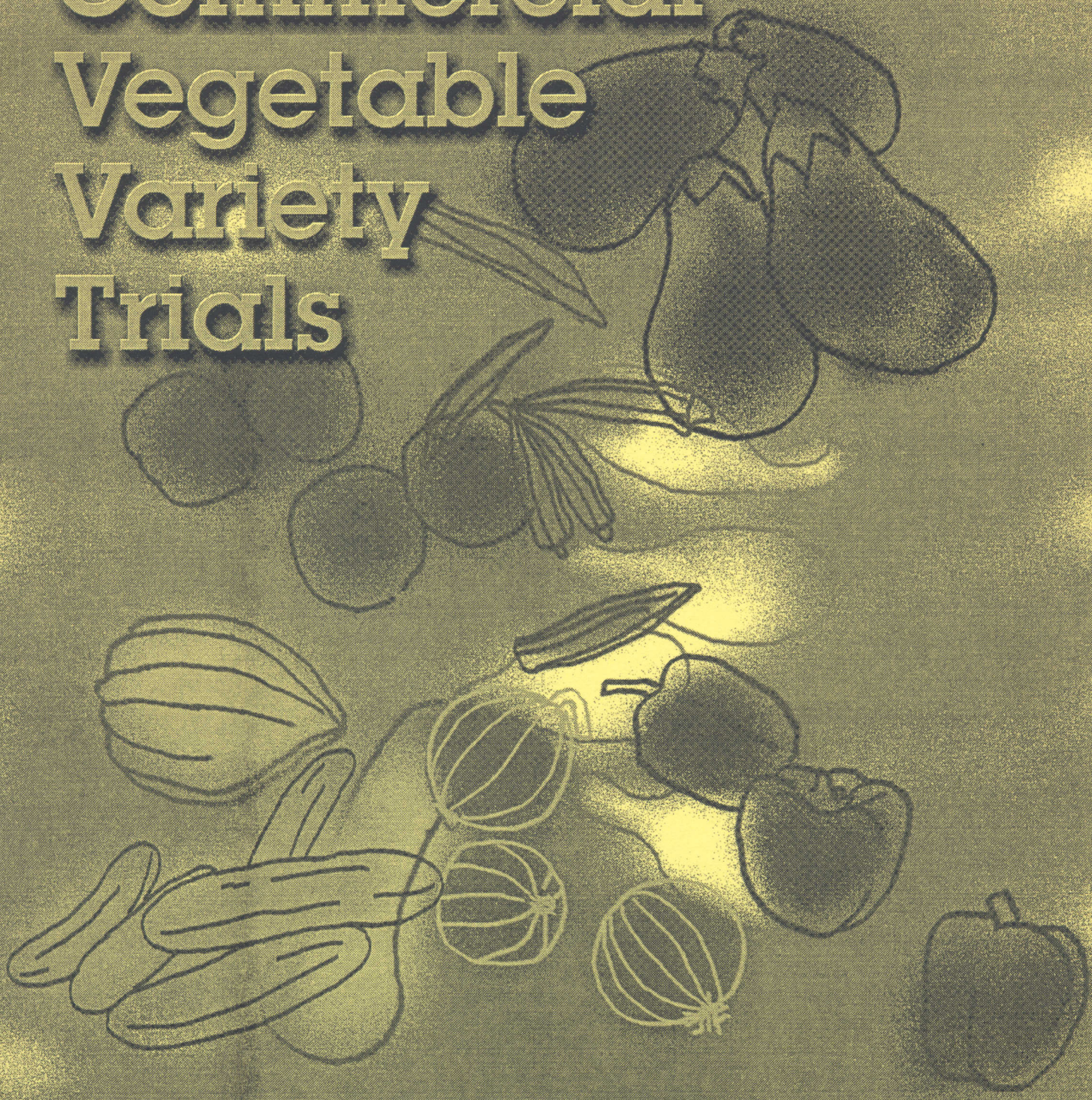
SPRING 2002

Commercial Vegetable Variety Trials



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Contents

Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products.

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Introduction: Tips for Interpreting Vegetable Variety Performance

Edgar Vinson and Joe Kemble

The Spring 2002 Commercial Vegetable Variety Trials bulletin is a compilation of vegetable variety information from Alabama, Mississippi, Georgia, and South Carolina. In this bulletin, growers, extension specialists, and seed companies will be able to see the performance of standard market varieties as well as their favorite varieties in other areas of the Southeast.

The main purpose of vegetable variety evaluation, however, is to provide growers and seed retailers with practical information on varieties and to assist growers in selecting a good variety. Here are a few tips to get the most out of vegetable variety trials results.

Open pollinated or hybrid varieties

In general, hybrids (also referred to as F_1) are earlier and produce a more uniform crop. Often they have improved disease, pest, or virus tolerance/resistance. Hybrid varieties are often more expensive than open pollinated varieties (OP), and seeds cannot be collected from one crop to plant the next. Despite the advantages hybrids offer, OP are still often planted in Alabama. Selecting a hybrid variety is the first step toward earliness and quality.

Yield potential

Yields reported in variety trial results are extrapolated from small plots. Depending on the vegetable crop, plot sizes range between 100 to 500 square feet. Yields per acre are estimated by multiplying plot yields by corrective factors ranging from 100 to 1,000. Small errors are thus amplified, and estimated yields per acre may not be realistic. Therefore, locations cannot be compared by just looking at the range of yields actually reported. However, the relative differences in performance among varieties are realistic, and can be used to identify best-performing varieties.

Statistical interpretation

The coefficient of determination (R^2), coefficient of variation (CV), and least significant difference (lsd, 5%) are reported for each test. These numbers are helpful in separating the differences due to small plots (sampling error) and true (but unknown) differences among entries.

R^2 ranges between 0 and 1. Values close to 1 suggest that the test was conducted under good conditions and most of the variability observed was mainly due to the effect of variety and replication. Random, uncontrolled errors were of lesser importance.

CV is an expression of yield variability relative to yield mean. Low CVs are desirable (under 20%), but are not always achieved.

There must be a minimum yield difference between two varieties before one can statistically conclude that one variety actually performs better than another. This is known as the least significant difference (lsd). When the difference in yield is less than the lsd value, one cannot conclude that there is any real difference between two varieties. For example, in the watermelon trial presented in this issue conducted at the Gulf Coast Research and Extension Center, 'Legacy' yielded 41,688 pounds per acre, while 'Carnival' and 'Montreal' yielded 39,060 and 34,506 pounds per acre, respectively. Since there was less than a 6,960 difference between 'Legacy' and 'Carnival', there is no statistical difference between these two varieties. However, the yield difference between 'Legacy' and 'Montreal' was 7,182, indicating that there is a real difference between these two varieties. From a practical point of view, producers should place the most importance on lsd values when interpreting results.

Testing conditions

AU vegetable variety trials are conducted under standard, recommended commercial production practices. If the cropping system to be used is different from that used in the trials, the results of the trials may not apply. Information on soil type (Table 1), planting dates, fertilizer rates, and detailed spray schedule are provided to help producers compare their own practices to the standard one used in the trials, and make relevant adjustments.

Ratings of trials

At each location, variety trials were rated on a 1 to 5 scale, based on weather conditions, fertilization, irrigation, pest pressure and overall performance (Table 2). Results from trials with ratings of 2 and under are not reported. These numbers may be used to interpret differences in performance from location to location. The overall rating may be used to give more importance to the results of variety performance under good growing conditions.

Where to get seeds

Because seeds are alive, their performance and germination rate depends on how old they are, where and how they were collected, and how they have been handled and stored. It is always preferable to get certified seeds from a reputable source, such as the ones listed in Seed Sources for Alabama Trials (p. 31).

Several factors other than yield have to be considered when choosing a vegetable variety from a variety trial report. The main factors are type, resistance and tolerance to diseases, earliness, and, of course, availability and cost of seeds. It is always better to try two to three varieties on a small scale before making a large planting of a single variety.

Vegetable trials on the Web

For more vegetable variety information be sure to visit the vegetable varieties Web page at www.aces.edu/department/com_veg/trials/vegetabl.htm. This Web site describes variety types, explains the ratings system, and presents information about participating seed companies. More detailed information on how to use this site may be found in "AU Vegetable Varieties Online," ANR-11-66 from the Alabama Cooperative Extension System.

TABLE 1. SOIL TYPES AT THE LOCATIONS OF THE ALABAMA TRIALS

Location	Water-holding capacity *(in/in)*	Soil type
Gulf Coast Research and Extension Center (Fairhope)	0.09 - 0.19	Malbis fine sandy loam
Brewton Agricultural Research Unit (Brewton)	0.12 - 0.14	Benndale fine sandy loam
Wiregrass Research and Extension Center (Headland)	0.14 - 0.15	Dothan sandy loam
Lower Coastal Plain Substation (Camden)	0.13 - 0.15	Forkland fine sandy loam
E.V. Smith Research Center, Horticultural Unit (Shorter)	0.15 - 0.17	Norfolk-orangeburg loamy sand
Chilton Research and Extension Center (Clanton)	0.13 - 0.15	Luvernue sandy loam
Upper Coastal Plain Agricultural Research Center (Winfield)	0.13 - 0.20	Savannah loam
North Alabama Horticultural Research Center (Cullman)	0.16 - 0.20	Hartsells-Albertville fine sandy loam
Sand Mountain Research and Extension Center (Crossville)	0.16 - 0.18	Wynnville fine sandy loam

TABLE 2. DESCRIPTION OF RATINGS

Rating	Weather	Fertilizer	Irrigation	Pests	Overall
5	Very Good	Very Good	Very Good	None	Excellent
4	Favorable	Good	Good	Light	Good
3	Acceptable	Acceptable	Acceptable	Tolerable	Acceptable
2	Adverse	Low	Low	Adverse	Questionable
1	Destructive	Very Low	Insufficient	Destructive	Useless

Brewton Hosts First Lima Bean Trial

Joe Kemble, Edgar Vinson, and Randy Akridge

A lima bean variety trial was conducted at the Brewton Agricultural Research Unit in Brewton, Alabama (Tables 1 and 2). Six lima bean varieties were direct seeded into 20-foot by 3-foot bare ground plots at a within row spacing of 1 foot. This provided a stand of approximately 14,520 plants per acre.

Preplant fertilization consisted of 70 pounds per acre of nitrogen, 70 pounds per acre of P_2O_5, and 100 pounds per acre of K_2O. Lima bean plants were sidedressed with 15 pounds per acre of $Ca(NO_3)_2$ from first bloom and alternate weeks thereafter. Current production practices for lima beans can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

Lima beans were harvested at mature green stage once weekly from July 2 through July 29 (Table 3). The top three varieties were 'Jackson Wonder', 'Dixie Speckled', and 'Henderson Bush'. Of the three varieties, 'Dixie Speckled' and 'Henderson Bush' had the highest shellout percentages. 'Dixie Speckled' was the number one variety in the shelled weight category though these differences were not significant.

TABLE 1. RATINGS OF 2002 LIMA BEAN VARIETY TRIAL[1]

Location	BARU
Weather	5
Fertility	5
Irrigation	5
Pests	5
Overall	5

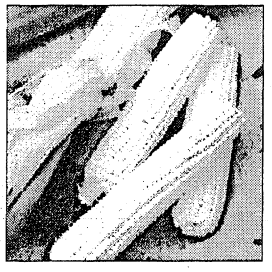
[1]See introduction for a description of rating scales.

TABLE 2. CHARACTERISTICS OF SELECTED LIMA BEAN VARIETIES

Variety	Seed source	Pod shape and length	Color	Days to harvest
Baby Lima	Seedway	Flat	Green	80
Burpee Improved	Rupp	Flat	Lt. green	80
Dixie Speckled	Rupp	–	Red speckled	75
Fordhook 242	Gurney's	Plump	Cream	75
Henderson Bush	Gurney's	Plump	White	65
Jackson Wonder	Gurney's	Plump	Purple	65

TABLE 3. PERFORMANCE OF SELECTED LIMA BEAN VARIETIES

Variety	Total yield *lbs/ac*	Shelled weight *lbs/ac*	Shellout *%*
Jackson Wonder	4,245	1,167	27
Dixie Speckled	4,066	1,354	33
Henderson Bush	3,254	1,091	33
Baby Lima	2,514	675	27
Fordhook 242	788	183	22
Burpee Improved	160	42	26
r^2	***0.83***	***0.83***	***0.70***
CV	***32***	***34***	***11***
lsd	***1,194***	***383***	***4***



Few Differences Found Among White and Yellow Supersweet Corn Varieties

Joe Kemble, Edgar Vinson, and Arnold Caylor

Yellow and white supersweet sweet corn varieties were evaluated at the North Alabama Horticulture Research Center (NAHRC) in Cullman, Alabama (Tables 1 and 2).

Yellow and white sweet corn varieties were separated by 300 feet because cross pollination alters grain characteristics. Two-row plots 20 feet by 3 feet were established with a within row spacing of 8 to 10 inches, creating a stand of approximately 26,000 plants per acre.

Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Current production practices for sweet corn can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

Table 1. Ratings of 2002 Sweet Corn Variety Trial[1]

Location	NAHRC
Weather	5
Fertility	5
Irrigation	5
Pests	5
Overall	5

[1]See introduction for a description of rating scales.

Fertilization consisted of an application of ammonium nitrate at a rate of 80 pounds nitrogen per acre preplant and a sidedress of ammonium nitrate at a rate of 40 pounds nitrogen per acre.

Table 2. Seed Source, Type, Color, and Earliness of Selected Sweet Corn Varieties

Variety	Seed source	Color	Type	Days to harvest	Disease resistance tolerance[2]	Years evaluated
Attribute (GSS-0966)[1]	Novartis	Y	sh_2	78	CR, NCLB, SBW	99,02
Boreal	Novartis	W	sh_2	78	CR, NCLB, SBW	02
Envy	Seedway	Y	sh_2	81	CR, NCLB, SBW,SCLB	02
Flagship	Seedway	W	sh_2	84	NCLB, SBW	02
Ice Queen	Harris	W	sh_2	77	CR, MDMV, NCLB, SBW	02
Millennium	Seedway	W	sh_2	82	CR, NCLB, SBW	02
Primetime	Novartis	Y	sh_2	79	NCLB, SBW	97-99,02
Saturn	Seedway	Y	sh_2	75	CR, NCLB, SBW,SCLB	02
SS 8101	Abbott & Cobb	W	sh_2	81	NCLB, SBW	96,97,99,02
Treasure	SeedWay	W	sh_2	83	NCLB, SBW	95,96,99,02
Variety 6800	Abbott & Cobb	Y	sh_2	72	NCLB, SBW	02
Variety 7311	Abbott & Cobb	W	sh_2	73	NCLB, SBW	02
Variety 8100	Abbott & Cobb	Y	sh_2	81	NCLB, SBW	02
Windham	Novartis	W	sh_2	79	CR, NCLB, SBW	02

[1]Insect-protected hybrid.

[2]Disease resistance/tolerance: CR = Corn Rust; MDMV = Maize Dwarf Mosaic Virus; NCLB = Northern Corn Leaf Blight; SBW = Stewart's Bacterial Wilt; SCLB = Southern Corn Leaf Blight.

Sweet corn varieties were harvested on July 23 and were graded following the *Sweet Corn Grader's Guide* (Circular ANR-680 of the Alabama Cooperative Extension System). Yield (Table 3) and ear characteristics (Table 4) were also determined.

Very few differences were exhibited among the white supersweet varieties. 'Flagship' had the highest numerical yield but this yield was similar to all other white supersweet varieties with the exception of 'Treasure', which produced significantly lower yields than all other varieties. In the ear number category, no differences were found. Among yellow supersweet varieties no differences in yield or ear number were found.

In both yellow and white supersweet varieties, the percent stand did not appear to impact yield significantly. Varieties with comparatively low stands were still capable of producing yields comparable to varieties with high stands.

TABLE 3. PERFORMANCE OF SELECTED WHITE AND YELLOW SUPERSWEET CORN VARIETIES

Variety	Type	Yield *lbs/ac*	Ear number *no/ac*	Stand *%*
Flagship	W Sh²	17,140	24,775	75
Windham	W Sh²	16,598	23,595	69
SS 8101	W Sh²	16,512	25,289	80
Variety 7311	W Sh²	15,793	21,689	72
Ice Queen	W Sh²	14,288	21,417	67
Boreal	W Sh²	13,022	19,511	69
Millennium	W Sh²	12,174	15,972	44
Treasure	W Sh²	6,978	9,620	47
Saturn	Y Sh²	15,725	24,230	60
Envy	Y Sh²	15,243	23,958	64
Variety 8100	Y Sh²	14,747	23,323	49
Primetime	Y Sh²	14,068	22,869	59
Variety 6800	Y Sh²	12,428	17,878	61
Attribute	Y Sh²	11,401	17,606	69
r2		***0.31***	***0.35***	***0.30***
CV		***33***	***32***	***28***
lsd		***6,654***	***9,741***	***26***

TABLE 4. QUALITY RATINGS OF SELECTED WHITE AND YELLOW SWEET CORN VARIETIES

Variety	Type	Quality rating[1]	Tip cover[2]	Ear tip fill[2]	Eye appeal[2]	Ear length *in*	Ear diameter *in*
Millennium	W	15.00	5.00	5.00	5.00	5.0	1.2
Variety 7311	W	15.00	5.00	5.00	5.00	7.8	1.7
Flagship	W	14.75	5.00	4.75	5.00	7.5	1.8
SS 8101	W	14.33	4.33	5.00	5.00	7.7	1.8
Ice Queen	W	14.25	4.25	5.00	5.00	7.8	1.7
Boreal	W	14.00	4.00	5.00	5.00	7.0	1.6
Treasure	W	14.00	4.00	5.00	5.00	5.0	1.3
Windham	W	13.50	4.00	4.50	5.00	7.5	1.8
GGS-0966	Y	15.00	5.00	5.00	5.00	8.0	1.8
Envy	Y	14.75	5.00	4.75	5.00	7.3	1.7
Saturn	Y	14.75	4.75	5.00	5.00	7.3	1.8
Primetime	Y	14.50	5.00	4.50	5.00	7.8	1.7
Variety 6800	Y	14.50	4.75	4.75	5.00	7.5	1.8
Variety 8100	Y	14.50	4.50	5.00	5.00	7.0	1.8
Attribute	Y	14.33	4.33	5.00	5.00	7.0	1.7
r²		***0.22***	***0.30***	***0.23***		***0.33***	***0.22***
CV		***6.3***	***17***	***8***		***20***	***22***
lsd		***1.4***	***1.2***	***0.64***		***2.3***	***0.58***

[1]Quality rating is the sum of tip cover, ear fill, and eye appeal ratings.
[2]Tip cover, ear fill, and eye appeal ratings: 5=excellent; 4=good; 3=fair; 2=poor; 1=very poor.

Short-Day Onion Variety Trial, 2002

George E. Boyhan, William M. Randle, Anna Resurreccion, Albert C. Purvis, Reid L. Torrance, David E. Curry, Greg Hardison, M. Jefferson Cook, C. Randell Hill, and J. Thad Paulk,

Southeast Georgia is ideal for onion production. This region of Georgia is noted for its mild winters, abundant water supply, and low sulfur soils. The soils are generally so low in sulfur in this region that extra sulfur must be added to produce onions. The sulfur, however, can be managed in such a way that by the time the crop is harvested much of the sulfur is used up, resulting in a particularly mild onion.

Short-day onion (onions that bulb during the short days of winter) can be produced throughout the South where winters are mild, but to produce particularly mild onions the soils must be low in sulfur and there must be access to irrigation water. Even in Georgia the upland soils of the Piedmont are not suitable because of the high sulfur content. In addition, onions grown on clay soils are difficult to harvest and are prone to damage in the harvesting process.

The onion variety trials held in Georgia are unique in that the results are used to make recommendations for onions suitable for Vidalia onion production. New onion varieties must be trialed for three years and have favorable flavor characteristics two out three years to be recommended for inclusion on the official list of varieties. The Georgia Department of Agriculture has final say as to which varieties are suitable for Vidalia onion production.

These trials begin in the fall of 2001 with the production of transplants. This year's trial was conducted at the Vidalia Onion and Vegetable Research Center in Lyons, Georgia (Table 1). Fields were prepared in August; preparation included the application of 63 gallons of 42% metam sodium per acre. On September 12, 800 pounds of 5-10-15 with 9% sulfur was broadcast preplant. Seed of each variety were sown on September 27 in high-density plantings with a Monosem planter set to deliver 50 to 70 seed per linear foot. On September 28, 150 pounds of diammonium phosphate (18-46-0, DAP) was applied. This was followed by applications of 200 pounds of $CaNO_3$ on October 25 and 200 pounds of $CaNO_3$ on November 7.

Transplants were pulled and planted at their final spacing on November 26. Final spacing was on beds prepared to have a 6-foot center-to-center spacing with four rows on a bed. Each plot consisted of 50 feet of bed with 25 feet being harvested for yield data. Counts of doubles were conducted over the entire 50-foot bed. The experimental design was a randomized complete block. Beds were fertilized with 400 pounds of 5-10-15 with 9% sulfur on November 5. These rows were set 12 inches apart and plants were set 5.25 inches in the row. Additional fertilizer applications included 150 pounds of DAP applied on December 6, 200 pounds of 6-12-18 with 5% sulfur applied on January 9 and January 23, and 200 pounds of $CaNO_3$ applied on February 5 and February 19.

Disease control consisted of applications of Dithane with copper fungicide alternating with Bravo on the transplants beginning immediately after emergence and continuing weekly until transplanting. After transplanting Dithane, Kocide, Bravo, Rovaral, Mankocide, and Quadris were applied in various combinations beginning December 20, 2001 and continuing weekly until April 16, 2002.

Weed control consisted of two applications of Goal herbicide at 3 ounces per acre applied to the direct seeded transplants on October 29 and November 19. After onions were transplanted to their final spacing, a single application of Goal and Prowl was applied at 1.5 pints per acre on December 19.

Onion harvest began on April 15, 2002 when the earliest maturing onions were pulled and allowed to dry in the field followed by clipping two days later at which time field weights were recorded. Onions were then dried with

Table 1. Ratings of 2002 Onion Variety Trial[1]

Location	VOVRC
Weather	2
Fertility	5
Irrigation	5
Pests	2
Overall	3

[1]See introduction for a description of rating scales.

forced air-drying at 95° Fahrenheit. Onions were removed from the dryers and graded on April 22. Three more harvests were conducted as onions matured on April 19, April 25, and May 2, respectively. The clipping dates were April 22, April 29, and May 6, and the grading dates were April 29, May 6, and May 9, respectively.

Ten bulb samples from each replication of each variety were tested for pungency using the pyruvate test which measures the development of pyruvate as micromoles per gram fresh weight (um/gfw). In addition, a ten-bulb sample of replications 1 and 2 of each variety was evaluated by a professional taste panel.

Yield data are presented in Table 2, which is sorted in descending order based on marketable yield. The top five varieties for marketable yield were DPS 1039, 'Nirvana', DPS 1024, DPS 1032, and 'Sugar Belle F_1'.

When the data were sorted by harvest date, there was a strong correlation between this parameter and percent marketable yield with those varieties harvested later having a lower percent marketable yield. There was a high incidence of late season bacterial diseases particularly sour skin (*Burkholderia cepacia*), which lowered the marketable yields of late season varieties.

Sorting by field yield gave a good indication of the potential for a variety's yielding ability. The top five varieties for field yield were 'Savannah Sweet', DPS 1033, RCX 5195-1, DPS 1039, and DPS 1024. Variety DPS 1024 was among the top five performers for both field yield and marketable yield.

TABLE 2. VIDALIA ONION VARIETY TRIAL YIELD RESULTS

Variety	Seed company	Clipped (date)	Field yield	Cured yield	Jumbos	Mediums	Marketable yield	Percent marketable
			50 lb bags/ac					
DPS 1039	D. Palmer Seed	4/29/02	827	804	583	47	630	78
Nirvana (1027)	Sunseeds	4/22/02	740	706	572	39	611	86
DPS 1024	D. Palmer Seed	4/29/02	820	789	574	29	603	76
DPS 1032	D. Palmer Seed	4/22/02	706	669	542	57	600	90
Sugar Belle F_1 (SSC 6371)	Shamrock	4/22/02	664	638	542	42	584	92
SSC 6372 F_1	Shamrock	4/22/02	679	647	522	60	582	90
Sweet Advantage	D. Palmer Seed	4/17/02	608	606	419	139	557	92
Sweet Vidalia	Sunseeds	4/22/02	658	623	480	73	554	89
WI-3115	Wannamaker	4/17/02	713	654	467	83	550	84
99C 5092 [1]	Sakata	4/22/02	711	673	450	71	521	77
Sweet Melissa	Sunseeds	4/29/02	750	695	450	47	497	72
DPS 1033	D. Palmer Seed	5/6/02	853	821	476	17	492	60
Granex 33	Seminis/Asgrow	4/29/02	660	637	457	35	492	77
Yellow Granex PRR	Sunseeds	5/6/02	776	753	442	23	465	62
RCX 6043	Sunseeds	4/29/02	675	650	454	11	465	72
EX 07592001	Seminis/Asgrow	4/29/02	759	566	374	60	434	77
WI-609	Wannamaker	4/17/02	627	475	387	47	433	91
Cyclops (XP 6995)	Seminis/Asgrow	5/6/02	734	714	390	28	418	59
Rio Bravo	Sunseeds	4/29/02	656	620	374	36	410	66
RCX 5195-1	Sunseeds	5/6/02	830	813	399	7	406	50
PS 7092	Seminis/Petoseed	4/29/02	579	551	368	32	400	73
EX 19013	Seminis/Asgrow	5/6/02	782	765	387	8	395	52
Southern Belle	D. Palmer Seed	4/17/02	573	455	300	94	394	87
Numex Chaco	Lockhart	5/6/02	751	736	377	12	389	53
EX 07592000	Seminis/Asgrow	4/29/02	714	679	363	21	384	57
Savannah Sweet	Seminis/Petoseed	4/29/02	867	678	358	19	377	56
Liberty	Bejo Seed Co.	5/6/02	615	576	263	29	292	51
Sweet Melody	Sunseeds	5/6/02	502	495	269	12	281	35
Southern Honey	D. Palmer Seed	4/29/02	558	522	212	49	261	50
Pegasus	Seminis/Asgrow	5/6/02	633	611	237	13	250	41
Granex Yellow, PRR	Seminis/Asgrow	5/6/02	633	599	226	6	232	39
r^2			*0.331*	*0.247*	*0.405*	*0.756*		
CV			*23%*	*29%*	*39%*	*84%*		
Adjusted lsd ($p < or = 0.05$)			*262*	*354*	*263*	*35*		

[1] Only 99C 5092 had any seedstems (two in a single plot) as counted on 3/26/02.

None of the varieties had less than 80% jumbos of their marketable yields. The top five varieties for jumbo yield correspond to the top five varieties for marketable yield. The top five varieties for jumbos had better than 90% of their marketable yield as jumbos.

Pungency, sugar content, and number of doubles are listed in Table 3. Seedstems were not a problem this year within the variety trial. Pungencies ranged from 1.1 to 3.5 um/gfw, which is considered quite good overall. The five mildest varieties were 'Sweet Melody', RCX 6043, SSC 6372 F_1, 'Sweet Vidalia', and 'Savannah Sweet'.

Taste panel evaluations are listed in Table 4. This year only the bitterness criterion was used to assess varieties for inclusion on the official variety list. The five varieties with the lowest bitterness were 'Sweet Melody', RCX 5195-1, 'Savannah Sweet', 'Liberty', and 'Yellow Granex PRR Sunseed'. Surprisingly, among all the parameters listed for taste, 'Granex 33' was one of the poorest performers. 'Granex 33' is the standard variety for evaluating varieties for inclusion on the official list of varieties.

In conclusion, this was a very unusual year. There was freezing weather at the end of February followed by very warm temperatures in March. The freezing weather is believed to have damaged the onion tops, setting them up for severe Stemphylium leaf blight (*Stemphylium vesicarium*) infection, which was particularly bad across most of the onion belt. Bacterial infection wasn't as bad in the location of this study as it was in some other locations, but coupled with the warm weather in March, the bacterial infection was still severe. Because of this, onions were harvested earlier than they would have been harvested in a normal year. Even so, the later harvested varieties had much lower percent marketable yield. These unusual conditions may also have played a role in the taste testing where 'Granex 33' did so poorly.

Due to the unusual conditions in this production year, it is difficult to assess the impact of the information from these trials. In determining the suitability of a particular variety for a particular situation, it is a good idea to use several years' worth of data.

TABLE 3. VIDALIA ONION VARIETY TRIAL QUALITY PARAMETERS, 2002

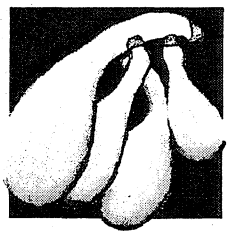
Variety	Pungency *um/gfw*	Sugar *%*	Doubles *no/50-ft plot*
Southern Belle	3.5 a [1]	9.9	69
Numex Chaco	2.8 ab	7.6	6
Sweet Advantage	2.8 ab	10.0	42
Liberty	2.7 bc	7.7	2
Southern Honey	2.5 bcd	8.6	8
WI-3115	2.3 bcde	8.7	13
DPS 1039	2.3 bcdef	9.7	43
EX 07592001	2.2 bcdefg	8.1	13
Granex Yellow, PRR Asgrow	2.1 bcdefgh	8.6	6
DPS 1033	2.1 bcdefghi	8.0	8
Cyclops (XP 6995)	2.1 bcdefghij	8.3	14
PS 7092	2.0 cdefghijk	9.4	9
EX 19013	1.9 cdefghijkl	8.4	1
DPS 1032	1.9 cdefghijklm	8.7	6
DPS 1024	1.9 defghijklm	8.9	5
Granex 33	1.8 defghijklm	8.3	7
Pegasus	1.8 defghijklm	8.5	1
Rio Bravo	1.8 defghijklm	8.7	8
Yellow Granex PRR Sunseed	1.8 defghijklm	8.2	5
Nirvana (1027)	1.7 defghijklm	8.4	8
WI-609	1.7 defghijklm	9.0	7
Sugar Belle F1 (SSC 6371)	1.7 efghijklm	8.3	5
EX 07592000	1.7 fghijklm	8.0	3
99C 5092	1.6 ghijklm	9.0	3
RCX 5195-1	1.5 hijklm	7.7	4
Sweet Melissa	1.4 ijklm	8.3	8
Savannah Sweet	1.3 jklm	7.2	6
Sweet Vidalia	1.3 klm	8.5	7
SSC 6372 F1	1.2 lm	9.4	5
RCX 6043	1.1m	7.6	1
Sweet Melody			6
r^2	***0.613***	***0.745***	***0.657***
CV	***35%***	***9%***	***64%***
Adjusted lsd (p. or =0.05)	***0.9***	***0.8***	***5***

[1] Means followed by the same letter are not different by Duncan's multiple range test ($p < or = 0.05$).

TABLE 4. TASTE TEST EVALUATIONS, 2001-2002

Variety	Total sulfur	Bitter	Pungency	Heat	Sweet
Granex 33	18.3 abc [1]	19.8 a	34.7 a	35.8 a	20.5 l
WI-3115	16.5 bcdefghijkl	19.7 ab	19.6 lm	19.9 hijklmn	21.9 jkl
DPS 1032	19.4 ab	18.7 abc	27.5 bcdef	25.5 bcdefg	26.3 efghij
DPS 1024	21.2 a	18.4 abcd	28.0 bcde	26.0 bcdef	27.9 defgh
DPS 1039	16.1 cdefghijklmno	17.7 abcde	30.0 b	27.7 bc	25.1 fghijk
Sweet Advantage	14.8 mno	17.4 abcdef	16.4 mn	21.3 fghijklm	21.7 kl
Southern Belle	16.3 bcdefghijklmno	16.9 abcdefg	21.8 ijkl	24.2 bcdefghi	23.6 ijkl
Southern Honey	17.5 bcde	16.1 bcdefgh	25.7 bcdefghijk	24.9 bcdefgh	27.7 defghi
Sweet Melissa	15.1 lmno	15.4 cdefghi	29.4 bcd	28.0 b	26.2 fghijk
Rio Bravo	14.6 no	15.3 cdefghi	29.6 bc	26.7 bcde	26.6 defghi
Numex Chaco	17.0 bcdefg	14.9 defhgij	26.0 bcdefghijk	27.3 bcd	30.2 def
SSC 6372 F1	16.5 bcdefghijk	14.7 defghijk	26.4 bcdefg	22.6 bcdefghijkl	28.9 defg
RCX 6043	17.9 bcd	14.5 efghijk	24.8 bcdefghijkl	23.3 bcdefghijkl	28.7 defgh
Sugar Belle F1 (SSC 6371)	16.6 bcdefghij	14.4 efghijk	26.0 bcdefgh	18.4 ijklmn	23.0 ijkl
Nirvana (1027)	17.5 bcdef	13.7 fghijkl	26.0 bcdefghij	21.9 cdefghijklm	28.5 defgh
Sweet Vidalia	16.1 bcdefghijklmno	13.6 fghijkl	26.0 bcdefghi	22.2 cdefghijklm	31.0 cdef
EX 19013	16.5 bcdefghijklm	13.3 ghijkl	23.8 defghijkl	24.0 bcdefghij	29.9 def
WI-609	13.3 o	12.5 hijklm	14.4 n	15.9 n	29.8 def
Granex Yellow, PRR Asgrow	16.4 bcdefghijklmn	12.3 hijklmn	23.6 efghijkl	25.2 bcdefg	31.1 cdef
99C 5092	15.2 klmno	12.1 ijklmno	24.7 bcdefghijkl	21.0 ghijklmn	30.3 def
EX 07592001	16.2 bcdefghijklmno	12.1 ijklmn	25.3 bcdefghijkl	18.2 jklmn	23.7 hijkl
EX 07592000	15.9 efghijklmno	11.8 ijklmno	25.1 bcdefghijkl	17.9 klmn	24.5ghijkl
Pegasus	15.9 defghijklmno	11.3 jklmno	24.8 bcdefghijkl	23.3 bcdefghijk	32.1 bcd
PS 7092	16.1 bcdefghijklmno	11.0 jklmno	25.2 bcdefghijkl	18.4 ijklmn	26.2 fghijk
DPS 1033	16.9 bcdefgh	10.9 klmno	24.3 cdefghijkl	22.9 bcdefghijkl	31.5 bcde
Cyclops (XP 6995)	15.3 jklmno	10.3 lmno	21.0 jklm	21.6 defghijklm	32.4 bcd
Yellow Granex PRR Sunseed	15.9 fghijklmno	10.3 lmno	22.6 fghijkl	21.3 efghijklm	30.8 def
Liberty	15.6 hijklmno	10.0 lmno	22.5 ghijkl	22.3 bcdefghijklm	35.9 ab
Savannah Sweet	15.5 ijklmno	9.1 mno	19.6 lm	16.7 mn	35.5 abc
RCX 5195-1	15.7 ghijklmno	8.5 no	20.7 klm	17.6 lmn	39.2 a
Sweet Melody	16.7 bcdefghi	8.3 o	22.0 hijkl	21.5 defghijklm	32.0 bcd

[1] Means followed by the same letter in a column are not significantly different by Duncan's Multiple Range Test ($p < \text{or} = 0.05$).



'Medallion' and 'Gentry' – Top Squash Varieties Overall

Joe Kemble, Edgar Vinson, Randy Akridge, Jason Burkett, and Tony Dawkins

A summer squash variety trial was conducted at the Brewton Agricultural Research Unit (BARU) in Brewton, Alabama; the E.V. Smith Research Center (EVSRC) in Shorter, Alabama; and the Sand Mountain Research and Extension Center (SMREC) in Crossville, Alabama (Tables 1 and 2).

Squash were direct seeded on bare ground into 30 foot-long plots at a within row spacing of 1 foot on April 19 at BARU, April 30 at EVSRC, and April 22 at SMREC. Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Current production practices for summer squash can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

At BARU, preplant fertilization consisted of 600 pounds per acre of 5-10-15 on April 10 followed by weekly injections of nitrogen (N) as calcium nitrate at a rate of 20 pounds of N per acre. Plots were fumigated with methyl bromide (at a rate of 250 pounds per acre) on April 11 before silver, reflective plastic mulch was laid. Pesticides were applied from May 7 through May 31.

Table 1. Ratings of 2002 Summer Squash Variety Trial[1]

Location	BARU	EVSRC	SMREC
Weather	5	5	5
Fertility	5	5	5
Irrigation	5	5	5
Pests	5	5	5
Overall	5	5	5

[1]See introduction for a description of rating scales.

At EVSRC, fertilization consisted of an application of calcium nitrate (15.5-0-0) and muriate of potash (0-0-60) at rates of 400 pounds per acre and 200 pounds per acre, respectively, on April 13. Alternate injections of calcium nitrate and 20-20-20 were made twice weekly from

Table 2. Seed Source, Fruit Type, and Relative Earliness of Selected Squash Varieties

Variety	Type	Seed source	Days to harvest	Disease claims[1]	Years evaluated
ACX 204	F1	Abbott & Cobb	—[2]	—	02
Cougar[3]	F1	Harris	—	WMV,ZYMV	02
Gentry	F1	Novartis	43	—	02
Horn of Plenty	F1	Hollar	40	—	98,02
Lemondrop L	F1	Seminis	41	—	94-98,02
Liberator III	F1	Seminis	—	CMV,WMV,ZYMV	97,98,99,02
Medallion	F1	Abbott & Cobb	53	—	96,02
Pic-N-Pic	F1	Seedway	50	—	99-02
Precious II	F1	Harris	53	—	02
Zephyr [3]	F1	Johnny's Select	54	—	99,01,02

[1] Disease claims: CMV = Cucumber Mosaic Virus; ZYMV = Zucchini Yellow Mosaic Virus, WMV = Watermelon Mosaic Virus.

[2] — = none; from seed catalogues.

[3] Precocious variety.

May 14 through June 21. Insecticides and fungicides were applied from May 21 through June 7.

At SMREC, preplant fertilization consisted of 400 pounds per acre of 5-20-20 on May 7. Fertilization consisted of 60 pounds per acre of potassium nitrate on June 24 and 6 pounds per acre of N as 20-20-20 and as calcium nitrate on July 2 and July 11 respectively. Pesticides were applied twice weekly from June 18 through July 18.

Squash were harvested 12 times between June 13 and June 22 at EVSRC (data not included), between June 27 and July 24 at SMREC, and between May 22 and June 7 at BARU. Squash were graded as marketable and non-marketable according to the *United Stated Standards for Grades of Summer Squash* (U.S. Dept. Agr. G.P.O 1987-180-916:40730 AMS) (Table 3).

In total yield 'Gentry' and 'Medallion' were found among the top performing varieties at both locations. 'Gentry' is found most often among the top performers in early yield.

TABLE 3. EARLY PRODUCTION AND GRADE DISTRIBUTION OF SELECTED SUMMER SQUASH VARIETIES

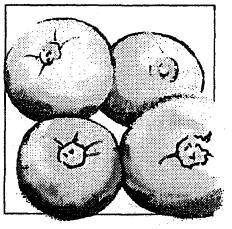
Variety	Early marketable yield *lbs/ac*	Early US#1 *lbs/ac*	Early US#2 *lbs/ac*
Brewton Agricultural Research Unit			
Medallion	5,177	4,290	886
Gentry	4,519	4,100	419
Pic-N-Pic	4,002	3,980	22
Precious	3,948	3,785	163
ACX 204	3,866	3,496	370
Zephyr	3,007	2,920	87
Lemondrop L	2,610	2,229	381
Cougar	2,333	2,148	185
Horn of Plenty	2,137	2,077	60
Liberator III	1,707	1,615	92
r^2	***0.32***	***0.30***	***0.34***
CV	***53***	***55***	***145***
lsd	***2,636***	***2,514***	***544***
Sand Mountain Research and Extension Center			
Precious	7,861	7,861	•
ACX 204	4,394	4,394	•
Cougar	3,748	3,748	•
Gentry	3,283	3,283	•
Zephyr	2,702	2,702	•
Liberator	2,668	2,668	•
Medallion	2,321	2,321	•
Horn of Plenty	2,029	2,029	•
Lemondrop L	1,941	1,941	•
Pic-N-Pic	231	231	•
r^2	***0.28***		
CV	***114***		
lsd	***5,138***		

[1] • = not reported.

TABLE 4. TOTAL PRODUCTION AND GRADE DISTRIBUTION OF SELECTED SUMMER SQUASH VARIETIES

Variety	Total marketable yield *lbs/ac*	US#1 *lbs/ac*	US#2 *lbs/ac*	Individual fruit wt. *lbs*	Cull weight *lb*
Brewton Agricultural Research Unit					
Gentry	11,729	9,695	2,034	0.29	10,005
Medallion	11,707	9,488	2,219	0.25	1,267
Pic-N-Pic	11,049	9,516	1,533	0.24	1,147
ACX 204	10,652	8,107	2,545	0.31	1,887
Precious	10,141	9,059	1,082	0.28	1,604
Zephyr	9,119	7,270	1,849	0.26	685
Horn of Plenty	8,118	5,775	2,344	0.31	783
Lemondrop L	7,207	5,633	1,573	0.22	1,537
Cougar	6,824	5,960	865	0.28	288
Liberator III	5,432	4,285	1,147	0.26	10,522
r^2	***0.30***	***0.32***	***0.30***		
CV	***40***	***42***	***68***		
lsd	***2,602***	***2,373***	***1,406***		
Sand Mountain Research and Extension Center					
Precious	31,221	28,700	2,522	0.45	0
Cougar	30,357	26,870	3,487	0.35	0
Medallion	30,216	25,751	4,466	0.33	0
Gentry	29,999	27,671	2,328	0.32	0
ACX 204	29,420	26,600	2,821	0.36	0
Zephyr	26,916	22,270	4,646	0.48	105
Horn of Plenty	25,720	20,619	5,101	0.36	31
Lemondrop L	21,288	18,426	2,861	0.41	0
Liberator	20,605	17,818	2,787	0.31	700
Pic-N-Pic	15,534	14,865	669	0.28	0
r^2	***0.60***	***0.54***	***0.40***		
CV	***35***	***37***	***74***		
lsd	***12,234***	***11,201***	***3,045***		

[1] • = not reported.



Tomato Varieties Perform Well in North and South Alabama

Joe Kemble, Edgar Vinson, Randy Akridge, and Arnold Caylor

A spring tomato variety trial was conducted at the Brewton Agricultural Research Unit (BARU) in Brewton, Alabama, and the North Alabama Horticulture Research Center (NAHRC) in Cullman, Alabama (Tables 1 and 2). Seven-week-old tomato transplants were established on June 5 at BARU and June 12 at NAHRC. At both locations tomato seedlings were transplanted onto 20-foot long plots, at a within row spacing of 1.5 foot. Drip irrigation and plastic mulch were used at both locations. Current production practices for tomatoes can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

At BARU preplant fertilizer consisted of an injection of 75 pounds of nitrogen per acre. After planting, fertilization consisted of weekly injections of either calcium nitrate (at a rate of 10 pounds of nitrogen per acre) or potassium nitrate (at a rate of 20 pounds of nitrogen per acre) between June 5 and July 29. Pesticides were applied twice weekly from June 12 through July 29.

At NAHRC, preplant fertilization consisted of 80 pounds per acre of N as ammonium nitrate. Fertilization consisted of weekly injections of ammonium nitrate at a rate of 10 pounds per acre. Pesticides were applied weekly.

TABLE 1. RATINGS OF 2002 TOMATO VARIETY TRIAL[1]

Location	BARU	NAHRC
Weather	5	5
Fertility	5	5
Irrigation	5	5
Pests	5	5
Overall	5	5

[1]See introduction for a description of rating scales.

TABLE 2. SEED SOURCE, FRUIT CHARACTERISTICS, AND RELATIVE EARLINESS OF SELECTED TOMATO VARIETIES

Variety	Type	Seed source	Plant habit[1]	Fruit color	Days to harvest	Disease claims[2]	Years evaluated
BHN 189	F1/FM [3]	BHN	Det	Red	— [4]	FW, VW	02
BHN 543	F1/FM	BHN	Det	Red	—	FW,NE,VW	02
BHN 555	F1/FM	BHN	Det	Red	—	FW,TSW,VW	02
Classy Lady	F1/FM	Sunseeds	Det	Red	—	—	02
Fabulous	F1/FM	Seedway	Det	Red	77	ASC,FW,St,TbMV, VW	99,02
Florida 47 [5]	F1/FM	Seminis	Det	Red	75	ASC,FW,St,VW	97-99,02
Florida 91	F1/FM	Seminis	Det	Red	—	ASC,FW,St,VW	02
Leading Lady	F1/FM	Sunseeds	Det	Red	—	—	02
Paragon	F1/FM	Johnny's Select	Det	Red	78	FW,VW	02
PS 771297	F1/FM	Seminis	Det	Red	—	FW,VW	02
PS 861894	F1/FM	Seminis	Det	Red	—	—	02
PS 870494	F1/FM	Seminis	Det	Red	—	—	02
Shady Lady	F1/FM	Sunseeds	Det	Red	—	—	02
Show Girl	F1/FM	Sunseeds	Det	Red	—	—	02
Sunleaper	F1/FM	Novartis	Det	Red	70	FW,VW	98,99,02

[1] Plant habit: Det = Determinate.
[2] Disease claims: FW = Fusarium Wilt; VW = Verticillium Wilt; ASC = Alternaria Stem Canker; St = Stemphylium (gray leaf spot); TbMV=Tobacco Mosaic Virus; TSW = Tomato Spotted Wilt Virus.
[3] FM = Fresh Market. [4] — = not available; from seed catalogues. [5] Formerly XPH10047.

Tomatoes were harvested, weighed, and graded weekly between July 2 and July 29 at BARU and July 29 through August 13 at NAHRC (Table 3). Grades and corresponding fruit diameters of fresh market tomato were adapted from the *Tomato Grader's Guide* (Circular ANR 643 from the Alabama Cooperative Extension System) and were extra-large (diameter greater than 2.9 inch), large (diameter greater than 2.5 inch) and medium (diameter greater than 2.3 inch). Marketable yield was calculated by adding the yields of extra-large, large, and medium grades (Table 3).

TABLE 3. PERFORMANCE OF SELECTED TOMATO VARIETIES

Variety	Marketable yield *lbs/ac*	Extra large number *no/ac*	Extra large weight *lbs/ac*	Large number *no/ac*	Large weight *lbs/ac*	Medium weight *lbs/ac*	Cull weight *lbs/ac*	Individual fruit weight *oz*
Brewton Agricultural Research Unit								
BHN555	40,439	24,626	22,000	15,975	10,059	3,676	6,737	0.82
Paragon	38,362	36,758	23,854	13,703	5,927	1,349	9,217	0.61
BHN189	35,556	32,081	20,374	13,703	5,889	1,745	7,721	0.60
PS771297	33,549	34,039	21,837	14,573	6,150	1,936	6,753	0.57
Sun Leaper	32,408	30,994	19,477	16,965	7,205	2,344	5,943	0.55
Florida 91	30,430	28,819	18,066	15,769	6,851	2,061	6,813	0.57
PS870494	30,347	25,991	15,725	23,273	9,739	3,311	6,085	0.49
Florida 47	29,161	26,753	17,144	11,419	4,894	1,550	6,563	0.61
Fabulous	28,052	27,514	16,612	15,878	6,661	2,257	8,379	0.52
BHN 543	27,449	26,753	16,726	15,551	6,520	1,599	5,633	0.55
PS861894	25,399	22,294	13,452	16,748	6,987	2,191	6,840	0.52
r^2	*0.31*		*0.50*					*0.30*
CV	*24*		*20*					*24*
lsd	*11,092*		*2,470*					*0.22*
North Alabama Horticulture Research Center								
Classy Lady	47,666	4,719	31,564	12,161	7,545	8,558	11,799	1.37
BHN 543	45,173	8,531	7,471	20,510	15,379	22,323	8,827	0.76
BHN 555	35,176	9,801	8,175	24,684	14,973	12,028	9,743	0.57
Florida 47	33,470	12,524	10,175	21,780	13,463	9,832	9,485	0.61
Paragon	33,135	10,073	8,398	20,237	12,477	12,259	5,096	0.58
Fabulous	32,112	12,433	10,772	20,056	12,621	8,719	6,645	0.60
BHN 189	31,091	9,922	8,517	20,207	12,900	9,674	7,498	0.57
PS 787049	30,683	8,349	6,783	22,415	13,556	10,345	9,062	0.54
Florida 91	30,085	11,072	9,654	19,239	11,957	8,473	5,497	0.60
Sunleaper	29,940	5,445	4,433	20,691	12,484	13,023	7,252	0.53
Show Girl	27,181	9,075	6,444	17,515	10,608	10,130	8,315	0.46
Shady Lady	26,835	5,354	4,520	18,059	9,978	12,337	7,910	0.53
PS 771297	26,399	9,257	7,509	15,428	9,326	9,564	5,514	0.54
Leading Lady	24,338	3,267	3,374	12,433	7,398	13,566	6,509	0.49
PS 861894	21,040	4,447	3,521	14,066	8,212	9,307	7,373	0.52
r^2	*0.14*		*0.30*					
CV	*64*		*62*					
lsd	*29,035*		*21,106*					

Experimental Small Melon Varieties Perform Well

Joe Kemble, Edgar Vinson, Jason Burkett, Tony Dawkins, Floyd Woods, and Raymond Thomas

Small melon trials were conducted at the E.V. Smith Research Center (EVSRC) in Shorter, Alabama, and the Sand Mountain Research and Extension Center (SMREC) in Crossville, Alabama (Tables 1 and 2). Current production practices for small melons can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

At EVSRC, preplant fertilization consisted of calcium nitrate at a rate of 400 pounds per acre. On May 8, five-week-old melon vines were transplanted onto silver plastic-mulched plots that were 60 feet by 5 feet. Drip irrigation was used.

At SMREC, melons were direct seeded on 5-foot by 60-foot plots on May 22, 2002. Drip irrigation and plastic mulch were used. Preplant fertilization consisted of 400 pounds per acre of 5-20-20 on May 7. No other fertilizers were applied. Preemergence herbicides were applied on May 2, 2002. Insecticides were applied three times from June 18 through June 27. Fungicides were applied weekly between July 3 and July 25, 2002.

Table 1. Ratings of 2002 Small Melon Variety Trials[1]

Location	EVSRC	SMREC
Weather	5	5
Fertility	5	5
Irrigation	5	5
Pests	5	5
Overall	5	5

[1]See introduction for a description of rating scales.

At both locations small melons were harvested at the half slip stage of maturity (Table 3). Honey dew melons do not slip naturally but are ready for harvest when they have lost their pubescence. At SMREC, small melons were harvested three times weekly over three weeks from August 1 through August 23 for a total of nine harvests. At EVSRC small melons were harvested June 26 through July 1 for a total of three harvests. Soluble solid content was measured using a hand-held refractometer

Table 2. Seed Source, Fruit Characteristics, and Relative Earliness of Selected Small Melon Varieties

Variety	Type	Seed source	Rind aspect[1]	Flesh color[2]	Days to harvest	Disease claims[3]	Years evaluated
ACX 3908	F1	Abbott & Cobb	E	O	—[4]	—	02
Athena	F1	Novartis	E	O	80	FW,PM	94-02
Durango	F1	Seminis	W	O	83	FW,PM,Su	96-98,00-02
Earli Brew	F1	Seedway	HD	G	93	FW,PM	02
Honey Brew	F1	Abbott & Cobb	HD	G	105	FW,PM	00-02
Hy-Mark	F1	Seminis	W	O	83	PM,Su	94-00,02
Laredo	F1	Seminis	W	O	83	PM,Su	96,97,01,02
Moonshine	F1	Seminis	HD	G	—	FW,Su	01,02
Odyssey	F1	Sunseeds	HD	G	—	—	02
RML 6969-vp	F1	Novartis	E	O	—	—	01,02
RML 8793	F1	Novartis	E	O	—	—	02
SMX 7204	F1	Abbott & Cobb	W	O	—	—	02

[1] Rind aspect: E= Eastern; HD=Honey Dew; W=Western.
[2] Flesh Color: O = Orange; Gr= Green.
[3] Disease claims: FW = Fusarium Wilt; PM = Powdery Mildew; Su = Sulfur. [4] — = not found; from seed catalogues.

to measure sweetness of eight representative melons of each variety.

In the eastern melon category, the experimental variety 'RML 8793' produced yields comparable to the market standard 'Athena' at EVSRC. However, at SMREC, 'RML 6969-vp' produced yields that were significantly higher than all other eastern melons.

In the western melon category, 'SMX 7204' had significantly higher yields than all other varieties at both locations.

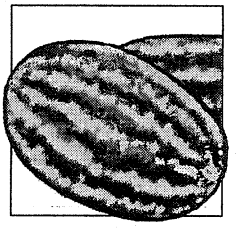
Of the honey dew, 'Earli Dew' produced the highest yields at EVSRC and the lowest yields at SMREC. The differences in yield at SMREC were not significant.

TABLE 3. YIELD OF SMALL MELON VARIETIES

Variety	Type[1]	Marketable yield *lbs/ac*	Marketable fruits *no/ac*	Cull weight *lbs*	Individual fruit wt. *lbs*	Soluble solids *°Brix*
E. V. Smith Research Center						
RML 8793	E	25,725	6,018	3,597	4.26	12.5
Athena	E	21,598	4,640	2,984	4.64	9.9
RML6969-vp	E	18,659	2,683	3,350	6.97	11.5
ACX 3908	E	15,492	2,248	2,552	6.85	12.4
Earli Brew	HD	49,926	9,498	12,257	5.20	5.3
Honey Brew	HD	37,113	7,323	7,069	5.00	9.4
Moonshine	HD	33,593	6,743	5,317	4.98	8.0
SMX 7204	W	13,760	3,408	1,740	4.03	12.2
Laredo	W	7,578	2,538	1,507	2.82	12.1
Hy-Mark	W	4,636	1,595	827	2.92	12.6
Durango	W	3,576	1,160	783	2.95	10.8
r2		***0.90***	***0.84***		***0.92***	***0.77***
CV		***32***	***30***		***10***	***13***
lsd		***4,835***	***928***		***0.67***	***2***
Sand Mountain Research and Extension Center						
RML 6969-vp	E	36,521	3,843	•[2]	9	13.5
RML 8793	E	26,692	3,553	•	8	12.0
ACX 3908	E	26,690	2,900	•	9	14.1
Odyssey	E	18,926	2,610	•	7	12.5
Athena	E	17,716	2,465	•	7	15.4
Moonshine	H	36,675	4,785	•	7	10.8
Honey Brew	H	31,857	3,698	•	9	10.0
Earli Brew	H	28,801	3,408	•	8	16.6
SMX 7204	W	39,684	7,250	•	6	12.4
Hy-Mark	W	27,383	5,873	•	5	13.2
Laredo	W	20,691	4,858	•	4	12.3
Durango	W	14,868	2,973	•	5	10.6
r²		***0.30***	***37***		***0.70***	
CV		***50***	***51***		***19***	
lsd		***9,802***	***1,474***		***2***	

[1] Type: E= Eastern; HD=Honey Dew; W=Western.

[2] • = not reported.



Watermelon and Cantaloupe Variety Trials in Georgia

George E. Boyhan, Kenneth L. Lewis, and C. Randell Hill

Watermelon is an important crop in Georgia accounting for the largest share of planted vegetable acres at just over 34,000 acres in 2001. Nationally, 156,900 acres of watermelon were harvested in 2001; thus, Georgia production accounts for 22% of the watermelons produced in the United States. The majority of watermelons grown in Georgia are grown in the spring with a sizable amount (more than 60%) produced on bare ground.

Variety trials for both watermelon and cantaloupe have been an important part of extension research efforts at the University of Georgia. This year, two watermelon trials were conducted, one at the Vidalia Onion and Vegetable Research Center (VOVRC) in Lyons, Georgia, and another on-farm in Crisp County. In addition, a cantaloupe variety trial was conducted at the VOVRC (Table 1).

Seed for both the VOVRC and Crisp County trials were planted in the greenhouse at the Bamboo Farm and Coastal Garden in Savannah, Georgia. Seventy-two cell trays were filled with Metromix 300 peat-based media. Watermelon were seeded between March 20 and March 27, 2002 and cantaloupe were seeded March 20 or April 3, 2002. Care was taken so that the triploid watermelon seed were not overwatered to insure a high germination rate. All transplants received one application of Peters 20-20-20 at 200 part per million after emergence.

Watermelon seedlings were transplanted to their final spacing at the VOVRC on April 24, 2002 and cantaloupe plants were transplanted on April 25 2002. Watermelon plants were transplanted to their final spacing in the Crisp County trial on April 25, 2002.

Land at the VOVRC was prepared according to standard University of Georgia Cooperative Extension Service recommendations with 750 pounds per acre of 10-10-10 applied preplant and incorporated. Each watermelon plot consisted of 10 hills planted 5 feet within-row and 6 feet between-row. Cantaloupe plots also consisted of 10 hills with an in-row spacing of 3 feet and a between-row spacing of 6 feet. There was a 2-foot alley in-row between plots. Both experiments were arranged in a randomized complete block design (RCBD) with four replications.

Table 1. Ratings of 2002 Watermelon and Canteloupe Variety Trials[1]

Location	VOVRC	Crisp Co.
Weather	5	5
Fertility	5	5
Irrigation	5	5
Pests	5	5
Overall	5	5

[1]See introduction for a description of rating scales.

Weed control at the VOVRC consisted of Sonolan herbicide applied over-the-top at a rate of one quart per acre. In addition, Sandea herbicide was spot sprayed to control nut sedge at a rate of 0.75 ounce per acre.

Finally, a single application of Quadris fungicide was applied just before vining (approximately three weeks after planting) at a rate of 11 ounces per acre. No insecticides were used.

The experiment in Crisp County consisted of a randomized complete block design with three replications. Each plot consisted of 12 plants arranged in two rows of six plants with a between row spacing of 6 feet and an in-row spacing of 4 feet, 9 inches. Soil was prepared for planting and had 60 pounds of actual N-P-K incorporated preplant. An additional 50 pounds of N and K were added at first vining (approximately four weeks after planting).

Weed control consisted of Curbit herbicide applied over-the-top at 1.5 pints per acre immediately after planting. Three weeks after planting, Basagran was applied at a rate of 1.5 pints per acre with 1 pint of crop oil. Finally, Alanap was applied three times at pre-vining, 2 to 3 foot runners, and late post-emergence at a rate of 3 quarts per acre at each application.

Disease control consisted of weekly applications alternating Bravo/Mankocide and Folicur/Mankocide. No insecticides were used.

The yield ranged from 26,612 to 69,395 pounds per acre for the watermelon trial at the VOVRC with RWM 8074-VP having the highest yield and #1075 having the

lowest (Table 2). The top five varieties including RWM 8074-VP include #5031, 'Celebration', 'Carnival', and 'Sugar Slice'. Variety #5031 and 'Sugar Slice' are triploids. Of the 32 varieties in the trial at the VOVRC, 15 were triploids. This continues a trend of increasing triploid production in Georgia.

The description listed in Table 2 is the seed company listing for that particular variety. The top three varieties with percent of yield with melon sizes greater than 20 pounds included RWM 8074-VP, 'Jamboree', and 'Rojo Grande'. The top three varieties with the greatest percent of yield in the 20 to 30 pound class were 'Jamboree', 'Rojo Grande', and 'AU-Allsweet BL'. The top five varieties with the greatest percent of yield in the 10 to 20 pound class are all triploids and include 'Sweet Slice', 'Cooperstown', #7187 HQ, #5244, and #7177 HQ. Triploids have generally been small round melons, but recently more oblong types have been available. Table 3 lists characteristics of the varieties in the trial. This list is sorted by soluble solids (percent sugar). Sugar content ranged from 9.3 to 11.6%. Varieties #5244, 'Ole", WX207, 'Cooperstown', and 'Gold Strike' were among the sweetest varieties in the trial. 'Gold Strike' was also the only yellow-fleshed variety in the trail.

The flesh-colored rating (Table 3) attempts to give an idea of how pleasing the flesh color is within the particular color. Color, of course, is a very subjective characteristic, but simply listing the color may not give much information. Flesh color in commercial watermelon varieties can range from pink to dark red to an occasional yel-

TABLE 2. WATERMELON VARIETY TRIAL, 2002
VIDALIA ONION AND VEGETABLE RESEARCH CENTER, LYONS, GEORGIA

Variety	Company	Description	Yield	—Percent melons per weight class—			
			lbs/ac	10 lbs	>10-20 lbs	>20-30 lbs	>30 lbs
RWM 8074-VP	Rogers	Allsweet Seeded	69,395	1	38	49	12
#5031	Seminis	Triploid	60,450	9	74	17	1
Celebration	Rogers	Allsweet Seeded, RWM 8052-VP	59,369	1	58	37	4
Carnival	Rogers	Hybrid Seeded, RXW 118 -VP	56,519	4	47	42	8
Sugar Slice	Willhite	Triploid	54,319	11	78	10	1
Jamboree	Rogers	Allsweet Seeded, RWM 8036	53,495	1	38	55	5
Ole'	Willhite	Hybrid	52,189	0	49	39	12
AU-Producer-98	Auburn Univ.	Diploid Crimson Sweet	52,069	6	42	40	12
#7167	Abbott&Cobb	Super Seedless/ Hybrid Triploid	51,659	22	78	0	0
WX255	Willhite	Hybrid	51,593	13	71	16	0
Montreal	Sunseed	Diploid	49,357	8	49	43	0
Tri-X 313	Rogers	Red Seedless	48,609	12	64	24	0
AU-3	Auburn Univ.	ZYMV Tolerance?	47,045	7	49	38	6
Pinata	Willhite	Hybrid	46,457	3	44	42	11
Revolution	Sunseed	Triploid	45,890	11	71	18	0
WX207	Willhite	Hybrid	45,440	6	42	47	5
#7177 HQ	Abbott&Cobb	Super Seedless HQ / Hybrid Triploid	44,235	3	79	15	3
Tri-X Brand Palomar	Rogers	Red Seedless	43,829	32	66	2	0
Cooperstown	Seminis	Triploid	43,640	11	81	7	0
Sweet Slice	Willhite	Triploid	42,732	6	92	1	1
RWT 8096-VP	Rogers	Red Seedless	42,239	7	75	18	0
#7187 HQ	Abbott&Cobb	Super Seedless HQ / Hybrid Triploid	41,730	11	81	8	0
Festival	Willhite	Hybrid	40,881	3	48	47	2
AU-Allsweet-BL	Auburn Univ.	Diploid Allsweet	40,616	4	44	51	2
Gold Strike	Willhite	Hybrid	39,977	7	75	18	0
#5244	Abbott&Cobb	Summer Sweet / Hybrid Triploid	38,917	15	80	5	0
Dulce	Willhite	Hybrid	36,496	4	43	47	6
Seedless Sangria	Rogers	Allsweet Seedless, RWT 8108-VP	34,354	2	51	44	2
Rojo Grande	Willhite	Hybrid	34,235	0	43	54	2
Imagination	Rogers	Red Seedless, RWT 8089-VP	27,530	49	51	0	0
#1075	Seminis	Triploid	26,612	7	76	17	0
r^2			***0.264***				
CV			***39%***				
Adjusted lsd (p 0.05)			***30,922***				

TABLE 3. WATERMELON FRUIT CHARACTERISTICS

Variety	Flesh color	Flesh color rating [1]	Fruit length *in*	Width *in*	Rind thickness *in*	Fruit type	Soluble solids *%*
#5244	Red/Pink	3.0	10.8	8.5	0.9	Crimson Sweet	11.6
Ole'	Red	3.6	15.3	9.1	0.8	Allsweet	11.4
WX207	Red/Pink	3.1	16.2	8.9	0.8	Jubilee	11.4
Cooperstown	Pink/Red	2.7	10.5	8.9	0.8	Crimson Sweet	11.3
Gold Strike	Yellow	3.6	12.8	8.8	0.7	Allsweet	11.3
Imagination	Red	3.3	8.3	8.5	0.9	Icebox	11.3
Sweet Slice	Red/Pink	2.8	10.2	8.9	0.9	Crimson Sweet	11.3
Revolution	Red/Pink	2.7	10.9	8.1	0.8	Blocky Crimson Sweet	11.3
Sugar Slice	Red	3.1	10.1	9.1	1.0	Crimson Sweet	11.3
RWT 8096-VP	Red/Pink	2.6	10.7	8.9	1.0	Crimson Sweet	11.2
Rojo Grande	Red/Pink	3.7	15.8	8.4	0.9	Allsweet	11.1
Tri-X Brand Palomar	Red	3.1	9.0	9.1	0.9	Small Crimson Sweet	11.1
Dulce	Red/Pink	3.0	15.9	8.9	1.0	Allsweet	11.0
Montreal	Pink/Red	2.3	13.6	9.4	1.0	Allsweet	11.0
Carnival	Red	3.5	14.7	9.6	0.7	Jubilee	10.8
Celebration	Red	3.1	12.3	8.8	0.9	Allsweet	10.8
#7167	Red	2.6	9.9	8.4	0.8	Crimson Sweet	10.7
Festival	Red	3.3	15.2	9.1	0.8	Allsweet	10.7
Pinata	Red/Pink	2.6	14.5	9.1	0.8	Allsweet/Jubilee	10.6
#1075	Red	2.5	10.5	9.4	1.0	Crimson Sweet	10.6
Tri-X 313	Red/Pink	2.6	11.2	8.8	0.9	Small Allsweet/Crimson Sweet	10.6
#7177 HQ	Pink/Red	2.3	10.8	9.0	0.9	Crimson Sweet	10.4
#7187 HQ	Pink/Red	2.6	10.5	9.0	1.0	Crimson Sweet	10.4
Jamboree	Red	3.0	15.7	8.0	0.8	Allsweet	10.4
AU-3	Pink/Red	2.2	11.5	11.0	0.9	Crimson Sweet	10.3
RWM 8074-VP	Red	3.6	15.9	8.8	0.7	Allsweet	10.1
AU-Allsweet-BL	Pink	1.6	14.2	8.9	1.0	Allsweet	10.1
#5031	Red/Pink	2.9	11.7	8.7	0.9	Crimson Sweet/Allsweet	10.0
AU-Producer-98	Red/Pink	3.3	11.1	9.8	0.8	Crimson Sweet	9.9
Seedless Sangria	Red	2.2	13.9	8.3	0.9	Allsweet/Jubilee	9.9
WX255	Red/Pink	3.3	12.8	8.7	0.8	Allsweet	9.3
r2							***0.331***
CV							***9%***
Adjusted lsd (p 0.05)							***1.5***

[1] Flesh-color rating: 1-5 scale with 1=poor color, 5=excellent color.

low or orange variety. There is a genetic component to color obviously so some varieties will be pink and never develop a dark red color. The dark red color is considered more desirable, but pink is perfectly acceptable. The color listing (red/pink or pink/red) reflects the perponderance of one color over the other for the melons that were cut.

The fruit type reflects an assessment of the type of melon the particular variety produces. These fruit types are based on older standard varieties that most growers and researchers are familiar with. Crimson sweet is a round melon in the 15- to 25-pound class with a striped rind. An allsweet type is a small oblong melon (20 to 30 pounds) with a dark green rind and light green or yellow stripe. The flesh tends to be dark red. A jubilee type is a large oblong melon (greater than 25 pounds) with a striped rind. An icebox type is small melon (10 to 15 pounds) that may have one of several different rind patterns. As the name implies the melon is small enough to fit into a refrigerator.

Along with fruit length and width, rind thickness was recorded. Generally because of their genetics, triploids will have a thicker rind than diploid melons. A thicker rind is desirable for shipping since it is less prone to breakage. It is not very desirable, however, for marketing where a thin rind is more pleasing and indicates a greater portion of the flesh is edible.

A second trial was held at an on-farm location in Crisp County, Georgia. This trial consisted of 10 diploid

varieties. Only the yield and count was recorded for each plot (Table 4). Yields ranged from 44,972 to 88,572 pounds per acre with the highest yield from 'Dulce'. 'Dulce' had a significantly higher yield than 'Rojo Grande'.

A cantaloupe trial was held at the VOVRC (Tables 5 and 6). Cantaloupe production in Georgia continues to be dominated by Eastern shipping type melons such as 'Athena'. These melons are picked at full maturity and have good post-harvest keeping quality.

The highest yielding variety was ACX 4757 with 55,460 pounds per acre yield. This is an Eastern type with high sugars and pleasing flesh color. 'Athena' continues to do well with large fruit and good yields. Most growers and seed companies use this variety as the standard to compare against.

TABLE 4. WATERMELON VARIETY TRIAL, ON-FARM, CRISP COUNTY, 2002

Variety	Yield *lbs/acre*	Average fruit weight *lbs*
Dulce	88,572	25
Festival	79,731	23
Gold Strike	71,975	22
Carnival	71,894	24
Celebration	69,333	24
Ole	66,441	22
Montreal	65,695	24
Jamboree	59,645	23
WX255	59,274	17
Rojo Grande	44,972	21
r^2	***0.458***	
CV	***25%***	
Adjusted lsd (p 0.05)	***34,552***	

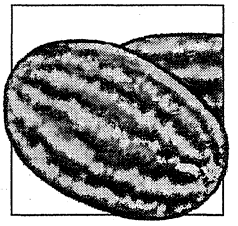
TABLE 5. CANTALOUPE VARIETY TRIAL, 2002

Variety	Source	Yield *lbs/ac*	Number of fruit *no/ac*	Fruit weight *lbs*
ACX 4757	Abbott & Cobb	55,460	9,317	6.0
Athena	Rogers	37,468	5,566	6.7
AC-89-55 MI	Auburn Univ.	37,135	12,403	3.0
RML 8793-VP	Rogers	36,778	12,221	3.0
Odyssey	Sunseed	36,500	6,111	6.0
AC-82-37-RNL	Auburn U.	34,836	5,808	6.0
ACX 3908	Abbott & Cobb	32,991	14,399	2.3
AC-75-1A	Auburn Univ.	29,324	7,563	3.9
r^2		***0.346***		
CV		***33%***		
Adjusted lsd (p 0.05)		***23,426***		

TABLE 6. CANTALOUPE VARIETY TRIAL, 2002

Variety	Flesh Length *in*	Flesh Width *in*	Flesh Thickness *in*	Fruit type	Color rating[1]	Color	Soluble solids *%*
AC-82-37-RNL	7.0	6.0	1.5	Western	2.8	Orange	10.6
ACX 4757	8.3	6.6	1.8	Eastern	3.3	Orange	10.5
ACX 3908	8.7	7.3	2.4	Eastern	3.0	Orange	10.3
AC-89-55 MI	7.5	6.4	1.8	Eastern	3.4	Orange	10.2
Athena	7.2	6.4	2.1	Eastern	3.3	Orange	9.9
Odyssey	7.7	6.7	2.1	Eastern	3.4	Orange	9.8
RML 8793-VP	5.6	5.2		Western	2.7	Orange	9.2
AC-75-1A	5.1	5.0		Western	3.0	Orange	7.7
r^2							***0.310***
CV							***17%***
Adjusted lsd (p 0.05)							***3.0***

[1] Color rating: 1-5 scale with 1=poor color and 5=excellent color.



Differences Found Among Allsweet Watermelons

Joe Kemble, Edgar Vinson, Ron McDaniel, Malcomb Pegues, Larry Wells, Brian Gamble, and Arnold Caylor

Watermelon trials were conducted at the Gulf Coast Research and Extension Center (GCREC) in Fairhope, Alabama, the Wiregrass Research and Extension Center (WREC) in Headland, Alabama, and the North Alabama Horticulture Research Center (NAHRC) in Cullman, Alabama.

Allsweet watermelon varieties were direct seeded on 60 foot by 10 foot plots with a within row spacing of 5 feet on March 25 at GCREC and April 16 at NAHRC. At WREC, seedless watermelon varieties were used. This required the use of transplants rather than direct deeding because of the low germination rate of seedless watermelons. Watermelons were grown on silver plastic mulch at NAHRC and on bare ground at WREC and GCREC. Current production practices for watermelon can be found in *Vegetable Crop Guidelines for the Southeastern U.S.* (bulletin published by the North Carolina Vegetable Growers Association).

Table 1. Ratings of 2002 Watermelon Variety Trial[1]

Location	GCREC	WREC	NAHRC
Weather	5	5	5
Fertility	5	5	5
Irrigation	5	5	5
Pests	5	5	5
Overall	5	5	5

[1]See introduction for a description of rating scales.

At GCREC, fertilization consisted of two applications of ammonium nitrate (at a rate of 110 pounds per acre) on May 3 and May 16. Herbicide was applied on April 16 and fungicides were applied one time per month from May 28 through July 2.

Table 2. Seed Source, Fruit Characteristics, and Relative Earliness of Selected Watermelon Varieties

Variety	Type[2]	Seed source	Fruit shape	Flesh color	Days to harvest	Disease claims[1]	Years evaluated
Summer Flavor 790HQ (formerly ACX 5411)	AS	A&C	Elongated	Red	—[3]	—	02
ACX 5451	AS	A&C	Elongated	Red	—	—	02
Athens	AS	Sunseeds	Blocky	Red	—	—	00,01
Carnival	AS	Novartis	Blocky	Red	86	ANT,FW	97-01
Festival	AS	Willhite	Elongated	Red	85	FW	02
Legacy	AS	Willhite	Elonageted	Red	—	—	01
Montreal	AS	Sunseeds	Elongated	Red	—	FW[4]	01
Seedway 4502	AS	Seedway	Round	Red	85	—	02
SR 8313WM	AS	Sunseeds	Elongated	Red	—	—	02
Starbrite	AS	Seminis	Oblong	Red	85	FW[4]	97-01
Variety 710	JU	A&C	Blocky	Red	85	—	02
Variety 800	AS	A&C	Oblong	Red	87	—	02
Variety 900	AS	A&C	Elongated	Red	86	—	02
Variety 910	AS	A&C	Elongated	Red	86	—	02
Variety 7177	XXX	A&C	Blocky	Red	—	—	02
Constitution	XXX	Sunseeds	Blocky	Red	87	FW	02
Freedom	XXX	Sunseeds	Blocky	Red	87	FW	02
Revolution	XXX	Sunseeds	Blocky	Red	85	FW	02
Tri-x-313	XXX	Sunseeds	Blocky	Red	85	—	02
Variety 5244	XXX	A&C	Blocky	Red	—	—	02
Variety 7167	XXX	A&C	Blocky	Red	—	—	02

[1]Disease claims: ANT = Anthracnose; FW = Fusarium Wilt. [2]Type: AS = Allsweet; Ju=Jubilee; XXX=Triploid (seedless).
[3]— = not available from seed catalogues. [4] Race 1 only.

TABLE 3. PERFORMANCE OF SELECTED SEEDED AND SEEDLESS WATERMELON VARIETIES

Variety	Type	Marketable yield *lbs/ac*	Total number *no/ac*	Individual fruit weight *lbs*	Soluble solids *brix*	Hollow heart *in*	Rind thickness *cm*
Gulf Coast Research and Extension Center							
Variety 710	JU	43,704	2,286	19	11.50	9	•[1]
Legacy	AS	41,688	2,106	20	10.63	4	•
Starbrite	AS	41,148	2,034	20	11.09	11	•
Festival	AS	40,752	2,304	18	10.10	21	•
Variety 800	AS	39,456	2,016	20	11.85	9	•
Carnival	AS	39,060	2,286	17	11.25	14	•
Summer Flavor 790HQ	AS	36,504	2,016	18	11.50	11	•
Montreal	AS	34,506	1,962	18	10.90	7	•
Variety 910	AS	34,326	2,088	16	11.50	5	•
ACX 5451	AS	34,218	1,782	19	11.25	2	•
Athens	AS	34,128	1,854	19	11.68	9	•
SR 8313WM	AS	32,094	2,178	15	11.48	13	•
Variety 900	AS	28,134	1,512	19	11.05	0	•
Seedway 4502	AS	20,976	1,464	14	11.10	0	•
r^2		***0.64***	***0.47***	***0.63***	***0.44***	***0.66***	•
CV		***13***	***15***	***8***	***5.17***	***55***	•
lsd		***6,960***	***445***	***3.9***	***1.67***	***3.9***	•
Wiregrass Research and Extension Center							
Tri-x-313		18,335	1,015	18	9.35	1	1.80
Constitution		15,316	906	16	11.05	2	1.65
Variety 5244		9,164	580	14	10.35	0	2.43
Freedom		7,899	399	19	10.70	0	1.58
Variety 7177		7,631	471	16	10.20	0	1.63
Revolution		7,054	399	18	10.10	0	1.65
Variety 7167		6,895	399	14	8.35	0	1.78
r2		***0.40***	***0.43***	***0.20***	***0.60***		***0.50***
CV		***62***	***54***	***25***	***9***		***19***
lsd		***4,777***	***232***	***6.2***	***1.3***		***0.5***

[1] • = not reported.

At WREC, 400 pounds per acre of 15-0-15 were applied preplant on April 17 to meet soil test recommendations. Fertilization consisted of one application of ammonium nitrate at a rate of 75 pounds N per acre. Fungicides were applied between May 31 and July 3.

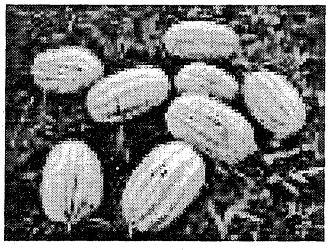
At NAHRC, ammonium nitrate was applied preplant. Fertilization consisted of weekly injections of 6 pounds of nitrogen per acre. Fungicides were applied one week after planting and throughout harvest.

Watermelons were harvested on July 2 at GCREC, July 15 and July 22 at WREC, and July 23 at NAHRC. Due to excessive feeding by coyote populations, data from NAHRC cannot be included. Watermelons were graded according to the *Watermelon Grader's Guide* (Circular ANR-681 from the Alabama Cooperative Extension System) and marketable yield was determined. Other useful information collected were sweetness, hollow heart, and rind thickness. Two melons from each plot were used to measure soluble solids (sweetness), hollow heart, and rind thickness. Sweetness was measured using a hand held refractometer. Watermelons with soluble solids reading below 10^0 Brix do not taste sweet. Hollow heart is the measure of the fissure of space at the heart of the melon. Watermelons with excessive incidences of hollow heart are not desirable. The rind thickness of a melon determines how melons will endure shipping.

At GCREC, 'Legacy', 'Starbrite' and 'Festival' were the top three performers. The yields of these varieties were also similar to 'Variety 800', 'Carnival' and 'Summer Flavor 790HQ'.

'Variety 800' had the highest brix reading (sweetness). 'Festival' had the lowest. 'Festival' also had the highest incidence of hollow heart followed by 'Carnival', 'Starbrite' and 'Summer Flavor 790HQ'. 'Legacy' had the lowest incidence of hollow heart.

Among the seedless varieties at WREC, 'Constitution' performed as well as 'Tri-X-313', the market standard. The next variety in order of yield significance was the experimental variety 'Variety 5244' which also had the thickest rind.



Triploid Watermelon Cultivar Trials

Gilbert Miller, John D. Mueller, and Joe Varn

During the annual South Carolina Watermelon Association Meeting, members were asked to rate an extensive list of seedless watermelon varieties. The twelve seedless watermelon varieties that received the most votes, were included in a variety trial at Edisto Research and Education Center in Blackville, South Carolina. The twelve seedless varieties are all commercially planted in South Carolina.

The variety trial was planted later than normal for this area of South Carolina so that growers would be finished with the bulk of their watermelon harvest and could attend a July 11 field day to view the seedless variety trial. Seeds were planted in the greenhouse on March 21 and transplanted to the field on April 22 and 23. Most growers in this area have completed planting watermelon transplants by the first week of April.

Soil nutrient samples indicated very high phosphorus (122 pounds per acre), medium potassium (98 pounds per acre), medium calcium (750 pounds per acre), and high magnesium (170 pounds per acre). The Clemson fertility recommendation based on soil samples was 120 to 140 pounds per acre nitrogen, no phosphorus, and 120 pounds per acre potassium. On March 25, 40-0-40 pounds per acre of fertilizer was banded and incorporated.

Plastic mulch and drip irrigation was applied immediately after fertilizer was incorporated. Row spacing was 8 foot on center. Fifty-four inch plastic mulch was used, giving a 30-inch bed top. Eurodrip drip tape with 12-inch emitter spacing rated at 0.43 gallons per minute per 100 feet was buried 2 inches beneath the bed surface. Plots were 30 feet long with plants spaced 3 feet apart in the row.

The seedless watermelon transplants and pollinator plants were planted in the field on April 22 and April 23. A total of 10 plants were planted per plot while each variety was replicated four times. The cultivar 'Charleston Elite', was used as the pollinator because of its distinctly different rind pattern and color. Pollinator rows were placed adjacent to seedless rows.

The variety trial was grown on a Dothan (DaB) soil with a medium water-holding capacity rated between 0.08 to 0.13 available water-holding capacity. Soil texture determinations at 0 to 12 inches indicated 87.6% sand, 8% clay, and 6.4% silt. To allow for consistent and uniform water application, an automated irrigation system was employed. Two water cycles per day at 86 minutes per cycle were initiated prior to planting. Daily water application equaled 3,880 gallons per acre. Total rainfall for the growing and harvest season totaled 6.05 inches.

A fertigation program was initiated on May 1, eight days after transplanting. A liquid fertilizer, 7-0-7, was used for fertigation. Nutrients were injected during the afternoon irrigation cycle. The fertigation schedule and amounts are included in Table 1. Total fertilizer applied for the entire season was 152.5-0-152.5.

The row middles were cultivated once and Strategy at 3 pints per acre was applied for weed control on May 8. Weekly fungicide applications were made beginning May 13. Following two initial applications of Bravo, alternate weekly applications of the fungicides Quadris and Dithane DF plus Nova were made. Squash bugs were a problem early in the season and were controlled with Pounce.

The variety trial was harvested three times; the first was July 1[68 days after field planting (DAP)], the second harvest was July 8 (75 DAP), and the third harvest was July 16 (83 DAP). Each fruit harvested was weighed and categorized according to the following weight classes:

TABLE 1. FERTIGATION SCHEDULE AND AMOUNTS

Stage	Amount *(lbs/ac/day)*
Pre-plant	30% N - 100% P - 30% K
Planting - Flowering	1.0 lb N & K
Flowering - Fruit set	1.5 lbs N & K
Fruit set - Ripe start	2.0 lbs N & K
Ripe start - Harvest	1.5 lbs N & K
Maintenance	1.0 lb N & K

small, less than 12 pounds; medium, 12 to 18 pounds; and large, greater than 18 pounds.

At each harvest the percentage of the fruit for each weight classification was determined. The average size melon for each cultivar was also determined. The total weight and yield per acre for each cultivar was also quantified. Finally three samples of each of the four replications at each of the three harvests were checked for soluble solids and hollow heart. No cultivar had greater than 5% hollow heart. The yield and quality evaluations are included in Table 2.

TABLE 2. YIELD, FRUIT SIZE, AND QUALITY OF TRIPLOID WATERMELON VARIETIES

Cultivar	Fruit *no/ac*	Small[1] *%*	Medium[2] *%*	Large[3] *%*	Average size *lbs*	Sugar *brix*	Yield[4] *lbs/ac*
Fandango	3,993	1.468	39.17	59.35	18.44	10.53	73,616
Carousel	4,038	3.453	43.07	53.47	17.77	10.83	71,846
Ac 7187	4,628	0	42.31	57.68	18.41	10.16	85,141
Tri-X 313	3,584	6.171	56.39	37.43	15.66	10.14	55,929
Revolution	3,902	1.459	33.62	64.92	19.42	10.93	75,503
Sugar Heart	3,720	5.556	65.05	29.39	14.92	12.82	55,680
AC 5244	4,582	3.505	50.72	45.77	17.13	10.06	78,562
Cooperstown	4,719	2.631	43.36	54.00	18.07	10.68	85,604
Slice N' Serve	4,597	6.633	45.37	47.99	17.13	10.50	78,928
Millionaire	4,537	2.657	38.78	58.55	18.47	10.18	83,998
Crispy Sweet	4,310	2.470	53.04	44.48	17.58	10.42	75,422
Freedom	3,448	1.573	34.86	63.56	18.08	11.31	62,835

[1] Small = < 12 pounds, [2] Medium = 12 to 18 pounds, [3] Large = > 18 pounds. [4] Yield per acre based on linear row feet per acre at 5,445 feet (8-foot-on-center row spacing).

Elongated Triploid Watermelons Evaluated in Northern Mississippi

Kent E. Cushman and Thomas E. Horgan

Ten entries of triploid (seedless) watermelons were grown in the spring of 2002 in northern Mississippi. Eight entries were elongated triploid types not previously evaluated at this location. Two entries were 'Tri-X Brand 313' type triploid watermelons and were the best performing entries grown at this site during the previous two growing seasons.

All entries were seeded into 72-cell flats in the greenhouse on April 3, 2002 and seedlings were planted to the field on April 29. Seedlings were spaced 4 feet apart in plots 40 feet long making a total of 10 plants per plot. Plant beds were spaced 6 feet apart, resulting in a plant population of 1,815 plants per acre and an area per plant of 24 square feet. Melons from the eight elongated entries were expected to weigh from 16 to 26 pounds according to seed company descriptions. Melons from the two 'Tri-X Brand 313' type entries were expected to weigh from 15 to 18 pounds according to seed company descriptions.

'Verona' was used as the pollenizer in this study because its dark green "black-diamond" exterior could be easily distinguished from the striped triploid entries. Time of seeding and transplant, and plant spacing were identical to that of the triploid entries. 'Verona' and triploid plots were arranged in a checkerboard pattern so that each triploid plot was surrounded on all sides by pollenizer plots. Two beehives were placed in close proximity to the field for the duration of the study. The experimental design was a randomized complete block with four replications. The soil was a Quitman silt loam. Plant beds were formed 6 inches high and 30 inches across the top with a press-pan-type bed shaper. Preplant fertilizer was placed in the plant bed during formation at the rate of 80 pounds N, 150 pounds P_2O_5, and 200 pounds K_2O per acre. Black plastic mulch and drip tape, rated at 0.3 gallons per minute per 100 feet at 10 pounds per square inch, was applied immediately after bed formation. Beds were not fumigated.

Water or fertilizer solution was applied through the drip tape to supply at least 1 acre-inch of irrigation per week. Soluble fertilizer (side-dress) was applied twice by injecting a concentrated solution of $CaNO_3$, the first time when vines began to run and the second time when early melons reached about 2 inches in diameter. Side-dressings supplied an additional 40 pounds N per acre. Strategy (ethalfluaralin and clomazone) herbicide was used to control weeds between the plastic-covered rows. Asana XL (esfenvalerate), Spintor (spinosad), or Thiodan EC (endosulfan) were mixed with Bravo WS (chlorothalonil) or Quadris (azoxystrobin) and sprayed on a 7- to 10-day schedule for insect and disease control. Applications of Bravo and Quadris were alternated every other week. A diazinon (diazinon) drench was applied soon after planting to control an infestation of soil insects.

Melons were harvested July 9, July 16, and July 23 for a total of three harvests. Melons from each plot were weighed individually. At least three melons from each plot were opened and observed for severity of hollow heart, bacterial rind necrosis, and number of colored seed. Hollow heart was evaluated by measuring the width of the gap formed at its widest point. Rind necrosis was rated using the following scale: 1=none, 2= a total of ¼ of the perimeter of the rind affected, 3=a total of ¼ to ½ affected, 4=a total of ½ to ¾ affected, and 5=a total of ¾ or more affected. Opened melons were observed for the number of colored seed apparent along the cut surfaces. Colored seed included both mature seed and hard seed coats. Opened melons were also tested for soluble solids concentration with a hand-held refractometer.

Number of marketable melons and total weight of marketable melons per acre were statistically compared. Only melons weighing 10 pounds or more were included in the analysis of marketable yield. Only melons with soluble solids concentrations greater than 10 were included in the analysis of soluble solids concentration. None of the melons were rejected (culled) on the basis of rind necrosis or hollow heart ratings because most of the melons harvested during this study were not opened for internal observations.

'Vertigo,' a cultivar from Hazera, produced the highest yields of marketable melons (pounds per acre and melons per acre), but these marketable yields were not

significantly different than any other entry. 'Vertigo' also produced the lowest yields of early melons (pounds per acre and melons per acre), but, as with marketable yields, these yields were not significantly different than any other entry. Tables 1, 2, and 3 list entries in descending order according to marketable yield (pounds per acre).

SWS 4930 produced significantly larger melons (20.6 pounds) than most other entries. Only 'Seedless Sangria' and SR 8026 produced melons that were not significantly different in average weight than SWS 4930 (Table 1). Average weight of marketable melons in this study ranged from a low of 16.1 pounds to a high of 20.6 pounds. As expected, the average weight of the two 'Tri-X Brand 313' type entries, 'Cooperstown' and 'Triple Crown,' was lower than that of the elongated entries.

Values for soluble solids concentration, hollow heart, rind necrosis, and colored seed, as listed in Table 2, were not significantly different among any of the entries. Rind necrosis was a serious problem in watermelon plantings of previous years at this location, but few melons exhibited symptoms during this evaluation. Table 3 lists distribution of melons according to weight categories. 'Seedless Sangria,' SWS 4930, and SR 8026 were the only entries with 70% or more of marketable melons weighing more than 18 pounds.

Evaluations of these eight elongated entries were also made at locations in central and coastal Mississippi, and results of those evaluations will be presented in other reports. It is expected that these same entries will be evaluated again in 2003 at the same locations.

TABLE 1. TOTAL AND EARLY MARKETABLE YIELD AND SIZE OF TEN TRIPLOID WATERMELON ENTRIES GROWN IN NORTHERN MISSISSIPPI IN SPRING 2002[1]

Entry	Source	Rind pattern	Flesh color	Total marketable yield and size [2]			Early marketable yield and size [2,3]		
				lb/ac	*melons/ac*	*lb/melon*	*lb/ac*	*melons/ac*	*lb/melon*
Vertigo	Hazera	Crimson Sweet	Medium red	**82,000**	**4,540**	18.1	**16,300**	**910**	18.0
Seedless Sangria	Syngenta	Allsweet	Dark red	**75,900**	**3,810**	**19.9**	**32,500**	**1630**	19.9
Freedom	Sunseeds	Jubilee	Dark red	**74,700**	**3,900**	19.1	**34,700**	**1680**	**20.6**
SWS 4930	Southwestern	Allsweet	Medium red	**73,800**	**3,580**	**20.6**	**28,100**	**1270**	**22.2**
Cooperstown [4]	Seminis	Crimson Sweet	Medium red	**70,700**	**4,400**	16.1	**36,200**	**2130**	16.9
Revolution	Sunseeds	Allsweet	Medium red	**70,100**	**3,770**	18.6	**32,600**	**1720**	18.8
Triple Crown [4]	SeedWay	Crimson Sweet	Medium red	**66,800**	**3,900**	17.1	**35,000**	**2040**	17.1
Banner	Sunseeds	Allsweet	Medium red	**65,700**	**3,450**	19.0	**32,600**	**1630**	19.9
SR 8026	Sunseeds	Allsweet	Medium red	**60,900**	**3,040**	**20.0**	**32,900**	**1590**	**20.7**
SXW 4016	Sunseeds	Allsweet	Medium red	**60,000**	**3,180**	18.8	**29,700**	**1540**	19.1
lsd [5]				**NS**	**NS**	**1.4**	**NS**	**NS**	**1.7**

[1] Values in bold are not significantly different from the entry with the highest value.

[2] Values of yield and size are based on marketable melons greater than 10 lb. Yield based on plant population of 1,815 plants per acre (24 ft^2 per plant). Rows spaced 6 ft apart with plants 4 ft apart in the row. Least square means reported.

[3] Early yield based on the first harvest out of a total of three.

[4] Oval-shaped triploid melons similar to 'Tri-X Brand 313'. All other entries are elongated triploid melons.

[5] Least Significant Difference (lsd) at $P=0.05$. Treatments not significantly different (NS).

TABLE 2. QUALITY OF TEN TRIPLOID WATERMELON ENTRIES GROWN IN NORTHERN MISSISSIPPI IN SPRING 2002[1]

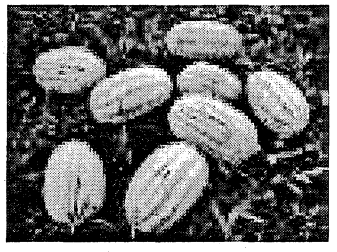
Entry	Soluble solids concentration[2]	Hollow heart[2]		Rind necrosis[2]		Black seed[2]	
	%	%	*inches*	%	*rating*	%	*no*
Vertigo	**12.4**	**29**	**0.2**	**6**	**1.1**	**31**	**0.5**
Seedless Sangria	**11.8**	**25**	**0.1**	**0**	**1.0**	**13**	**0.2**
Freedom	**12.4**	**8**	**0.0**	**0**	**1.0**	**29**	**0.4**
SWS 4930	**11.6**	**43**	**0.2**	**0**	**1.0**	**45**	**0.6**
Cooperstown[3]	**12.1**	**23**	**0.2**	**0**	**1.0**	**0**	**0.0**
Revolution	**12.0**	**8**	**0.0**	**0**	**1.0**	**13**	**0.1**
Triple Crown[3]	**11.4**	**15**	**0.1**	**0**	**1.0**	**21**	**0.2**
Banner	**12.0**	**25**	**0.1**	**0**	**1.0**	**35**	**0.5**
SR 8026	**11.8**	**27**	**0.1**	**0**	**1.0**	**33**	**0.6**
SXW 4016	**11.8**	**0**	**0.0**	**8**	**1.0**	**6**	**0.1**
lsd[4]	NS	NS	NS	NS	NS	NS	NS

[1] Values in bold are not significantly different from the entry with the highest value or the best rating.
[2] At least three melons from each of four replications were opened for internal observations. Least squares means reported. Percent of opened melons exhibiting hollow heart, rind necrosis, and colored seed are reported. Hollow heart measured at widest point. Rind necrosis rated on a scale of 1=none, 2=a total of ¼ of the perimeter of the rind affected, 3=a total of ¼ to ½ affected, 4=a total of ½ to ¾ affected, and 5=a total of ¾ or more affected. The number of colored seed observed along the cut surfaces was recorded. Hollow heart inches, rind necrosis rating, and number of colored seed are averages of all melons evaluated, not averages of melons with symptoms.
[3] Oval-shaped triploid melons similar to 'Tri-X Brand 313'. All other entries are elongated triploid melons.
[4] Treatments not significantly different (NS).

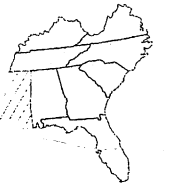
TABLE 3. DISTRIBUTION OF FRUIT WEIGHT OF TEN TRIPLOID WATERMELON ENTRIES GROWN IN NORTHERN MISSISSIPPI IN SPRING 2002

Entry	Fruit weight (lbs)				
	<10	10-14	14-18	18-22	>22
	(%)				
Vertigo	1	1	51	39	8
Seedless Sangria	0	1	29	49	21
Freedom	0	6	31	44	19
SWS 4930	1	1	28	38	33
Cooperstown[1]	3	17	62	18	0
Revolution	0	7	37	41	14
Triple Crown[1]	1	13	53	26	7
Banner	0	4	33	43	20
SR 8026	0	0	28	46	25
SXW 4016	0	6	29	53	13

[1] Oval-shaped triploid melons similar to 'Tri-X Brand 313'. All other entries are elongated triploid melons.



Elongated Triploid Watermelons Evaluated in Southern Mississippi



Christine E. H. Coker, Mike Ely, and Thomas Freeman

Previous studies in Mississippi have shown excellent yield potential for icebox-type triploid watermelons. Eight elongated triploid watermelon cultivars were selected for trial at three research stations throughout the state including the North Mississippi Research and Extension Center at Verona; the Central Mississippi Research and Extension Center, Truck Crops Branch Station at Crystal Springs; and the Coastal Research and Extension Center, Beaumont Horticultural Unit at Beaumont (Table 1). Results from the Beaumont Horticultural Unit will be discussed here.

Transplants were produced on-site according to information provided with the seed. Trays were seeded on March 28, 2002. Transplants were set in the field on April 18, 2002. Because of its distinctive rind color and shape, 'Verona' was chosen as the pollenizer. Each plot was 40 feet in length and included 10 plants. Between-row spacing was 6 feet and within-row spacing was 4 feet allowing 24 ft^2 per plant.

Nitrogen, phosphate (P_2O_5), and potash (K_2O) were broadcast and incorporated preplant (13-13-13). $CaNO_3$ was applied via drip irrigation at a rate of 1 pound per 100 feet on May 13 and May 27. Asana and Bravo, copper and Thiodan, or diazinon and Benlate were applied at label rates in rotation. The beds were not fumigated. Eight harvests were conducted between June 19 and July 23.

Table 1. Triploid Cultivars Included in the Trial at the Beaumont Horticulture Unit, 2002

Entry	Seed source
Banner	Sunseeds
Freedom	Sunseeds
Revolution	Sunseeds
SR 8026WM	Sunseeds
SXW 4016	Sunseeds
SWS 4930	Southwestern Seed Co.
Vertigo	Hazera Genetic LTD
Seedless Sangria	Syngenta

Data collected included weight, number, number of black seeds, soluble solids concentration, occurrence of hollow heart, and rind necrosis (Table 2). No significant differences were found among cultivars for number of fruit, number of black seeds per melon, or sugar content. Differences were shown, however, for the average weight of each cultivar. 'Seedless Sangria' produced the largest melons with an average weight of 20.92 pounds per fruit. 'Vertigo', 'Revolution', and 'Freedom' weighed significantly less at 18.53, 18.20, and 17.48 pounds per fruit, respectively. There was little occurrence of hollow heart, and no recorded occurrence of rind necrosis.

Table 2. Yield and Performance Data for Selected Triploid Watermelon Varieties

Entry	Yield *lbs/ac*	Fruit *no.ac*	Weight/melon *lbs*	Black seeds *no/melon*	Soluble solids concentration
Banner	93,200	4,764	19.6 ab[1]	2.75	12.0
Freedom	73,526	4,220	17.5 b	2.5	12.1
Revolution	84,390	4,628	18.2 b	1.0	12.1
Seedless Sangria	89,634	4,311	20.9 a	1.75	11.5
SR 8026WM	83,410	4,265	19.5 ab	0.25	11.4
SWS 4930	80,092	4,220	18.9 ab	1.0	11.7
SXW 4016	86,717	4,628	19.0 ab	0.25	11.7
Vertigo	95,585	5,173	18.5 b	1.0	12.0

[1] Values followed by different letters are significantly different according to Duncan's Multiple Range Test at the 5% level.

Seed Sources

Abbott and Cobb, Inc.
To order: (800)-345-SEED
In TX: (800) 227-8177
Tech Rep: Russ Becham
Ph: (800) 345-7333
Fax: (912) 498-5857

BHN
1310 McGee Avenue
Berkeley, CA 94703
Phone: (510) 526-4704
Email: mail@berkeleyhort.com

Gurney's Seed & Nursery Co.
(605) 665-1930
110 Capital Street
Yankton, South Dakota 57079

Harris Seeds
To order: (800) 544-7938
P.O. Box 22960
60 Saginow Dr.
Rochester, NY 14692-2960

Hollar
To order: (719) 254-7411
P.O. Box 106
Rocky Ford, CO 81067-0106
Ph: (719) 254-7411
Fax: (719) 254-3539
Website: www.hollarseeds.com

Johnny's Select Seeds
To order: (207) 437-4395
Tech. Rep: Steve Woodward
1 Foss Hill Road
RR1, Box 2580
Albion, ME 04910-9731
Fax: (800) 437-4290

Rupp Seeds
To order: (800) 700-1199
17919 County Road B
Waseon, OH 43567

Sandoz Rogers/Novartis
To order: (912) 560-1863

Seedway
To order: (800) 952-7333
Tech. Rep: James J. Pullins
1225 Zeager Rd.
Elizabethtown, PA 17022
Ph: (717) 367-1075
Fax: (717) 367-0387
E-mail: info@seedway.com

Seminis Vegetable Seeds, Inc
Tech Rep: Rusty Autry
2221 North Park Ave.
Tifton GA 31796
Ph: (229) 386-0750

Sunseeds
Richard Wojciak
12214 Lacewood Lane
Wellington, Florida 33414-4983
Phone: (561) 791 9061
Fax: (561) 798 4915
Mobile: (561) 371 2023
E-mail: richard.wojciak@sunseeds.com

Tifton Seed Distribution Center
Tech. Rep: Van Lindsey
Ph: (912) 382-1815

Willhite
To order: (800) 828-1840
Tech Rep: Don Dobbs
P.O. Box 23
Poolville, TX 76487
Fax: (817) 599-5843

Guidelines for Contributions to the Vegetable Variety Regional Bulletin

Vegetable variety evaluation and selection is an essential part of production horticulture. The vegetable variety regional bulletin is intended to report results of variety trials conducted by research institutions in the Southeast in a timely manner. Its intended audience includes growers, research/extension personnel, and members of the seed industry.

Timeliness and rapid turnaround are essential to better serve our audience. Hence, two bulletins are printed each year: one in November with results from spring crops, and another one in April with results from summer and fall crops. It is essential that trial results are available before variety decisions for the next growing season are made.

Here are a few useful guidelines to speed up the publication process for the next regional bulletin (fall 2001).

When: March 28, 2003
Deadline for fall 2002 variety trial report submissions.

What: Results pertaining to variety evaluation in a broad sense. This includes field performance, quality evaluation, and disease resistance. Here are a few tips:

- Follow the format used in the first five regional bulletins.
- Include author's complete mailing address, e-mail address, and phone number.
- Follow your own unit's internal review process. Contributions will be edited, but not formally reviewed.

How: Send a disk and hard copy to:

Edgar Vinson or Joe Kemble
Department of Horticulture
101 Funchess Hall
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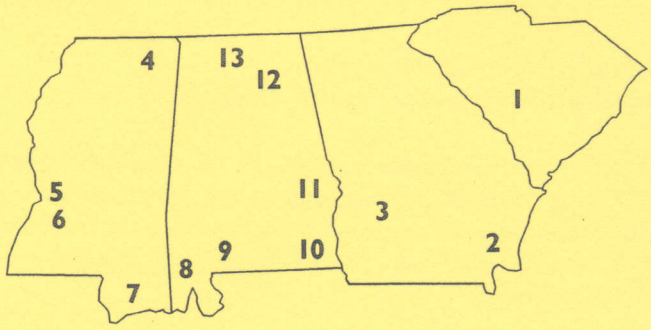

CLEMSON UNIVERSITY
1. Edisto Research and Education Center, Blackville, SC

UNIVERSITY OF GEORGIA
2. Vidalia Onion and Vegetable Research Center, Lyons, GA
3. On-farm location in Crisp County, GA

MISSISSIPPI STATE UNIVERSITY
4. North Mississippi Research and Extension Center, Verona, MS
5. Central Mississippi Research and Extension Center, Raymond, MS
6. Truck Crops Branch Experiment Station, Crystal Springs, MS
7. Coastal Research and Extension Center, Beaumont, MS

AUBURN UNIVERSITY
8. Gulf Coast Research and Extension Center, Fairhope, AL
9. Brewton Agricultural Research Unit, Brewton, AL
10. Wiregrass Research and Extension Center, Headland, AL
11. E.V. Smith Research Center, Shorter, AL
12. Sand Mountain Research and Extension Center, Crossville, AL
13. North Alabama Horticulture Research Center, Cullman, AL