX59YS826 | yellow | 75 | 8/5 | 70 | 20,000 | 59 | 58 |
| 27 | Cumberland | bi-color | 75 | 8/4 | 69 | 17,000 | 65 | 64 |
| 28 | Rosie | bi-color | 74 | 8/4 | 69 | 20,000 | 64 | 62 |
| 29 | Flagler | bi-color | 76 | 8/7 | 72 | 19,000 | 70 | 68 |
| 30 | Solstice  | bi-color | 70 | 7/31 | 65 | 20,000 | 57 | 57 |
| 31 | Nirvana | bi-color | 75 | 8/3 | 69 | 19,000 | 68 | 67 |
| 32 | Everglades | bi-color | 76 | 8/10 | 75 | 19,000 | 74 | 73 |
| 33 | Grizzly | bi-color | 79 | 8/12 | 77 | 18,000 | 70 | 68 |
| 34 | Eden RMN 3 | white | 75 | 8/4 | 69 | 18,000 | 70 | 70 |

**Table 2.** Harvest Data. Populations varied significantly. Plots were not thinned as in past years.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variety # | Variety Name | Ear Height (in.) | Snap | Harvested Dozen/acre | Marketable Dozen/acre |
| 1 | Coastal | 26 | 3.0 | 2,001 | 1,972 |
| 2 | Apollo | 37 | 3.0 | 2,494 | 2,552 |
| 3 | SVSA 0313 | 22 | 3.0 | 1,972 | 1,914 |
| 4 | SAVSA0646 | 26 | 3.5 | 2,001 | 1,914 |
| 5 | SVSA7611 | 21 | 3.5 | 1,827 | 1,769 |
| 6 | EX08767143 | 26 | 4.0 | 1,914 | 1,885 |
| 7 | Takeoff | 23 | 3 | 1,595 | 1,537 |
| 8 | Freedom | 26 | 3 | 1,885 | 1,856 |
| 9 | Kickoff | 24 | 3 | 1,276 | 1,218 |
| 10 | Xtra Tender 20173 | 18 | 3.5 | 1,856 | 1,827 |
| 11 | Xtra Tender 274A | 21 | 3.75 | 1,972 | 1,943 |
| 12 | American Dream | 28 | 4.0 | 1,682 | 1,595 |
| 13 | Caliber | 25 | 2.5 | 2,146 | 2,088 |
| 14 | Catalyst | 23 | 3.5 | 1,711 | 1,653 |
| 15 | XTH 3674 | 24 | 3.0 | 1,885 | 1,827 |
| 16 | Xtra Tender 1572 | 22 | 3.25 | 2,233 | 2,204 |
| 17 | Anthem XR | 23 | 3.25 | 2,117 | 2,088 |
| 18 | Bullet | 26 | 2.75 | 1,856 | 1,798 |
| 19 | 2578XR | 26 | 3.75 | 2,117 | 2,030 |
| 20 | Sprinter XL | 20 | 3.75 | 1,769 | 1,711 |
| 21 | Platinum | 24 | 3.5 | 1,798 | 1,769 |
| 22 | BSS32198 | 28 | 4 | 1,972 | 1,885 |
| 23 | Crave | 23 | 3.5 | 1,943 | 1,885 |
| 24 | BSS32755 | 21 | 3.0 | 1,856 | 1,827 |
| 25 | BSS37115 | 23 | 4 | 2,291 | 2,204 |
| 26 | HMX59YS826 | 28 | 2.75 | 1,711 | 1,682 |
| 27 | Cumberland | 21 | 3 | 1,885 | 1,856 |
| 28 | Rosie | 19 | 3.5 | 1,856 | 1,798 |
| 29 | Flagler | 26 | 2.5 | 2,030 | 1,972 |
| 30 | Solstice  | 18 | 3.5 | 1,653 | 1,653 |
| 31 | Nirvana | 18 | 4.5 | 1,972 | 1,943 |
| 32 | Everglades | 28 | 3.5 | 2,146 | 2,117 |
| 33 | Grizzly | 27 | 3.25 | 2,030 | 1,972 |
| 34 | Eden RMN 3 | 21 | 3 | 2,030 | 2,030 |

**Ear Height =** Height in inches

**Snap Rating =** 1 difficult

 5 easy

**Table 3.** Ear Evaluation. \*All data is reported as the average rating of 10 ears from each variety

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety # | Variety Name | Husk Cover | Flags | Overall Husk | Shank | Tip Fill | Rows \* | Rowing | Color | Length (inches) | Diameter (inches) |
| 1 | Coastal | 2.0 | 2.5 | 2.5 | 2.0 | 4.0 | 16-18 | 2.5 | 4.0 | 8.9 | 1.9 |
| 2 | Apollo | 1.5 | 3.0 | 3.0 | 2.5 | 3.5 | 16-18 | 2.5 | 3.5 | 8.1 | 1.9 |
| 3 | SVSA0313 | 3.0 | 3.5 | 3.0 | 3.0 | 3.5 | 16-18 | 2.75 | 3.75 | 8.4 | 1.8 |
| 4 | SAVSA0646 | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 14-16 | 4.0 | 3.75 | 8.8 | 1.8 |
| 5 | SVSA7611 | 2.75 | 3.5 | 3.0 | 4.25 | 3.5 | 16 | 2.75 | 4.0 | 8.3 | 1.9 |
| 6 | EX08767143 | 1.25 | 3.0 | 2.5 | 3.5 | 2.5 | 16-18 | 3.25 | 3.0 | 8.8 | 1.8 |
| 7 | Takeoff | 2.0 | 2.5 | 2.5 | 4.0 | 4.0 | 16 | 4.0 | 4.0 | 9.2 | 2.0 |
| 8 | Freedom | 2.0 | 4.9 | 3.0 | 4.5 | 4.0 | 16-18 | 3.25 | 4.0 | 8.5 | 2.0 |
| 9 | Kickoff | 2.0 | 3.75 | 3.5 | 2.75 | 2.75 | 16-18 | 3.5 | 4.0 | 9.3 | 2.0 |
| 10 | Xtra Tender 20173 | 2.25 | 3.0 | 3.25 | 3.0 | 4.0 | 16-18 | 4.0 | 4.0 | 8.1 | 1.9 |
| 11 | Xtra Tender 274A | 2.75 | 3.0 | 3.0 | 3.0 | 3.0 | 16-18 | 2.75 | 3.5 | 8.8 | 2.0 |
| 12 | American Dream | 1.0 | 3.0 | 1.5 | 3.5 | 3.5 | 16 | 2.0 | 3.25 | 8.0 | 2.0 |
| 13 | Caliber | 2.0 | 3.5 | 3.0 | 3.0 | 4.0 | 16-18 | 2.75 | 3.0 | 8.5 | 2.0 |
| 14 | Catalyst | 2.0 | 3.25 | 3.25 | 3.0 | 4.0 | 14-16 | 3.0 | 4.0 | 8.5 | 1.9 |
| 15 | XTH 3674 | 2.0 | 3.25 | 3.25 | 2.5 | 4.0 | 16-18 | 4.0 | 3.0 | 8.2 | 1.8 |
| 16 | Xtra Tender 1572 | 2.0 | 3.5 | 3.0 | 2.75 | 4.0 | 16 | 4.0 | 4.0 | 8.9 | 1.9 |
| 17 | Anthem XR | 2.5 | 4.0 | 3.5 | 4.0 | 4.0 | 14-16 | 3.25 | 3.5 | 8.6 | 1.8 |
| 18 | Bullet | 3.0 | 4.0 | 3.5 | 2.0 | 4.0 | 16-18 | 4.0 | 4.0 | 8.7 | 1.9 |
| 19 | 2578XR | 1.5 | 2.5 | 2.0 | 2.25 | 3.0 | 16-18 | 2.0 | 3.75 | 8.7 | 1.9 |
| 20 | Sprinter XL | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 14 | 3.25 | 3.75 | 7.8 | 1.8 |
| 21 | Platinum | 1.25 | 4.25 | 3.0 | 2.5 | 3.25 | 16-18 | 2.25 | 3.0 | 8.5 | 1.9 |
| 22 | BSS32198 | 1.25 | 3.0 | 3.0 | 2.5 | 3.5 | 16-18 | 3.25 | 3.0 | 8.8 | 2.0 |
| 23 | Crave | 1.75 | 3.0 | 2.0 | 2.5 | 3.75 | 16-18 | 2.0 | 3.5 | 8.0 | 2.0 |
| 24 | BSS32755 | 1.5 | 3.0 | 3.0 | 3.0 | 3.5 | 16-18 | 2.25 | 3.0 | 8.0 | 1.9 |
| 25 | BSS37115 | 1.25 | 2.5 | 2.0 | 2.0 | 4.0 | 16-18 | 3.25 | 3.25 | 8.3 | 1.9 |
| 26 | HMX59YS826 | 2.0 | 4.0 | 3.25 | 4.0 | 4.5 | 18-20 | 2.0 | 4.0 | 8.3 | 1.9 |
| 27 | Cumberland | 1.75 | 3.0 | 2.75 | 2.0 | 3.5 | 14-16 | 3.5 | 3.25 | 9.0 | 1.9 |
| 28 | Rosie | 1.75 | 3.5 | 3.0 | 3.5 | 3.25 | 16-18 | 2.5 | 4.0 | 8.9 | 2.1 |
| 29 | Flagler | 2.0 | 2.25 | 2.25 | 3.0 | 3.75 | 16-18 | 2.5 | 3.75 | 8.8 | 1.9 |
| 30 | Solstice | 3.0 | 4.5 | 4.0 | 3.0 | 4.0 | 14-16 | 4.0 | 4.0 | 8.2 | 1.9 |
| 31 | Nirvana | 2.25 | 2.5 | 2.75 | 3.0 | 4.0 | 14-16 | 3.25 | 3.25 | 8.2 | 1.9 |
| 32 | Everglades | 1.25 | 2.75 | 2.0 | 3.25 | 3.5 | 16-18 | 2.25 | 4.0 | 8.4 | 1.8 |
| 33 | Grizzly | 1.5 | 3.0 | 2.0 | 3.75 | 3.5 | 14-16 | 3.0 | 3.75 | 8.0 | 1.9 |
| 34 | Eden RMN 3 | 1.75 | 2.5 | 3.0 | 3.5 | 3.5 | 14-16 | 4.0 | 3.75 | 8.1 | 1.8 |

**Rating Scale for Table 3 \*All scores are reported as the average of 10 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 |   |
| **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 |
| 1 | Coastal | 2.5 | 2.25 | 2 |
| 2 | Apollo | 2.25 | 2.5 | 3 |
| 3 | SVSA0313 | 3.25 | 2.25 | 2.25 |
| 4 | SAVSA0646 | 2.5 | 2 | 1.75 |
| 5 | SVSA7611 | 1.75 | 2.25 | 1.75 |
| 6 | EX08767143 | 2.0 | 2.5 | 2.5 |
| 7 | Takeoff | 2.5 | 2.75 | 2 |
| 8 | Freedom | 3.25 | 3 | 3 |
| 9 | Kickoff | 4 | 4 | 3.5 |
| 10 | Xtra Tender 20173 | 3.25 | 3.25 | 3 |
| 11 | Xtra Tender 274A | 3 | 2.25 | 1.75 |
| 12 | American Dream | 2.75 | 3 | 3.5 |
| 13 | Caliber | 2.75 | 3 | 3 |
| 14 | Catalyst | 2 | 3.75 | 2 |
| 15 | XTH 3674 | 2.25 | 2.5 | 2.25 |
| 16 | Xrta Tender 1572 | 3.25 | 2.75 | 3.25 |
| 17 | Anthem XR | 2.5 | 1.5 | 1.0 |
| 18 | Bullet | 3.0 | 2.25 | 2.5 |
| 19 | 2578XR | 3.5 | 2.75 | 3 |
| 20 | Sprinter XL | 2.5 | 3.0 | 2.5 |
| 21 | Platinum | 3 | 3.25 | 2.5 |
| 22 | BSS32198 | 2.25 | 2.25 | 2 |
| 23 | Crave | 3.75 | 3.5 | 3.25 |
| 24 | BSS32755 | 3.5 | 3.5 | 3.75 |
| 25 | BSS37115 | 2.75 | 3.25 | 3.25 |
| 26 | HMX59YS826 | 3.25 | 3.0 | 3.0 |
| 27 | Cumberland | 2.75 | 2.25 | 2.5 |
| 28 | Rosie | 3.5 | 3.75 | 4 |
| 29 | Flagler | 2.75 | 3.25 | 3 |
| 30 | Solstice | 4 | 4 | 4 |
| 31 | Nirvana | 4 | 4 | 4 |
| 32 | Everglades | 2 | 2.5 | 2 |
| 33 | Grizzly | 2 | 3 | 2.5 |
| 34 | Eden RMN 3 | 3.75 | 4 | 4 |

**Rating Scale for Table 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rating Scale** | **1** | **3** | **5** |
| **Tenderness** | Tough | Average | Very tender |
| **Sweetness** | Starchy/bland | Average | Very sweet/sugary |
| **Flavor** | Poor | Good | Outstanding |

 **\*All scores are reported as the rating of 5 ears from each variety.**



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