UGA Onion Variety Trial Report 2024 – 2025 Crop Season

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Introduction

The University of Georgia evaluates short day onion varieties to determine their performance characteristics in standardized growing practices. Variety entries for the trial are submitted by participating seed companies. These trials are conducted at the Vidalia Onion and Vegetable Research Center (VOVRC) located in Lyons, Georgia.

Materials and Methods

There were 49 variety entries entered into the 2024 – 2025 UGA Onion Variety trial. After seed entries were received, seedbeds were grown for transplant production by UGA staff at the VOVRC. Pre-plant seedbed treatment included a 75 gallon per acre fumigation treatment of metam sodium for weed and disease suppression. The seedbeds were planted on September 23, 2024 and the trial was transplanted on November 19, 2024. Upon harvest and grading, yield measurements are taken, and a 10 bulb sample of jumbo onions per plot is sent to the UGA Crop Quality Laboratory in Athens, Georgia, to undergo flavor testing. Seedbed and trial fertility, as well as fungicide programs are listed below. The trial evaluates each variety replication in a 20 foot long by 6 foot wide plot, containing 240 bulbs. Each variety was replicated four times and harvested based on a committee decision of maturity. The transplant population for the trial was equivalent to 87,120 plants per acre.

Seedbed Fertility:

750 lb/A of 5-10-15 applied September 5, 2024 (preplant incorporated)
100 lb/A of 5-10-15 applied October 10, 2024
100 lb/A of 5-10-15 applied October 17, 2024
200 lb/A of 5-10-15 applied November 21, 2024

Total lbs/A applied: 57.5 (N) – 115 (P) – 172.5 (K) – 80.5 (S) – 103.5 (Ca)

**Note: All fertilizer applications were applied with a First Products brand drop spreader.*

Seedbed Pesticides Applied:

Date	Product Applied
August 9, 2024	Vapam HL (75 gal/A)
October 24, 2024	Badge SC (1 pt/A)
November 10, 2024	Badge SC (1 pt/A)
November 17, 2024	Badge SC (1 pt/A) + Fontelis (24 oz/A)
November 21, 2024	Badge SC (1 pt/A) + Fontelis (24 oz/A)

Trial Fertility in Transplanted Field:

200 lb/A of 5-10-15 applied November 21, 2024
200 lb/A of 5-10-15 applied December 2, 2024
400 lb/A of 5-10-15 applied January 9, 2025
400 lb/A of 5-10-15 applied January 30, 2025
150 lb/A of calcium nitrate applied February 15, 2025
150 lb/A of calcium nitrate applied February 26, 2025

Total lbs/A applied: 106.5 (N) – 120 (P) – 180 (K) – 84 (S) – 165 (Ca)

**Note: Soil sample test results called for 125 -150 lb/A nitrogen, 60 lb/A of phosphorus, 90 lb/A of potash, and 40 – 60 lb/A of sulfur. All fertilizer applications applied with a First Products brand drop spreader. Sulfur content of 5-10-15 fertilizer applied was 7%.*

Fungicides Applied:

Date	Fungicide Applied
January 5, 2025	Fontelis (24 oz/A) + Badge SC (1 pt/A)
January 12, 2025	Rampart (2 qt/A) + Bravo (1 qt/A)
January 19, 2025	Badge SC (1 pt/A) + Miravis Prime (11.4 oz/A)
February 7, 2025	Inspire Super (20 oz/A) + Badge SC (1 pt/A)
February 12, 2025	Luna Flex (14 oz/A) + Lifegard (2 oz/A)
February 24, 2025	Omega 500 (16 oz/A) + Badge SC (1 pt/A)
March 3, 2025	Miravis Prime (11.4 oz)
March 11, 2025	Luna Flex (14 oz/A) + Badge SC (1 pt/A)
March 18, 2025	Inspire Super (20 oz/A) + Lifegard (2 oz/A) + Badge SC (1 pt/A)
March 24, 2025	Fontelis (24 oz/A) + Badge SC (1 pt/A) + Lifegard (2 oz/A)

Insecticides Applied:

Date	Product Applied
March 3, 2025	Torac (24 oz/A)
March 18, 2025	Torac (24 oz/A)
March 24, 2025	Exirel (20.5 oz/A)

Herbicides Applied:

Date	Product Applied
November 25, 2024	Goal 2XL (1 qt/A) + Prowl (1 qt/A)

Table 1. Variety Entries in the 2024-2025 UGA Vidalia Onion Variety Trial.

Variety	Company	Type
Candy Kim	Solar	Yellow Granex
Candy Ann	Solar	Yellow Granex
Candy Joy (Lot # 24-2010-24A)	Solar	Yellow Granex
Candy Joy (Lot #24-1099-24)	Solar	Yellow Granex
Fast Track	Vilmorin-Mikado	Yellow Granex
EMY 55455 "Reforma"	Emerald	Yellow Granex
EMY 55126 "Copada"	Emerald	Yellow Granex
EMY 55186	Emerald	Yellow Granex
Sweet Magnolia	Seminis	Yellow Granex
Century	Seminis	Yellow Granex
Sweet Azalea	Seminis	Yellow Granex
Macon	Bejo	Yellow Granex
Tania	Bejo	Yellow Granex
369	Bejo	Yellow Granex
Maragogi	Bejo	Yellow Granex
Sapelo	DP Seeds	Yellow Granex
Georgia Boy	DP Seeds	Yellow Granex
DP 1407	DP Seeds	Yellow Granex
Early Sweet	DP Seeds	Yellow Granex
Superex	American Takii	Yellow Granex
XON-404Y	Sakata	Yellow Granex
XON-300Y	Sakata	Yellow Granex
XON-106Y	Sakata	Yellow Granex
Vidora	Nunhems	Yellow Granex
Plethora	Nunhems	Yellow Granex

Variety	Company	Type
Nunhems 1014	Nunhems	Yellow Granex
Nunhems 1011	Nunhems	Yellow Granex
Nunhems 1015	Nunhems	Yellow Granex
10258	Hazera	Yellow Granex
A2801	Hazera	Yellow Granex
A2290	Hazera	Yellow Granex
OSYF23-5084	Crookham	Yellow Granex
OSYF23-5082	Crookham	Yellow Granex
OSYF12-7091	Crookham	Yellow Granex
OSYF10-4021	Crookham	Yellow Granex
OSYF22-4022	Crookham	Yellow Granex
Gilmore 26	Pike's Seed	Yellow Granex
AG-3310	Amerigrow	Yellow Granex
Rio Del Sol	American Takii	Yellow Grano
Rio Dulce	American Takii	Yellow Grano
Dulciana	Nunhems	Yellow Grano
Tacoma	Bejo	Yellow Grano
Naranco	Bejo	Yellow Grano
Ms. Scarlett	Hazera	Red
Red Halen	Seminis	Red
Red Maiden	Seminis	Red
Chianti	DP Seeds	Red
Sofire	Nunhems	Red
Alba Blanca	Seminis	White

Harvest Timing
Each variety was selected for harvest based upon signs of weak tops and/or adequately sized bulbs. Participating seed companies reserve the right to specify when or what characteristics determine the harvest of their variety. Varieties were clipped 7 days after their dig date. Growing Degree Days (GDD) aid us in forecasting harvest maturity for onions. A base temperature of 50ºF with no maximum temperature is used in formulating GDD's accumulated.

Table 2. Harvest Schedule of 2024-2025 Vidalia Onion Variety Trial.

Variety	Maturity	Planting Date	Dig Date	Days After Transplanting to Digging	GDD Accumulation 50ºF Base,
Candy Joy (Lot #24-2010-24A), Candy Joy (Lot#24-1099-24) Candy Ann, Fast Track, 1407, Vidora	Very Early	November 19, 2024	April 1, 2025	133 days	869
Candy Kim, Early Sweet, 1011, 404Y, OSYF10-4021, OSYF12-7091, OSYF22-4022, OSYF 23-5082, OSYF23-5084, AG 3310, Naranco,	Early	November 19, 2024	April 8, 2025	140 days	1026
Sapelo, 106Y, 300Y, 10258, 1015, Maragogi, Dulciana, Plethora,	Early – Main	November 19, 2024	April 15, 2025	147 days	1117
Reforma, Copada, Century, Sweet Magnolia, Sweet Azalea, Red Maiden, Red Halen, Alba Blanca, Chianti, GA Boy, Superex, Rio Dulce, Rio Del Sol, Tania, 369, Tacoma, Sofire, EMY 55186	Main	November 19, 2024	April 22, 2024	154 days	1259
Macon, 1014, A2801, A2290, Gilmore 26, Ms. Scarlett	Late	November 19, 2024	April 29, 2024	161 days	1421

Results and Discussion

The following tables show field weights, marketable yields, colossal yields, jumbo yields, medium yields, and cull yield. For additional information regarding the performance of a given variety, please contact your Extension Agent or the Vidalia Onion and Vegetable Research Center. We would like to thank the participating seed companies as well as the Vidalia Onion Committee for their support of this trial.

Table 3. Vidalia Onion **Field Weights** (40 lb. boxes/acre) measured ***before*** grading.

Variety	40 lb. box/Acre	
1014	1847.9	a
Tacoma	1798	ab
369	1733.3	abc
Tania	1691.4	abcd
Ms. Scarlett	1647.1	abcde
Sweet Magnolia	1604	abcdef
Macon	1579.1	bcdefg
Alba Blanca	1564.3	bcdefgh
GA Boy	1554.1	bcdefgh
1015	1545	cdefgh
Rio Dulce	1537.1	cdefghi
Superex	1530.3	cdefghij
Reforma (EMY 55455)	1491.7	cdefghijk
XON 300Y	1496.2	cdefghijk
Century	1481.5	defghijk
Early Sweet	1466.8	defghijk
OSYF23-5084	1477	defghijk
XON 106Y	1479.2	defghijk
Candy Kim	1452	defghijkl
Sofire	1452	defghijkl
1011	1430.5	efghijklm
Gilmore 26	1425.9	efghijklm
Red Halen	1422.5	efghijklm
EMY 55186	1412.3	efghijklmn
AG-3310	1369.2	fghijklmno

Variety	40 lb. box/A	
Maragogi	1362.4	fghijklmno
Naranco	1369.2	fghijklmno
OSYF23-5082	1361.3	fghijklmno
Sweet Azalea	1395.3	fghijklmno
Copada (EMY 55126)	1348.8	ghijklmno
A2290	1338.6	ghijklmnop
Candy Ann	1315.9	hijklmnopq
10258 (formerly A1298)	1289.8	ijklmnopq
Plethora	1293.2	ijklmnopq
Fast Track	1283	jklmnopq
Rio Del Sol	1283	jklmnopq
1407	1260.3	klmnopq
Dulciana	1270.5	klmnopq
OSYF22-4022	1277.3	klmnopq
Red Maiden	1246.7	klmnopq
Vidora	1249	klmnopq
A2801	1204.7	lmnopq
OSYF10-4021	1207	lmnopq
Candy Joy (Lot # 24-2010-24A)	1188.8	mnopq
SON-404Y	1191.1	mnopq
Chianti	1165	nopq
Sapelo	1152.5	opq
OSYF12-7091	1094.7	pq
Candy Joy (Lot # 24-1099-24)	1085.6	q

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$)

Table 4. Vidalia Onion **Total Marketable Yield** (40 lb. boxes/acre) measured ***after*** grading.

Variety	40 lb. box/A	
1014	1613.1	a
Tacoma	1599.5	a
Ms. Scarlett	1481.5	ab
XON 106Y	1452	abc
369	1427	abcd
1011	1386.2	abcde
Candy Kim	1383.9	abcde
Macon	1356.7	abcde
Rio Dulce	1383.9	abcde
Sofire	1379.4	abcde
Tania	1386.2	abcde
Early Sweet	1343.1	abcdef
AG-3310	1270.5	abcdefg
Maragogi	1300	abcdefg
OSYF23-5084	1275	abcdefg
XON 300Y	1302.3	abcdefg
1015	1204.7	bcdefgh
Candy Ann	1197.9	bcdefgh
Dulciana	1202.4	bcdefgh
EMY 55186	1209.2	bcdefgh
Naranco	1197.9	bcdefgh
OSYF23-5082	1218.3	bcdefgh
Plethora	1220.6	bcdefgh
Reforma (EMY 55455)	1218.3	bcdefgh
10258 (formerly A1298)	1188.8	bcdefghi
Century	1123	bcdefghi

Variety	40 lb. box/A	
Fast Track	1163.9	bcdefghi
OSYF22-4022	1143.5	bcdefghi
Red Halen	1132.1	bcdefghi
Rio Del Sol	1159.3	bcdefghi
Superex	1145.7	bcdefghi
Vidora	1132.1	bcdefghi
SON-404Y	1109.4	cdefghij
Copada (EMY 55126)	1095.8	cdefghijk
Candy Joy (Lot # 24-2010-24A)	1079.9	defghijk
Sapelo	1084.5	defghijk
1407	1064	efghijk
Gilmore 26	1055	efghijk
OSYF10-4021	1045.9	efghijk
Candy Joy (Lot # 24-1099-24)	986.9	fghijk
Sweet Magnolia	989.2	fghijk
OSYF12-7091	966.5	ghijk
GA Boy	898.4	hijkl
Red Maiden	871.2	hijkl
A2801	837.2	ijkl
Chianti	837.2	ijkl
A2290	762.3	jkl
Alba Blanca	741.9	kl
Sweet Azalea	599	l

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 5. Vidalia Onion **Colossal Yield** (40 lb. boxes/acre) measured ***after*** grading.

Variety	**40 lb. box/A**	
1014	487.8	a
Macon	487.8	a
Ms. Scarlett	446.9	ab
Tacoma	417.5	abc
Tania	383.4	abcd
Superex	301.7	abcde
Gilmore 26	283.6	abcdef
XON 106Y	276.8	bcdefg
Rio Dulce	254.1	bcdefgh
Rio Del Sol	249.6	bcdefghi
XON 300Y	231.4	cdefghij
Reforma (EMY 55455)	215.5	cdefghijk
Sweet Magnolia	220.1	cdefghijk
369	186	defghijk
A2290	192.8	defghijk
Copada (EMY 55126)	188.3	defghijk
A2801	167.9	efghijk
AG-3310	118	efghijk
Candy Kim	108.9	efghijk
Century	167.9	efghijk
Early Sweet	93	efghijk
EMY 55186	138.4	efghijk
GA Boy	163.4	efghijk
OSYF23-5084	118	efghijk
Sofire	163.4	efghijk

Variety	**40 lb. box/A**	
Sweet Azalea	95.3	efghijk
Candy Ann	83.9	fghijk
Naranco	90.8	fghijk
Red Halen	79.4	fghijk
OSYF23-5082	72.6	ghijk
Dulciana	54.5	hijk
OSYF10-4021	56.7	hijk
Plethora	56.7	hijk
Sapelo	52.2	hijk
Fast Track	40.8	ijk
Maragogi	43.1	ijk
OSYF22-4022	43.1	ijk
1011	29.5	jk
1015	29.5	jk
1407	36.3	jk
Alba Blanca	29.5	jk
Candy Joy (Lot # 24-1099-24)	27.2	jk
Candy Joy (Lot # 24-2010-24A)	34	jk
Chianti	38.6	jk
OSYF12-7091	25	jk
SON-404Y	22.7	jk
Vidora	36.3	jk
10258 (formerly A1298)	13.6	k
Red Maiden	11.3	k

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 6. Vidalia Onion **Jumbo Yield** (40 lb. boxes/acre) measured ***after*** grading.

Variety	**40 lb. box/A**	
1011	1293.2	a
369	1220.6	ab
Candy Kim	1218.3	abc
Early Sweet	1197.9	abcd
Maragogi	1184.3	abcde
Sofire	1184.3	abcde
Tacoma	1163.9	abcdef
XON 106Y	1157.1	abcdef
1015	1136.6	abcdefg
10258 (formerly A1298)	1136.6	abcdefg
OSYF23-5084	1118.5	abcdefg
Plethora	1129.8	abcdefg
1014	1104.9	abcdefgh
AG-3310	1095.8	abcdefgh
OSYF23-5082	1086.7	abcdefgh
Rio Dulce	1107.2	abcdefgh
Candy Ann	1050.4	abcdefghi
Fast Track	1052.7	abcdefghi
Dulciana	1045.9	abcdefghij
EMY 55186	1036.8	abcdefghij
Naranco	1034.6	abcdefghij
OSYF22-4022	1043.6	abcdefghij
Vidora	1032.3	abcdefghij
XON 300Y	1045.9	abcdefghij
Ms. Scarlett	1005.1	abcdefghijk
Red Halen	998.3	abcdefghijk
SON-404Y	998.3	abcdefghijk

Variety	**40 lb. box/A**	
Reforma (EMY 55455)	962	abcdefghijkl
Sapelo	962	abcdefghijkl
Tania	977.8	abcdefghijkl
1407	948.3	bcdefghijkl
Candy Joy (Lot # 24-2010-24A)	937	bcdefghijkl
Century	918.8	bcdefghijkl
OSYF10-4021	903	bcdefghijkl
Rio Del Sol	887.1	cdefghijkl
Copada (EMY 55126)	868.9	defghijklm
Candy Joy (Lot # 24-1099-24)	862.1	efghijklm
Macon	844	fghijklm
OSYF12-7091	814.5	ghijklm
Superex	821.3	ghijklm
Red Maiden	782.7	hijklmn
Chianti	744.2	ijklmn
Gilmore 26	753.2	ijklmn
Sweet Magnolia	751	ijklmn
GA Boy	714.7	jklmn
Alba Blanca	694.2	klmn
A2801	648.9	lmn
A2290	551.3	mn
Sweet Azalea	465.1	n

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 7. Vidalia Onion **Medium Yield** (40 lb. boxes/acre) measured ***after*** grading.

Variety	**40 lb. box/A**	
OSYF12-7091	127.1	a
Candy Joy (Lot # 24-2010-24A)	108.9	ab
Dulciana	102.1	ab
Candy Joy (Lot # 24-1099-24)	97.6	abc
OSYF10-4021	86.2	abcd
SON-404Y	88.5	abcd
1407	79.4	abcde
Fast Track	70.3	abcdef
Maragogi	72.6	abcdef
Naranco	72.6	abcdef
Red Maiden	77.1	abcdef
Sapelo	70.3	abcdef
1011	63.5	bcdef
AG-3310	56.7	bcdef
Candy Ann	63.5	bcdef
Candy Kim	56.7	bcdef
Chianti	54.5	bcdef
Early Sweet	52.2	bcdef
OSYF22-4022	56.7	bcdef
OSYF23-5082	59	bcdef
Red Halen	54.5	bcdef
Vidora	63.5	bcdef
1015	38.6	cdef

Variety	**40 lb. box/A**	
10258 (formerly A1298)	38.6	cdef
Copada (EMY 55126)	38.6	cdef
OSYF23-5084	38.6	cdef
Reforma (EMY 55455)	40.8	cdef
Sweet Azalea	38.6	cdef
Century	36.3	def
EMY 55186	34	def
Ms. Scarlett	29.5	def
Plethora	34	def
Sofire	31.8	def
369	20.4	ef
1014	20.4	ef
A2801	20.4	ef
GA Boy	20.4	ef
Macon	25	ef
Rio Del Sol	22.7	ef
Rio Dulce	22.7	ef
Superex	22.7	ef
Tania	25	ef
XON 300Y	25	ef
A2290	18.2	f
Alba Blanca	18.2	f
Gilmore 26	18.2	f
Sweet Magnolia	18.2	f
Tacoma	18.2	f
XON 106Y	18.2	f

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.001$).

Table 8. Vidalia Onion **Cull Weights** (40 lb. boxes/acre) measured ***after*** grading.

Alba Blanca	822.4	a
Sweet Azalea	796.3	a
GA Boy	655.7	ab
Sweet Magnolia	614.8	abc
A2290	576.3	abcd
Red Maiden	375.5	bcde
Superex	384.6	bcde
A2801	367.5	bcdef
Gilmore 26	370.9	bcdef
Century	358.5	cdefg
1015	340.3	cdefgh
Chianti	327.8	cdefghi
369	306.3	defghij
Red Halen	290.4	defghij
Tania	305.1	defghij
1014	234.8	efghij
1407	196.2	efghij
10258 (formerly A1298)	101	efghij
AG-3310	98.7	efghij
Candy Ann	118	efghij
Candy Joy (Lot # 24-1099-24)	98.7	efghij
Candy Joy (Lot # 24-2010-24A)	108.9	efghij
Copada (EMY 55126)	253	efghij
Early Sweet	123.6	efghij
EMY 55186	203.1	efghij
Fast Track	119.1	efghij
Macon	222.3	efghij
Ms. Scarlett	165.6	efghij
Naranco	171.3	efghij
OSYF10-4021	161.1	efghij
OSYF12-7091	128.2	efghij
OSYF22-4022	133.9	efghij
OSYF23-5082	142.9	efghij
OSYF23-5084	201.9	efghij
Reforma (EMY 55455)	273.4	efghij
Rio Del Sol	123.6	efghij
Rio Dulce	153.1	efghij
Tacoma	198.5	efghij
Vidora	116.8	efghij
XON 300Y	194	efghij
SON-404Y	81.7	fghij
Plethora	72.6	ghij
Sofire	72.6	ghij
Candy Kim	68.1	hij
Dulciana	68.1	hij
Maragogi	62.4	hij
Sapelo	68.1	hij
1011	44.2	ij
XON 106Y	27.2	j

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 9. Percent **Colossal** Size of Total Marketable Yield measured ***after*** grading.

Variety	**% Colossal**	
Macon	35.3	a
1014	30.2	ab
Ms. Scarlett	30.1	ab
A2290	26.5	abc
Gilmore 26	27.5	abc
Tania	26.8	abc
Tacoma	26.1	abcd
Superex	25.5	abcde
GA Boy	25.3	abcdef
Rio Del Sol	21.6	abcdefg
Sweet Magnolia	21.6	abcdefg
A2801	19.6	abcdefgh
Copada (EMY 55126)	17	abcdefgh
Reforma (EMY 55455)	17.5	abcdefgh
Rio Dulce	18.1	abcdefgh
XON 106Y	18.8	abcdefgh
XON 300Y	17.7	abcdefgh
369	12.8	bcdefgh
Century	14.7	bcdefgh
Sofire	11.9	bcdefgh
Sweet Azalea	16.1	bcdefgh
AG-3310	9.4	cdefgh
EMY 55186	11.4	cdefgh
OSYF23-5084	9.2	cdefgh
Candy Kim	7.9	defgh

Variety	**% Colossal**	
Naranco	7.5	efgh
Early Sweet	6.9	fgh
Red Halen	7	fgh
1407	3.3	gh
Alba Blanca	4.1	gh
Candy Ann	6.5	gh
Candy Joy (Lot # 24-2010-24A)	3.1	gh
Chianti	4.7	gh
Dulciana	4.5	gh
Fast Track	3.4	gh
Maragogi	3.4	gh
OSYF10-4021	5.4	gh
OSYF22-4022	3.8	gh
OSYF23-5082	5.8	gh
Plethora	4.7	gh
Sapelo	4.8	gh
Vidora	3.1	gh
1011	2.1	h
1015	2.5	h
10258 (formerly A1298)	1.2	h
Candy Joy (Lot # 24-1099-24)	2.7	h
OSYF12-7091	2.5	h
Red Maiden	1.3	h
SON-404Y	2	h

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 10. Percent **Jumbo** Size of Total Marketable Yield measured ***after*** grading.

Variety	**% Jumbo**	
10258 (formerly A1298)	95.5	a
1011	93.4	ab
1015	94.3	ab
Alba Blanca	93.1	ab
Plethora	92.6	ab
Fast Track	90.5	abc
Maragogi	91.1	abc
OSYF22-4022	91.3	abc
Vidora	91.2	abc
Red Maiden	89.8	abcd
SON-404Y	89.9	abcd
1407	89.2	abcde
Candy Ann	88.1	abcde
Candy Kim	88	abcde
Chianti	88.8	abcde
Early Sweet	89.2	abcde
OSYF23-5082	89.3	abcde
OSYF23-5084	87.8	abcde
Red Halen	88	abcde
Sapelo	88.7	abcde
Candy Joy (Lot # 24-1099-24)	87.3	abcdef
Candy Joy (Lot # 24-2010-24A)	86.8	abcdef
Dulciana	86.9	abcdef
369	85.7	abcdefg

Variety	**% Jumbo**	
AG-3310	86.1	abcdefg
Century	82	abcdefg
EMY 55186	85.8	abcdefg
Naranco	86.2	abcdefg
OSYF10-4021	86.3	abcdefg
OSYF12-7091	84.3	abcdefg
Sofire	85.7	abcdefg
A2801	78.1	abcdefgh
Copada (EMY 55126)	79.5	abcdefgh
Reforma (EMY 55455)	79.1	abcdefgh
Rio Del Sol	76.7	abcdefgh
Rio Dulce	80.3	abcdefgh
Sweet Azalea	77.5	abcdefgh
XON 106Y	79.9	abcdefgh
XON 300Y	80.4	abcdefgh
Sweet Magnolia	76.6	bcdefgh
Superex	72.5	cdefgh
Tacoma	72.7	cdefgh
A2290	71.1	defgh
GA Boy	71.6	defgh
Tania	71.4	defgh
Gilmore 26	70.9	efgh
1014	68.6	fgh
Ms. Scarlett	67.9	gh
Macon	62.8	h

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 11. Percent **Medium** Size of Total Marketable Yield measured ***after*** grading.

Variety	% Medium	
OSYF12-7091	13.2	a
Candy Joy (Lot # 24-1099-24)	9.9	ab
Candy Joy (Lot # 24-2010-24A)	10.1	ab
Red Maiden	8.8	abc
Dulciana	8.7	abcd
OSYF10-4021	8.3	abcde
SON-404Y	8.2	abcdef
1407	7.5	bcdefg
Chianti	6.6	bcdefgh
Candy Ann	5.4	bcdefgh i
Fast Track	6.1	bcdefgh i
Maragogi	5.6	bcdefgh i
Naranco	6.3	bcdefgh i
OSYF22-4022	4.9	bcdefgh i
OSYF23-5082	4.9	bcdefgh i
Red Halen	4.9	bcdefgh i
Sapelo	6.5	bcdefgh i
Sweet Azalea	6.4	bcdefgh i
Vidora	5.7	bcdefgh i
1011	4.5	cdefghi
AG-3310	4.5	cdefghi
Candy Kim	4.1	cdefghi

Variety	% Medium	
Copada (EMY 55126)	3.5	cdefghi
Early Sweet	3.9	cdefghi
10258 (formerly A1298)	3.3	defghi
Century	3.3	defghi
Reforma (EMY 55455)	3.4	defghi
1015	3.2	efghi
Alba Blanca	2.9	efghi
GA Boy	3.1	efghi
OSYF23-5084	3.1	efghi
EMY 55186	2.8	fghi
A2290	2.3	ghi
A2801	2.3	ghi
Plethora	2.7	ghi
Sofire	2.4	ghi
369	1.4	hi
1014	1.2	hi
Gilmore 26	1.6	hi
Macon	1.9	hi
Ms. Scarlett	2	hi
Rio Del Sol	1.8	hi
Rio Dulce	1.6	hi
Superex	2	hi
Sweet Magnolia	1.8	hi
Tania	1.8	hi
XON 106Y	1.3	hi
XON 300Y	1.9	hi
Tacoma	1.1	i

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

Table 12. Percent **Culls** of Total Field Weights measured ***after*** grading.

Variety	% Culls	
Alba Blanca	52.9	a
Sweet Azalea	56.9	a
A2290	42.9	ab
GA Boy	41.7	ab
Sweet Magnolia	38.6	abc
A2801	29.9	bcd
Red Maiden	30.1	bcd
Chianti	28.5	bcde
Gilmore 26	26.1	bcdef
Superex	25.2	bcdefg
Century	24.3	bcdefgh
1015	22	cdefghi
Red Halen	20.5	cdefghij
369	17.8	defghij
1014	12.9	defghij
1407	15.6	defghij
Copada (EMY 55126)	18.9	defghij
EMY 55186	14.4	defghij
Macon	14.3	defghij
Naranco	12.5	defghij
OSYF10-4021	13.2	defghij
OSYF12-7091	11.7	defghij
OSYF23-5084	13.7	defghij
Reforma (EMY 55455)	18.3	defghij
Tacoma	11	defghij
Tania	18.3	defghij
XON 300Y	13	defghij
Ms. Scarlett	9.9	efghij
OSYF22-4022	10.5	efghij
OSYF23-5082	10.6	efghij
Rio Del Sol	10.4	efghij
Rio Dulce	10	efghij
Vidora	9.3	efghij
10258 (formerly A1298)	7.8	fghij
AG-3310	7.3	fghij
Candy Ann	8.8	fghij
Candy Joy (Lot # 24-1099-24)	9.1	fghij
Candy Joy (Lot # 24-2010-24A)	9.2	fghij
Early Sweet	8.4	fghij
Fast Track	9.3	fghij
SON-404Y	6.9	ghij
Dulciana	5.3	hij
Plethora	5.6	hij
Sapelo	6	hij
1011	3.1	ij
Candy Kim	4.7	ij
Maragogi	4.5	ij
Sofire	5	ij
XON 106Y	1.9	j

* Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.0001$).

UGA Onion Variety Trial Quality Report 2024 – 2025 Crop Season

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Introduction

Each year the University of Georgia, Agricultural and Environmental Services Laboratories (AESL) evaluates the flavor-associated compounds in the short-day onions grown in the variety trial. These onion varieties are submitted by participating seed companies, grown at the Vidalia Onion and Vegetable Research Center (VOVRC), and once harvested and dried, are submitted to AESL for analysis of the pungency-related compounds; pyruvic acid, lachrymatory factor (LF), and methyl thiosulfinates (MT). Due to the association of Vidalia onions having low pungency and sweet flavor, this annual evaluation provides useful information about the relative flavor quality of these onion varieties. Furthermore, results are used to evaluate yellow Granex varieties before officially qualifying them to be grown as sweet Vidalia onions in the region.

This publication summarizes the flavor analysis results from the 2024-2025 growing season, as well as comparing the performance of each variety over the past three growing seasons.

Materials and methods

Forty-nine onion varieties were analyzed as part of the 2024 – 2025 variety trial. Each variety was grown at the VOVRC in quadruplicate plots. Harvested onions from each plot were graded, dried, and submitted to the lab individually. Cores taken from 10 onions within each replicate were composited and pressed to collect the onion juice, analyzed following procedures described in Kim *et al*. 2017[1].

Results and Discussion

Tables 1-3 compare the concentrations of flavor-associated compounds in onion varieties grown as a part of the 2024-2025 trial. It should be noted that as the three measured parameters decrease, onions are considered to have a superior flavor quality. In this year's yellow Granex variety trials, the pyruvic acid (pungency) content ranged from 2.4-6.0 µmol/mL, which is consistent with the overall pungency measured in the past two growing seasons. Lachrymatory factor ranged from 0.55-2.29 µmol/mL, which was a decrease of 39% compared to the last two seasons. Finally, methyl thiosulfinates ranged from 3.6-21.4 nmol/mL which was a slight increase of 24% compared to the previous two growing seasons. Overall, the flavor quality of the variety trial onions was consistent with the past two growing seasons. The cumulative variety flavor quality rankings are also provided below for this year's data along with the average rating of yellow Granex onion varieties grown over the past three seasons. For additional information regarding the performance of a given variety, please contact your Extension Agent or the Vidalia Onion and Vegetable Research Center. We would like to thank the participating seed companies as well as the Vidalia Onion Committee for their support of this trial.

References

[1]Kim H, Jackson D, Adhikari K, Riner C, & Sanchez-Brambila G. 2017. "Relationship between consumer acceptability and pungency-related flavor compounds of Vidalia onions", Journal of Food Science. 82 (10): 2396-2402.

Table 1. Pungency (pyruvic acid) content in onions submitted to the UGA Agricultural & Environmental Services Labs as a part of the 2024-2025 variety trial.

Variety	Pyruvic Acid (µmole/g)		Variety	Pyruvic Acid (µmole/g)	
Gilmore 26	2.43	a	404Y	5.08	cdefg
A2801	2.89	ab	Dulciana	5.08	cdefg
Candy Joy, Lot #24-1099-24	3.90	abc	Chianti	5.09	cdefg
Fast Track	4.08	bcd	369	5.16	cdefg
Sweet Magnolia	4.33	bcde	Red Maiden	5.19	cdefg
Candy Joy, Lot # 24-2010-24A	4.42	cdef	Emy 55186	5.22	cdefg
AG3310	4.44	cdef	Sapelo	5.22	cdefg
Candy Ann	4.44	cdef	Century	5.24	cdefg
Vidora	4.59	cdefg	Naranco	5.24	cdefg
A2290	4.66	cdefg	Georgia Boy	5.39	defg
OSYF23-5082	4.74	cdefg	Tania	5.41	defg
1014	4.75	cdefg	Red Scarlet	5.45	defg
OSYF12-7091	4.76	cdefg	300Y	5.48	defg
Plethora	4.78	cdefg	OSYF23-5084	5.48	defg
1407	4.83	cdefg	Red Halen	5.58	efg
OSYF10-4021	4.83	cdefg	Alba Blanca	5.60	efg
Superex	4.83	cdefg	Maragogi	5.64	efg
OSYF22-4022	4.85	cdefg	Tacoma	5.65	efg
Sweet Azalea	4.86	cdefg	10258	5.73	efg
Reforma	4.88	cdefg	Copada	5.78	efg
NUN 1011	4.91	cdefg	Sofire	5.79	fg
Candy Kim	4.93	cdefg	Rio Del Sol	5.84	fg
Early Sweet	4.95	cdefg	106Y	5.93	g
Macon	4.97	cdefg	1015	6.00	g
Rio Dulce	5.00	cdefg			

**Similar letters between varieties indicate those varieties are not significantly different according to Tukey test ($P \leq 0.05$).*

Table 2. Onion lachrymatory factor (propanethial S-oxide) content in onions submitted to the UGA Agricultural & Environmental Services Labs as a part of the 2024-2025 variety trial.

Variety	Lachrymatory Factor (µmole/g)		Variety	Lachrymatory Factor (µmole/g)	
Gilmore 26	0.55	a	Superex	1.48	bcdefg
A2801	0.56	a	Tania	1.49	bcdefg
Plethora	0.78	ab	OSYF23-5082	1.50	bcdefg
A2290	0.98	abc	Vidora	1.50	bcdefg
1014	1.09	abc	Red Maiden	1.52	bcdefg
300Y	1.12	abcd	Candy Joy, Lot # 24-2010-24A	1.57	bcdefg
Dulciana	1.14	abcd	1015	1.62	cdefg
Fast Track	1.15	abcd	1407	1.62	cdefg
Sweet Magnolia	1.23	abcde	Naranco	1.62	cdefg
Macon	1.28	abcde	404Y	1.63	cdefg
Candy Joy, Lot #24-1099-24	1.28	abcde	Red Halen	1.64	cdefg
Emy 55186	1.29	abcde	Early Sweet	1.64	cdefg
Maragogi	1.29	abcde	Century	1.68	cdefg
Chianti	1.30	abcdef	Georgia Boy	1.71	cdefg
Rio Dulce	1.30	abcdef	Reforma	1.71	cdefg
369	1.33	abcdef	NUN 1011	1.71	cdefg
Red Scarlet	1.34	abcdef	106Y	1.71	cdefg
OSYF12-7091	1.35	abcdef	Sapelo	1.72	cdefg
Sofire	1.38	bcdef	Rio Del Sol	1.74	cdefg
Tacoma	1.38	bcdef	OSYF22-4022	1.77	cdefg
Sweet Azalea	1.41	bcdef	Candy Kim	1.90	defg
Candy Ann	1.42	bcdef	OSYF23-5084	1.96	efg
10258	1.44	bcdef	Alba Blanca	2.09	fg
AG3310	1.44	bcdef	Copada	2.29	g
OSYF10-4021	1.47	bcdef			

**Similar letters between varieties indicate those varieties are not significantly different according to Tukey test ($P \leq 0.05$).*

Table 3. Methyl thiosulfinate content in onions submitted to the UGA Agricultural & Environmental Services Labs as a part of the 2024-2025 variety trial.

Variety	Methyl thiosulfinate (nmole/g)		Variety	Methyl thiosulfinate (nmole/g)	
A2801	3.63	a	Reforma	10.85	cdef
Sweet Magnolia	3.98	a	Fast Track	10.98	cdef
Gilmore 26	5.00	ab	Candy Ann	11.68	cdef
Sweet Azalea	5.15	abc	OSYF10-4021	12.83	cdef
Century	5.93	abc	Candy Kim	13.37	cdef
1014	7.33	abcd	1015	13.43	cdef
Rio Dulce	7.35	abcd	106Y	13.73	cdef
Plethora	7.50	abcd	Early Sweet	13.83	cdef
Superex	7.58	abcd	Sofire	14.15	cdef
A2290	7.63	abcd	Candy Joy, Lot #24-1099-24	14.88	cdef
AG3310	7.90	bcd	Candy Joy, Lot # 24-2010-24A	15.28	cdef
Rio Del Sol	8.28	bcd	Sapelo	15.73	defg
Dulciana	8.58	bcde	1407	15.73	defg
369	8.98	bcde	Red Scarlet	16.45	defg
Tacoma	9.00	bcde	OSYF23-5082	16.85	defg
Tania	9.03	bcde	Alba Blanca	17.60	efg
NUN 1011	9.15	bcde	300Y	18.15	efg
Emy 55186	9.28	bcde	404Y	18.45	efg
Maragogi	9.45	bcde	Chianti	18.68	fg
Copada	9.90	bcde	Red Halen	20.95	fg
Red Maiden	9.93	bcdef	OSYF22-4022	20.98	g
Macon	9.98	bcdef	OSYF23-5084	21.00	g
Georgia Boy	10.35	bcdef	OSYF12-7091	21.43	g
10258	10.48	cdef	Naranco	22.20	g
Vidora	10.65	cdef			

**Similar letters between varieties indicate those varieties are not significantly different according to Tukey test ($P \leq 0.05$).*

Table 4. Overall flavor quality ranking of the 2024-2025 variety trial onions ranked by lowest Pyruvic acid, Lachrymatory factor, and Methyl Thiosulfinates.

Variety	Rank		Variety	Rank	
A2801	1 (t)	a	Vidora	25 (t)	abc
Gilmore	1 (t)	a	10258	27 (t)	bc
Sweet Magnolia	3	ab	Candy Joy Lot # 24-2010-24A	27 (t)	bc
Plethora	4	abc	Chianti	27 (t)	bc
1014	5 (t)	abc	Early Sweet	27 (t)	bc
A2290	5 (t)	abc	Georgia Boy	27 (t)	bc
Candy Joy, Lot #24-1099-24	5 (t)	abc	Red Scarlet	27 (t)	bc
Fast Track	8	abc	Reforma	27 (t)	bc
Dulciana	9 (t)	abc	Rio Del Sol	27 (t)	bc
Rio Dulce	9 (t)	abc	Candy Kim	35 (t)	bc
Sweet Azalea	9 (t)	abc	OSYF23-5082	35 (t)	bc
AG3310	12 (t)	abc	Sofire	35 (t)	bc
Emy 55186	12 (t)	abc	1407	38 (t)	bc
Superex	12 (t)	abc	OSYF12-7091	38 (t)	bc
369	15 (t)	abc	Sapelo	38 (t)	bc
Century	15 (t)	abc	404Y	41	bc
Macon	15 (t)	abc	1015	42 (t)	bc
Maragogi	18	abc	106Y	42 (t)	bc
Candy Ann	19 (t)	abc	Copada	42 (t)	bc
Tania	19 (t)	abc	Naranco	45 (t)	bc
NUN 1011	21 (t)	abc	OSYF22-4022	45 (t)	bc
OSYF10-4021	21 (t)	abc	Red Halen	47	bc
Red Maiden	21 (t)	abc	Alba Blanca	48 (t)	c
Tacoma	21 (t)	abc	OSYF23-5084	48 (t)	c
300Y	25 (t)	abc			

**Similar letters between varieties indicate those varieties are not significantly different according to Tukey test ($P \leq 0.05$).*

Table 5. Overall flavor quality ranking of yellow Granex variety trial onions harvested in three consecutive years (2023-2025) ranked in order of lowest overall Pyruvic acid, Lachrymatory factor, and Methyl Thiosulfinates.

Variety	Rank	
Gilmore 26	1	a
Maragogi	2	ab
Tania	3	ab
Fast Track	4 (t)	ab
Sweet Magnolia	4 (t)	ab
Plethora	6	bc
1407	7 (t)	bc
Superex	7 (t)	bc
Candy Ann	9 (t)	bc
Candy Joy	9 (t)	bc
Macon	9 (t)	bc
NUN 1014	9 (t)	bc
Sweet Azalea	9 (t)	bc
OSYF10-4021	14	bc
Vidora	15	bc
10258	16 (t)	bc
Candy Kim	16 (t)	bc
Early Sweet	16 (t)	bc
Reforma	16 (t)	bc
Georgia Boy	20 (t)	bc
Sapelo	20 (t)	bc
NUN 1011	22	bc
Century	23	bc
OSYF12-7091	24 (t)	bc
SON-300Y	24 (t)	bc
Copada	26 (t)	bc
SON-404Y	26 (t)	bc
SON-106Y	28	c

**Similar letters between varieties indicate those varieties are not significantly different according to Tukey test ($P \leq 0.05$).*