Midwest Vegetable Trial Reports                     Purdue Fruit and Vegetable Connection

1-1-2017

# 2016 Ohio Sweet Corn Evaluations

Michael L. Gastier
*The Ohio State University*

Matthew Hofelich
*The Ohio State University*

Allen M. Gahler
*The Ohio State University*

# 2016 Ohio Sweet Corn Evaluations

**Michael 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 Huron and Sandusky Counties 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, 23 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 30 feet and thinned to uniform population across varieties.

The SH2 trial was conducted on Colwood fine sandy loam soil on field CS at the North Central Agricultural Research Station. Best management practices were utilized prior to and during the trial. The field was deep ripped on October 7, 2015. On April 18, 2016, a dry fertilizer application of 100 lbs / acre of 11-52-0, 250 lbs / acre of 46-0-0, 400 lbs / acre of 0-0-60, and 10 lbs / acre of 10% granular Boron. Following application of dry fertilizer the field was plowed using a JD 2600 mold board plow. Secondary tillage including a disk harrow and a soil finisher was completed the following on April 19, 2016. The field was worked with a Danish tine field cultivator on May 18, 2016. The following day the field was fitted again with the Danish tine field cultivator with the addition of a soil firming packer. The plot area was also measured and flagged out on May 19, 2016. The plots were planted in 30 inch rows with an Almaco cone seeder atop John Deere 7000 planter on May 20, 2016 followed by application of 1.25 pts / acre of Dual Magnum and 6 oz. of Interlock. Stand counts were conducted on June 1. The trial was

cultivated on June 8, and 300 lbs / acre of 28% liquid nitrogen was side dressed into the plots also on June 8th.  On June 13, the plots were thinned to a standard of approximately 8.5 inch plant spacing, and the rows trimmed to 25 feet, resulting in 35 plants per row, and a uniform simulated population of 24,400 plants per acre across all varieties and reps.  The trial was hand weeded between plants on June 22. No fungicide applications were made to the trial. Five insecticide applications were made throughout the trial.

Insecticide applications were made as follows:

| | |
|---|---|
| July 5 | Artic 6.0 oz. / acre |
| July 12 | Asana 9.6 oz. / acre |
| July 19 | Coragen - 5 oz. / acre |
| July 26 | Coragen 5.0 oz. / acre |
| August 1 | Radiant 5.0 oz./ acre |

The trial was threatened by drought from its inception so irrigation was implemented when soil moisture was insufficient for optimal plant growth. The following is a record of all irrigation and rainfall on the trial:

| | | |
|---|---|---|
| May | rainfall over crop | 0.35 inches |
| June 20 | irrigation | 1.00 inch |
| June 29 | irrigation | 0.60 inch |
| June | rainfall, 5 events | 2.40 inches |
| July 8 | irrigation | 1.10 inches |
| July | rainfall, 4 events | 1.40 inches |
| July 20 | irrigation | 0.75 inch |
| Total rainfall plus irrigation from planting through harvest | | 7.60 inches. |

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 4 replicated plots.  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 70 data plants present in each rep of each variety following thinning, and the resulting simulated population of 24,400 plants per acre, a "perfect" yield of one ear per plant would result in 84 plants per variety per rep, or 2033 dozen per acre.

In determining the ear evaluation scores, a team of 3 individuals, including the principal investigator and 2 members of the research station staff 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 3 aforementioned individuals.

The growing conditions during this trial were nearly ideal except for the lack of rain. With irrigation, the trial flourished due to above average temperatures, low humidity and the absence of disease pressure. From planting to harvest, the trial was under minimal stress as demonstrated by the fact that many varieties were harvested at or before their predicted maturity dates. Four irrigation events totaling 3.45 inches were crucial to the vigor of the trial.

**Table 1.** Variety characteristics, emergence, observed maturity, and individual ear yield. All varieties planted on April 20, 2016.

| Variety # | Variety Name | Color | Listed Maturity | Harvest Date | Observed Maturity | Population data rows June 12 | Harvested Ears | Marketable Ears |
|---|---|---|---|---|---|---|---|---|
| 1 | SV1446SD | Yellow | 75 | 1-Aug | 72 | 70 | 72 | 71 |
| 2 | SV1580SC | White | 80 | 3-Aug | 74 | 70 | 77 | 74 |
| 3 | EX08767143 | Bi-color | 81 | 3-Aug | 74 | 70 | 75 | 73 |
| 4 | 08B2084 | Bi-color | 76 | 1-Aug | 72 | 70 | 69 | 68 |
| 5 | 09B2437 | Bi-color | 76 | 1-Aug | 72 | 70 | 69 | 68 |
| 6 | Cumberland | Bi-color | 77 | 29-July | 69 | 70 | 73 | 72 |
| 7 | HMX 4372 | Bi-color | 76 | 1-Aug | 72 | 70 | 69 | 67 |
| 8 | Cabo | Bi-color | 78 | 1-Aug | 72 | 70 | 72 | 70 |
| 9 | BSS1075 | Bi-color | N/A | 3-Aug | 74 | 70 | 61 | 60 |
| 10 | CAPBF12-525 | Bi-color | 72 | 27-July | 67 | 70 | 63 | 62 |
| 11 | AP 426 | Bi-color | 79 | 3-Aug | 74 | 70 | 74 | 70 |
| 12 | Nirvana | Bi-color | 75 | 27-July | 67 | 70 | 70 | 67 |
| 13 | CAPBF13-713i | Bi-color | 78 | 29-July | 69 | 70 | 70 | 66 |
| 14 | CAPYF11-452 | Yellow | 74 | 27-July | 67 | 70 | 66 | 63 |
| 15 | Hero | Bi-color | 70 | 27-July | 67 | 70 | 65 | 63 |
| 16 | Kickoff | Bi-color | 70 | 27-July | 67 | 70 | 58 | 56 |
| 17 | Super Surprise | Bi-color | 74 | 29-July | 69 | 70 | 72 | 71 |
| 18 | Xtra Tender 274A | Bi-color | 74 | 27-July | 67 | 70 | 61 | 60 |
| 19 | Stellar XR | Bi-color | 77 | 27-July | 67 | 70 | 74 | 72 |
| 20 | Honor XR | Bi-color | 79 | 3-Aug | 74 | 70 | 68 | 67 |
| 21 | Prestige XR | Bi-color | 77 | 29-July | 69 | 70 | 73 | 72 |
| 22 | Eden | White | 76 | 27-July | 67 | 70 | 63 | 61 |
| 23 | Aces | Bi-color | 79 | 3-Aug | 74 | 70 | 65 | 64 |

**Table 2.** Harvest Data.

| Variety # | Variety Name | Ear Height (in.) | Suckers | Snap | Harvested Dozen/ acre | Marketable Dozen/ acre |
|---|---|---|---|---|---|---|
| 1 | SV1446SD | 25 | 5 | 2.5 | 2088 | 2059 |
| 2 | SV1580SC | 29 | 3 | 3.8 | 2233 | 2146 |
| 3 | EX08767143 | 26 | 3 | 4.0 | 2175 | 2117 |
| 4 | 08B2084 | 28 | 5 | 4.3 | 2001 | 1972 |
| 5 | 09B2437 | 25.5 | 5 | 3.3 | 2001 | 1972 |
| 6 | Cumberland | 21.5 | 3 | 3.0 | 2117 | 2088 |
| 7 | HMX 4372 | 24.5 | 5 | 3.5 | 2001 | 1943 |
| 8 | Cabo | 25 | 3 | 4.0 | 2088 | 2030 |
| 9 | BSS1075 | 30 | 5 | 3.3 | 1769 | 1740 |
| 10 | CAPBF12-525 | 18.5 | 5 | 3.3 | 1827 | 1798 |
| 11 | AP 426 | 22 | 3 | 2.8 | 2146 | 2030 |
| 12 | Nirvana | 19 | 5 | 4.0 | 2030 | 1943 |
| 13 | CAPBF13-713i | 29 | 5 | 2.8 | 2030 | 1914 |
| 14 | CAPYF11-452 | 19 | 5 | 2.5 | 1914 | 1827 |
| 15 | Hero | 22 | 5 | 2.9 | 1885 | 1827 |
| 16 | Kickoff | 23 | 5 | 3.7 | 1682 | 1624 |
| 17 | Super Surprise | 24 | 5 | 3.8 | 2088 | 2059 |
| 18 | Xtra Tender 274A | 20.5 | 5 | 4.0 | 1769 | 1740 |
| 19 | Stellar XR | 24 | 3 | 3.0 | 2146 | 2088 |
| 20 | Honor XR | 30 | 3 | 3.5 | 1972 | 1943 |
| 21 | Prestige XR | 25.5 | 5 | 3.1 | 2117 | 2088 |
| 22 | Eden | 17.5 | 5 | 3.8 | 1827 | 1769 |
| 23 | Aces | 26 | 1 | 4.2 | 1885 | 1856 |

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

| Var-iety # | Variety Name | Husk Cover | Flags | Over-all Husk | Shank | Tip Fill | Rows | Rowing | Color | Length (in) | Dia-meter (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SV1446SD | 2 | 2 | 3.5 | 3.25 | 5 | 17.5 | 4.75 | 4.25 | 8.5 | 1.8 |
| 2 | SV1580SC | 1.5 | 3 | 3.75 | 2.5 | 5 | 18 | 5 | 4.25 | 8.2 | 1.9 |
| 3 | EX08767143 | 2 | 4.25 | 4 | 3.25 | 5 | 17 | 4.75 | 4.5 | 8.3 | 1.9 |
| 4 | 08B2084 | 3 | 4 | 3.75 | 3.25 | 5 | 18 | 4.75 | 4.25 | 7.5 | 1.9 |
| 5 | 09B2437 | 2.75 | 4 | 4 | 2.5 | 4.75 | 16.5 | 3 | 4.5 | 8.3 | 1.8 |
| 6 | Cumberland | 2.25 | 4 | 4.25 | 2.25 | 4.75 | 16 | 3.75 | 4.25 | 8.5 | 1.8 |
| 7 | HMX 4372 | 1.5 | 4 | 4 | 3.5 | 4.75 | 18 | 3 | 3 | 8.3 | 2 |
| 8 | Cabo | 2 | 4 | 4 | 3.25 | 4.75 | 17 | 4.5 | 4.25 | 8.1 | 1.9 |
| 9 | BSS1075 | 1.75 | 3 | 3.5 | 2.75 | 5 | 18 | 4 | 4.75 | 8.1 | 1.9 |
| 10 | CAPBF12-525 | 3 | 3.5 | 4 | 3 | 5 | 15 | 5 | 4.5 | 7.8 | 1.9 |
| 11 | AP426 | 2.75 | 4 | 4 | 4 | 5 | 16 | 4.5 | 3.75 | 8.4 | 2 |
| 12 | Nirvana | 2 | 2.75 | 3.75 | 2.5 | 5 | 17 | 4.75 | 3.75 | 8.1 | 1.8 |
| 13 | CAPBF13-713i | 1.25 | 2.5 | 3.25 | 1.5 | 5 | 18 | 3.75 | 3.25 | 7.9 | 1.7 |
| 14 | CAPYF11-452 | 3 | 3.75 | 4 | 3 | 5 | 16 | 3.75 | 3.75 | 7.6 | 1.8 |
| 15 | Hero | 3.5 | 4.25 | 4 | 2 | 5 | 16.5 | 4.75 | 3.75 | 7.9 | 1.8 |
| 16 | Kickoff | 2 | 4 | 4 | 2 | 5 | 17.5 | 3.75 | 3.5 | 8.4 | 1.9 |
| 17 | Super Surprise | 3 | 4.75 | 4 | 4.5 | 4.75 | 17 | 3.75 | 4.25 | 8 | 1.9 |
| 18 | Xtra Tender 274A | 2 | 3.25 | 4 | 3 | 4.5 | 18 | 3.5 | 4 | 8.4 | 2 |
| 19 | Stellar XR | 2 | 2.75 | 3.5 | 2 | 5 | 16 | 4 | 3 | 7.9 | 1.8 |
| 20 | Honor XR | 1.75 | 2 | 3 | 1.5 | 5 | 17 | 5 | 5 | 8.2 | 1.8 |
| 21 | Prestige XR | 2 | 3.5 | 3.5 | 2.75 | 5 | 16.5 | 4.75 | 4.5 | 7.9 | 1.7 |
| 22 | Eden | 2.5 | 3 | 3.5 | 1.25 | 5 | 16 | 3.75 | 5 | 7.8 | 1.8 |
| 23 | Aces | 2 | 4 | 4 | 3 | 4.75 | 16 | 5 | 4.75 | 8.4 | 1.8 |

**Rating Scale for Table 3.**

| | Rating Scale | | |
|---|---|---|---|
| **Characteristic** | **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. Estimated Eating Experience of Fresh Corn (Uncooked). All scores are reported as the average of 5 ears from each variety.

| Variety # | Variety Name | Tenderness | Sweetness | Flavor |
|---|---|---|---|---|
| 1 | SV1446SD | 4.0 | 4.75 | 4.25 |
| 2 | SV1580SC | 3.5 | 4.75 | 3.75 |
| 3 | EX08767143 | 3.75 | 4.5 | 4.5 |
| 4 | 08B2084 | 3.5 | 3.75 | 3.5 |
| 5 | 09B2437 | 2.25 | 4.0 | 3.5 |
| 6 | Cumberland | 4.5 | 5.0 | 4.5 |
| 7 | HMX 4372 | 4.75 | 4.75 | 4.75 |
| 8 | Cabo | 4.25 | 4.75 | 4.25 |
| 9 | BSS1075 | 3.0 | 4.5 | 3.25 |
| 10 | CAPBF12-525 | 5.0 | 4.0 | 4.25 |
| 11 | AP 426 | 3.5 | 4.25 | 4.0 |
| 12 | Nirvana | 4.5 | 5.0 | 4.0 |
| 13 | CAPBF13-713i | 5.0 | 5.0 | 5.0 |
| 14 | CAPYF11-452 | 4.5 | 4.0 | 4.0 |
| 15 | Hero | 4.5 | 3.5 | 3.5 |
| 16 | Kickoff | 4.0 | 4.0 | 4.0 |
| 17 | Super Surprise | 3.5 | 4.5 | 4.25 |
| 18 | Xtra Tender 274A | 3.5 | 4.0 | 3.0 |
| 19 | Stellar XR | 3.75 | 4.0 | 4.0 |
| 20 | Honor XR | 4.5 | 4.75 | 4.5 |
| 21 | Prestige XR | 3.5 | 4.75 | 4.5 |
| 22 | Eden | 5.0 | 4.75 | 4.75 |
| 23 | Aces | 4.75 | 5.0 | 5.0 |

**Rating Scale for Table 4.**

| | Rating Scale | | |
|---|---|---|---|
| **Characteristic** | **1** | **3** | **5** |
| Sweetness | Starchy/bland | Average | Very sweet/sugary |
| Tenderness | Tough | Average | Very Tender |
| Flavor | Poor | Good | Outstanding |
| BRIX (sugar content) | Refractometer readings were inconsistent due to equipment failure. Brix will not be published for this trial. | | |