

UGA Variety Trial Report 2018 – 2019 Crop Season

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Introduction

The University of Georgia evaluates short day onions to determine their performance characteristics in standardized growing practices. The varieties are placed in the trial by participating seed companies. These trials are conducted at the Vidalia Onion and Vegetable Research Center (VOVRC).

Materials and Methods

There were 45 varieties entered into the 2018 – 2019 trial. The seedbeds were grown at the VOVRC in Lyons, Georgia. Seedbed treatment included a 75 gallon per acre fumigation treatment of metam sodium. The seedbeds were planted on September 17, 2018, and the trial was transplanted on November 28, 2018. Upon harvest and grading, one bag of jumbo onions per plot is sent to the Vidalia Onion Research Lab in Tifton, Georgia, to undergo controlled atmospheric storage conditions. The storage duration is carried out until September 15, 2019. Seedbed and trial fertility, as well as fungicide programs are listed below.

The trial evaluated all 45 varieties in 25 foot long by 6 foot wide plots. Each variety was replicated four times and harvested based on a committee decision of maturity. The plant population for the trial was equivalent to 87,120 plants per acre.

Seedbed Fertility:

- 250 lb/A of 10-10-10 applied September 11, 2018 (preplant)
- 150 lb/A of 18-46-0 applied September 17, 2018
- 200 lb/A of 10-10-10 applied October 1, 2018
- 200 lb/A of 10-10-10 applied October 15, 2018
- 200 lb/A of 10-10-10 applied October 29, 2018

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

Trial Fertility:

- 400 lb/A of 5-10-15 applied November 30, 2018
- 400 lb/A of 5-10-15 applied January 10, 2019
- 400 lb/A of 5-10-15 applied January 29, 2019
- 150 lb/A of calcium nitrate applied February 7, 2019
- 150 lb/A of calcium nitrate applied February 20, 2019
- Total lbs/A: 106.5 (N) – 120 (P) – 180 (K) – 36 (S)

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.

Trial Fungicide Schedule:

<u>Date</u>	<u>Fungicide Applied</u>
January 10	Pristine (14.5 oz/A) + Magna-Bon (12 oz/A)
January 22	Bravo (1pt/A) + ProPhyt (4 pt/A)
January 31	Fontelis (16 oz/A)
February 11	Bravo (1pt/A) + Magna-Bon (12 oz/A)
February 21	Inspire Super (16 oz/A)
March 7	Orondis Ultra (6 oz/A) + Bravo (1 pt/A)
March 18	Orondis Ultra (6 oz/A) + Luna Tranquility (16 oz/A)
March 29	Orondis Ultra (6 oz/A) + Luna Tranquility (16 oz/A)

Harvest Timing

Each variety was evaluated and selected for harvest based upon signs of weak tops and adequately sized bulbs. A committee of Extension Agents determined the harvest/pulling of varieties. Participating seed companies reserve the right to specify when or what characteristics determine the harvest of their variety. Varieties were dug 7 days prior to harvest date.

April 10: Candy Joy, Fast Track, Quick Start

April 16: Candy Ann, New Frontier, Vidora, DP 1407

April 22: J3013, J3014, J3015, Sweet Agent, Candy Kim, WI – 129, Sweet Emotion, Sweet Harvest, Plethora, 2002-Nunhems, Emy 55033, Emy 55126, DP Sapelo Sweet, J3010, Red Duke, Red Sensation, Dulciana, Sofire, Althea, Vulcana

April 30: Pirate, Macon, Allison, J3009, J3016, J3017, Sweet Azalea, Sweet Magnolia, Century, Granex Yellow PRR, Sweet Jasper, XON – 109Y, Sweet Caroline, Emy 55045, Emy 55455, 3662 Hazera, Red Hunter, Mata Hari

Results and Discussion

The following tables show field and marketable yields, as well as yields for colossal, jumbo, and medium sized bulbs. 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 1. Vidalia onion total yield (40 lb. bags/acre) measured at the grading line.

Variety	Company	Total yield 40 lb. bags / acre
Sweet Magnolia	Seminis	1354 a [†]
Sweet Emotion	Shamrock	1314 ab
Candy Kim	Solar	1286 abc
New Frontier	Wannamaker	1255 abcd
DP1407	DPSseeds	1230 abcde
Sweet Agent	Seminis	1221 abcde
Sweet Caroline	Nunhems	1220 abcde
Pirate	Bejo	1200 abcdef
J3016	Bejo	1197 abcdefg
Candy Ann	Solar	1192 abcdefgh
WI-129	Wannamaker	1163 abcdefghi
Vidora	Nunhems	1121 abcdefghij
J3009	Bejo	1115 abcdefghijk
Century	Seminis	1097 abcdefghijkl
Emy5545	Emerald	1091 bcdefghijkl
J3017	Bejo	1075 bcdefghijkl
Allison	Bejo	1069 bcdefghijkl
J3013	Bejo	1063 bcdefghijkl
Sweet Azalea	Seminis	1063 bcdefghijkl
Granex Yellow PRR	Seminis	1042 cdefghijkl
Fast Track	Shamrock	1038 cdefghijkl
Vulcana	Nunhems	1019 defghijkl
Dulciana	Nunhems	994 defghijklm
Quick Start	Shamrock	992 efghijklm
J3014	Bejo	971 efghijklm
Plethora	Nunhems	968 efghijklm
2002	Nunhems	957 fghijklm
Mata Hari (Red)	Nunhems	942 fghijklm
DPSapelo Sweet	DPSseeds	941 fghijklm
Candy Joy	Solar	938 ghijklm
Sofire (Red)	Nunhems	932 hijklm
Red Sensation (Red)	Bejo	917 ijklm
Sweet Jasper	Sakata	913 ijklm
Emy55126	Emerald	911 ijklm
3662	Hazera	911 ijklm
Sweet Harvest	Sakata	898 jklm
Althea	Nunhems	895 jklm
J3015	Bejo	892 jklm
XON-109Y	Sakata	880 jklm
Red Hunter (Red)	Bejo	864 jklm
Emy55033	Emerald	862 jklm
J3010 (Red)	Bejo	861 jklm
Emy55045	Emerald	856 klm
Macon	Bejo	839 lm
Red Duke (Red)	Bejo	743 m

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Table 2. Vidalia onion Marketable yield (40 lb. bags/acre) measured after grading.

Variety	Marketable yield 40 lb. bags / acre	
Pirate	1013	a [†]
Sweet Caroline	1006	ab
Sweet Magnolia	991	ab
Century	977	abc
J3016	966	abc
Candy Ann	951	abcd
J3009	933	abcde
Vidora	917	abcde
Vulcana	914	abcde
New Frontier	911	abcdef
Allison	898	abcdefg
Quick Start	895	abcdefg
Fast Track	894	abcdefg
DP1407	888	abcdefgh
Dulciana	868	abcdefghi
J3013	867	abcdefghi
Sweet Azalea	858	abcdefghi
Sofire (Red)	853	abcdefghi
Candy Joy	852	abcdefghi
J3017	829	abcdefghi
Granex Yellow PRR	820	abcdefghij
2002	820	abcdefghij
Emy5545	815	abcdefghij
Althea	797	abcdefghij
Sweet Agent	787	abcdefghij
Red Sensation (Red)	783	abcdefghij
J3010 (Red)	780	abcdefghij
3662	761	abcdefghij
Mata Hari (Red)	740	abcdefghij
J3014	731	abcdefghij
Plethora	700	bcdefghij
Emy55045	682	cdefghijk
Sweet Jasper	679	cdefghijk
Red Hunter (Red)	652	defghijkl
Macon	640	efghijkl
XON-109Y	631	efghijkl
Red Duke (Red)	605	fghijkl
DPSapelo Sweet	596	ghijkl
J3015	582	hijkl
Emy55126	564	ijkl
Candy Kim	516	klmn
Sweet Harvest	384	klmn
Emy55033	349	lmn
Sweet Emotion	219	mn
WI-129	186	n

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Table 3. Vidalia onion Colossal yield (40 lb. bags/acre) measured after grading.

Variety	Colossal 40 lb. bags / acre
Sweet Agent	168 a [†]
DP1407	153 ab
Pirate	148 abc
New Frontier	147 abc
J3016	136 abcd
Sweet Magnolia	123 abcd
Candy Ann	121 abcde
Vidora	112 abcdef
Fast Track	100 abcdefg
Candy Kim	92 abcdefgh
Sweet Azalea	83 abcdefgh
Emy5545	79 abcdefgh
J3013	74 bcdefgh
Sweet Caroline	67 bcdefgh
Century	64 bcdefgh
J3017	61 cdefgh
Allison	47 defgh
Dulciana	45 defgh
Sweet Emotion	45 defgh
Quick Start	30 efgh
Sweet Jasper	30 efgh
3662	27 fgh
Granex Yellow PRR	26 fgh
J3009	26 fgh
WI-129	26 fgh
Sweet Harvest	24 fgh
XON-109Y	24 fgh
Emy55045	21 fgh
Plethora	18 gh
Candy Joy	18 gh
J3015	17 gh
Red Sensation (Red)	17 gh
J3014	15 gh
Macon	15 gh
Red Hunter (Red)	15 gh
Emy55126	12 gh
Vulcana	12 gh
DPSapelo Sweet	11 gh
Mata Hari (Red)	6 h
Red Duke (Red)	6 h
2002	5 h
Sofire (Red)	5 h
Althea	3 h
Emy55033	3 h
J3010 (Red)	2 h

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Table 4. Vidalia onion Jumbo yield (40 lb. bags/acre) measured after grading.

Variety	Jumbo yield 40 lb. bags / acre	
Sweet Caroline	879	a [†]
J3009	850	ab
Century	842	ab
Sweet Magnolia	824	ab
Pirate	809	abc
Vulcana	809	abc
Allison	799	abc
J3016	790	abc
Candy Ann	771	abcd
Quick Start	758	abcd
J3013	755	abcd
Vidora	738	abcde
New Frontier	734	abcde
J3017	731	abcde
Fast Track	723	abcde
Sofire (Red)	721	abcde
Dulciana	720	abcde
2002	714	abcde
DP1407	711	abcde
Granex Yellow PRR	703	abcde
Sweet Azalea	703	abcde
Candy Joy	676	abcdef
J3014	661	abcdef
Emy5545	650	abcdef
Red Sensation (Red)	649	abcdef
Mata Hari (Red)	637	abcdef
3662	620	abcdef
Althea	614	abcdef
Plethora	614	abcdef
J3010 (Red)	602	bcdef
Sweet Agent	581	bcdefg
Emy55045	543	cdefgh
Red Hunter (Red)	543	cdefgh
Sweet Jasper	514	defgh
J3015	507	defgh
Macon	507	defgh
XON-109Y	501	defgh
Emy55126	478	efgh
DPSapelo Sweet	470	efgh
Red Duke (Red)	416	fghi
Candy Kim	413	fghi
Sweet Harvest	321	ghi
Emy55033	284	hi
Sweet Emotion	168	i
WI-129	154	i

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Table 5. Vidalia onion Medium yield (40 lb. bags/acre) measured after grading.

Variety	Medium yield 40 lb. bags / acre
Red Duke (Red)	183 a [†]
Althea	180 a
J3010 (Red)	177 a
Candy Joy	157 ab
Sweet Jasper	135 abc
Sofire (Red)	127 abcd
Emy55045	118 bcde
Macon	118 bcde
Red Sensation (Red)	118 bcde
DPSapelo Sweet	115 bcdef
3662	113 bcdefg
Quick Start	107 bcdefgh
XON-109Y	106 bcdefgh
Dulciana	103 bcdefgh
2002	101 bcdefghi
Mata Hari (Red)	97 cdefghij
Red Hunter (Red)	94 cdefghijk
Vulcana	92 cdefghijk
Granex Yellow PRR	91 cdefghijk
Emy5545	86 cdefghijkl
Emy55126	74 defghijklm
Century	71 defghijklm
Fast Track	71 defghijklm
Sweet Azalea	71 defghijklm
Plethora	68 efghijklmn
Vidora	67 efghijklmn
Emy55033	62 efghijklmno
Sweet Caroline	61 efghijklmno
Candy Ann	59 fghijklmno
J3015	59 fghijklmno
J3009	57 fghijklmno
Pirate	56 ghijklmno
J3014	54 hijklmno
Allison	53 hijklmno
Sweet Magnolia	44 ijklmno
J3016	41 jklmno
Sweet Harvest	39 jklmno
J3013	38 klmno
J3017	38 klmno
Sweet Agent	38 klmno
New Frontier	30 lmno
DP1407	24 mno
Candy Kim	11 no
Sweet Emotion	6 o
WI-129	6 o

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Table 6. Vidalia onion Culls yield (40 lb. bags/acre) measured after grading.

Variety	Culls yield 40 lb. bags / acre	
Sweet Emotion	1095	a [†]
WI-129	977	a
Candy Kim	770	b
Sweet Harvest	514	c
Emy55033	513	c
Sweet Agent	434	cd
Sweet Magnolia	363	cde
Emy55126	347	cdef
DPSapelo Sweet	345	cdef
New Frontier	345	cdef
DP1407	342	cdefg
J3015	310	defgh
Sweet Azalea	277	defghi
Emy5545	275	defghi
Plethora	268	defghi
XON-109Y	250	defghi
J3017	246	defghi
Candy Ann	240	defghi
J3014	240	defghi
Sweet Jasper	234	efghi
J3016	231	efghi
Granex Yellow PRR	222	efghi
Sweet Caroline	214	efghi
Red Hunter (Red)	212	efghi
Vidora	204	efghi
Mata Hari (Red)	203	efghi
Macon	199	efghi
J3013	197	efghi
Pirate	187	efghi
J3009	182	efghi
Emy55045	174	efghi
Allison	170	efghi
3662	150	fghi
Fast Track	144	ghi
2002	138	hi
Red Duke (Red)	138	hi
Red Sensation (Red)	134	hi
Dulciana	126	hi
Century	120	hi
Vulcana	106	i
Althea	98	i
Quick Start	97	i
Candy Joy	86	i
J3010 (Red)	81	i
Sofire (Red)	79	i

[†]Letters that are the same between varieties indicate that those varieties are not significantly different according to Tukey test ($P \leq 0.05$)

Rank	Onion Variety
1	Sweet Agent-Seminis
2	Sweet Magnolia-Seminis
3	Sweet Harvest-Sakata
4	Allison-Bejo
4	Macon-Bejo
5	Sweet Azalea-Seminis
5	Emy 55126-Emerald
6	Sweet Jasper-Sakata
7	Vidora-Nunhems
8	Emy 55033-Emerald
8	Century-Seminis
8	Plethora-Nunhems
8	J3013-Bejo
9	New Frontier-Wannamaker
10	Sweet Caroline-Nunhems
11	J3014-Bejo
12	XON-109Y-Sakata
13	Candy Joy-Solar
14	Candy Kim-Solar
14	Emy 55045-Emerald
15	J3009-Bejo
15	Sweet Emotion-Shamrock
16	J3016-Bejo
17	Candy Ann-Solar
17	DP 1407-DP Seeds
17	Pirate-Bejo
17	WI-129-Wannamaker
18	Fast Track-Shamrock
19	Emy 55455-Emerald
20	J3015-Bejo
21	Granex Yellow PRR-Seminis
21	J3017-Bejo
22	Quick Start-Shamrock
23	3662-Hazera
24	DP Sapelo Sweet-DP Seeds

2019 Onion Flavor Rankings – Onions grown at VOVRC

Here are the results and rankings of the flavor analysis. This data was gathered and put together by Dr. Teresita Ona and Dr. Jason Lessl at UGA. Many thanks to them for their assistance.

These varieties are ranked according to their overall flavor profile in 2019, from best to worst. The onions used were samples taken from the variety trial at the Vidalia Onion and Vegetable Research Center. The ranking is an average of 3 measurements, including lachrymatory factor, pungency, and methyl thiosulfinates.

More detailed flavor information will be available soon.