

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	DPSeeds	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	DPSeeds	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	jklm
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 ($P \leq 0.05$)

Table 7. Vidalia onion pungency according to variety.

Variety	Pungency μmole/ g
Mata Hari (Red)	6.3 a [†]
3662	6.1 ab
DPSapelo Sweet	6.0 abc
Sofire (Red)	5.7 abcd
J3017	5.7 abcde
Emy5545	5.6 abcde
Quick Start	5.6 abcde
Granex Yellow PRR	5.5 abcde
Vulcana	5.5 abcde
Dulciana	5.5 abcde
J3015	5.4 abcdef
Fast Track	5.4 abcdef
Emy55045	5.4 abcdef
WI-129	5.4 abcdef
XON-109Y	5.2 abcdef
J3016	5.2 abcdef
Candy Ann	5.2 abcdef
Pirate	5.2 abcdef
DP1407	5.1 abcdef
J3009	5.1 abcdef
Sweet Emotion	5.1 abcdef
Althea	5.1 abcdef
New Frontier	5.1 abcdef
Sweet Caroline	4.9 abcdef
Plethora	4.9 abcdef
J3014	4.9 abcdef
Century	4.8 abcdef
Emy55033	4.7 abcdef
Vidora	4.7 abcdef
Sweet Jasper	4.7 abcdef
Candy Kim	4.7 abcdef
Candy Joy	4.7 abcdef
Emy55126	4.6 abcdef
Macon	4.6 abcdef
Allison	4.6 abcdef
2002	4.5 abcdef
J3013	4.5 abcdef
Sweet Azalea	4.3 bcdef
Sweet Harvest	4.3 bcdef
Sweet Agent	4.2 bcdef
Sweet Magnolia	4.1 bcdef
Red Duke (Red)	4.1 cdef
J3010 (Red)	4.0 def
Red Hunter (Red)	3.8 ef
Red Sensation (Red)	3.5 f

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