2019 SH2 Sweet Corn

M. L. Gastier, Ohio State University Extension, Huron County, Ohio

Matthew Hofelich, Ohio Agricultural Research and Development Center, Fremont, Ohio

Allen M. Gahler, Ohio State University Extension, Sandusky County, Ohio

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, 39 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 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 BS at the North Central Agricultural Research Station. Best management practices were utilized prior to and during the trial. On October 16, 2018 the test site was seeded with wheat as a cover. The cover crop was terminated on May 8, 2019 with a herbicide treatment of 40 oz acre Roundup Powermax and 8 oz/ acre Choice. On May 15, 2019 dry fertilizer consisting of 250 lbs./ acre 46-0-0, 100 lbs./acre 10-52-0, 500 lbs./acre 0-0-60, and 7 lbs./acre 20% granular boron was spread on the test site. The site was worked the same day using a disk- chisel. On May 17, 2019 the test site was finish tilled using a Landoll Finish-All. Three rain events occurred following soil preparation, so a final light tillage was performed on 5/21/2019 with a Kongslide Danish tine finisher and packer.

On May 22, 2019 the test plot was planted in 30” rows using a John Deere 7000 planter with Almaco units. A herbicide application of 20 oz/ acre Dual II Magnum was made immediately after planting. Roughly one inch of rain fell in the week following the herbicide application. The resulting weed control was very good. Test plot was side dressed with 26 gallons/ acre 28% N on June 12, 2019 and was cultivated with a Danish tine cultivator immediately after.

On June 19, 2019, the test plot was thinned to a consistent stand of 33- 34 plants per row giving a target spacing of 9 inches. At harvest the measured population was 24,600 plants per acre.

Electric fence was installed around the entire trial on July 11 to protect against wildlife damage. No fungicide applications were made.

Insecticide applications were made as follows:

July 12

* 1.92 oz/acre Warrior II

July 19

* 5 oz/acre Radiant/ 4oz/acre MustangMaxx

July 2

* 7.5 oz/acre Coragen

July 29

* 5 oz/acre Radiant/ 2.8 oz/acre Baythoid XL

August 2

* 5 oz/acre Coragen/ 1.92 oz/acre Warrior II

August 5

* 2.8 oz/acre Baythoid XL

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 all four plots harvested. 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. An average population of 24,600 was measured at harvest.

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 22 to August 14 –

May 23- .05 June 20- .2

May 26- .1 June 21- 2.2

May 27- .3 July 5- .1

May 28- .1 July 6- .6

May 30- .4 July 17- 1.2

June 1- 1.3 July 18- .1

June 10- .1 July 19- .05

June 12- .3 July 22- .95

June 13- .75 July 23- .1

June 16- .45 August 6- 1.6

August 13- .4

**TOTAL: 11.35**

**Table 1.** Variety characteristics, emergence, observed maturity, and individual ear yield. All varieties planted on May 22, 2019

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety # | Variety Name | Color | Listed Maturity | Harvest Date | Observed Maturity | Population data row June 20 | Harvested Ears | Marketable Ears |
| 1 | Super Surprise | Bicolor | 76 | 8/7 | 77 | 24,600 | 72 | 72 |
| 2 | Apollo | Bicolor | 81 | 8/12 | 82 | 24,600 | 80 | 78 |
| 3 | Anthem XR | Bicolor | 73 | 8/5 | 75 | 24,600 | 67 | 66 |
| 4 | Coastal | Bicolor | 77 | 8/7 | 77 | 24,600 | 67 | 67 |
| 5 | Elle | yellow | 78 | 8/12 | 82 | 24,600 | 58 | 56 |
| 6 | HMX59VS826 | yellow | 74 | 8/6 | 76 | 24,600 | 64 | 63 |
| 7 | Raquel | Bicolor | 72 | 8/5 | 75 | 24,600 | 64 | 63 |
| 8 | Rosie | Bicolor | 74 | 8/7 | 77 | 24,600 | 64 | 63 |
| 9 | Kate | Bicolor | 77 | 8/9 | 79 | 24,600 | 67 | 63 |
| 10 | Flagler | Bicolor | 76 | 8/7 | 77 | 24,600 | 64 | 62 |
| 11 | HMX59BS830 | Bicolor | 75 | 8/5 | 75 | 24,600 | 67 | 66 |
| 12 | HMX59BS606 | Bicolor | 76 | 8/9 | 79 | 24,600 | 71 | 70 |
| 13 | Ex08767143 | Bicolor | 81 | 8/12 | 82 | 24,600 | 78 | 76 |
| 14 | Affection | Bicolor | 78 | 8/12 | 82 | 24,600 | 77 | 75 |
| 15 | SC1336 | yellow | 81 | 8/12 | 82 | 24,600 | 72 | 70 |
| 16 | Jubilation | yellow | 81 | 8/9 | 79 | 24,600 | 68 | 66 |
| 17 | WSS8072 | Bicolor |  | 8/12 | 82 | 24,600 | 74 | 73 |
| 18 | SV1580SC | white | 81 | 8/9 | 79 | 24,600 | 79 | 76 |
| 19 | Patriarch | Bicolor | 78 | 8/7 | 77 | 24,600 | 68 | 68 |
| 20 | BSS8021 | Bicolor | 80 | 8/9 | 79 | 24,600 | 67 | 66 |
| 21 | BSS37244 | Bicolor | 75 | 8/7 | 77 | 24,600 | 72 | 71 |
| 22 | Euphoria | Bicolor | 72 | 8/2 | 72 | 24,600 | 63 | 63 |
| 23 | Nirvana | Bicolor | 75 | 8/2 | 72 | 24,600 | 69 | 69 |
| 24 | NirvanaRMN4 | Bicolor | 75 | 8/5 | 75 | 24,600 | 72 | 72 |
| 25 | Solstice | Bicolor | 70 | 8/2 | 72 | 24,600 | 68 | 68 |
| 26 | Eden | white | 75 | 8/5 | 75 | 24,600 | 69 | 69 |
| 27 | EdenRMN3 | white | 75 | 8/5 | 75 | 24,600 | 72 | 71 |
| 28 | Take Off | yellow | 69 | 8/5 | 75 | 24,600 | 64 | 64 |
| 29 | Freedom | white | 73 | 8/9 | 79 | 24,600 | 72 | 71 |
| 30 | Kickoff | Bicolor | 69 | 8/2 | 72 | 24,600 | 61 | 60 |
| 31 | XT20173 | Bicolor | 73 | 8/6 | 76 | 24,600 | 68 | 67 |
| 32 | XT274A | Bicolor | 74 | 8/6 | 76 | 24,600 | 64 | 63 |
| 33 | American Beauty | white | 77 | 8/7 | 77 | 24,600 | 73 | 71 |
| 34 | Glacial | white | 76 | 8/9 | 79 | 24,600 | 67 | 63 |
| 35 | Hero | Bicolor | 71 | 8/5 | 75 | 24,600 | 64 | 63 |
| 36 | Catalyst | Bicolor | 66 | 8/2 | 72 | 24,600 | 63 | 61 |
| 37 | XT2472 | Bicolor | 72 | 8/5 | 75 | 24,600 | 64 | 64 |
| 38 | XT1572 | yellow | 72 | 8/6 | 76 | 24,600 | 69 | 68 |
| 39 | Signature | Bicolor | 72 | 8/5 | 75 | 24,600 | 65 | 64 |

**Table 2.** Harvest Data. Simulated uniform population of 24,600 by thinning on June 19. “Perfect” yield of 1 ear per stalk in thinned population would equal 2050 dozen.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variety # | Variety Name | Ear Height (in.) | Snap | Harvested Dozen/acre | Marketable Dozen/acre |
| 1 | Super Surprise | 22 | 3 | 2160 | 2160 |
| 2 | Apollo | 32 | 2.5 | 2400 | 2340 |
| 3 | Anthem XR | 21 | 3 | 2010 | 1980 |
| 4 | Coastal | 24.5 | 3.25 | 2010 | 2010 |
| 5 | Elle | 24 | 2.5 | 1740 | 1680 |
| 6 | HMX59VS826 | 26 | 3 | 1920 | 1890 |
| 7 | Raquel | 20 | 3.75 | 1920 | 1890 |
| 8 | Rosie | 19.5 | 3.5 | 1920 | 1890 |
| 9 | Kate | 22 | 3.25 | 2010 | 1890 |
| 10 | Flagler | 22 | 2.5 | 1920 | 1860 |
| 11 | HMX59BS830 | 21 | 3.75 | 2010 | 1980 |
| 12 | HMX59BS606 | 22 | 4 | 2130 | 2100 |
| 13 | Ex08767143 | 24 | 3.75 | 2340 | 2280 |
| 14 | Affection | 24 | 3.5 | 2310 | 2250 |
| 15 | SC1336 | 24 | 3.5 | 2160 | 2100 |
| 16 | Jubilation | 24.5 | 3.75 | 2040 | 1980 |
| 17 | WSS8072 | 23 | 3.75 | 2220 | 2190 |
| 18 | SV1580SC | 24.5 | 4.5 | 2370 | 2280 |
| 19 | Patriarch | 20 | 3.75 | 2040 | 2040 |
| 20 | BSS8021 | 23.5 | 4.25 | 2010 | 1980 |
| 21 | BSS37244 | 21 | 3.5 | 2160 | 2130 |
| 22 | Euphoria | 18 | 3.5 | 1890 | 1890 |
| 23 | Nirvana | 20 | 4 | 2070 | 2070 |
| 24 | NirvanaRMN4 | 19.5 | 3.75 | 2160 | 2160 |
| 25 | Solstice | 19.5 | 4 | 2040 | 2040 |
| 26 | Eden | 17 | 4.50 | 2070 | 2070 |
| 27 | EdenRMN3 | 18 | 3.75 | 2160 | 2130 |
| 28 | Take Off | 20 | 4.25 | 1920 | 1920 |
| 29 | Freedom | 23 | 3.5 | 2160 | 2130 |
| 30 | Kickoff | 20.5 | 3.75 | 1830 | 1800 |
| 31 | XT20173 | 19.5 | 3.5 | 2040 | 2010 |
| 32 | XT274A | 20 | 3.75 | 1920 | 1890 |
| 33 | American Beauty | 24.5 | 3.5 | 2190 | 2130 |
| 34 | Glacial | 24 | 4 | 2010 | 1890 |
| 35 | Hero | 20 | 3.25 | 1920 | 1890 |
| 36 | Catalyst | 19 | 3.75 | 1890 | 1830 |
| 37 | XT2472 | 19.5 | 3.75 | 1920 | 1920 |
| 38 | XT1572 | 21 | 4 | 2070 | 2040 |
| 39 | Signature | 20 | 3.25 | 1950 | 1920 |

**Ear Height** Height in inches (rounded)

**Snap**  1 difficult

5 easy

**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 | 4 | 3 | 3 | 3 | 16-18 | 2.5 | 3.5 | 8.8 | 1.8 |
| 2 | Apollo | 2.5 | 3 | 2.75 | 2.5 | 3.5 | 18-20 | 3 | 3.25 | 7.8 | 1.9 |
| 3 | Anthem XR | 2 | 3.5 | 3 | 3 | 3.5 | 16-18 | 3.5 | 3.25 | 8.6 | 2.0 |
| 4 | Coastal | 3 | 3.5 | 3.5 | 3.5 | 3 | 16-18 | 2.5 | 4 | 8.6 | 1.9 |
| 5 | Elle | 1.75 | 3.75 | 2.5 | 2 | 4 | 16-18 | 2.75 | 2.75 | 8.9 | 2.0 |
| 6 | HMX59VS826 | 1.5 | 3.5 | 2 | 3.5 | 4.5 | 16-18 | 3.5 | 3.25 | 8.5 | 1.9 |
| 7 | Raquel | 1.5 | 3.5 | 2.5 | 2.5 | 4 | 18-20 | 3.5 | 3.5 | 9.0 | 2.1 |
| 8 | Rosie | 2 | 3 | 2.5 | 3 | 2.75 | 16-18 | 4 | 3.5 | 8.6 | 2.0 |
| 9 | Kate | 1 | 3 | 1 | 3.75 | 3.5 | 16-18 | 2.5 | 4 | 8.8 | 2.0 |
| 10 | Flagler | 3.5 | 4 | 3 | 5 | 3 | 16-18 | 2 | 3.75 | 8.4 | 1.9 |
| 11 | HMX59BS830 | 1.75 | 3.75 | 3.25 | 3.5 | 3.75 | 16-20 | 2.5 | 3 | 8.8 | 2.0 |
| 12 | HMX59BS606 | 1.75 | 3 | 2 | 2.5 | 3 | 16-18 | 2.75 | 3.25 | 8.1 | 1.9 |
| 13 | Ex08767143 | 1.25 | 3.25 | 2 | 3 | 2.5 | 16-18 | 4 | 4 | 8.7 | 2.0 |
| 14 | Affection | 2 | 2.5 | 2.5 | 2.75 | 3.25 | 18-20 | 3 | 4 | 8.5 | 2.0 |
| 15 | SC1336 | 2.5 | 2.5 | 2.25 | 2.75 | 3 | 18-20 | 3 | 4 | 8.2 | 2.0 |
| 16 | Jubilation | 3 | 2.5 | 2.5 | 3 | 3.5 | 16-18 | 4 | 3.25 | 8.4 | 1.9 |
| 17 | WSS8072 | 1 | 4 | 1 | 2.75 | 3.5 | 16-18 | 3 | 3 | 8.1 | 1.9 |
| 18 | SV1580SC | 2 | 2.5 | 2.5 | 3 | 4 | 18-20 | 3.75 | 3.5 | 8.2 | 1.8 |
| 19 | Patriarch | 1.75 | 2.5 | 2 | 3 | 3 | 16-18 | 4 | 3.5 | 8.2 | 2.0 |
| 20 | BSS8021 | 3 | 3 | 3 | 3.5 | 4 | 14-16 | 3 | 3.5 | 8.1 | 1.8 |
| 21 | BSS37244 | 1.75 | 2.75 | 2.5 | 2 | 3.5 | 16-18 | 3.75 | 2.75 | 8.2 | 1.9 |
| 22 | Euphoria | 3 | 4 | 3.5 | 3 | 4.25 | 14-16 | 3.5 | 4.5 | 8.3 | 1.9 |
| 23 | Nirvana | 2.75 | 3 | 3 | 2 | 4.5 | 16-18 | 3 | 3 | 8.1 | 1.8 |
| 24 | NirvanaRMN4 | 1.5 | 2.75 | 2.5 | 2.25 | 4 | 16-18 | 3.5 | 3.75 | 8.3 | 1.9 |
| 25 | Solstice | 3 | 3.75 | 3 | 3 | 4 | 14-16 | 3.5 | 3.5 | 8.4 | 1.9 |
| 26 | Eden | 2 | 3.25 | 3 | 2.25 | 4 | 16-18 | 4 | 3.5 | 8.1 | 1.9 |
| 27 | EdenRMN3 | 1.5 | 2.25 | 2 | 2 | 4 | 16-18 | 4 | 4 | 8.2 | 1.8 |
| 28 | Take Off | 1.5 | 4 | 2 | 3.75 | 3.75 | 16-18 | 3.5 | 4 | 9.2 | 2 |
| 29 | Freedom | 1.5 | 4 | 2 | 3 | 4 | 18-20 | 3.5 | 3 | 8.5 | 2.1 |
| 30 | Kickoff | 2.25 | 3.25 | 3 | 3.5 | 4 | 14-18 | 3 | 3.75 | 9.0 | 1.9 |
| 31 | XT20173 | 1.5 | 2 | 2 | 2 | 2.75 | 16-18 | 2 | 4 | 8.2 | 1.9 |
| 32 | XT274A | 2 | 2.5 | 2 | 2.75 | 3.75 | 16-18 | 2.5 | 3.5 | 9.0 | 2.0 |
| 33 | American Beauty | 3 | 4 | 3.5 | 3.5 | 4 | 18-20 | 3 | 4 | 8.0 | 1.9 |
| 34 | Glacial | 2.5 | 4 | 3 | 2 | 4 | 18-20 | 4 | 4 | 8.8 | 2.0 |
| 35 | Hero | 3 | 4 | 3 | 3.5 | 4 | 16 | 2.75 | 4 | 8.3 | 1.9 |
| 36 | Catalyst | 2.25 | 2 | 2 | 2.5 | 4 | 14-16 | 3.5 | 4 | 8.7 | 1.8 |
| 37 | XT2472 | 2.25 | 3.75 | 3 | 3.5 | 4 | 14-16 | 3.5 | 3 | 9.1 | 1.8 |
| 38 | XT1572 | 1.75 | 3.5 | 2 | 3.25 | 4 | 16-18 | 4 | 3.75 | 9.0 | 1.9 |
| 39 | Signature | 2.25 | 2.75 | 2.5 | 3.5 | 4 | 14-16 | 2.75 | 3 | 8.5 | 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 | | |  |
| **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 | Super Surprise | 2.5 | 2.75 | 2.25 |
| 2 | Apollo | 2 | 2.5 | 2.5 |
| 3 | Anthem XR | 3 | 3.5 | 3.5 |
| 4 | Coastal | 2.5 | 3.25 | 2.5 |
| 5 | Elle | 3.5 | 3.75 | 3.5 |
| 6 | HMX59VS826 | 3.75 | 3.75 | 3.5 |
| 7 | Raquel | 3.25 | 3 | 3.25 |
| 8 | Rosie | 3.5 | 3.5 | 3.5 |
| 9 | Kate | 3.75 | 3.75 | 4 |
| 10 | Flagler | 3.5 | 3 | 2.75 |
| 11 | HMX59BS830 | 3.25 | 2.5 | 2.5 |
| 12 | HMX59BS606 | 3.5 | 3.25 | 2.75 |
| 13 | Ex08767143 | 1.5 | 2.5 | 2 |
| 14 | Affection | 2.25 | 2.75 | 2.5 |
| 15 | SC1336 | 2 | 2.25 | 2.25 |
| 16 | Jubilation | 2 | 3.25 | 3 |
| 17 | WSS8072 | 2.25 | 2 | 1.5 |
| 18 | SV1580SC | 2.5 | 2 | 2 |
| 19 | Patriarch | 2.75 | 3.25 | 3.25 |
| 20 | BSS8021 | 1.5 | 2.5 | 2 |
| 21 | BSS37244 | 3.5 | 3.25 | 2.75 |
| 22 | Euphoria | 3.75 | 4.25 | 3.25 |
| 23 | Nirvana | 4.5 | 4 | 2.75 |
| 24 | NirvanaRMN4 | 3.5 | 3.75 | 3 |
| 25 | Solstice | 4.25 | 4.5 | 3.5 |
| 26 | Eden | 4.5 | 4.5 | 4 |
| 27 | EdenRMN4 | 3.5 | 3.75 | 3.75 |
| 28 | Take Off | 2.5 | 2.75 | 3 |
| 29 | Freedom | 3.5 | 4.25 | 4 |
| 30 | Kickoff | 3.5 | 3.75 | 3 |
| 31 | XT20173 | 3.75 | 3.75 | 3.75 |
| 32 | XT274A | 2.5 | 3 | 2 |
| 33 | American Beauty | 3.5 | 3.5 | 3.5 |
| 34 | Glacial | 4 | 4.5 | 4 |
| 35 | Hero | 2.75 | 2.5 | 2.25 |
| 36 | Catalyst | 2 | 3.5 | 2.5 |
| 37 | XT2472 | 2.5 | 3 | 3.25 |
| 38 | XT1572 | 3.25 | 3.25 | 3.5 |
| 39 | Signature | 3.5 | 4 | 3.25 |

**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.**



Acknowledgments

This project was supported by grant funds from OPGMA Vegetable and Small Fruit Research Grant and in-kind contributions from the following seed companies: Rispen, Crookham, Harris Morran, Seminis, Seedway, Rupp and Syngenta.

M. Hofelich managed field operations. Hofelich, F. Thayer, R. Shaw and North Central Agricultural Research Station seasonal staff assisted with fieldwork and data collection. Editors were Bethany Lortcher and Amy Palm of Huron County Extension.