

Two Years of Sweet Corn Cultivar Evaluations

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To provide growers with information for successful, region specific cultivar selection, in 2012-13, we evaluated 25 cultivars of bicolor and white synergistic sweet corn grown in a conventional system across the state. Evaluations were located in southwestern Pennsylvania at Schramm Farms in Harrison City, Westmoreland County, in central Pennsylvania at the Russell E. Larson Research and Education Center in Rock Springs, and in southeastern Pennsylvania at the Southeast Research and Extension Center in Landisville.

The cultivars and year(s) evaluated and company from which seed were acquired from are listed below. The standard used was 'Temptation'.

Synergistic Sweet Corn Varieties for Statewide Trial; 2012-13

<u>Cultivar</u>	<u>Year(s) Evaluated</u>	<u>Seed Company</u>
Bicolor		
Allure	2012-13	Rupp Seeds, Wauseon, OH
BC 0805	2012-13	SeedWay, Elizabethtown, PA
Bicolor 1102	2012-13	Seminis Vegetable Seeds, Oxnard, CA
Cuppa Joe	2012-13	Rupp Seeds
Espresso	2012-13	Rupp Seeds
Jackie	2012-13	Harris Moran Seed Co., Modesto, CA
Ka-Ching	2012-13	SeedWay
Kristine	2012-13	Seigers/Crookham Seed Co., Holland, MI
Montauk	2012-13	Harris Moran Seed Co.
Primus	2012-13	SeedWay
Paydirt	2012-13	SeedWay
Profit	2012-13	SeedWay
Providence	2012-13	SeedWay
1273	2012	Seigers Seed Co.
1274	2012	Seigers Seed Co.
Synergy	2012-13	Seigers Seed Co.
Temptation*	2012-13	Seigers Seed Co.
Temptation II	2012-13	Seminis Vegetable Seeds
SV 9014	2013	Seminis Vegetable Seeds
White		
Avalon	2012-13	SeedWay
Captivate	2012-13	Rupp Seeds
Edelweiss	2012-13	Harris Moran Seed Co.
Illusion	2012-13	Rupp Seeds
Mattapoisett	2012-13	SeedWay
Silver Duchess	2012-13	Seigers Seed Co.
Whiteout	2012-13	SeedWay

*se heterozygous (standard)

At all locations sweet corn was direct seeded with 8-10 inches between plants in a row. In the southwestern location 38 inch spacing was used between rows and in central and southeastern locations 30 inch spacing was used. Planting took place on 6 June 2012 and 21 May 2013 in southwestern Pennsylvania, 1 June 2012 and 2013 in central Pennsylvania, and 21 May 2012 and 30 May 2013 in southeastern Pennsylvania.

At the southwestern site, in 2012, 144.5 lb/acre N, 117 lb/acre P and 87 lb/acre K were applied as follows: 57 lb N, 57 lb P and 57 lb K per acre were broadcast preplant, 30 lb N, 60 lb P and 30 lb K per acre were banded at planting and 57.5 lb/acre N was sidedressed. In 2013 200 lb of 19-19-19 per acre was applied. Plants were irrigated during periods of limited rainfall. Weeds were managed with pre-emergent herbicides: atrazine (1 Q/acre atrazine; Syngenta Crop Protection LLC, Wilmington, DE) and metolachlor (1.5 Qt/acre Dual II Magnum; Syngenta Crop Protection LLC, Wilmington, DE). Insects were managed with four applications of methomyl (1.5 pt/acre Lannate LV; DuPont Crop Protection, Wilmington, DE) plus lambda-cyhalothrin (1.5 oz/acre Warrior II; Syngenta Crop Protection LLC, Wilmington, DE).

At the central site, in 2012, 50 lb/acre N and 45 lb/acre phosphate were broadcast preplant. Based on soil levels, K was not added. In 2013 50 lb/acre N was broadcast preplant. Weeds were managed with a preplant application of mesotrione (3 oz/acre Callisto; Syngenta Crop Protection LLC, Wilmington, DE) and atrazine and metolachlor (1.5 pt/acre Bicep II Magnum; Syngenta Crop Protection LLC, Wilmington, DE). Insect pests and diseases were left unmanaged. Supplemental water was provided through a drip irrigation (T-Tape model 508-12-450; John Deere, Moline, IL) system to reach 1-1.5 acre-inch water per week.

At the southeast site, in 2012 150 lb/acre N, 50 lb/acre P and 50 lb/acre K were broadcast preplant. In 2013 100 lb/acre N, 160 lb/acre P and 160 lb/acre K were applied preplant. Weeds were managed in both years with preplant applications of glyphosate (2 qt/acre Credit 41; Nufarm Inc., Burr Ridge, IL), metolachlor (1.2 pt/acre Dual II Magnum; Syngenta Crop Protection Inc., Greensboro, NC) and atrazine (1 qt/acre; Makhteshim Agan of North America, Inc., Raleigh, NC). Insects were controlled with weekly applications of lambda-cyhalothrin (3 oz/acre Warrior; Syngenta Crop Protection Inc., Greensboro, NC) starting at silk in both years.

Ears from 10-15 plants were harvested when all plants of an individual cultivar reached maturity. Data to estimate the work involved in hand harvest was recorded. Ears were categorized as marketable or unmarketable, counted and weighed. Ear quality from a subset of 10 ears per plot was also determined.

Husked ear appearance, unhusked ear appearance, the extent to which the husk covered the ear tip (tip cover), kernels filling the tip of the ear (tip fill), and the relative level of work involved in snapping the ear from the culm (picking ease) were rated using a 5 point scale. For husked ear appearance and unhusked ear appearance 1= poor and 5 = good; tip cover 1= exposed ear tip, 2 = husk cover less than 0.75 in past ear tip, 3 = 0.75 to 1.24 in, 4 = 1.25 to 2 in, 5 = greater than 2 in; tip fill 5 = kernels filled to tip of ear, 4 = greater than 0.5 in unfilled, 3 = 1 to 1.5 in, 2 = 1.6 to 2 in, 1 = greater than 2 inches; and picking ease 1 = difficult, 5 = easy.

All data were subjected to analysis of variance (ANOVA) using the GLM procedure in SAS (version 9.2; SAS Institute, Cary, NC). When P values were less than or equal to 0.05, means were separated using Duncan's multiple comparison test.

Statewide Results

In determining whether a cultivar was suited for statewide recommendation, the criterion was that it must have produced comparable or superior yields to 'Temptation' in a minimum of two of the evaluation sites over both trial years.

Estimating the work involved in hand harvesting

The distance from the soil line to the base of the primary ear and picking ease were collected as an indication of the work involved in hand harvesting.

With the exception of 'Synergy', all cultivar met the criterion above for distance from the soil line to the primary ear. For the following cultivars picking ease rating met the criterion above: Mattapoisette, Primus, Edelweiss, Avalon, Temptation II, Montauk, Cuppa Joe, Jackie, Allure, Bicolor 1102, Illusion, Silver Duchess, Profit, Espresso, Kristine and Paydirt.

Yields

Based on marketable yield results all cultivars met the criterion above for number of ears. With the exception of 'Paydirt', all cultivars met the criterion above for weight of marketable ears.

Ear Quality

Ear quality is just as important as marketable yield in making profits. Consumers are first attracted to the appearance of the ear, while taste can result in repeat purchases. In most US markets, consumers prefer an 8-9 in ear with a dark green husk, long and dark green flag leaf, and 16 straight rows of small deep and sweet kernels filled to the tip of the ear (Tracy, 2001).

In terms of ear length all cultivars met the criterion. For ear diameter 'BC 0805', 'Espresso' and 'Cuppa Joe' did not meet the criterion while the remaining cultivars were comparable or superior to 'Temptation'. For husked and unhusked appearance all cultivars met the criterion. All ears were completely covered by the husk; however, 'Cuppa Joe' and 'Jackie' did not meet the criterion above while all other cultivars did. Regarding tip fill, 'Cuppa Joe', and 'Profit' did not meet the criterion above while all other cultivars did.

The number of rows was only evaluated in more than one location in one year of the study. Based on the criterion of producing comparable or superior results to 'Temptation' in a minimum of two evaluation sites, the number of rows for all cultivars except 'Paydirt' and 'Illusion' were not different or superior to 'Temptation'.

Brix levels were only evaluated in one year of the study. Based on the criterion of producing comparable or superior results to 'Temptation' in a minimum of two evaluation sites, all cultivars had brix levels not different than or superior to 'Temptation'.

Literature Cited

"Sweet Corn" by W.F. Tracy, *In: Specialty Corns*, 2nd ed., 2001, A.R. Hallauer, ed.