Spring 2001 Commercial Vegetable Variety Trials

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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

Joe Kemble and Edgar Vinson

The Spring 2001 variety trial regional bulletin includes results from Auburn University, Clemson University, North Carolina State University, and the University of Georgia. Trials conducted at various locations offer a wealth of information to growers, Extension Specialists, researchers, and seed companies. These trials provide information as to how a particular variety performs in several areas within the southeastern United States. With this critical data, growers can select the best variety for their operation.

However, it is not enough to simply look through a list of tested varieties and pick the one with the highest marketable yield. The information in this report must be carefully studied. Here are a few tips for interpreting the results of the trials reported here.

Open Pollinated vs. Hybrids

In general, hybrids (also referred to as F_1) mature earlier and produce a more uniform crop. Often, they have improved horticultural qualities as well as multiple pest tolerances and/or resistances. Generally, hybrid seed is more expensive than that of open-pollinated (OP) cultivars. With hybrid cultivars, seeds cannot be collected and saved for planting next year's crop. Hybrid seed is available for most crops that are grown throughout the southeastern United States. Despite the advantages hybrids offer, OP varieties are still planted in Alabama. Selecting a hybrid variety is the first step toward improved crop quality and crop uniformity.

Yield Potential

Yields reported in variety trial results are extrapolated from small plots. Depending on the vegetable crop, plot sizes range from 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 can be amplified, and estimated yields per acre may not be realistic. Therefore, locations cannot be compared to one another by just looking at the range of yields actually reported. The relative differences, however, in performance among varieties within a location are realistic and can be used to identify the 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 differences due to small plots (sampling error) and true (but unknown) differences among entries.

R^2 values range between zero and one. Values close to one suggest that the test was conducted under good conditions and most of the variability observed was mainly due to the effect of cultivars and replication. Random, uncontrolled errors were of lesser importance.

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

There must be a minimum yield difference between two cultivars before one can statistically conclude that one cultivar actually performs better than another does. 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 cultivars. For example, in the watermelon trial presented in this issue conducted at the Wiregrass Research and Extension Center, 'Pinata' yielded 34,794 pounds per acre, while 'Athens' and 'SXW5038' yielded 32,358 and 20,343 pounds per acre, respectively. Since there was less than a 13,826 difference (the lsd value) between 'Pinata' and 'Athens', there is no statistical difference between these two varieties. However, the yield difference between 'Pinata' and 'SXW5038' was 14,451, indicating that there is a real difference between these two varieties. From a practical point of view, producers should place the greatest importance on lsd values when interpreting results.

Testing Conditions

AU vegetable variety trials are conducted under standard, recommended commercial production practices. Information on soil type (Table 1), planting dates, fertilizer rates, and detailed spray schedule is provided to help producers compare their own practices to the standard practices used in the trials.

Ratings of Trials

At each location of the AU tests, the growing conditions of each variety trial 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.

Where to Get Seeds

Because seeds are alive, their performance and germination rate depend on how old they are, where and how they were collected, and how they have been handled and stored. It is always preferable to purchase certified seeds from a reputable seedsman.

Several factors other than yield should be considered when choosing which variety to grow. The main factors are type, resistance and/or tolerance to pests, earliness, and seed cost. It is important to remember that some varieties may perform differently under different management systems as compared to the trial results reported here. Producers should test some varieties for themselves by trying two to three varieties on a small scale before making a large planting of a single variety. This will be the best test in determining how well suited a particular variety is for a particular operation.

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 Experiment Field (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 Research Center (Camden)	0.13 - 0.15	Forkland fine sandy loam
Horticultural Unit, EV Smith Research Center (Shorter)	0.15 - 0.17	Norfolk-orangeburg loamy sand
Chilton Area Research and Extension Center (Clanton)	0.13 - 0.15	Luvernue sandy loam
Upper Coastal Plain 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

Green Bean Trials at Two Locations

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

Green bean variety trials were conducted at the Brewton Experiment Field (BEF) in Brewton, Alabama, and the Sand Mountain Research and Extension Center (SMREC) in Crossville, Alabama (Tables 1 and 2).

At both locations green beans were direct seeded on bare ground into 30 foot-long plots at a within row spacing of one foot on April 20 at BEF and June 12 at SMREC. Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Names of the chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Comercial Vegetable: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 00IPM-2 from the Alabama Cooperative Extension System).

At SMREC Fertilization consisted of a preplant application of 13-13-13 (750 pounds per acre) on May 9. No other fertilizers or soil amendments were applied. Insecticides were applied three times from June 12 to July 6. No fungicides or herbicides were used.

TABLE 1. RATINGS OF 2001 GREEN BEAN VARIETY TRIAL[1]

Location	BEF	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.

Green beans were hand harvested on June 12, June 15 June 19, June 25 and July 3 at BEF and July 31, August 3, August 6, and August 13 at SMREC. Marketable yield and weight and length of 50 pods were determined (Table 3.).

Marketable yields were lower at BEF than at SMREC and there were few differences among green bean varieties. There was a larger selection of varieties tried at BEF where Carlo was a top producer; however, 'Carlo' remained a top producers at SMREC as well.

TABLE 2. SEED SOURCE, EARLINESS, AND DISEASE CLAIMS OF SELECTED GREEN BEAN VARIETIES

Variety	Type[1]	Seed source	Days to harvest	Growth habit	Pod color	Pod shape	Disease claims[2]	Years evaluated
Brio	OP	Rogers	54	Bush	White	Round	–	01
Bronco	OP	Asgrow	53	Bush	Green	Round	CBMV	97-00
Hialeah	OP	Ferry-Morse	53	Bush	Green	Oval	NY15MV	97-00
Fandango	OP	Petoseed	56	Bush	Green	Round	Anth, CBMV,HB	00
Mirada	OP	Rogers	54	Bush	Green	Round	–	98,99
Unidor	OP	Petoseed	54	Bush	Yellow	Round	A, CBMV	00
SB4222	OP	Rogers	54	Bush	Green	Round	–	99,01

– = not foundin seed catalogues.[1] Type: F1=hybrid; OP=open pollinated. [2] Disease claims: CBMV= Common Bean Mosaic Virus; Halo Blight = HB; NY15MV = Mosaic Virus race NY 15.

TABLE 3. YIELD AND POD CHARACTERISTICS OF SELECTED GREEN BEAN VARIETIES

Variety	Marketable yield *lbs/ac*	Cull weight *lbs/ac*	Pod weight *lbs/50 pods*	Pod length *in/pod*
Brewton Experiment Field				
Unidor	1,924	•	0.38	3.51
Fandango	1,670	•	0.36	3.48
Carlo	1,216	•	0.47	3.72
Mirada	980	•	0.57	3.69
SB4222	980	•	0.59	3.75
Brio	817	•	0.52	4.61
Hialeah	762	•	0.63	4.05
r^2	***0.80***			
CV	***32***			
lsd	***1,110***			
Sand Mountain Research and Extension Center				
Carlo	3,816	382	0.30	5.0
Brio	3,760	291	0.29	5.1
Hialeah	2,373	232	0.35	5.6
Mirada	1,804	168	0.92	5.3
SB4222	1,487	88	0.29	4.7
r^2	***0.80***			
CV	***22***			
lsd	***1,723***			

• = not reported.

Four Eastern Melons to Challenge 'Athena'

Joe Kemble, Edgar Vinson, and Tony Dawkins

A small melon trial was conducted at the Sand Mountain Research and Extension Center in (SMREC) in Crossville, Alabama.

Melons were direct seeded on bareground on 5 foot by 60 foot plots on May 11, 2001. Drip irrigation was used.

Preplant fertilization consisted of 300 pounds per acre of calcium nitrate, 326 pounds per acre of superphosphate and 333 pounds per acre of potash on May 2, 2001. Fertilization consisted of 50 pounds per acre of potassium nitrate on June 19 and calcium nitrate on June 25 and July 6, 2001. Preemergence herbicides were applied on May 2, 2001. One application of an insecticide was applied on June 8, 2001. Fungicide was applied weekly between June 8 and July 26.

Small melons were harvested three times weekly over 2 ½ weeks for a total of seven harvests. Cantaloupe were harvested at the half slip stage of maturity. Honey dew melons do not slip naturally but are ready for harvest when they have lost their pubescence. Soluble solid content was measured using a hand held refractometer to measure sweetness of eight representative melons of each variety.

Table 1. Ratings of 2001 Small Melon Variety Trial[1]

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

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

In the eastern melon category, 'Eclipse', 'Cordele' and 'RML 6969-v' produced slightly higher yields than 'Athena' although those these differences were not significant. 'Athena' had a higher individual fruit weight than all other eastern melons but fruit number per acre was lower than all other eastern melons. 'Edisto 47' produced yields lower but comparable to 'Athena' as well. There were no significant differences among the western type melons or honey dew melons.

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

Variety	Type[1]	Seed source	Rind aspect[2]	Flesh color	Days to harvest	Disease claims[3]	Years evaluated
Athena	F1	Novartis	E	Orange	80	FW,PM	94-99
Cordele	F1	Asgrow	E	Orange	85	FW,PM	94-99
Durango	F1	Petoseed	W	Orange	83	FW,PM,Su	96-98,00-01
Eclipse	F1	SeedWay/Petoseed	E	Orange	85	FW,PM	96-99
Edisto47	F1	Asgrow	E	Orange	95	PM	01
HoneyBre	F1	Abbott & Cobb	HD	Green	105	FW,PM	00,01
HoneySta	F1	Sunseeds	HD	Green	85	FW,PM	01
Laredo	F1	Petoseed	W	Orange	83	PM,Su	96,97,01
Moonshin	F1	Asgrow	HD	Green	–	FW,Su	01
Passport*	F1	Stokes	HD	Green	75	ANT,GSB	96-99
RML6969v	–	Novartis	E	Orange	–	–	01
SantaFe	F1	Petoseed	HD	–	–	–	01

* = Honey Dew x Galia cross; – = not found in seed catalogues. [1] Type: F1=hybrid; OP=open pollinated. [2] Rind aspect: E = Eastern; HD = Honey Dew; W = Western. [3] Disease Claims: FW = Fusarium Wilt; PM = Powdery Mildew; ANT = Anthracnose; Su = Sulfur; GSB = Gummy Stem Blight.

TABLE 3. YIELD OF SELECTED SMALL MELON VARIETIES

Variety	Type	Marketable yield *lbs/ac*	Marketable fruits *no/ac*	Individual fruit weight *lbs*	Soluble solids *%*
Eclipse	Eastern	44,008	6,851	7	13.4
Cordele	Eastern	36,457	5,909	6	10.6
RML6969-v	Eastern	36,174	5,438	7	16.5
Athena	Eastern	33,383	3,951	9	11.2
Edisto 47	Eastern	25,110	4,495	6	8.9
Moonshine	Honey Dew	41,619	6,561	6	12.3
HoneyBrew	Honey Dew	40,745	5,546	7	11.8
Passport	Honey Dew	37,997	6,054	6	8.7
HoneyStar	Honey Dew	36,294	5,655	7	13.5
Durango	Western	42,133	5,728	7	13.8
Santa Fe	Western	31,824	6,598	5	11.7
Laredo	Western	29,312	7,141	4	7.8
r^2		***0.40***	***0.34***		***0.84***
CV		***23***	***24***		***9***
lsd		***23,696***	***4,060***		***0.83***

Vidalia Onion Variety Trials

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Short-day (Vidalia) onion variety trials were held at the Vidalia Onion and Vegetable Research Center (VOVRC) at Lyons, Georgia, and at an on-farm location in Tattnall County, Georgia. There were 28 varieties in the VOVRC trial and 23 in the on-farm (Bland Farm) trial. Plantbeds were prepared and fumigated on August 10, 2000 and August 15, 2000 at the Bland Farm and VOVRC, respectively. Forty-two percent metam sodium was used as the fumigant at both locations. Seed were sown on September 14 and September 25 at the Bland Farm and VOVRC, respectively.

The fertility program for the plantbeds at Bland Farm consisted of preplant incorporated 5-10-15 with 7% sulfur at a rate of 1150 pounds per acre. This was followed by 18-46-0 applied at a rate of 200 pounds per acre directly after seeding. Finally, 200 pounds per acre of $CaNO_3$ was applied on October 5 and 16. Onion transplants were pulled from the plantbeds and planted at their final spacing on November 9, 2000.

At the VOVRC the plantbeds were prepared with 800 pounds per acre of 5-10-15 with 9% sulfur preplant incorporated. Immediately after seeding, 150 pounds per acre of 18-46-0 was applied. Finally, 200 pounds per acre of $CaNO_3$ was applied on October 26 and 100 pounds per acre was applied on November 9, 2000. Transplants were pulled and set at their final spacing on November 27, 2000.

The experiment was arranged in a randomized complete block design with four replications. Each plot was 50 feet long and consisted of a slightly raised bed with a center-to-center spacing of six feet with four rows of onions planted with a between row spacing of approximately 14 inches and an in-row spacing of about five inches. Twenty-feet of this plot was harvested to determine yield while all 50 feet was used to count the number of seedstems and doubles.

At the Bland Farm the fertility program for the onion crop consisted of 350 pounds per acre of 6-18-18 with 6% sulfur applied on November 14; 350 pounds per acre of 5-10-15 with 9% sulfur applied on December 20, 2000 and January 22, 2001; and 200 pounds per acre of $CaNO_3$ applied on February 5 and February 26, 2001.

The fertility program at the VOVRC consisted of 400 pounds of 5-10-15 with 9% sulfur applied preplant and incorporated. One hundred fifty pounds of 18-46-0 was applied on December 20 and 200 pounds of 6-12-18 with 5% sulfur was applied on January 2 and January 16, 2001. Finally, 200 pounds of CaNO3 was applied on February 7 and February 20, 2001.

The herbicide program on the plantbeds at the VOVRC consisted of two ounces per acre of Goal herbicide applied on October 17 and October 19, 2000. Immediately after transplanting 1.5 pints per acre of Prowl and Goal were applied to control weeds.

Onions were harvested when mature for the specific variety. Onions were pulled and allowed to dry in the field for one to two days before being clipped and weighed in the field. Onions were then transported to dryers where they were dried for two to four days at 95° F. Onions were again weighed to determine cured weight before being graded. Onions were graded into two size classes: mediums and jumbos. Mediums had a minimum diameter of two inches and a maximum diameter of three inches. Jumbos had a minimum diameter of three inches.

Field yields for onions ranged from 910 50-pound bags per acre for 'EX 075 92000' to 449 50-pound bags per acre for 'Sweet Advantage' (Table 1). In general, the earlier harvested onions had lower yields. There was an average loss of 6% from the field yields to the cured yields with some minor changes in ranking. Typically, 80% of the harvested onions should be in the jumbo class. The varieties at the VOVRC ranged from over 90% in the jumbo class for 'Savannah Sweet' to 35% in the jumbo class for 'Southern Belle'.

Seedstems and doubles are considered undesirable in onions. Both are highly influenced by environmental factors, but also have a genetic component. Overall 2000-2001 was not a bad year for seedstems, but doubles were troublesome in some varieties due to particularly cold weather during December. There were nine varieties in the VOVRC trial that averaged more than two seedstems per plot. These were 'Pegasus', 'Liberty', 'Hybrid Yellow Granex 107', 'Sweet Success', 'SBO 133', 'Cyclops (XP

6995)', 'Sweet Melody', 'PS 7292', and 'Sweet Melissa'. Seedstems were not as bad at the Bland Farm with an average range of 0-4.7.

Doubles, which are the formation of two bulbs from one, are considered undesirable because the resulting bulbs are distorted, small, and usually unmarketable. In addition, onion ring processors find these onions to be undesirable. At the VOVRC trial there were seven varieties that averaged more than 20 doubles per plot. These included 'SBO 133', 'Southern Belle', 'Sweet Advantage', 'Liberty', 'Sweet Success', 'Granex 1035', and 'Sweet Melissa'. Doubles at the Bland Farm location averaged from 0.6 for 'Cyclops' to 26.5 for 'Sweet Advantage'.

Pungency as measured by the development of pyruvic acid in macerated onion tissue and soluble solids (sugar content) are important criteria for determining the quality of Vidalia onions. Pungency values should be below 5 micromoles per gram fresh weight (um/gfw) for Vidalia onions and lower values are considered more desirable. Sugar content should be at 6% or above to have a detectable sweet flavor. At the VOVRC, pungency ranged from 2.3-5.3 um/gfw with 'Sweet Melissa' having the mildest mean pungency and ASG 6846 having the highest. At the Bland Farm, pungency ranged from 2.4 um/gfw for WI-609 to 5.5 um/gfw for PS 7092. None of the tested varieties had average soluble solids below 6%.

TABLE 1. 2000-2001 ONION VARIETY TRIAL, VIDALIA ONION AND VEGETABLE RESEARCH CENTER, LYONS, GEORGA

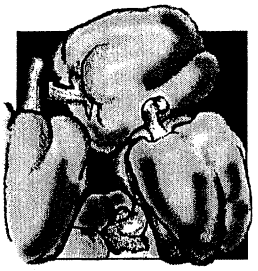
Variety	Company	Harvest date	Field yield	Cured yield	Jumbo	Medium	Seedstems	Doubles	Pungency	Sugar
			50 lb bags/ac				*50 ft bed*		*um/gfw*	*%*
EX 075 92000	Asgrow Seed	5/10/01	910	862	775	42	0.7	3.3	4.7	8.8
SBO 133	Sunseeds	4/26/01	893	845	632	120	9.6	99.3	4.0	8.5
EX 19013	Asgrow Seed	5/10/01	903	840	711	31	1.7	1.9	4.7	8.9
ASG 6846	Asgrow Seed	5/10/01	850	816	704	50	0.2	1.9	5.3	9.5
DPS 1033	D. Palmer Seed	5/10/01	848	800	716	45	0.9	5.3	4.6	8.8
Savannah Sweet	Petoseed	5/03/01	801	771	700	51	0.4	2.6	3.4	8.1
Pegasus	Asgrow Seed	5/10/01	809	753	649	34	15.9	0.4	4.9	9.4
Sweet Success	Sunseeds	5/03/01	779	752	648	76	9.8	22.7	3.1	8.5
PS 7292	Petoseed	5/10/01	811	749	630	45	4.4	2.7	5.0	8.6
Liberty	Bejo Seed	5/10/01	790	739	604	45	14.8	24.3	5.0	8.1
DPS 1024	D. Palmer Seed	5/10/01	747	703	527	79	0.6	11.0	4.7	9.0
Cyclops (XP 6995)	Asgrow Seed	5/03/01	791	703	592	61	6.7	4.2	2.8	8.6
Sweet Melody	Sunseeds	5/03/01	732	698	580	61	4.4	3.6	2.7	8.9
Sweet Vidalia Hybrid Yellow	Sunseeds Samen	5/03/01	724	697	582	82	0.0	1.3	2.8	8.4
Granex 107	Mauser	5/03/01	720	689	590	64	11.3	4.7	2.9	8.2
Sweet Melissa	Sunseeds	5/03/01	716	688	539	102	2.9	20.3	2.3	8.1
Granex 1035	Seedway	5/03/01	689	664	510	101	1.3	20.6	3.5	9.3
WI-3115	Wannamaker Seed	4/19/01	608	630	490	116	0.0	10.5	3.4	8.4
Southern Honey	D. Palmer Seed	5/03/01	644	618	495	91	1.2	2.6	3.7	8.9
2025 F1 Yellow Granex	K&B Development L.L.C.	5/03/01	641	613	491	94	0.2	2.4	4.4	8.7
Nirvana	Sunseeds	4/26/01	646	609	498	88	0.0	1.4	4.3	8.5
Granex 33	Asgrow Seed	5/03/01	680	595	497	83	0.9	4.8	3.6	8.9
WI-609	Wannamaker Seed	4/19/01	672	593	502	75	0.9	3.6	2.9	7.6
DPS 1032	D. Palmer Seed	4/26/01	600	560	393	128	0.6	11.6	4.4	8.8
PS 7092	Petoseed	4/26/01	555	517	362	135	1.1	4.9	4.9	9.1
King Midas (1919)	Sunseeds	4/26/01	534	508	359	132	0.4	3.8	5.1	9.2
Southern Belle	D. Palmer Seed	4/19/01	468	430	150	234	0.9	91.7	4.1	10.1
Sweet Advantage	D. Palmer Seed	4/19/01	449	418	166	206	0.7	46.3	4.3	11.3
r^2			***0.772***	***0.719***			***0.744***	***0.938***	***0.608***	***0.735***
CV			***40***	***43***			***70***	***74***	***28***	***9***
LSD (p#0.05)			***130***	***150***			***0.9***	***1.1***	***1.5***	***0.9***

Bonferroni adjustment for five comparisons. (The Bonferroni adjusted LSD divides the probability (0.05) by 5 before calculating to control the experiment wise error rate. This allows up to five mean comparisons between varieties.)

TABLE 2. 2000-2001 ONION VARIETY TRIAL, BLAND FARM, TATTNALL COUNTY, GEORGIA

Variety	Company	Harvest date	Field yield	Cured yield	Jumbo	Medium	Seedstems	Doubles	Pungency	Sugar
			50 lb bags/ac				*50 ft bed*		*um/gfw*	*%*
WI-3115	Wannamaker Seed	4/18/01	621	603	467	119	0.0	1.8	3.4	7.9
Cyclops	Asgrow	5/01/01	622	595	434	81	0.0	0.6	3.8	8.5
DPS 1033	D. Palmer Seed	5/01/01	684	585	472	48	0.2	2.6	4.7	8.4
Sweet Melody	Sunseeds	5/01/01	576	573	395	110	0.0	1.7	3.7	8.4
DPS 1032	D. Palmer Seed	4/25/01	663	557	431	68	0.4	22.2	5.2	8.9
DPS 1024	D. Palmer Seed	4/25/01	664	553	353	135	4.7	16.6	4.5	9.3
Southern Honey	D. Palmer Seed	5/01/01	565	543	391	89	0.2	2.5	4.1	8.5
Savannah Sweet	Petoseed	4/25/01	580	542	423	65	1.4	1.8	3.1	8.0
Sweet Success	Sunseeds	5/01/01	681	524	432	42	0.8	7.2	4.2	8.7
PS 7092	Petoseed	4/25/01	551	514	368	108	0.0	10.5	5.5	10.1
Granex 107	Samen Mauser	4/25/01	554	514	349	120	2.4	2.0	4.8	9.2
Granex 33	Asgrow	5/01/01	537	513	344	117	0.0	1.5	4.2	8.6
Nirvana	Sunseeds	4/25/01	537	506	346	134	0.2	0.9	4.4	8.6
2025 F1 Yellow Granex	K&B Development L.L.C.	4/25/01	537	496	287	167	0.0	1.5	5.1	9.1
Pegasus	Asgrow	5/01/01	586	490	350	95	0.2	0.6	3.9	8.7
Sweet Advantage	D. Palmer Seed	4/18/01	501	477	241	211	0.0	26.5	4.5	10.3
WI-609	Wannamaker Seed	4/11/01	529	468	312	135	0.0	1.5	2.4	7.1
Sweet Vidalia	Sunseeds	4/25/01	528	442	330	64	1.3	6.7	4.7	8.3
Sweet Melissa	Sunseeds	5/01/01	600	424	320	60	0.4	3.4	3.9	8.2
Granex 1035	Seedway	4/25/01	445	410	191	159	0.5	16.9	4.6	9.3
Southern Belle	D. Palmer Seed	4/18/01	415	397	205	172	0.2	11.8	4.4	9.8
King Midas	Sunseeds	4/18/01	465	382	215	149	0.0	0.6	3.8	9.4
PS 7292	Petoseed	5/01/01	587	378	260	64	1.2	3.7	4.1	8.8
r^2			***0.487***	***0.231***			***0.511***	***0.812***	***0.659***	***0.732***
CV			***32***	***38***			***55***	***61***	***20***	***9***
LSD (p#0.05)			***141***	***222***			***0.1***	***1.2***	***1.1***	***0.9***

Bonferroni adjustment for five comparisons. (The Bonferroni adjusted LSD divides the probability (0.05) by 5 before calculating to control the experiment wise error rate. This allows up to five mean comparisons between varieties.)



Bell Pepper Varieties in North Alabama

Joe Kemble, Edgar Vinson, and Arnold Caylor

A bell pepper variety trial was conducted at the North Alabama Horticulture Research Center (NAHRC) in Cullman, Alabama (Tables 1 and 2). Five-week-old peppers were transplanted onto 4 foot wide plots with a within row spacing of 1 foot. Plastic mulch and drip irrigation were used.

Soils were fertilized according to the recommendations of the Auburn Unversity Soil Testing Laboratory. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Comercial Vegetable: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 00IPM-2 from the Alabama Cooperative Extension System).

Bell pepers were harvested on July 25 and August 16. Fruits were harvested at the mature green color stage, weighed, and graded (Table3) using the standards of the "Sweet Pepper Grader's Guide" (Circular AHR-784 of the Alabama Cooperative Extension System).

Table 1. Ratings of 2001 Bell Pepper Variety Trial[1]

Location	NAHS
Weather	5
Fertility	5
Irrigation	5
Pests	5
Overall	5

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

There were two harvests this year so yields for this season were comparatively low. 'X3R Camelot' and 'Enterprise' are considered two of the market standards. Several varieties performed as well as these standards, two of which were 'Aristotle' and 'X3R Wisdom'. 'Enterprise' had yields significantly lower than the 'X3R Camelot'. Varieties that performed as well as 'Enterprise' were 'Lexington' and 'ACX 209'.

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

Variety	Type[1]	Seed source	Color	Days to harvest	Disease tolerance/resistance[2]	Years evaluated
ACamelot X3R	F1	Petoseed	Green-Red	74	BLS(1,2,3),TbMV	94-97,99,01
Enterprise	F1	Asgrow	Green-Red	77	BLS(1,2,3),TbMV	95-97,99,01
Colosal	–	Novartis	–	–	–	99,01
ACX 209	F1	A & C	Green-Red	86	BLS(1,2,3)	99,01
Aristotle	F1	Petoseed	Green-Red	–	–	01
Var.#830	F1	A&C	Green-Red	–	–	01
Bennington	F1	Asgrow	Green-Red	–	–	01
X3RWisdom	F1	Petoseed	Green-Red	75	BLS(1,2,3), TbMV	01
Defiance	F1	Asgrow	Green-Red	–	–	01
Enterprise	F1	Asgrow	Green-Red	–	–	01
Lexington	F1	Asgrow	Green-Red	–	–	01

– = not found in seed catalogues.

[1] Type: F1=hybrid; OP=open pollinated. [2]Disease resistance/tolerance: BLS=Bacterial Leaf Spot; TbMV=Tobacco Mosaic Virus.

TABLE 3. PERFORMANCE OF SELECTED BELL PEPPER VARIETIES

Variety	Total marketable yield *lbs/ac*	Total fancy wt *lbs/ac*	Total fancy no. *no/ac*	US#1 *no/ac*	US#1 *lbs/ac*	US#2 *no/ac*	US#2 *lbs/ac*	Individual fruit wt. *lbs*	Cull weight *lb/ac*
Aristotle	13,604	7,259	13,575	16,697	6,345	9,548	2,593	0.46	2,177
X3R Camelot	12,631	5,787	12,037	18,326	6,844	9,548	2,970	0.43	3,488
Var.#830	12,602	5,366	11,222	18,430	7,236	9,695	2,780	0.45	1,964
Colossal	12,139	6,392	13,620	16,788	5,747	10,272	2,577	0.40	2,120
Bennington	11,088	4,619	9,910	18,462	6,469	10,181	2,602	0.41	1,937
X3RWisdom	10,879	4,441	9,367	18,010	6,438	10,815	3,006	0.42	3,160
Defiance	10,728	4,699	9,186	16,290	6,029	9,684	2,415	0.43	2,820
Enterprise	9,157	3,341	7,150	15,973	5,816	13,032	3,796	0.41	3,333
Lexington	8,832	3,900	8,145	13,892	4,932	8,507	2,401	0.41	2,562
ACX 209	7,254	3,027	6,15	12,353	4,228	7,014	1,759	0.42	2,337
r^2	***0.41***	***0.47***							
CV	***24***	***32***							
lsd	***4,340***	***2,604***							

Commercial Pumpkin Variety Trials Include New Releases

William Terry Kelley

Several new releases were among thirty-two commercially available pumpkin varieties that were compared in a test at the Georgia Mountain Branch Experiment Station (elevation 1900 feet) in Blairsville, Georgia. Weather conditions were reasonably good for pumpkins during the growing season. Rainfall was adequate but not excessive. Disease pressure was light until late in the season and the crop yielded exceptionally well overall.

Pumpkins were field-seeded on May 30, 2000 into a Transylvania clay loam soil. Plots consisted of single rows, which contained an appropriate number of hills for each variety's plant habit. Vining types were planted with four hills per plot, semi-bush (or semi-vining) types with six hills, and bush types with eight hills. Plots were 16 feet in length with eight feet between rows. The planting was arranged in a randomized complete block design with three replications.

Normal cultural practices were used for bare ground pumpkin culture in Georgia. Base fertilizer consisted of 300 pounds per acre of 10-10-10 incorporated prior to planting followed by two side dress applications of 10-10-10 (300 pounds per acre each). Ethafluralin (0.75 pound active ingredient per acre) was applied pre-emergence for weed control. Fungicide and insecticide applications were made according to current recommendations. Irrigation was applied as needed.

Pumpkins were harvested at maturity on October 3 and October 4, 2000. Data were collected on yield, fruit number and weight, rind color, rind texture, rind thickness, fruit shape, and internal flesh color. A summary of the results can be found in the table.

Individual pumpkin weights were generally within those expected according to commercial variety descriptions. 'First Prize' produced the greatest yield and largest fruit size among all varieties, although not significantly greater than 'Magic Lantern'. Among miniature varieties 'Munchkin', 'Little October' and 'Lil' Goblin' all produced similar fruit numbers with weights in the 1.5- to 0.5-pound range.

Marketability was generally high for all varieties, although 'Wee-B-Little', 'Ol' Zeb's' and 'Casper' were significantly lower than the most marketable varieties. There was some variance among varieties for rind color and rind texture. Rind color ranged from deep orange to light orange. 'Lumina' and 'Casper' were the only pumpkins in the trial with a white rind. Fruit shape was generally in accordance with the type of pumpkin, with smaller pumpkins having a flatter shape.

Most varieties produced exceptional yields and fruit numbers and many were well within the range for acceptability in north Georgia. Lower performers included 'Early Autumn', 'Pro Gold #100', 'Wee-Be-Little', 'Peek-A-Boo', 'Ol' Zeb's', 'Casper' and 'Howdy Doody' which did not produce yields and fruit number per acre that were competitive with other similarly-sized pumpkins.

'Autumn King', 'Gold Bullion', 'Gold Rush', 'Harvest Jack', 'HMX 4694', 'Jumpin' Jack', 'Magic Lantern', 'Merlin', and 'Pro Gold #500' were all superior performers among the 15- to 30-pound pumpkins.

NUMBER, YIELD, MARKETABILITY, AND HORTICULTURAL CHARACTERISTICS OF SELECTED PUMPKIN VARIETIES GROWN AT BLAIRSVILLE, GEORGIA[1]

Variety	Seed source	Fruit *no/ac*	Yield *lbs/ac*	Fruit wt. *lbs*	Marketable[2] %	Rind color[3]	Fruit shape[4]	Rind texture[5]
Autumn King	Rupp	4084	97337	23.90	100.0	1.67	3.00	1.33
Casper	Rupp	3403	34251	10.24	93.1	4.67	3.00	3.00
Early Autumn	Seeds by Design	4651	65167	14.19	100.0	1.67	2.67	2.00
First Prize	Rupp	2609	139058	53.0	100.0	2.67	3.00	2.00
Gold Bullion	Rupp	5785	88132	15.23	100.0	2.00	2.67	2.33
Gold Fever	Rupp	5672	65871	11.60	100.0	2.33	2.67	2.00
Gold Standard	Rupp	5105	69858	13.70	98.3	1.67	2.00	2.00
Gold Strike	Rupp	4084	80521	19.88	100.0	1.33	3.00	1.33
Gold Rush	Rupp	3063	86992	28.16	100.0	1.67	3.00	1.00
Harvest Jack	Seeds by Design	3743	101636	27.42	100.0	2.00	3.33	2.00
Howden Biggie	Harris Moran	3063	81258	26.05	100.0	1.67	3.83	1.33
Howdy Doody	Seeds by Design	3516	57970	16.19	97.5	2.00	2.33	2.00
HMX 4694	Harris Moran	6125	87973	14.43	100.0	1.33	2.67	2.00
Jack-B-Quick	Seeds by Design	14293	38798	6.36	100.0	2.25	1.75	1.25
Jumpin' Jack	Seeds by Design	4254	102388	24.04	100.0	2.00	4.00	2.00
Lil' Goblin	Harris Moran	20418	30179	1.48	100.0	2.33	2.67	2.67
Little October	Willhite	21099	17361	0.82	100.0	2.67	2.00	3.00
Lumina	Stokes	3176	27661	7.02	100.0	5.00	1.33	3.00
Magic Lantern	Harris Moran	6806	105504	15.52	100.0	1.33	2.67	1.67
Merlin	Harris Moran	5218	84043	16.24	100.0	1.67	3.00	1.67
Munchkin	Harris Moran	19851	10368	0.52	99.3	2.33	1.00	1.33
Ol' Zeb's	Rupp	3516	70357	20.65	87.8	2.00	3.17	1.67
Oz	Harris Moran	10663	35885	3.37	100.0	2.67	2.33	2.67
Peek-A-Boo	Seeds by Design	6919	26135	3.80	100.0	2.33	2.33	2.33
Pick-a-pie	Rupp	7373	38652	5.23	100.0	1.33	2.00	2.00
Pro Gold #100	A&C	5218	10288	2.01	97.4	2.67	3.00	3.00
Pro Gold #200	A&C	4310	65338	15.87	100.0	2.00	3.17	2.00
Pro Gold #300	A&C	4084	80101	19.75	100.0	2.00	2.67	2.00
Pro Gold #500	A&C	4991	94859	18.69	100.0	2.00	3.00	1.67
Pro Gold #510	A&C	4197	85551	20.39	100.0	1.67	3.00	1.33
Touch of Autumn	Rupp	11570	30922	2.69	100.0	2.00	2.33	2.00
Wee-B-Little	Seeds by Design	2496	20452	6.12	91.3	2.00	2.33	2.67
Mean of test		***6834***	***62802***	***14.33***	***98.9***	***2.16***	***2.63***	***2.0***
lsd (0.05)		***4129***	***36379***	***59.1***	***5.1***	***0.87***	***0.97***	***0.63***
CV (%)		***36.9***	***35.4***	***25.2***	***3.17***	***24.5***	***22.5***	***19.4***

[1] Planting date: May 30, 2000. Harvest dates: October 3-4, 2000. Randomized complete block design, three replications, one-row plot, 16 ft. long x 8 ft. wide. Hills/plot: Vine-4, Semi-bush-6, Bush-8. [2]Marketable yield. [3] Rind color based on scale: 1=deep orange; 2=medium orange; 3=light orange; 4=yellow; 5=white. [4]Fruit shape based on scale: 1=flat; 2=round; 3=oval; 4=oblong. [5]Rind texture based on scale: 1=coarse; 2=medium; 3=smooth.

Watermelon and Cantaloupe Variety Trials in Georgia

George E. Boyhan, Darbie M. Granberry, W. Terry Kelley, and C. Randell Hill

Watermelon and cantaloupe variety trials were held at the Vidalia Onion and Vegetable Research Center in Lyons, Georgia. The watermelon trial consisted of 29 varieties and the cantaloupe trial consisted of nine varieties. Seed were started in the greenhouse at the Bamboo Farm and Coastal Garden in Savannah, Georgia, in March and April. The watermelon transplants were set on April 19, 2001 and the cantaloupe transplants were set on April 25, 2001.

The experiment was arranged in a randomized complete block design with four replications. Each experimental unit consisted of ten hills with an in-row spacing of five feet for the watermelon and an in-row spacing of three feet for the cantaloupe. The between row spacing was six feet for the cantaloupe and 12 feet for the watermelon. Although there was a 12 foot between-row spacing for the watermelon, the yield per acre was calculated based on a six-foot between-row spacing.

The fertility program consisted of 750 pounds per acre of 10-10-10 applied preplant and incorporated. This was followed by 750 pounds per acre of 15-0-14 applied on May 11, 2001. This level of fertility is considered a little too high for watermelon and cantaloupe in Georgia and was the result of a miscommunication with the farm superintendent.

Weed control consisted of two quarts per acre of Cucurbit herbicide applied on April 27, 2001 over the top of the transplants. In addition, Poast Plus was applied at one quart per acre on May 7, 2001 for control of post emergent grasses. Finally, Permit herbicide was spot sprayed on May 7-8,2001 to control nutsedge. Hand weeding was also used as needed. Neither the use of Curbit over the top of transplants or the use of Permit on cucurbits is labeled. Neither fungicides nor insecticides were applied so that the varieties' performances under natural disease and insect pressure could be determined.

Cantaloupe harvest began on June 29 and continued on July 5, July 6, and July 9, 2001. The watermelon harvest began on July 2, 2001 and continued on July 5, July 6, and July 9, 2001.

The Bonferroni adjusted LSD divides the probability (0.05) by 5 before calculating to control the experiment wise error rate. This allows up to five mean comparisons between varieties.

'Royal Star' watermelon from Petoseed was the highest yielding variety followed by 'Big Stripe', 'WX8', and 'WX22' from Willhite (Table 1). 'Montreal' from Sunseeds rounds out the top five performers. Surprisingly 'Moon & Stars' also had good yields. This is an old heirloom variety with an unusual rind pattern (dark green with yellow spots of varying sizes from pencil point to 2-3 inches across). The quality of this old variety was very poor, however, with white streaking in the flesh.

Seedless watermelons continue to be tested and grow in popularity. Nine of the varieties or almost a third were triploid varieties. We are beginning to see triploid varieties outside the Crimson Sweet type. This year 'WX55' from Willhite and 'Revolution' from Sunseeds were Allsweet types and 'Freedom' was a jubilee type from Sunseeds.

We had nine cantaloupe varieties in the trial with 'Odyssey' from Sunseeds having the highest yields (Table 2). Both Eastern and Western types were in the trial with the Eastern types yielding higher overall.

TABLE 1. WATERMELON VARIETY TRIAL, VIDALIA ONION AND VEGETABLE RESEARCH CENTER, LYONS, GEORGIA

Variety	Company	Yield	Fruit weight	Fruit length	Fruit width	Rind	Soluble solids	Flesh color	Melon type
		lbs/ac	*lbs*	*in*	*in*	*in*	*%*		
Royal Star	Petoseed	27,240	16.0	12.5	8.9	0.75	10.2	Red	Crimson Sweet[1]
Big Stripe	Willhite	25,406	14.9	12.7	8.6	0.83	10.4	Red	Jubilee Blocky
WX8 (large seed)	Willhite	23,766	12.6	13.6	8.1	0.78	10.8	Red	Allsweet
WX22 (small seed)	Willhite	21,312	14.0	12.4	8.3	0.66	10.2	Red	Jubilee
Montreal (5023)	Sunseeds	21,225	13.3	12.7	8.2	0.53	10.0	Red	Allsweet
Moon & Stars	G. Hunter	20,045	16.7	11.6	9.6	0.78	8.6	Red	Moon & Stars[2]
WX55 Triploid	Willhite	19,889	12.7	13.7	7.3	0.70	9.0	Red	Allsweet Seedless
Festival (large seed)	Willhite	19,548	12.0	14.4	7.3	0.63	9.5	Pink/Red	Allsweet
Revolution (4034) Triploid	Sunseeds	19,471	10.9	12.8	7.9	0.81	11.7	Red	Allsweet Seedless[3]
Piñata (large seed)	Willhite	19,185	13.9	12.4	8.4	0.83	9.4	Red	Allsweet[4]
XP 4525247	Asgrow	18,999	13.1	13.4	8.0	0.58	9.2	Red	Allsweet
Tribute (PX59696) Triploid	Petoseed	18,999	11.9	10.7	8.7	0.70	11.0	Red	Crimson Sweet Seedless
Stars n Stripes	Asgrow	18,891	12.7	13.8	7.5	0.72	10.2	Red	Jubilee
Falcon (PS 56395)	Petoseed	17,874	14.5	14.7	8.0	0.69	11.1	Red	Allsweet
Sweet Eat'n Triploid	D. Palmer	17,598	10.3	9.6	7.7	0.67	11.4	Red	Crimson Sweet Seedless[5]
Sentinel (PS 36694)	Petoseed	17,544	11.8	12.0	7.9	0.72	11.3	Red	Allsweet
Sweetheart (large seed)	Willhite	17,105	12.7	11.6	8.8	0.95	10.3	Red	Jubilee[6]
Legacy (OP)	Willhite	16,212	10.6	12.3	7.6	0.72	8.3	Red	Allsweet Blocky
Vista F1	Hollar Seed	15,043	14.3	12.0	8.4	0.69	11.6	Red	Jubilee
AU Golden Producer	Hollar Seed	14,810	13.2	9.9	8.8	0.67	10.0	Yellow	Crimson Sweet
Freedom (3022) Triploid	Sunseeds	13,957	12.0	12.3	8.2	0.72	11.8	Red	Jubilee Seedless
AU Producer ZYMV	Auburn U.	13,605	13.4	10.1	9.1	0.72	9.6	Red	Crimson Sweet
Afternoon Delight Triploid	D. Palmer	13,511	8.9	9.2	8.4	0.77	11.5	Red	Crimson Sweet Seedless
Stargazer	Asgrow	12,977	11.2	12.7	7.4	0.64	8.5	Red	Allsweet
WX24 (large seed)	Willhite	12,814	13.1	13.5	7.4	0.81	9.3	Red	Blocky Crimson Sweet[7]
Cooperstown	Asgrow	11,576	10.6	9.6	8.2	0.58	10.9	Red	Crimson Sweet Seedless
Triton	Petoseed	11,558	10.0	8.9	8.4	0.75	11.3	Yellow	Crimson Sweet Seedless
AU Allsweet	Auburn U.	11,489	13.8	12.0	7.4	0.61	9.1	Red	Allsweet
Sapphire F1	Hollar Seed	2,222	10.2	8.8	7.5	0.66	10.9	Red	Crimson Sweet Seedless
r^2		***0.353***					***0.563***		
CV		***50***					***14***		
Adjusted lsd (p#0.05)		***14,199***					***1.8***		

[1] Some Blocky and Jubilee fruit; [2] Old variety, white streaked fruit; [3] Variable, some Jubilee fruit; [4] Some Jubilee and Blocky types; [5] Variable fruit, some icebox size; [6] Some variability with Crimson Sweet type; [7] Some Jubilee type.

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

Variety	Company	Yield	Fruit			Rind	Soluble solids	Flesh color	Melon type
			weight	length	width				
		lbs/ac	*lbs*	*in*	*in*	*in*	*%*		
Odyssey (7119)	Sunseeds	16,970	5.6	7.5	6.8	1.9	7.8	Orange	Eastern
Athena	Syngenta	13,891	4.0	6.9	6.2	1.8	9.8	Orange	Eastern
Vienna	Asgrow	10,557	5.5	6.8	6.8	2.0	8.1	Orange	Eastern
Eclipse	Petoseed	10,037	4.9	6.6	6.6	2.0	9.0	Orange	Eastern
EX 04204099	Asgrow	9,378	4.1	6.8	6.3	2.0	8.2	Orange	Eastern
AC-75-1A	Auburn University	7,575	2.2	5.0	5.1	1.5	7.1	Orange	Western[1]
Super 45	Willhite	6,044	2.9	6.2	5.2	1.5	7.5	Orange	Western[1]
AC-89-55MI	Auburn University	6,032	2.6	5.2	5.0	1.4	7.2	Orange	Western[1]
AC-82-37RNL	Auburn University	2,311	2.4	5.8	4.9	1.6	4.9	Orange	Western
r^2		***0.574***					***0.597***		
CV		***60***					***21***		
Adjusted lsd (p#0.05)		***7,015***					***2.4***		

[1]Some Eastern type.

Hybrid Triploid Watermelon Cultivar Trials

John D. Mueller, Joe Varn, and Gilbert Miller

The South Carolina Watermelon Association chose 12 seedless watermelon varieties to be included in a variety trial at the Edisto Research and Education Center in Blackville, South Carolina. The 12 seedless varieties are either planted in the watermelon-producing areas of South Carolina or the growers had an interest in seeing how some potential varieties would perform. The variety trial was planted later than normal, May 4, so growers would be finished with the bulk of their watermelon harvest and could attend a field day to view the seedless variety trials.

On April 5, prior to fumigation, fertilizer was banded in the row and mixed thoroughly with a rotovator. Soil samples indicated that phosphorous was very high and potassium was in the medium level. The pre-plant fertilizer applied included 45 pounds nitrogen, 0 phosphorous, and 45 pounds of potassium per acre. Following fertilizer application, the plots were fumigated with methyl bromide at the broadcast rate of 400 pounds per acre and covered with black plastic mulch. Row spacing was eight foot on center. Fifty-four inch plastic mulch was used, giving a three-inch bed top and a low flow drip tape rated at 0.24 galloons per minute was buried two inches beneath the bed surface. Plots were 60 feet long with an in-row spacing of three feet. A total of 20 plants were planted per plot while each variety was replicated four times.

The seedless watermelon transplants and pollinator were planted in the field May 4. Because of its distinctly different rind color, shape, and size, 'Charleston Elite' was used as the pollinator. After one week only two plants were missing in the plots and these were replaced.

Because the soil in which the trials were being grown was so droughty, (0.04 available water-holding capacity), water management was monitored closely. An automated irrigation system was employed. Four water cycles at 45 minutes per cycle were initiated prior to planting. Periodic rainfall allowed the maintenance of this program through the season. Four tensiometer stations with tensiometers at 6 inches and 12 inches were monitored daily. Tensiometer readings were maintained in the 10 to 14 centibar range.

A fertigation program was initiated 10 days after planting. Nutrients were injected during the third and fourth irrigation cycles. The fertigation schedule and amounts are included in Table 1. Total fertilizer applied for the entire season was 150-0-150. Tissue samples were taken weekly to monitor the nutrient status of the watermelon plants.

The row middles were cultivated twice and a layby application of Curbit 3 EC (three pints per acre), was applied following the last cultivation. Fungicide applications were made based on the MELCAST program developed by Dr. Richard Latin at Purdue University. Daily Environmental Favorability Index (EFI) values were recorded. When the EFI values reached threshold, a fungicide was applied. Following an initial application of Bravo, alternate applications of the fungicides Quadris and Dithane plus Benlate were made. Aphids colonized a few plants but infestation was not enough to warrant control measures.

The first of the two variety trial harvests was July 10, 2001, 68 days after planting. The second harvest was July 19, 76 days after planting. Each fruit harvested was weighed, categorized and a representative sample of each variety was checked for soluble solids as reported in Table 2.

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

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

Cultivar	Fruit	Small[1]	Medium[2]	Large[3]	First harvest	Second harvest	Sugar	Yield[4]
	no/ac	*%*	*%*	*%*	*%*	*%*	*brix*	*lbs/ac*
Carousel	3,995	43	56	1	81	19	11.5	66,475
AC 7187	3,995	31	67	2	59	41	12.1	70,552
AC 5244	3,904	41	58	1	71	29	12.4	66,693
Fandango	3,859	61	39	0	92	8	10.1	58,775
Genesis	3,314	85	15	0	89	11	12.0	44,233
Crimsonita	3,269	72	27	1	76	24	10.4	45,082
Afternoon Delight	3,133	46	35	19	59	41	10.7	48,569
Sweet Sixteen	3,042	78	21	1	79	21	10.7	44,274
Tri-X 313	3,042	45	54	1	70	30	9.3	50,712
No. 1032	2,769	28	64	8	56	44	11.3	49,395
Revolution	2,679	29	58	13	68	32	12.6	48,941
Freedom	2,588	30	65	5	81	19	12.8	46,916

[1] Small = < 16 pounds; [2] Medium = 16 to 24 pounds; [3] Large = > 24 pounds. [4] Yield per acre based on liner row feet per acre @ 5445 feet (eight-foot-on-center row spacing).

Hybrid Triploid and Diploid Watermelon Cultivar Trials, 2000

Jonathan Schultheis, Dennis Adams, George Clark, and Kirby Jones

New hybrid watermelon cultivars are being introduced by commercial seed companies on an annual basis, and it is important that watermelon growers know the specific characteristics of a particular cultivar when consideration is given to growing and marketing a new cultivar. This publication provides up-to-date information on fruit quality and yield potential of diploid and triploid red-flesh watermelon cultivars/lines under North Carolina growing conditions.

Sixty-five lines/cultivars (cultigens; 33 triploids and 32 diploids) were examined for yield potential, fruit size, and interior and exterior quality evaluations (rind thickness, length-diameter ratio, hollow heart, flesh color, and sweetness). The watermelons were grown on the Central Crops Research Station at Clayton, North Carolina, with the cooperation of the station staff. The soil type there is a Norfolk loamy sand.The cultigens included in the test are listed along with the seed company and rind descriptions (Tables 1A and 1B).

Nitrogen, phosphate (P_2O_5), and potash (K_2O) were broadcast and disk incorporated (30-0-80, pounds per acre) prior to fumigation. On April 11 the plots were fumigated with Telone C-17 (9.9 gallons per acre) and immediately covered with 1.25 mil black plastic (NC Plastic Products, Morganton, North Carolina); trickle tube was placed just beneath the soil surface. Plots were 20 feet long, and the beds were on 10-foot centers. In-row plants were spaced two feet apart. A total of 10 plants were planted per plot while each cultigen/treatment was replicated four times. The cultigen/treatments were planted in an alternate pattern of triploid, diploid, within and across rows, to allow for sufficient pollination.

Seed were sown in LE 1803 transplant trays (Landmark Plastics Corp.; Akron, Ohio) on April 3, using a commercial soil-less growing media (Fafard 4P; Conrad Fafard, Inc.; Agawam, Maine). The trays were moistened to capacity 24 hours prior to seeding, then allowed to drain over night. The seeded trays were placed in a germination chamber at 85° F, until a small percentage (less than 10 percent) of seedlings started to emerge. Seedling emergence data were collected on the triploids at seven and 14 days. The watermelons were transplanted in the field on May 3. A starter solution was applied using 20-20-20 (one pound per 50 gallons water) and Diazinon (three ounces per 50 gallons water) for soil insect control. Plots with missing plants were replanted seven days after planting. Only a few plots had three or more missing plants. Trickle irrigation was applied (8 mil., 12-inch spacing, 24 gallons per hour) using Ro-Drip (Roberts Irrigation Products, Inc.; San Marcos, California), over the growing season.

Fertigation was initiated one week after transplanting and applied weekly thereafter. Total fertilizer applied for the entire season was 122-0-235. Pesticides were applied according to the *NC Agricultural Chemicals Manual* recommendations. Alanap L (six quarts per acre), Curbit 3 EC (four pints per acre), and Gramoxone (three pints per acre) were applied preplant between the plastic for weed control. A shielded application of Roundup (two quarts per acre) was applied between the plastic prior to ground cover by vines. The purpose of this application was to control or suppress yellow nutsedge. Alternate application of fungicides (Quadris, Bravo, and Maneb 75DF) were made on a weekly basis according to the *NC Agricultural Chemicals Manual* to reduce the chance of disease resistance.

There were two harvests; the first was July 10 [68 days after field planting (DAP)] and the second was July 25 (83 DAP). Each ripe fruit was harvested and categorized according to the weight classes reported in Table 2.

The percentage fruit by number and weight were determined for each category for both harvests. In addition, earliness was determined by making two harvests and determining the percentage fruit picked for each harvest. Total marketable weight and number were based on fruit that were eight pounds or greater for both diploid and triploid watermelons.

Finally, several quality evaluations were made. The tendency to produce hollow heart for each watermelon entry was determined by cutting open five melons from each plot and counting and measuring those melons that had the defect. Hollow heart information was collected

TABLE 1A. TRIPLOID CULTIVARS INCLUDED IN STUDY

Name	Seed company	Rind pattern
ACX 257	Abbott & Cobb, Inc.	Indistinct, dk green stripes on light green background
Elation	D. Palmer Seed Co., Inc	Indistinct, medium dk green stripes on light green background
Enchantment	D. Palmer Seed Co., Inc.	Distinct, wide dk green stripes on light green background
EX 4510759	Asgrow	Indistinct, med wide, dark green stripes on lt-med green background
EX 4590249 (Wrigley)	Asgrow	Triploid Indistinct, dk green stripes on light green background
EX 4590339 (Cooperstown)	Asgrow	Indistinct, med wide, dark green stripes on light green background
Freedom	Sunseeds	Distinct, dk green stripes light green background
Gem-Dandy	Willhite Seed Inc.	Indistinct, wide to med, dk green stripes on dk green background
HMX 8913	Harris-Moran Seed Co.	Distinct, med wide, dark green stripes on light green background
HMX 8914	Harris-Moran Seed Co.	Indistinct, dk green stripes on light green background
Millenium	Harris-Moran Seed Co.	Narrow very dk green stripes on dark-green backgrd, appears solid dk-green
Millionaire	Harris-Moran Seed Co.	Distinct, dark green stripes on light green background
Premiere	Southwestern Seed Co.	Distinct, wide, dark green stripes on light green background
Revolution	Sunseeds	Indistinct, dk green stripes on light green background
RWM 8073-VP	Novartis(Rogers)	Indistinct, dark green stripes on light green background
RWM 8089-VP	Novartis(Rogers)	Indistinct, solid, dark green
SeedWay 4502	SeedWay	Distinct, med wide, dark green stripes on light green background
Slice n' Serve 830	Southwestern Seed Co.	Distinct, narrow, med green stripes on light green background
Summer Sweet Var. 5524	Abbott & Cobb, Inc.	Indistinct, dk green stripes on med green background
Summer Sweet Var. 5544	Abbott & Cobb, Inc.	Indistinct, dk green stripes on light green background
SWT 6703	Sakata Seed America, Inc.	Distinct, narrow, med green stripes on light green background
SWT 8705	Sakata Seed America, Inc.	Indistinct, wide med green stripes on light green background
SWT 9708	Sakata Seed America, Inc.	Distinct, narrow, dark green stripes on light green background
XWT 8706	Sakata Seed America, Inc.	Distinct, med wide, dark green stripes on light green background
XWT 8707	Sakata Seed America, Inc.	
Til	D. Palmer Seed Co., Inc.	Distinct, very narrow, dark green stripes with light green background
Triple Prize	SeedWay	Distinct, med wide, dark green stripes on light green background
Tri-X-313	Novartis(Rogers)	Indistinct, wide med/green, stripes on light green background
Tri-X-Palomar	Novartis(Rogers) med-green	Indistinct, narrow, dk green stripes on med green background, solid
Tri-X-Shadow	Novartis(Rogers)	Distinct, dk grn stripes on med grn background, solid med grn appearance
W 5051	Sunseeds	Indistinct, med to wide, dark green stripes on light green background
W 5052	Sunseeds	Distinct, wide, dark green stripes on light green background
WX 55	Willhite Seed Inc.	Distinct, med to wide, dark green stripes on light green background

TABLE 2. WEIGHT CLASSES FOR WATERMELON VARIETIES

Class	Triploids	Class	Diploids
1	< 8.0 lbs	1	<8.0 lbs
2	8.0 to 14.0 lbs	2	8.0 to 16.0 lbs
3	14.0 to 18.0 lbs	3	16.0 to 24.0 lbs
4	18.0 to 22.0 lbs	4	24.0+ lbs
5	22.0+ lbs		

TABLE 1B. DIPLOID CULTIVARS INCLUDED IN STUDY

Name	Seed company	Rind pattern
ACX 5411	Abbott & Cobb, Inc.	Indistinct, very wide, med green stripes on light green background
ACX 5451	Abbott & Cobb, Inc.	Indistinct, very wide, med green stripes on light green background
Athens (W 5025)	Sunseeds	Distinct, very wide, med-dk green stripes on light green background
Celebration	Novartis(Rogers)	Distinct, wide, med- dk green stripes on light green background
Corporal	Petoseed	Indistinct, very wide, med green stripes on light green background
Crimson Sweet	Willhite Seed Inc.	Distinct, wide, dk-med green stripes on light green background
Delta (PS36594)	Petoseed	Distinct, med/wide, dk green stripes on light green background
Dumara	Sunseeds	Distinct, wide, med-dk green stripes on medium green background
Falcon	Petoseed	Indistinct, wide, med green stripes on light green background
Festival	Willhite Seed Inc.	Distinct, very wide, dk-med green stripes on light green background
Fiesta	Novartis(Rogers)	Indistinct, wide, med-dk green stripes on light green background
Lady	Sunseeds	Indistinct, narrow, dk green stripes on light green background
Mardi Gras	Novartis(Rogers)	Indistinct, wide, med green stripes on light green background
Pinata (Large Seed)	Willhite Seed Inc.	Indistinct, wide, med green stripes on light green background
Pinata (Small Seed)	Willhite Seed Inc.	Distinct, very wide, med green stripes on light green background
Regency	Petoseed	Indistinct, dk green stripes on light green background
RWM 8036	Novartis(Rogers)	Distinct, wide, med-dk green stripes on light green background
Sentinel (PS36694)	Petoseed	Distinct, med, dk green stripes on light green background
Starbrite	Asgrow	Distinct, narrow, dk green stripes on light green background
Stargazer	Asgrow	Indistinct, very wide, dk green stripes on light green background
Stars 'N Stripes	Asgrow	Distinct, medium, med green stripes on light green background
Summer Flavor Var. 800	Abbott & Cobb, Inc.	Indistinct, very wide, med-dk grn stripes on lgt-med grn backgrd
Summer Flavor Var. 900	Abbott & Cobb, Inc.	Indistinct, very wide, med green stripes on light green background
Summer Flavor Var. 910	Abbott & Cobb, Inc.	Indistinct, very wide, med green stripes on light green background
SWD 8307	Sakata Seed America, Inc.	Indistinct, very wide, med green stripes on med green background
W 5023	Sunseeds	Indistinct, very wide, med green stripes on light green background
W 5036	Sunseeds	Indistinct, very wide, med green stripes on light green background
WX 8	Willhite Seed Inc.	Distinct, very wide, med-dk green stripes on light green background
WX 22	Southwestern Seed Co.	Indistinct, dk green stripes on light green background
WX 24	Southwestern Seed Co.	Distinct, very wide, med green stripes on light green background
WX 30	Southwestern Seed Co.	Distinct, med-wide, med green stripes on light green background
XP 4525247	Asgrow	Indistinct, very wide, very-dk grn stripes on light grn background

over both harvests, with most information coming from the first harvest if enough fruit for sampling were available. In addition, the severity of hollow heart was determined by measuring the length and width of the cavity at its greatest distances. Fruit shape was determined by measuring the length and width of five melons from each plot. Similarly, the same five melons were used to measure the rind thickness. Sweetness was determined by taking soluble solid measurements with a refractometer by sampling the center of the fruit on the first five melons that were ripe, which were representative of the watermelon entry. Flesh was rated from 1 = white to 5 = blood red on five melons per replication (20 total).

Triploid

Foliage damage by ozone was significant in this study. This may have reduced yield. Based on total marketable yields, the cutivars which yielded more than 55,000 pounds included 'Elation', 'EX 4510759', 'EX 4590249' (Wrigley), 'HMX 8913', 'HMX 8914', 'Revolution', 'Triple Prize', and 'W 5052'. Large fruit were produced with the cultivars 'Elation', 'Freedom', 'Revolution', 'SeedWay 4502', 'W 5051', and 'W 5052'. The number of fruit produced per acre, regardless of cultivar, was considerably greater than the 700 per acre average for North Carolina. Almost all cultivars produced more than 3,000 fruit per acre. ' HMX 8913' produced the highest number per acre, 4,737, followed by 'EX 4590249' (Wrigley) with 4,628 fruit produced per acre.

Hollow heart is a fruit defect that was present in most cultivars evaluated. The cultivars 'Elation', 'Freedom', 'Revolution', 'RWM 8073-VP', 'Slice n' Serve 830', 'Triple Prize', and 'Summer Sweet Var. 5244' developed the most hollow heart with 50 percent or greater of their fruits exhibiting the symptoms; whereas, 'ACX 257', 'SeedWay 4502', and 'Tri-X-Palomar' had only 15 percent hollow heart. Soluble solids (sugars) in all cultivars were 11 or more, with cultivars above 12.5 being 'EX 4510759', 'Revolution', and 'SWT 8705'. Cultivars 'ACX 257', 'Millionaire', and 'XWT 8706' had the thickest rind, while the cultivars with the thinnest rind were 'Millenium' and 'Til'. The cultivars with the best flesh color (reddest) were 'EX 4590249' (Wrigley), 'EX 4590339' (Cooperstown), 'Revolution', and 'Til'. However, all interior flesh color had an acceptable red hue.

Some cultivars had a greater percentage of fruit picked in the initial harvest. Those cultivars with at least 60 percent of their fruit harvested the first or initial harvest were 'Freedom', 'Millenium', 'SWT 9708', 'Tri-X-Shadow', and 'WX-55'. A few cultivars produced more than 60 percent of their fruit at the second harvest; these were 'ACX 257', 'EX 4590249' (Wrigley), 'HMX 8913', 'W 5051', and 'W 5052'.

All cultivars produced the most fruit (by weight and number) in the eight to 14.0 or 14.0 to 18.0 pound categories. Only a small percentage of harvested watermelons were in the less than eight-pound category. By weight, the largest percentage (more than 60 percent) of eight to 14 pound fruit was produced by the cultivars 'Millenium', 'RWM 8089-VP', 'SWT 6703', 'Til', 'Tri-X-Shadow', and 'XWT 8707'; and very few large fruit were produced that weighed more than 22 pounds.

There are several new lines or cultivars that one might consider producing, depending on the market. When considering high yields and quality in this study, 'EX 4590249' (Wrigley), 'Elation', and 'SeedWay 4502' show promise. A grower may want to try these cultivars to determine how they perform in a commercial operation. Currently the following red flesh triploid cultivars are recommended for commercial production in North Carolina: 'Gem Dandy', 'Freedom', 'Millenium', 'Millionaire', 'Revolution', 'Summer Sweet Var. 5244', 'Tri-X-Palomar', 'Tri-X-Shadow', and 'Tri-X-313'.

Diploid

Foliage damage by ozone was significant in this study. This may have reduced yield. Based on total marketable yields, the cutivars which yielded more than 55,000 pounds included 'Fiesta', 'Starbrite', 'Stars-N-Stripes', and 'Summer Flavor Var. 800'. The largest fruit were produced with cultivars 'Corporal', 'Pinata' (Small Seed), 'RWM 8036', 'Starbrite', 'WX-8', and 'WX-24'. Almost all cultivars produced more than 2,000 fruit per acre. The cultivar 'Fiesta' produced the highest number of fruit per acre, 3,267, followed by 'Stars-N-Stripes' with 3,104.

Hollow heart is a fruit quality defect that was found in all but four of the cultivars evaluated. The cultivars 'Festival' and 'WX-24' developed the most hollow heart with 50 percent or greater of their fruits exhibiting the symptoms; whereas, 'ACX 5451', 'Athens', 'Delta', and 'Sentinel' had no hollow heart. The LD ratio is the length-to-diameter ratio. Some of the cultivars with very elongated fruit included 'Corporal', 'Falcon', 'Festival', 'Stars-N-Stripes', 'Summer Flavor Var. 900', 'Summer Flavor Var. 910', 'WX-24', and 'XP 4525247'. Round or oblong included the cultivars 'Crimson Sweet' and 'Pinata' (Small Seeded). Soluble solids (sugars) in all cultivars were above 10.5. The cultivars with the high sugars were 'Delta' and 'Sentinel'. 'WX-24' had the thickest rind while the thinnest rind cultivar was 'XP 4525247'. The cultivars with the best flesh color (reddest) were 'Falcon', 'SWD 8307', and 'XP 4525247'. However, all interior flesh color had an acceptable red hue. A substantial number of the fruit from the cultivar 'Corporal' had a bottle-neck shape.

Those cultivars which were ready for harvest early (at least 70 percent of their fruit were removed during the first harvest) were 'Delta', 'Falcon', 'Festival', 'Fiesta', 'Lady', 'Mardi Gras'. 'Pinata' (Large Seed), 'Pinata' (Small Seed), 'Regency', 'Starbrite', 'WX-22', 'WX-24', and 'XP 4525247' (Table 3). A few cultivars produced more than 40 percent of their fruit at the second harvest; these were 'ACX 5411', 'ACX 5451', 'Athens', 'Crimson Sweet', 'Stargazer', 'Stars-N-Stripes', 'Summer Flavor Var. 900', 'SXW 5023', and 'SXW 5036'.

All cultivars produced most fruit (by weight and number) in the 16.0 to 24.0 pound category. Only a small percentage of harvested watermelons were in the less-than-eight-pound category. By weight, the largest percentage (more than 50 percent) of 16- to 24-pound fruit was produced by most all cultivars; and those that produced the largest percentage (more than 35 percent) of large fruit (24+) pounds were 'Corporal', 'Starbrite', and 'WX-24'.

Some of the best-yielding cultivars with excellent quality based on these test results are currently recommended for commercial production. They include the cultivars 'Fiesta', 'Mardi Gras', 'Starbrite', and 'Stars-N-Stripes'. Two of the promising cultivars in this test included 'Athens' and 'Summer Flavor Var. 800'. They had high yields, minimal or no hollow heart, and high sugar content. Other commercially recommended red-flesh seeded cultivars include 'Carnival', 'Early Jubilee', 'Regency', 'Royal Jubilee', 'Royal Majesty', 'Royal Star', 'Royal Sweet', 'Sangria', and 'Stargazer'.

TABLE 3. PERCENTAGE DIPLOID RED-FLESH WATERMELON HARVEST BY DATE OF HARVEST

Variety	——Harvest date——	
	July 10	July 25
ACX 5411	59	41
ACX 5451	53	47
Athens	58	42
Celebration	64	36
Corporal	69	31
Crimson Sweet	55	45
Delta (PS36594)	77	23
Dumara	69	31
Falcon	81	19
Festival	82	18
Fiesta	79	21
Lady	83	17
Mardi Gras	74	26
Pinata (Large Seed)	80	20
Pinata (Small Seed)	77	23
Regency	75	25
RWM 8036	66	34
Sentinel (PS36694)	69	31
Starbrite	71	29
Stargazer	54	46
Stars 'N Stripes	60	40
Summer Flavor Var. 800	68	32
Summer Flavor Var. 900	53	47
Summer Flavor Var. 910	65	35
SWD 8307	61	39
SXW 5023	57	43
SXW 5036	55	45
WX 8	65	35
WX 22	73	27
WX 24	77	23
WX 30	65	35
XP 4525247	73	27
Average	68	32

'Pinata' and 'Stargazer' Are Top Allsweet Watermelons

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

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 Lower Coastal Plain Research Center (LCPRC) in Camden, Alabama (Tables 1 and 2). Plants were grown on bare ground with a within row spacing of 10 feet. Overhead irrigation was used.

At GCREC, 500 pounds per acre of 4-12-12 was applied preplant on March 27. Fertilization consisted of 35 pounds per acre of ammonium nitrate on May 8 and May 30. Preemergence herbicides used were Curbit (at a rate of three pints per acre) on March 27. Bravo Weatherstick fungicide was applied weekly between April 26 and June 20 at a rate of two pints per acre.

At WREC, preplant fertilization consisted of an application of broiler litter (at a rate of one ton per acre) and 300 pounds per acre of 15-0-15 on March 23. Fertilization consisted of a single application of ammonium nitrate. Fifty pounds per acre of nitrogen, phosphorus and potassium were applied preplant on April 17 to meet soil test recommendations. Fertilization consisted of one application of ammonium nitrate at a rate of 200 pounds per acre on May 26. Fungicides used were Bravo 720 (at a rate of three pints per acre) on June 2; and Bravo Ultrex (at a rate of 2.8 pounds per acre) on June 16 and June 26.

Table 1. Ratings of 2001 Watermelon Variety Trials[1]

Location	GCREC	WREC	LCPRC
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 LCPRC, lime at the rate of one ton per acre and 13-13–13 fertilizer at the rate of 300 pounds per acre were applied preplant. Amonnium nitrate was side dressed at a rate of 40 pounds of nitrogen (N) per acre. Weeds were controlled by both chemical and mechanical means.

Watermelons were harvested on July 2 at GCREC, July 17 and July 26 at WREC, and September 6 at LCPRC. Watermelon fruits were graded as described in the *Water-*

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

Variety	Type[1]	Seed source	Fruit shape	Flesh color	Days to harvest	Disease claims[2]	Years evaluated
ACX 5411	AS	Sunseeds	Blocky	Red	–	–	01
Athens	AS	Sunseeds	Blocky	Red	-	-	00,01
Carnival	AS	Novartis	Blocky	Red	86	ANT,FW	97-01
Legacy	AS	Willhite	Elonageted	Red	-	-	01
Montreal	AS	Sunseeds	Elongated	Red	-	FW*	01
Pinata	AS	Willlhite	Oblong	Red	85	FW*	00,01
Starbrite	AS	Asgrow	Oblong	Red	85	FW*	97-01
Stargazer	AS	Asgrow	Elongated	Red	85	ANT*,FW*	98-01
SXW 5038	AS	Sunseeds	Oblong	Red	-	FW	01
SXW 5040	AS	Sunseeds	Blocky	Red	-	FW	01
Var#500	AS	A&C	Blocky	Red	88	-	97,01
Var#510	AS	A&C	Blocky	Red	84	-	96,97,01
WX8	AS	Willhite	Blocky	Red	-	-	00,01

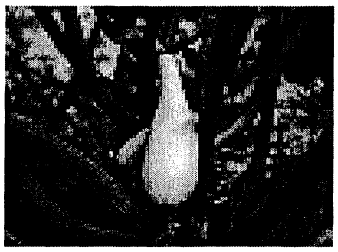
*Race 1 only. – = not available in seed catalogues. [1]Type: AS = Allsweet; [2]Disease claims: ANT = Anthracnose; FW = Fusarium Wilt.

TABLE 3. 2001 DIPLOID WATERMELON VARIETY TRIAL

Variety	Marketable yield *lbs/ac*	Marketable fruits *no/ac*	Soluble solids *°Brix*	Individual fruit wt. *lbs*	Hollow heart *in*
Gulf Coast Research and Extension Center					
Starbrite	43,697	•	10.8	•	4
Pinata	27,195	•	10.5	•	8
Stargazer	27,195	•	10.4	•	2
Legacy	26,104	•	10.3	•	1
Athens	25,475	•	11.6	•	0
WX8	25,179	•	11.3	•	3
Montreal	23,125	•	10.8	•	2
Var#510	18,704	•	9.8	•	5
ACX 5411	18,278	•	10.7	•	1
Var#500	13,783	•	9.7	•	4
SXW 5038	11,939	•	10.5	•	0
SXW 5040	9,352	•	9.6	•	0
r^2	***60***		***40***		
CV	***36***		***80***		
lsd	***15,826***		***1.65***		
Wiregrass Research and Extension Center					
Pinata	34,794	1,271	•	27	•
Athens	32,358	1,525	•	21	•
Stargazer	30,448	1,162	•	26	•
ACX5411	27,457	1,379	•	20	•
SXW5038	20,343	823	•	22	•
Legacy	19,769	1,162	•	19	•
Starbrite	19,486	1,234	•	14	•
WX8	14,977	871	•	17	•
Montreal	13,625	726	•	18	•
VAR510	11,030	726	•	15	•
SXW5040	9,017	726	•	12	•
VAR500	6,156	436	•	14	•
r^2	***0.46***	***0.42***			
CV	***26***	***43***			
lsd	***13,826***	***463***			
Lower Coastal Plain Research Center					
Montreal	51,583	1,845	10	28	0
Starbrite	51,465	2,080	11	25	2
Pinata	51,030	1,915	11	26	0
Legacy	49,738	1,739	12	29	0
Stargazer	41,760	1,645	11	25	2
Var510	41,466	1,868	10	22	0
Athens	37,295	1,434	11	26	0
Var500	35,039	1,340	11	26	3
WX8	34,005	1,269	12	26	0
SXW5038	25,627	1,069	11	24	0
SXW5040	24,804	999	11	24	1
ACX5411	24,311	1,093	10	22	0
r^2	***0.51***	***0.60***			
CV	***29***	***22***			
lsd	***25,410***	***748***			

melon Grader's Guide (Circular ANR-681 from the Alabama Cooperative Extension System) and marketable yield was determined. Other important factors measured were sweetness and hollow heart. Two representative watermelon samples from each plot were taken to measure soluble solids (sweetness) and hollow heart. Watermelons with soluble solids readings less than 10^0 Brix do not taste sweet. Hollow heart is the measure (in inches) of the fissure or space in the center of the watermelon upon lengthwise cutting. It is desirable to have no incidence of hollow heart.

Overall there were few differences among varieties (Table 3). 'Pinata' was among the top performers at all locations. At GCREC, 'Pinata' was similar to all but 'Starbrite', which had yields significantly higher than all other varieties. At 'WGREC', 'Pinata' had the highest yields but these yields were not significantly different from 'Athens', 'Stargazer' or 'ACX 5411'. At 'LCPRC', 'Pinata' was in the top three but there were few differences.



'Prelude II' and 'Destiny III' Outperformed by 'Zephyr'

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

A summer squash variety trial was conducted at the Brewton Experiment Field (BEF) in Brewton and the E.V. Smith Research Center (EVSRC) in Shorter (Tables 1 and 2).

Squash were direct seeded on bare ground into 30 foot-long plots at a within row spacing of one foot on April 30 at EVSRC and April 20 at BEF. Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Names of the chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Comercial Vegetable: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 00IPM-2 from the Alabama Cooperative Extension System).

At BEF, preplant fertilization consisted of 800 pounds per acreof 8-10-15 on April 9; fertilization consisted of weekly injections of calcium nitrate for a total of 60 pounds of N per acre. Fungicides were applied from May 22 through June 1.

At E.V. Smith, fertilization consisted of an application of calcium nitrate (15.5-0-0) and muriate 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 May 14 through June 21. Insecticides and fungicides were applied on May 21 through June 7.

Squash were harvested five times between June 13 and June 22. Squash were graded as marketable and nonmarketable 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).

Table 1. Ratings of 2001 Summer Squash Variety Trial[1]

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

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

The top performing variety was 'Zephyr' (Tables 3 and 4). 'Zephyr' is known for its nutty taste, and peculiar appearance (it has a green blossom end). In early yield 'Zephyr' was significantly higher than all other squash varieties at EVSRC, but its early yields were similar to 'Crescent', 'Prelude II', and 'Destiny III' at BEF. In total yield 'Zephyr' had significantly higher yields than the industry standards 'Prelude II' and 'Destiny III'. Individual fruit weight of 'Zephyr' was also significantly higher than all other varieties. 'Prelude II' and 'Destiny III' performed as well as the other varieties and had individual fruit weights similar to all other varieties with the exception of 'Crescent', which had an individual fruit weight significantly lower than other varieties.

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

Variety	Type[1]	Seed source	Days to harvest	Disease claims[2]	Years evaluated
Crescent	F1	Rogers	45	–	94,98,99,01
Destiny III*	F1	Asgrow	–	CMV,WMV,ZYMV	97-01
Midas	F1	Willhite	53	PM	99-01
Pic-N-Pic	–	Seedway	50	–	99-01
Prelude II	F1	Asgrow	40	PM,WMV,ZYMV	97-01
Sunbrite	F1	Rogers	43	–	95,98,99,01
Suwannee	F1	SunSeeds	41	–	00,01
Zephyr*	F1	Johnny's Select	54	–	99,01

* Precocious Variety; – = none in seed catalogues. [1] Type: F1=hybrid; OP=open pollinated.
[2] Disease claims: PM = Powdery Mildew; CMV= Cucumber Mosaic Virus; ZYMV = Zucchini Yellow Mosaic Virus; WMV = Watermelon Mosaic Virus.

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

Variety	Early marketable yield *lbs/ac*	US#1 *lbs/ac*	US#2 *lbs/ac*
E.V. Smith Research Center			
Zephyr	3,281	628	2,653
Crescent	2,427	666	1,762
Prelude II	2,413	1,510	903
Suwanne	2,174	866	1,308
Destiny III	2,022	1,206	816
Pic-N-Pic	1,999	776	1,223
Midas	1,855	842	1,013
Sunbrite	1,842	787	1,055
r²	***0.60***	***0.60***	***0.84***
CV	***17***	***54***	***21***
lsd	***551***	***423***	***408***

Variety	Early marketable yield *lbs/ac*	US#1 *lbs/ac*	US#2 *lbs/ac*
Brewton Experiment Field			
Crescent	2,889	2,153	736
Zephyr	2,635	1,700	935
Destiny III	2,599	1,747	852
Prelude II	2,229	1,639	591
Sunbrite	2,041	1,570	471
Suwannee	1,972	1,432	540
Pic-N-Pic	1,602	1,515	87
Midas	1,548	1,251	297
r²	***0.50***	***0.30***	***0.60***
CV	***26***	***28***	***46***
lsd	***838***	***661***	***377***

TABLE 4. TOTAL PRODUCTION AND GRADE DISTRIBUTION OF SELECTED SUMMER SQUASH VARIETIES GROWN AT BREWTON RESEARCH FIELD

Variety	Total marketable yield *lbs/ac*	US#1 *lbs/ac*	US#2 *lbs/ac*	Individual fruit wt. *lbs/ac*	Cull *lbs/ac*
E.V. Smoith Research Center					
Zephyr	8,817	1,892	6,925	0.16	•
PreludeII	7,796	4,204	3,592	0.12	•
DestinyIII	6,595	3,575	3,019	0.11	•
Crescent	6,433	1,581	4,852	0.08	•
Suwannee	6,112	2,272	3,840	0.09	•
Midas	6,040	2,168	3,872	0.13	•
Pic-N-Pic	6,011	1,895	4,116	0.09	•
Sunbrite	5,983	2,039	3,944	0.09	•
r²	***0.42***	***0.61***	***0.66***	***0.60***	
CV	***19***	***32***	***21***	***23***	
lsd	***861***	***522***	***606***	***0.04***	
Brewton Experiment Field					
PreludeII	6,666	4,832	1,834	0.24	1,929
Zephyr	6,300	4,528	1,773	0.33	2,962
Crescent	6,275	4,836	1,439	0.21	1,548
DestinyIII	6,126	4,531	1,595	0.23	1,718
Suwannee	5,825	3,959	1,867	0.23	1,156
Pic-N-Pic	5,456	4,520	935	0.20	1,446
Midas	5,198	3,803	1,396	0.25	1,084
Sunbrite	5,071	3,926	1,146	0.23	2,146
r²	***0.41***	***0.34***	***0.31***	***0.90***	
CV	***13***	***14***	***36***	***8***	
lsd	***1,073***	***896***	***780***	***0.02***	

• = culls not reported.

Seed Sources

Abbott and Cobb, Inc.
To order: (800)-345-SEED
In TX: (800) 227-8177
Tech Rep: Russ Becham
4517 Tillman Bluff Rd.
Valdosta, GA 31602
Fax: (912) 249-8135

Asgrow Seed Co.
To order: (800) 234-1056
Tech. Rep: Duaine E. Kief
412 Holly Hill Ct.
Tallahassee, FL 32312
Ph: (805) 570-1791
E-mail: duaine.kief@svseed.com

Tech Rep: Rusty Autry
2221 North Park Ave.
Tifton, GA 31796
Ph: (912) 392-0255

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

Ferry-Morse Seed Co.
To order: (608) 837-6574
P.O. Box 392
Sun Prairie, WI 53590
Ph: (608) 837-6574

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

Petoseed
To order: (850) 894-8026
Tech. Rep: Cameron Sutherland
6604 Tomy Lee
Tallahassee, FL 32308-1643
Ph: (850) 894-8036

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

Sunseeds
Bob Miller
3261 S. Horizon Place
Chandler, AZ 85248
Fax (480) 814-0982

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 29, 2002
Deadline for fall 2001 variety trial report submissions.

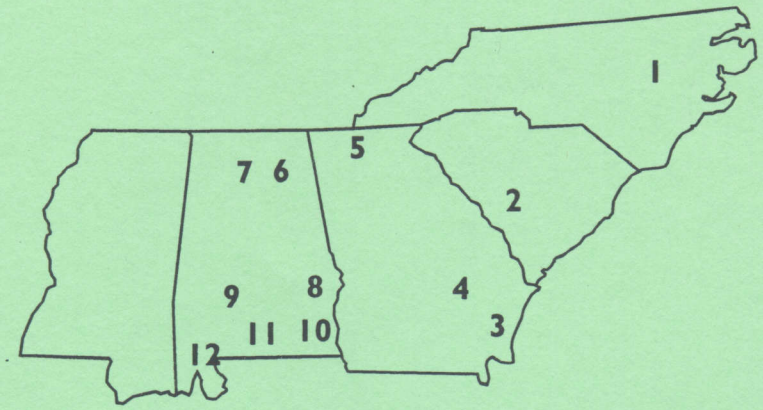
What: Results pertaining to variety evaluation in a broad sense. This includes field performance, quality evaluation, and disease resistance. Here are a few tips:

- 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
Auburn University, AL 36849-5408

Or send e-mail to:
evinson@acesag.auburn.edu, or
jkemble@acesag.auburn.edu



NORTH CAROLINA STATE UNIVERSITY

1 Central Crops Research Station, Clayton, NC

CLEMSON UNIVERSITY

2 Edisto Research and Education Center, Blackville, SC

THE UNIVERSITY OF GEORGIA

3 Vidalia Onion and Vegetable Research Center, Lyons, GA
4 On-farm location in Tattnall County, GA
5 Georgia Mountain Branch Experiment Station, Blairsville, GA

AUBURN UNIVERSITY AND ALABAMA A&M UNIVERSITY

6 Sand Mountain Research and Extension Center, Crossville, AL
7 North Alabama Horticulture Research Center, Cullman, AL
8 E.V. Smith Research Center, Shorter, AL
9 Lower Coastal Plain Research Center, Camden, AL
10 Wiregrass Research and Extension Center, Headland, AL
11 Brewton Experiment Field, Brewton, AL
12 Gulf Coast Research and Extension Center, Fairhope, AL