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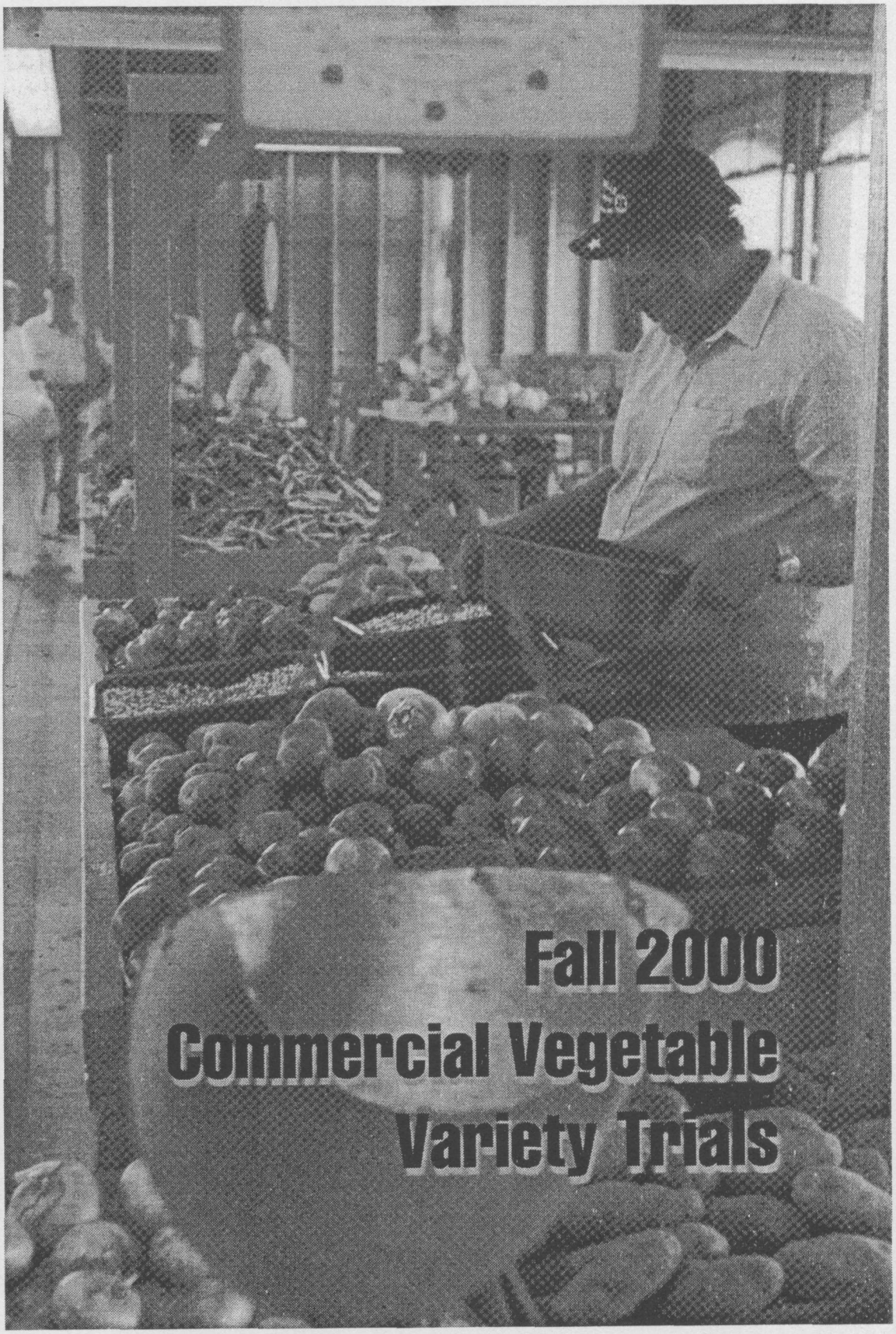

Fall 2000 Commercial Vegetable Variety Trials

Find this publication online at http://www.ag.auburn.edu/resinfo/vegetables/fall2000.pdf

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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.

Information contained herein is available to all persons without regard to race, color, sex, or national origin.

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Introduction: Tips for Interpreting Vegetable Variety Trial Results

Joe Kemble and Edgar Vinson

The fall 2000 variety trial regional bulletin includes results from Alabama (Auburn University), Mississippi State University and North Carolina State University. Trials conducted at various locations offer a wealth of information to growers, extension specialists, researchers, and seed companies. In addition, these trials provide information as to how well a particular variety is performing in several areas within the southern United States. The main purpose of vegetable variety evaluation, however, is to provide growers and seed retailers practical information on varieties and to assist them in selecting an appropriate variety. Here are a few tips for interpreting the results of vegetable variety performance.

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, however, 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 ranged 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 2000 Pumpkin trial at the North Alabama Horticulture Research Center, 'First Prize' yielded 39,938 pounds per acre, while 'Big Moon' and 'Jumpin' Jack' yielded 32,508 pounds per acre and 23,247 pounds per acre, respectively. Since there was less than a 10,197 pounds per acre (the lsd value for yield) difference between 'First Prize' and 'Big Moon', there is no statistical difference between the yields of these two varieties. However, the difference between 'First Prize' and 'Jumpin' Jack' was 16,691 pounds per acre, indicating that there is a real difference between the yields of 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. In the Fall 2000 Commercial Vegetable Varity Trials informa-

tion on soil type (Table 1), planting dates, fertilizer rates, and pest control procedures are provided. Variety trials were fertilized according to recommendations by the Auburn University Soil Testing Laboratory. The actual fertilizers and chemicals used are described only to provide detailed information about cultural practices employed.

Mention of fertilizers or chemical names represents neither a recommendation nor an endorsement of these products. A list of chemicals recommended for use in disease, insect, and weed control in vegetable production in Alabama may be found in the most recent copy of the Alabama Pest Management Handbook available through the Alabama Cooperative Extension System. Contact your county Extension office for a copy.

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.

Vegetable Variety Trial Information Available Online

Vegetable variety trial information can now be viewed on the web. Several practical features can be accessed: a list of vegetable crops, an explanation of the ratings system and database, a description of variety types and crops, as well as information on participating seed companies.

If there is a variety that could not be found in the AU variety trial reports, it might be found in the list of vegetable crops. This is long list that allows people to search by name, type, and source. The Auburn University Vegetable Variety Trial website can be found at **www.aces.edu/department/com_veg/esimonne.**

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 Research 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 Horticultural Station (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

Optimum Plant Density for 'Vivaldi' Bell Pepper on Plastic

Kent E. Cushman and Thomas E. Horgan

'Vivaldi' bell peppers were grown using four plant densities: 29,040, 14,520, 9,680, and 7,260 plants per acre. Marketable yields (number of fruit per acre and pounds per acre) were not significantly different for the three highest plant densities. Marketable yield of the lowest plant density (7,260 plants per acre), however, was significantly lower.

Plant density did not affect size of peppers (see table). The highest plant density of 29,040 plants per acre did not affect size of peppers even though it was expected that crowding would produce smaller peppers. The highest plant density did, however, produce significantly more cull peppers, and thus lower percent marketable yield, than the second highest density of 14,520. Many of these cull peppers were misshapen.

Results of this one-year experiment suggest that 9,680 plants per acre is the optimum plant density to maximize yield, minimize production costs, and maintain size.

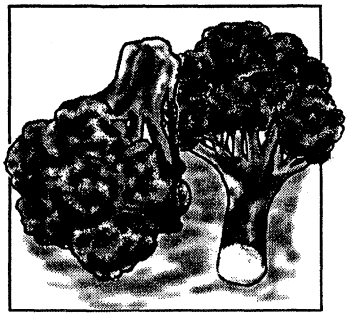
Transplants of 'Vivaldi' were grown in a greenhouse for 25 days and transplanted to the field by hand July 12, 2000. Raised beds were formed six inches high and 24 inches across the top with a press-pan-type bed shaper. Beds were spaced six feet apart, center-to-center. White-on-black plastic mulch and drip irrigation tubing was applied after bedding. Two rows of transplants, spaced 12 inches apart, were placed on each plant bed. The experiment was designed to compare four plant densities: 29,040, 14,520, 9,680 and 7,260 plants per acre. These densities are equivalent to in-row spacings of 0.5, 1.0, 1.5, and 2.0 ft between plants within each row.

The experimental design was a randomized complete block design with three replications. Methyl bromide fumigation was not used. No preplant fertilizers were applied. Peters 20:20:20 and $CaNO_3$ were applied during the experiment via the drip irrigation system to provide a total of 120 pounds N, 80 pounds P_2O_5 and 80 pounds K_2O per acre. Weekly irrigation was applied as needed. Pesticides were applied with a backpack-type mister on a seven- to 10-day schedule. The insecticides Asana XL at eight fluid ounces per acre (0.05 pound esfenvalerate per acre), Seven XLR Plus at 32 fluid ounces per acre (carbaryl) or Malathion 57 EC at 16 fluid ounces per acre (malathion) were sprayed as needed for insect control.

Peppers were harvested as soon as they reached marketable size or began to change color from green to red. Marketable peppers were separated from culls and then counted and weighed. Culls were recorded as number of sunscald, small, misshapen, and damaged fruit. A total of four harvests began Sepember 5 and ended October 4.

BELL PEPPER MARKETABLE YIELD AND SIZE

Density	Marketable yield	—Avg. weight—		
plants/ac	*no of fruit/ac*	*lbs/ac*	*%*	*oz*
29,040	118,400	41,760	77	5.7
14,520	118,600	41,020	85	5.5
9,680	109,700	38,400	84	5.6
7,260	90,500	31,300	84	5.6
lsd (.05)	***10,100***	***3,800***	***7***	***ns***



'Nomad' Tops 'Packman' for a Second Year

Joe Kemble, Edgar Vinson, Larry Wells, and Brian Gamble

A broccoli variety trial was conducted using plastic mulch and drip irrigation at the Wiregrass Research and Extension Center (Tables 1 and 2). Broccoli was transplanted in staggered double rows on September 18. Plants were established at a one foot in-row spacing, which created a stand of approximately 17,400 plants per acre.

Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Plants received seven pounds N per acre by alternate injections of $Ca(NO_3)_2$ solution (9-0-0-11) and 20-10-20. Injections were made between September 18 and November 27. Insect control consisted of weekly applications of Dipel (two pints per acre) from September 18 through November 10, and one application of Asana XL (9.6 ounces per acre) on September 18.

Heads were harvested when they reached six inches in diameter. Plants were harvested twice a week as needed between November 12 and December 12. Marketable weight (in numbers of 23-pound cartons) and corresponding number of heads were recorded (Table 3).

Broccoli varieties 'Nomad', 'Liberty', and 'Laguna' performed better than the standard variety 'Packman'. Varieties that performed as well as 'Packman' included 'Montecristo' and 'Decathlon'.

TABLE 3. YIELD OF SELECTED BROCCOLI VARIETIES

Variety	Marketable 23-lb cart *no/ac*	Marketable yield *lbs/ac*	Marketable heads[1] *no/ac*
Liberty	485	11,165	19,720
Nomad	430	9,889	18,415
Laguna	395	9,077	22,910
Packman	378	8,700	21,315
Decathlon	345	7,946	20,300
Montecristo	330	7,598	16,675
R^2		***0.50***	***0.40***
CV		***16***	***16***
lsd		***2,163***	***4,634***

TABLE 1. RATINGS OF THE 2000 BROCCOLI VARIETY TRIALS[1]

Location	WREC
Weather	3
Fertility	5
Irrigation	5
Pests	5
Overall	4

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

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

Variety	Type [1]	Seed source	Earliness	Disease claims [2]
Decathlon	F1	Sakata	86	DM
Laguna	F1	Novartis	88	DM
Liberty	F1	Petoseed	—	—
Montecristo	F1	Takii	—	—
Nomad	F1	Sakata	68	DM
Packman	F1	Petoseed /Stokes	78	—

[1] Type: F1=hybrid. [2] Disease claims: DM=Downy Mildew. — = not available from seed catalogues.

NOTE: Mention of fertilizers or chemical names represents neither a recommendation nor an endorsement of these products. A list of chemicals recommended for use in disease, insect, and weed control in vegetable production in Alabama may be found in the most recent copy of the Alabama Pest Management Handbook available through the Alabama Cooperative Extension System. Contact your county Extension office for a copy.

Cabbage Yields are Lower this Season

Joe Kemble, Edgar Vinson, Larry Wells, and Brian Gamble

Cabbage variety trials were conducted at the Wiregrass Research and Extension Center (WREC) in Headland (Tables 1 and 2). Eight-week-old transplants were planted onto 20-foot long double row plots on September 14. Within row spacing was one foot, which created a stand of 17,400 plants per acre.

Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Preplant fertilizers 13-13-13 (at a rate of 500 pounds per acre) and broiler litter (at a rate of two tons per acre) were applied on August 31. After planting, fertilization consisted of seven pounds per acre of N as potassium nitrate injected weekly between September 14 and October 15. Asana XL insecticide at a rate of nine ounces per acre and Bravo 720 fugicide at a rate of three pints per acre were applied on September 23, September 25, and October 2.

TABLE 1. RATINGS OF THE 2000 CABBAGE VARIETY TRIALS[1]

Location	WGREC
Weather	3
Fertility	5
Irrigation	5
Pests	5
Overall	4

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

Cabbage heads were harvested when they reached marketable size and graded according to United States Standards for Grades of Cabbage (U.S. Department of Agriculture 46 FR 63203). Harvest dates were November 18, November 21, and December 1.

Cabbage yields were lower this season compared to last season. This is probably due to drought conditions. The Wiregrass area was among the most adversely affected in the state. There were little differences among varieties (Table 3). The Experimental variety 'SVR 521015' performed as well as the other well-known cabbage varieties. 'Red Dynasty' produced yields significantly lower than other cabbage varieties.

TABLE 2. SEED SOURCE, EARLINESS, AND DISEASE RESISTANCE/TOLERANCE OF SELECTED HEAD CABBAGE VARIETIES

Variety	Type[1]	Head color	Seed source	Days to harvest	Disease resistance/tolerance[2]
Blue Dynasty	F1	Green	Asgrow	75	BR, FY
Blue Thunder	F1	Green	Harris Seeds	80	BR, FY
Cheers	F1	Green	Takii	84	BR, FY, Thrips
Izalco	F1	Green	Novartis	105	BLS, BR, FY
Pennant	F1	Green	Novartis	88	FY, TB
Red Dynasty	F1	Red	Asgrow	70	BR
SVR 521015	F1	Green	Asgrow	—	—

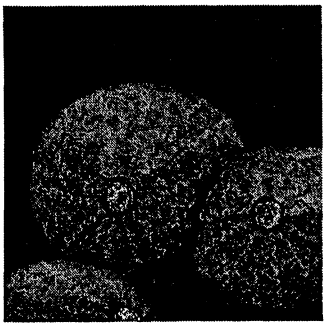
[1] Type: F1=hybrid

[2] Disease resistance/tolerance: FY=Fusarium Yellows; BR=black rot; BLS=Bacterial Leaf Spot; TB=tip burn. — = not available from seed catalogues.

TABLE 3. PERFORMANCE OF SELECTED CABBAGE VARIETIES

Variety	Marketable 50-lb cart *no/ac*	Marketable yield *lbs/ac*	Marketable heads *no/ac*
Blue Thunder	364	18,183	7,540
SVR 521015	323	16,153	5,945
Cheers	260	13,021	5,510
Izalco	235	11,745	5,365
Blue Dynasty	213	10,672	4,495
Red Dynasty	68	3,393	1,595
R^2		***0.40***	
CV		***55***	
lsd		***9,979***	

NOTE: Mention of fertilizers or chemical names represents neither a recommendation nor an endorsement of these products. A list of chemicals recommended for use in disease, insect, and weed control in vegetable production in Alabama may be found in the most recent copy of the Alabama Pest Management Handbook available through the Alabama Cooperative Extension System. Contact your county Extension office for a copy.



'SMX 7204' Challenges 'Athena' in the Eastern Melon Category

Joe Kemble, Edgar Vinson, and Jason Burkett

A small melon (cantaloupe and honey dew) variety trial was conducted at the E.V. Smith Research Center (EVSRC) in Shorter (Tables 1 and 2).

Preplant fertilization consisted of calcium nitrate (15.5-0-0) and muriate of potash (0-0-60) at a rate of 400 and 200 pounds per acre respectively, on March 23. Melons were direct seeded on April 27. Fertilization consisted of alternate, weekly injections of calcium nitrate (9-0-11) and 20-20-20 from May 9 through June 20. Insects were controlled through applications of Endosulfan (2.5 pints per acre), Thiodan (2.5 pints per acre), and Asana (9.6 ounces per acre). Fungicides applied were Manes (1.6 quarts per acre), Benlate 50 WP (one pound per acre), and Terranil 6L (two pints per acre).

Melons were harvested twice weekly from July 7 through July 26. On four representative melons of each variety, soluble solid content was determined with a hand held refractomer. Soluble-solid content is a practical measure of sweetness. Honey dew melons are harvested at the immature state and become sweeter during storage. Therefore sugar content at harvest is not a good indicator of sweetness at maturity.

TABLE 1. RATINGS OF THE 2000 SMALL MELON VARIETY TRIALS[1]

Location	EVSRC
Weather	4
Fertility	5
Irrigation	5
Pests	5
Overall	5

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

TABLE 2. SEED SOURCE, FRUIT CHARACTERISTICS, RELATIVE EARLINESS, AND DISEASE CLAIMS OF SELECTED VARIETIES OF SMALL MELONS

Variety	Type	Seed source	Rind aspect[1]	Flesh color[2]	Days to harvest	Disease claims[3]	Years evaluated
Athena	F1	Novartis	E	O	80	FW,PM	94-00
ATX-542 (Honey Ace)	F1	Takii	HD	G	—	—	00
Classic	F1	Petoseed	E	S	86	—	00
Earli-Dew	F1	Petoseed	Sm	Gr	80	FW	95-00
Eclipse	F1	SeedWay/Petoseed	E	O	85	FW,PM	96-00
HD-85	F1	Takii	HD	G	—	—	00
Honey Brew	F1	Sakata	HD	G	105	FW,PM	00
HY-Mark	F1	Petoseed	W	O	83	PM,Su	94-00
Primo	F1	Novartis	W	O	77	FW,PM	00
Rocio	F1	Sunseed	HD	G	85	FW,PM	00
SMX 7204	F1	Sunseed	E	O	—	FW,PM	00

[1] Rind aspect: E = eastern; W = western ; HD = Honey dew ; Sp = Specialty.
[2] Flesh color: O = Orange; Gr = Green; S = Salmon; Y = Yellow;Wh=White.
[3] Disease claims: FW = Fusarium Wilt; PM = Powdery Mildew; ANT = Anthracnose; DM = Downy Mildew, Su = Sulfur.
— = not found from seed catalogues.

In the eastern melon category, there were very few differences among varieties (Table 3). The experimental variety 'SMX 7204' performed as well as 'Athena', the market standard as did 'Eclipse' and 'Durango'. 'Classic' did not perform as well as the other eastern melon types.

In the honey dew melon category 'HD542' performed as well as 'Early Brew', 'Honey Dew', and 'Creme de Menthe'. The other experimental variety 'HD85' along with 'Early Dew' produced yields that were significantly lower than the other melons.

TABLE 3. YIELD OF SELECTED SMALL MELON VARIETIES

Variety	Type[1]	Marketable yield *lbs/ac*	Marketable fruits *no/ac*	Individual fruit weight *lbs*	Soluble solids *(Brix)*
SMX 7204	E	50,292	9,353	5.4	13.0
Athena	E	45,760	8,700	5.2	12.7
Eclipse	E	44,685	7,830	5.7	12.3
Durango	E	39,419	9,208	4.4	—
Classic	E	19,532	3,915	5.3	11.5
Edonis	Sp	9,229	2,828	3.2	
Creme De Menthe	H	68,562	10,585	6.5	12.3
HD542	H	61,694	9,353	6.6	13.5
Early Brew	H	57,214	9,353	6.2	14.3
Rocio	H	54,771	10,368	5.4	12.8
Honey Brew	H	49,187	8,338	6.0	15.0
Earli Dew	H	36,990	8,555	4.3	13.0
HD-85	H	35,512	4,640	8.4	14.0
Hy-Mark	W	32,516	8,265	4.0	12.5
Primo	W	3,545	725	4.9	12.0
R^2		***0.72***	***0.70***		
CV		***32***	***29***		
lsd		***18,292***	***3,078***		

[1] Type: E = eastern melon; W = western melon; HD = honey dew melon; Sp = Specialty melon.

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2000 Pimento Pepper Cultivar Evalution

Carl Cantaluppi

This study was undertaken to evaluate pimento pepper varieties that would be suitable to be grown in the Piedmont of North Carolina and processed by a local pimento cheese spread manufacturer.

Seed for the trail was donated by Jeffreys Seed Company and Johnny's Selected Seeds, Inc. Transplants were grown by Aarons Creek Greenhouses, Buffalo Junction, VA.

Pepper transplants were planted on May 11, 2000 at the Willie Brooks Farm in Timberlake (Person County), North Carolina. The experimental design consisted of a randomized complete block design with four pepper cultivars replicated four times.

Twelve plants per plot were staggered in a double row, spaced two feet between plants and two feet between the staggered row for a total of a 12 foot long row. Transplants were planted through black plastic mulch and trickle irrigation. The row was bedded up to a height of eight inches before plastic and trickle were laid down during the fall of 1999.

YIELD OF PIMENTO PEPPERS IN PERSON COUNTY, NC

Cultivar	Marketable yield[1]	Fruit *no/lb*	Culls[2] *lbs./ac*
Antohi Romanian	17,747 a[3]	6.2 c	570 b
Lipstick	14,582 ab	8.6 b	688 b
Apple	11,596 b	9.7 a	3,451 a
Pimento	11,181 b	6.0 c	780 b

[1]Yield is in pounds per acre.
[2]Culls were fruit defects due to a combination of sunscald and anthracnose.
[3]Means with the same letter within columns are not statistically significant, Duncan's Multiple Range Test, .05 level.

Fertilizer was added to the beds and incorporated on the basis of soil test recommendations for strawberries during the fall of 1999. No additional fertilizer was added during the 2000 growing season. Plots were drip irrigated throughout the season.

'Antohi Romanian' was the top yielder with the fruit turning pale yellow in 57 days and orange-red to red in 77 days. Fruits are very large and smooth, four inches long, two inches wide, tapered and pointed, with a 0.25 inch wall thickness.

'Lipstick' stayed green for 57 days, turning to red ripe in 77 days. Fruits are about four inches long and taper to a blunt point, with a 0.25 inch wall thickness.

'Apple' stayed green for 57 days, turning to red ripe in 77 days. Fruits are round and heart-shaped, three to four inches long. A larger percentage of culls were noticed with this cultivar. Apple had the thickest walls of all the cultivars: 5/16 inch.

'Pimento' stayed green for 70 days, turning to red ripe in 90 days. This was the latest cultivar to mature in the trial. These round 0.25 inch thick-walled fruits yielded the least but were among the largest fruits.

The local processor liked the 'Antohi Romanian' because it retained its original color the best after it was processed. Flavor among all varieties was similar.

Hot Pepper Trials in Central Alabama

Joe Kemble, Edgar Vinson, Jason Burkett, and Jim Pitts

Hot pepper varieties trials were conducted at the E.V. Smith Research Center (EVSRC) in Shorter and the Chilton Area Horticulture Station (CAHS) in Clanton (Tables 1 and 2).

At both locations hot peppers were planted in four-foot-long, double row plots with a within-row spacing of 12 inches. Plants were grown on plastic mulch with drip irrigation. White plastic was used at EVSRC and black plastic was used at CAHS. Peppers were transplanted on June 8 at EVSRC and April 27 at CAHS.

At EVSRC, beds were fumigated with 400 pounds per acre of Pic Brom 25 on April 8. Preplant fertilizer was 15.5-0-0 calcium nitrate at a rate of 387 pounds per acre on March 24. Fertilization consisted of weekly, alternate injections of 9-0-0-11 and 20-20-20 at a rate of 3.5 pounds per acre. Pest control consisted of applications of Manex (at a rate of 1.6 quarts per acre) on June 10, June 29, July 3, July 9, July 17, and July 24; Dipel 4L (at a rate of two pints per acre) on June 29 and July 24; Endosulfan (at a rate of 2.5 pints per acre) on June 10 and July 23; and Endosulfan (at a rate of two pints per acre) on June 7.

Table 1. Ratings of 2000 Hot Pepper Variety Trial[1]

Location	EVSRC	CAHS
Weather	4	5
Fertility	5	5
Irrigation	5	5
Pests	4	5
Overall	4	4

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

At CAHS, fertilization consisted of a pre-plant application of 50 pounds of N per acre as 13-13-13. After planting, six pounds of N per acre were injected weekly as calcium nitrate [$Ca(NO_3)_2$] beginning April 25, and ending August 18. Insect control was provided by applications

Table 2. Seed Source, Fruit Characteristics, Relative Earliness, and Disease Claims of Selected Hot Pepper Varieties

Variety	Type[1]	Classification	Seed source	Days to harvest	Pod shape	Color[2]	RSR[3]	Disease claims[4]
Mexheim	F1	Anaheim	Rupp seed	68	Tapered end	G-R	—	—
Mitla	F1	Jalapeno	Petoseed	74	Bullet-Shaped	G-R	4,000-5,000	—
Papri King	OP	Paprika	Petoseed	100	Flat-tapered	G-R	500-1,000	—
Passilla Bajio	OP	Cayenne	Petoseed	77	Long; 2-celled	G-Br	100-250	TbMV
Super Cayenne II	F1	Cayenne	Petoseed	67	Tapered blunt point	G-R	—	—
Tampico Fiesta	F1	Serrano	Asgrow	72	Tapered end	G-R	—	—
Thai Dragon	F1	Thai	Burpee	70	Tapered end	G-R	—	—
X3R Hot Spot	F1	Banana	Petoseed	72	Tapered end	G-R	—	BLS 1,2,3

[1] Type: F1=hybrid; OP = open pollinated.
[2] Color: Gr = Green; R = Red; Br = Brown.
[3] RSR = Relative Scoville Rating; the higher the rating, the hotter the variety.
[4] Disease claims: TbMV = Tobacco Mosaic Virus; BLS = Bacterial Leaf Spot.
— = not available from seed catalogues.

of Spintor at a rate of four ounces per acre. Fungicides used were Kocide, at a rate of two pounds per acre, and Maneb (at a rate of 1.5 pounds per acre). Insect and fungi control were administered on May 17, May 24, May 31, June 7, June 14, and June 21.

TABLE 3. 2000 HOT PEPPER VARIETY TRIAL

Variety	Type	Marketable yield *lbs/ac*	100-pod weight *lbs*
Chilton Area Research and Extension Center			
Super Cayenne II	Cayenne	40,875	2.0
Thai Dragon	Cayenne	37,752	0.5
Papri Ace	Paprika	22,135	2.0
Papri King	Paprika	3,722	1.0
Tampico Fiesto	Serrano	52,215	2.0
X3R Hot Spot	Banana	33,344	2.0
Mexheim	Anaheim	16,835	0.5
R^2		***0.70***	
CV		***40***	
lsd		***11,401***	
E.V. Smith Research Center			
Tai Dragon	Cayenne	18,633	—
Super Cayenne II	Cayenne	1,235	—
Tampico Fiesta	Serrano	6,689	—
Papri Ace	Paprika	1,780	—
Mexheim	Anaheim	1,364	—
X3R Hot Spot	Banana	1,287	—
R^2		***0.20***	
CV		***30***	
lsd		***13,080***	

Peppers were harvested July 17, July 19, August 1, August 15, and August 23 at EVSRC and July 7, July 27, August 8, August 22, and September 15 at CAHS. The weight of 100 pods was also determined (Table 3).

NOTE: Mention of fertilizers or chemical names represents neither a recommendation nor an endorsement of these products. A list of chemicals recommended for use in disease, insect, and weed control in vegetable production in Alabama may be found in the most recent copy of the Alabama Pest Management Handbook available through the Alabama Cooperative Extension System. Contact your county Extension office for a copy.

Plant Density Affects 'per plant' Pumpkin Yield, not 'per acre' Yield

Kent Cushman, Thomas Horgan, David Nagel, Muhammad Maqbool, and Pat D. Gerard

'Aspen' and 'Howden Biggie' were grown using four plant densities. Overall, increasing plant density affected both cultivars by significantly decreasing number of pumpkins per plant and decreasing average pumpkin weight (pounds per pumpkin) (Tables 1 and 2). With only one exception, plant density appeared to have no affect on yield (pounds per acre and pumpkins per acre) or average pumpkin size (cubic inches per pumpkin). The exception was with 'Howden Biggie.' There was a significant linear relationship between increasing plant density and decreasing yield (pumpkins per acre). There was also a significant quadratic effect for 'Howden Biggie' yield (pumpkins per acre) with maximum yield occurring at 908 plants per acre.

Four 'Aspen' plant densities were tested: 3,068, 2,045, 1,361, and 908 plants per acre. These plant densities are equivalent to approximately 14, 21, 32, and 48 square feet per plant, respectively. In a separate experiment, four 'Howden Biggie' plant densities were also tested: 2,045, 1,361, 908, and 605 plants per acre. These plant densities are equivalent to approximately 21, 32, 48, and 72 square feet per plant, respectively. 'Howden Biggie' produces a more vigorous vine than 'Aspen' and therefore plant density treatments were adjusted accordingly.

The study was planted at the North Mississippi Research & Extension Center in Verona during the summer of 2000. Plant beds were formed six inches high and 30 inches across the top with a press-pan-type bed shaper. Beds were spaced eight feet apart, center-to-center, with a 20-foot wide drive row located between each set of three rows. Preplant fertilizer was placed in the plant bed during bed formation at the rate of 90 pounds of N, 170

TABLE 1. MARKETABLE YIELD AND SIZE OF 'ASPEN'

Plant density		Total yield			Avg. weight	Size
plants/ac	*ft²/plant*	*lbs/ac*	*pumpkins/ac*	*pumpkins/plant*	*lbs/pumpkin*	*in³/pumpkin*
3,068	14.2	41,900	3,490	1.1	12.0	660
2,045	21.3	51,700	3,920	1.9	13.2	770
1,361	32.0	45,400	3540	2.6	12.8	730
908	48.0	42,500	3,050	3.4	13.9	770
Significance[1]		***ns***	***ns***	***L******	***L****	***ns***

[1] Regression model contained significant linear (L) term. Not significant (ns) or significance at P=0.05 (*) or 0.001 (***).

TABLE 2. MARKETABLE YIELD AND SIZE OF 'HOWDEN BIGGIE'

Plant density		Total yield			Avg. weight	Size
plants/ac	*ft²/plant*	*lbs/ac*	*pumpkins/ac*	*pumpkins/plant*	*lbs/pumpkin*	*in³/pumpkin*
2,045	21.3	12,400	870	0.4	14.3	860
1,361	32.0	24,900	1,580	1.2	15.7	910
908	48.0	27,300	1,800	2.0	15.2	860
605	72.0	24,500	1,310	2.2	19.0	1,060
Significance[1]		***ns***	***L*Q****	***L****	***L****	***ns***

[1] Regression model contained significant linear (L) and quadratic (Q) terms. Not significant (ns) or significance at P=0.05 (*) or 0.01 (**).

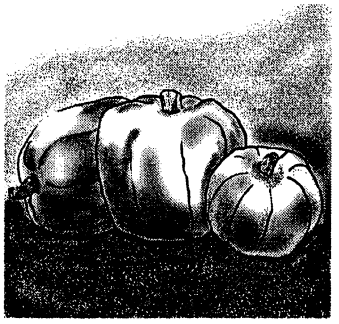
pounds of P_2O_5, and 220 pounds of K_2O per acre. Drip tape, rated at 0.5 gallon per minute per 100 feet at 10 pounds per square inch, was applied one to two inches deep just off center in the top of the bed. Plastic mulch was not used.

Both cultivars were direct seeded by hand on July 7, 2000. Each hill was planted with two or three seeds. Germination was good to excellent, and hills were thinned by hand to one plant per hill one to two weeks after emergence. Few hills experienced poor germination but those that did were replanted with plants grown in the greenhouse for this purpose. After establishing the plantings, plant stand for both cultivars was excellent.

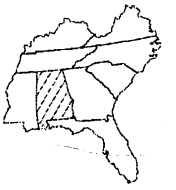
Command (clomazone) herbicide was applied immediately after seeding. Within one week of application, a one-inch rain effectively incorporated the herbicide. Effects of the herbicide were evident on many of the pumpkin seedlings after emergence. Many seedlings exhibited white, bleached seed leaves (cotyledons). Some seedlings also exhibited bleaching of the first true leaves. All seedlings, however, eventually grew out of the Command injury and produced green, healthy plants.

Asana XL (esfenvalerate), Pounce 3.2EC (permethin), Thiodan EC (endosulfan), or Sevin 80S (WP) (carbaryl) were mixed with Bravo WS or Quadris and sprayed on a seven- to 10-day schedule for insect and disease control. Water or fertilizer solution was applied through the drip tape to supply at least one acre-inch of irrigation per week. Soluble fertilizer was applied by injecting a concentrated solution of NH_4NO_3 or $CaNO_3$ when vines began to run. Soluble fertilizer supplied an additional 55 pounds of N per acre.

Harvest began August 26 and ended September 15. A total area of 200 square feet (10 feet wide and 20 feet long) was harvested from the center of each plot. Each pumpkin was weighed and measured for height and width. For both cultivars, only pumpkins greater than five pounds were used in the analyses.



Pumpkin Trials Hampered by Drought



Joe Kemble, Edgar Vinson, Ronald McDaniel, Malcomb Pegues, Arnold Caylor, and Tony Dawkins

Pumpkin variety trials were conducted at the Horticulture units of the Gulf Coast Research and Extension Center (GCREC) in Fairhope, the North Alabama Horticulture Research Center (NAHRC) in Cullman, and the Sand Mountain Research and Extension Center (SMREC) in Crossville (Tables 1 and 2).

Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Planting dates were July 10 at GCREC, July 2 at NAHRC, and July 6 at SMREC. Pumpkins were direct seed in hills on rows that were 60 feet long. There was a five-foot spacing between hills.

TABLE 2. SEED SOURCE, RELATIVE EARLINESS, AND FRUIT SIZE OF SELECTED PUMPKIN VARIETIES

Variety	Type[1]	Seed source	Maturity *days*	Fruit weight *lbs/ac*
Ambercup	F1	Rupp Seeds	100	2-3
Appalachian	F1	Petoseed	90	20-25
Autumn King	F1	Novartis	95	2-3
Baby Bear	OP	Rupp Seeds	105	1-2
Big Moon	—	Novartis	120	40+
First Prize	F1	Rupp Seeds	100	50+
Gold Rush	OP	Rupp Seeds	120	30-40
Gold Strike	F1	Rupp Seeds	110	25-40
Howden	OP	Harris Moran	100	15-20
Howdy Doody	—	Rupp Seeds	—	—
Jack-Be-Quick	—	Rupp Seeds	95	0.25
Little October	—	Rupp Seeds	—	—
Old Zebs	—	Rupp Seeds	—	—
Orange Dawn	—	Rupp Seeds	—	—
Pik-A-Pie	F1	Rupp Seeds	85	4-5
Spooktacular	F1	Petoseed	85	3-5
Sweet Dumpling	OP	Rupp Seeds	100	1
Sweetie Pie	OP	Stokes	110	0.25
Touch of Autumn	—	Novartis	95	2-3
Trickster	F1	Seneca	90	3-4
Wee-Be-Little	F1	Novartis	110	0.25

[1] Type: F1=hybrid; OP=open pollinated.
— = not available from seed catalogues.

TABLE 1. RATINGS OF 2000 PUMPKIN VARIETY TRIALS[1]

Location	GCREC	NAHRC	SMREC
Weather	3	4	4
Fertility	5	5	5
Irrigation	5	5	5
Pests	5	5	5
Overall	4	5	5

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

At GCREC, pumpkin beds were made and 10-10-10 (at a rate of 500 pounds per acre) was applied preplant on July 7. Plots received no other fertilization. Insect control was provided by applications of the following: Asanna (at a rate of eight ounces per acre) on August 21 and 30; Pounce (at a rate of two ounces per 10 gallons) on August 8; and Thiodan (at a rate of 1.33 quarts per acre). Fungi were controlled with applications of Bravo (at a rate of 1.5 pints per acre) on August 14 and weekly applications of Benlate (at a rate of 0.5 pounds per acre) from August 14 through September 30. Weed control consisted one application of Curbit (at a rate of two quarts per acre) on July 10.

At NAHRC, fertilization consisted of weekly applications through the drip irrigation system of ammonium nitrate (at a rate of 15 pounds per acre) from July 7 through August 21. The herbicides Command and Gramoxone were applied on July 12 at rates of two pints per acre and three pints per acre, respectively. Insect control consisted of applications of Ambush (at a rate of 12 ounces per acre) on July 17 and 24; and Asana XL (at a rate of 9.6 ounces per acre) on August 4, August 18, August 31, September 4, and September 18. Fungicides used were Bravo (at a rate of 32 ounces per acre) on July 17 and 24; Bravo/Ridomil (at rate of one pound per acre) on August 8 and August 15; Bravo-Ultrex (at a rate of 2.5 pounds per acre) on August 24, September 4, and September 11;

Bayleton (at a rate of four ounces per acre) on July 17, August 4, September 4, and Sepetember 11; and Belate (at a rate of eight ounces per acre) on July 21 and September 11.

Preplant fertilization at SMREC consisted of one application of 5-10-15 (at a rate of 1000 pounds per acre) on July 19. Post planting fertilization consisted of 200 pounds per acre of calcium nitrate applied on August 18. Insect control consisted of applications of Asana (at a rate of eight ounces per acre) on August 19 and September 8; Seven (at a rate of one quart per acre) on August 13; and Dipel (at a rate of one quart per acre) on August 14. Fungi were controlled with applications of Benlate (at a rate of 0.5 pound per acre) on August 14, September 4 September 11, and September 18; and Bravo (at a rate of two pints per acre) on September 4 and 11.

Harvest dates were September 15 at GCREC, September 28 at NAHRC, and October 9 at SMREC. Because color development stops after harvest, pumpkins were harvested at the full-color stage and graded as marketable or non marketable (Table 3).

Pumpkin trials were also conducted at the Wiregrass Research and Extension Center in Headland and the E.V. Smith Research Center

TABLE 3. TOTAL PRODUCTION AND GRADE DISTRIBUTION OF SELECTED PUMPKIN VARIETIES

Variety	Total US #1 weight *lbs/ac*	Total US #1 number *no/ac*	Cull weight *no/ac*	Individual fruit weight *lbs/ac*
Gulf Coast Research and Extension Center				
Appalachian	5,231	761	2,447	8
Howdy Doody	2,550	471	779	7
Autumn King	2,496	399	643	8
Gold Strike	846	109	503	8
Orange Dawn	4,403	2,646	866	2
Old Zebs	2,862	544	1,682	5
Touch of Autumn	2,220	2,066	799	1
R^2	***0.54***	***0.78***	***0.50***	***0.55***
CV	***9***	***55***	***66***	***53***
lsd	***2,102***	***809***	***1,080***	***5.5***
North Alabama Horticulture Research and Extension Center				
First Prize	39,938	1,332	•	30
Big Moon	32,508	1,221	•	26
Autumn King	31,940	1,795	•	17
Jumpin' Jack	23,247	1,832	•	13
Appalachian	23,033	1,832	•	13
Howdy Doody	21,164	1,906	•	11
Gold Strike	19,958	1,443	•	14
Old Zebs	17,817	1,499	•	12
Gold Rush	17,512	1,018	•	17
Howden	13,808	1,147	•	13
Orange Dawn	13,394	5,772	•	2
Touch of Autumn	12,349	5,791	•	2
R^2	***0.64***	***0.92***		***0.90***
CV	***32***	***25***		***21***
lsd	***10,197***	***780***		***4***
Sand Mountain Research and Extension Center				
Trickster	10,270	5,256	0	1.97
Spookatacular	10,175	4,821	0	2.14
Amber Cup	10,172	5,220	0	1.94
Little October	7,004	10,875	0	0.64
Pick-A-Pie	6,565	2,103	0	3.21
Jack-Bee-Quick	5,184	13,413	0	0.39
Baby Bear	5,024	3,770	0	1.33
Sweet Dumpling	4,172	5,438	105	0.77
Sweetie Pie	3,988	10,549	0	0.38
Wee-Bee-Little	2,240	2,320	0	0.88
R^2		***0.84***	***0.92***	***0.94***
CV		***21***	***20***	***20***
lsd		***1,989***	***1,824***	***0.38***

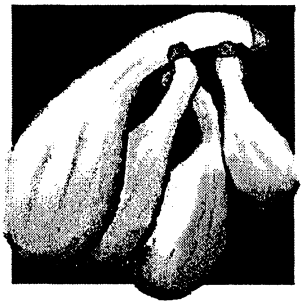
• = data not collected.

in Shorter. Despite diligent irrigation practices, the trials were overcome by drought conditions that plagued much of the South.

Overall, pumpkins from comparable weight classes produced higher yields at NAHRC than at GCREC. This was probably due to more severe drought conditions at GCREC. Higher night temperatures also caused lower pumpkin yields as was the case in the fall 1999 pumpkin trial. 'Appalachian', for example, had an average weight of eight pounds at GCREC, well below the expected 20-25 pound range (Tables 2 and 3). At NAHRC, 'Appalachian' had a higher fruit weight of 13 pounds—still seven pounds below the expected range. At GCREC, 'Appalachian' produced yields significantly higher than 'Gold Strike' and 'Howdy Doody' while at NAHRC 'Gold Strike', 'Howdy Doody', and 'Howden' (an old favorite) performed just as well as 'Appalachian'.

At SMREC, the small, ornamental and pie type pumpkins, on an individual weight basis, appeared not to be affected by the drought. The weights were either slightly below or were within the expected range.

NOTE: Mention of fertilizers or chemical names represents neither a recommendation nor an endorsement of these products. A list of chemicals recommended for use in disease, insect, and weed control in vegetable production in Alabama may be found in the most recent copy of the Alabama Pest Management Handbook available through the Alabama Cooperative Extension System. Contact your county Extension office for a copy.



'Dixie' Tops the List of Squash Varieties at E.V. Smith

Joe Kemble, Edgar Vinson, and Jason Burkett

A summer squash variety trial was conducted at 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 27. Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory.

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 March 20. Alternate injections of calcium nitrate and 20-20-20 were made twice weekly from May 10 through June 20. Insect control consisted of applications of Endosulfan (2.5 pints per acre) on May 20; Thiodan (2.5 pints per acre) on May 29; and Asana (9.6 ounces per acre) on June 12 and June 26. Fungicides applied were Manex (1.6 quarts per acre) on May 21 and Benlate 50 WP (one pound per acre) on May 31.

TABLE 1. RATINGS OF THE 2000 SQUASH VARIETY TRIALS[1]

Location	EVSRC
Weather	3
Fertility	5
Irrigation	5
Pests	5
Overall	5

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

Squash were harvested 12 times between June 9 and June 30. 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) (Tables 3 and 4). Earliness (Table 3) was evaluated by combining the yields of the first four harvests.

Early yields were low overall. 'Dixie', 'Gold Slice', and 'HMX 8714' were the top three yielding varieties during early production (Table 3). 'Dixie' had significantly higher total marketable yields (Table 4) than all other varieites with the exception of 'Sundance'.

TABLE 2. SEED SOURCE, FRUIT TYPE, RELATIVE EARLINESS, AND DISEASE CLAIMS OF SELECTED SQUASH VARIETIES

Variety	Type	Seed source	Days to harvest	Disease claims[1]	Years evaluated
Destiny III[2]	F1	Asgrow	—	CMV,WMV,ZYMV	97-00
Dixie	F1	Asgrow	41	—	94-96,98,00
General Patton	F1	Asgrow	41	PY	00
Gold Slice	F1	Petoseed	45	—	00
HMX 8714	F1	Harris Moran	45	WMV,ZYM,PRSV	00
Hurricane (Z)[3]	F1	Sunseeds	42	—	00
Independence II (Z)	F1	Asgrow	43	WMV,ZYMV	00
Meigs (Z)	F1	Asgrow	41	PYG	00
Midas	F1	Willhite	53	PM	00
Prelude II	F1	Asgrow	40	PM,WMV,ZYMV	97,98,00
Sundance	F1	Petoseed	42	—	00
Suwannee	F1	Sunseed	45	—	00

[1] Disease claims: PM = Powdery Mildew; CMV = Cucumber Mosaic Virus; ZYMV = Zucchini Yellow Mosaic Virus; WMV = Watermelon Mosaic Virus; PRSV = Papaya Ringspot Virus.
[2] Precocious variety; PYG=Precocious Yellow Gene, masks symptoms of some viruses.
[3] Z = zucchini. — = none available from seed catalogues

TABLE 3. EARLY PRODUCTION AND GRADE DISTRIBUTION OF YELLOW SQUASH

Variety	Early marketable weight *lbs/ac*	Early nonmarketable weight *lbs/ac*	Early marketable number *no/ac*	Early nonmarketable number *no/ac*
Gold Slice	2,456	802	8,833	4,719
Dixie	2,362	647	14,278	6,776
HMX 8714	2,251	276	5,445	847
Suwannee	1,877	524	12,100	6,292
General Patton	1,734	478	7,502	2,662
Destiny III	1,644	518	8,833	4,598
Prelude II	1,545	627	8,712	11,616
Sundance	1,435	525	8,591	8,470
Midas	877	248	5,082	2,662
Hurricane (Z)[1]	3,439	455	9,559	2,420
Independence II (Z)	2,756	515	6,776	1,210
Meigs (Z)	1,215	249	9,438	2,783
R^2	***0.75***	***0.82***		
CV	***28***	***29***		
lsd	***1,446***	***1,116***		

[1] Z = Zucchini.

TABLE 4. TOTAL PRODUCTION AND GRADE DISTRIBUTION OF YELLOW SQUASH

Variety	Marketable yield *lbs/ac*	Nonmarketable yield *lbs/ac*	Marketable number *no/ac*	Nonmarketable yield *no/ac*	Individual fruit weight *lb*
Dixie	21,706	16,471	24,250	10,973	0.91
Sundance	17,797	16,745	16,104	13,035	1.12
Suwannee	16,297	13,030	17,246	9,910	0.95
Gold Slice	13,965	8,838	12,818	9,121	1.24
Prelude II	13,097	12,273	16,681	18,868	0.79
Destiny III	10,532	9,125	15,469	11,186	0.67
Midas	9,848	6,857	10,320	5,700	0.95
General Patton	8,818	12,214	14,435	4,583	0.65
HMX 8714	6,051	7,506	9,289	4,792	0.65
Meigs (Z) [1]	13,248	13,439	14,902	6,624	0.89
Hurricane (Z)	10,440	9,332	12,991	5,665	0.81
Independence II (Z)	7,311	6,657	10,093	4,302	0.72
R^2	***0.96***	***0.90***			
CV	***8***	***17***			
lsd	***5,040***	***5,627***			

[1] Z = Zucchini.

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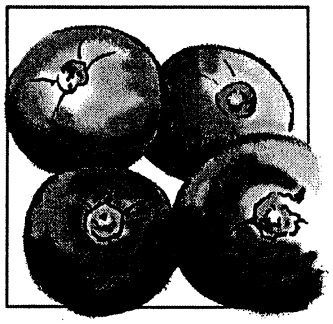
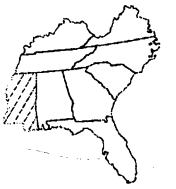


Variety Evaluation of Greenhouse Tomatoes, Spring 1999



Richard G. Snyder, Jim Curtis, and Lary Hawkins

A greenhouse tomato variety trial was conducted at the Truck Crops Branch in Crystal Springs, Mississippi, in the spring of 1999.

Nine indeterminate hybrid greenhouse tomato varieties were included in a trial in greenhouses #5 and #6. Seeds were planted December 8, 1997, and seedlings were transplanted January 13, 1998 into two-cubic-foot pine-bark-filled polyethylene bags. There were four plants per bag, and 16 plants per plot, with six replications of 'Mississippi', 'Estancia', and 'Trust' and five replications of 'Grace', 'Blitz', 'Zoltano', 'Style', 'Switch', and '74-52 RZ'. The experimental design was a randomized complete block.

Data collected included marketable numbers and weights of fruit, and cull numbers and weights of fruit. In addition, culls were separated into a large number of physiological disorder categories to determine possible quality problems with some of the new varieties and breeding lines. Since there were unequal replications, data were analyzed by general linear means (proc GLM) using SAS, with mean separation by least significant difference.

Of the varieties and lines included, both 'Grace' and 'Style' have strong tolerance to powdery mildew, which has become a serious disease problem in some Mississippi greenhouses in recent years. Either of these new varieties would be of great value, providing that the yield and quality are comparable to current varieties being grown.

There were significant differences in marketable numbers and weight, as well as total numbers and weights (Table 1). 'Trust' and 'Zoltano' had a higher marketable number than all other varieties. 'Trust' also has a higher marketable weight than all eight other varieties, followed by 'Zoltano', 'Mississippi', 'Style', and 'Blitz'. For total numbers of fruit, 'Estancia' had more than any other variety, followed by 'Blitz'. 'Zoltano' had the lowest total weights of all varieties, followed by 'Style'. All other varieties were not statistically different in total weights, although 'Grace' had the highest numerical value. The low marketable weights and high total weights of 'Estancia' suggest that this variety had a very high percentage of cull fruit. These data show that 'Trust' was the leading variety in marketable yield, with 'Estancia' and 'Grace' the lowest.

Overall, fruit size was smaller with this crop than normal for greenhouse tomato crops in this area. 'Mississippi' had larger fruit than all other varieties, averaging 8.1 ounces. 'Estancia' was the smallest with 6.6 ounce fruit on average.

Physiological disorders, by number of fruit, were separated into 17 categories (Tables 2A and 2B). There were no significant differences in zipper

TABLE 1. YIELD AND QUALITY OF FRUIT FROM A SPRING 1999 GREENHOUSE TOMATO VARIETY TRIAL[1]

Variety	Marketable number	Marketable weight *(lbs)*	Total number	Total weight *(lbs)*	Fruit size *(oz)*
Blitz	233 b	108 bcd	732 b	292 a	7.4 cd
Style (DRW5007)	237 b	112 bc	652 d	261 b	7.6 bc
Estancia	230 b	95 e	807 a	281 a	6.6 g
Grace(4409)	215 b	98 de	754 b	290 a	7.3 de
Mississippi	214 b	108 bcd	621 d	285 a	8.1 a
74-52RZ	215 b	105 cde	651 d	278 a	7.8 b
Switch	234 b	103 cde	725 bc	278 a	7.0 f
Trust	278 a	128 a	693 bc	282 a	7.3 cd
Zoltano	268 a	117 ab	633 d	245 c	7.0 ef
Significance[2]	**	**	**	**	**
lsd	***26***	***12***	***35.1***	***15.4***	***0.3***

[1] Yields are based on 16-plant plots. [2] Mean separation is by Duncan's New Multiple Range Test; ** indicates significant at p< or =0.01; ns indicates not significant at p=0.05.

scar, catfacing, puffiness, or irregular ripening among the nine varieties in this evaluation. A summary of physiological disorders for those that were significantly different follows.

'Mississippi' led in number of fruit with jumbo culls. 'Estancia' had the most small (undersized) fruit, which goes along with this variety having the lowest average fruit size (6.6 ounces). 'Blitz' had the most rough-shaped fruit. 'Grace' had the most fruit with poor skin surface, closely followed by 'Mississippi', 'Estancia', and '74-52 RZ'. 'Mississippi' also led in radial cracking, while 'Estancia' led in concentric cracking, closely followed by 'Grace'. 'Grace' had the most russetted fruit, followed closely by 'Estancia'. 'Switch' had the most skin splits. 'Grace' had the most green shoulder fruit, closely followed by '74-52 RZ'. 'Mississippi' had the most striped fruit, sometimes a symptom of whitefly damage. 'Zoltano' had much more blossom-end rot than any other variety. 'Style' also has some problem with this disorder. 'Switch' had a lot more soft fruit than any other variety. There was some problem with 'Estancia' having this disorder as well.

At the end of the growing season, remaining green fruit were removed and counted. There were no significant differences in green fruit, though 'Blitz' and 'Estancia' had the most green fruit still remaining on plants. These numbers were added into totals for the crop for each variety.

'Trust', the leading variety in North America at this writing, performed well for marketable yield, and also had the least problem with all 17 physiological disorders. 'Blitz' and 'Style' also did fairly well in resisting physiological disorders.

TABLE 2A. SIZE AND PHYSIOLOGICAL DISORDERS OF FRUIT FROM A SPRING 1999 GREENHOUSE TOMATO VARIETY TRIAL[1]

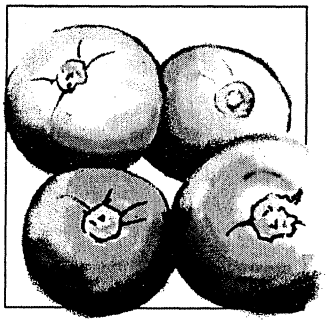
Variety	Jumbo culls *no*	Small *no*	Rough shape *no*	Poor skin *no*	Radial cracks *no*	Concentric cracks *no*	Russetted skin *no*	Zipper scar *no*	Split skin *no*
Blitz (3558)	11.4 bc	240 b	225 a	37 de	59 cd	31 bc	160 cde	5.2	17.2
Style (DRW5007)	5.0 d	209 bcd	105 e	49 bcd	80 bc	25 c	178 cd	3.4	7.0C
Estancia	5.8 cd	374 a	129 cde	55 abc	39 de	42 a	237 ab	4.7	15.8B
Grace (4409)	4.8 d	250 b	130 cde	65 a	92 b	39 ab	251 a	4.4	16.2B
Mississippi	20.8 a	127 f	143 bcd	57 ab	119 a	22 c	119 ef	3.5	5.7C
74-52 RZ	14.0 b	157 ef	162 b	55 ab	35 e	29 bc	195 bc	4.2	4.6C
Switch	7.0 cd	232 bc	154 bcd	38 de	44 de	32 bc	182 cd	5.4	32.4A
Trust	6.3 cd	191 cde	123 de	43 cde	59 cd	26 c	148 def	2.7	17.7B
Zoltano	3.0 d	178 de	154 bc	33 e	22 e	5 d	105 f	1.0	2.2C
Significance[2]	**	**	**	**	**	**	**	ns	**
lsd	***6.3***	***48***	***30***	***12***	***22***	***10***	***45***	—	***8.2***

[1] Yields are based on 16-plant plots. [2] Mean separation is by least significant difference; ** indicates significant at p< or =0.01; * indicates p< or =0.05; ns indicates not significant at p=0.05.

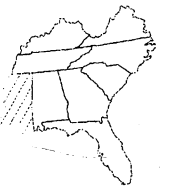
TABLE 2B. SIZE AND PHYSIOLOGICAL DISORDERS OF FRUIT FROM A SPRING 1999 GREENHOUSE TOMATO VARIETY TRIAL[1]

Variety	Green shoulder *no*	Striped fruit *no*	Cat face *no*	Irregular ripening *no*	Puffy *no*	Blossom end rot *no*	Jumbo *no*	Soft *no*	Green *no*
Blitz (3558)	105 cd	0.4 b	1.6	17.6	0.8	3.6 c	2.2 bc	14.4 cd	38.8
Style (DRW5007)	89 d	0.2 b	1.8	3.6	1.0	10.2 b	5.2 ab	22.0 c	20.6
Estancia	30bc	0.2 b	3.2	6.8	1.7	5.2 bc	0.3 c	41.2 b	32.7
Grace (4409)	169 a	0.4 b	2.0	15.8	1.2	7.4 bc	1.8 c	19.6 c	24.0
Mississippi	99 d	2.5 a	1.5	26.8	1.0	7.5 bc	7.5 a	14.3 cd	22.7
74-52 RZ	156 ab	0.2 b	1.6	17.6	0.8	4.4 bc	2.4 bc	23.4 c	16.8
Switch	88 d	1.2 b	1.2	8.0	1.0	2.0 c	3.4 bc	98.8 a	24.4
Trust	94 d	0.2 b	1.5	4.3	0.5	3.5 c	1.5 c	24.0 c	32.3
Zoltano	97 d	0.6 b	0.6	16.4	0.6	29.2 a	0.6 c	3.6 d	12.8
Significance[2]	**	**	***ns***	***ns***	***ns***	**	**	**	***ns***
lsd	***29.5***	***1.2***	—	—	—	***6.5***	***3.2***	***14.1***	—

[1] Yields are based on 16-plant plots.[2] Mean separation is by least significant difference; ** indicates significant at p< or =0.01; * indicates p< or =0.05; ns indicates not significant at p=0.05.



Variety Evaluation of Greenhouse Tomatoes, Spring 2000



Richard G. Snyder, Jim Curtis, and Larry Harkins

A trial of 12 hybrid indeterminate greenhouse tomato varieties was performed in greenhouse #5 and greenhouse #6 at the Truck Crops Branch Experiment Station in Crystal Springs in the spring of 2000.

For this trial, several newer varieties were selected to compare to 'Trust', the standard beefsteak variety used in North America. Seeds were planted on November 30, 1999, and seedlings were transplanted on January 5, 2000 into two-cubic-foot pine-bark-filled white-on-black laminated polyethylene bags. There were four plants per bag, and 16 plants per plot, with four replications. The experimental design was a randomized complete block, with two blocks in each greenhouse (divided north vs. south).

Data collected included marketable numbers and weights of fruit, and cull numbers and weights of fruit. Normally, culls were graded severely and separated into a large number of physiological disorder categories to determine possible quality problems with some of the new varieties and breeding lines. In this experiment, however, there was a serious infestation with tomato spotted wilt virus. Detailed grading was discontinued due to the high number of culls caused by disease. Therefore, only total and marketable yield are presented. Fruit size was calculated by dividing marketable weights by marketable numbers. Data were analyzed by analysis of variance, with mean separation by Duncan's New Multiple Range Test.

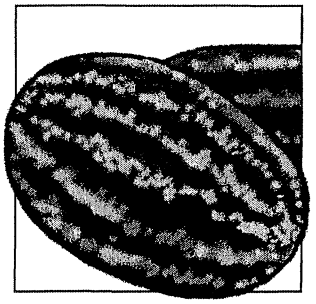
There were significant differences among varieties in marketable number, marketable weight, total number, and fruit size. Variety '72-93 RZ' had higher marketable number than any other variety, but this would be expected since this is a grape type tomato. Next in marketable number were 'FA-1407', 'Belladonna', 'Electra', and 'Gabriella'. As for marketable weights, 'FA-1407' and 'Belladonna' had the most yield. 'Colette' was lowest in both marketable numbers and weights. The variety with the highest total number was also '71-93 RZ', due to its diminutive size. Other varieties with high total number include 'Electra' and 'FA-1407'. While total weights were not significantly different, 'FA-1407' tended to be highest, followed closely by 'Electra'. The largest varieties were 'Belladonna', 'Quest', and 'Mississippi'. The grape type variety, '72-93-RZ' was smallest, as would be expected.

Due to the high rate of tomato spotted wilt virus in this trial, the data should not be regarded as conclusive.

YIELD AND QUALITY OF FRUIT FROM A SPRING 1999 GREENHOUSE TOMATO VARIETY TRIAL[1]

Variety	Marketable number	Marketable weight *(lbs)*	Total number	Total weight *(lbs)*	Fruit size *(oz)*
Electra	115 b	56.4 ab	454 b	152.0	7.8 ab
Francesca	114 b	54.3 abc	398 b	144.9	7.6 b
Colette	29 c	13.7 d	342 b	114.3	7.5 b
Belladonna	121 b	65.0 a	324 b	134.9	8.6 a
Baronie	68 bc	34.4 c	278 b	111.9	8.1 ab
Trust	104 b	46.8 abc	397 b	141.2	7.4 b
Blitz	76 bc	39.0 bc	286 b	110.6	8.1 ab
Mississippi	62 bc	32.9 c	307 b	127.2	8.5 a
FA-1414	110 b	54.5 abc	372 b	144.5	8.0 ab
FA-1407	131 b	63.0 a	429 b	156.0	7.6 b
Quest (DRW5018)	82 bc	43.9 abc	286 b	117.1	8.6 a
72-93 RZ	534 a	45.4 abc	1826 a	108.6	1.4 c
Significance[2]	**	**	**	***ns***	**

[1] Yields are based on 16-plant plots. [2] Mean separation is by Duncan's New Multiple Range Test; ** indicates significant at p< or =0.01; ns indicates not significant at p=0.05.



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

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)	Indistinct, narrow, dk green stripes on med green background, solid med-green
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 lb.	1	<8.0 lb.
2	8.0 to 14.0 lb	2	8.0 to 16.0 lb.
3	14.0 to 18.0 lb.	3	16.0 to 24.0 lb.
4	18.0 to 22.0 lb.	4	24.0+ lb.
5	22.0+ lb.		

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

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 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.

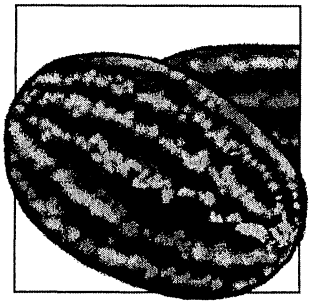
Those cultivars which were ready for harvest early (at least 70 percent of their fruit were removed during the first harvest) were 'Delta', 'Falcon', 'Festival', 'Fiesta', 'Lady', 'Mardi Gras'. 'Pinata' (Large Seed), 'Pinata' (Small Seed), 'Regency', 'Starbrite', 'WX-22', 'WX-24', and 'XP 4525247' (Table 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



Triploid Watermelon Cultivar Evaluation, Summer 2000

Richard G. Snyder, Peter Hudson, Kent Cushman, and Thomas Horgan

Fifteen varieties of triploid (seedless) watermelon were included in a variety trial at the Truck Crops Branch Station in Crystal Springs, Mississippi, in the summer of 2000. A similar evaluation was conducted at the North Mississippi Branch Station at Verona.

Seed of 15 varieties of triploid watermelon were seeded in the greenhouse on April 17, 2000. All test varieties were red fleshed with a 'Crimson Sweet' rind pattern, and stated by the seed companies to be in the 12- to 20-pound size class.

To insure good pollination, 'Charleston Grey' was selected as a pollinizer variety. This variety has a different appearance than the triploids being tested, which avoided confusion during harvest. 'Charleston Grey' was seeded April 10 to be sure it was established and flowering before pollen would be needed by the other varieties.

Pollinizer plants were transplanted to the field on May 10 and triploids were transplanted on May 17. Plants were arranged in a randomized complete block design with four replications. Plants were spaced 2.5 feet apart within the row, and six feet apart between rows (15 square feet per plant), with 10 plants per plot. This is equivalent to a plant population of 2,904 plants per acre. 'Charleston Grey' was planted five feet apart within the row (30 square feet per plant), with five plants per plot, due to its higher vigor than the triploids.

YIELD, FRUIT SIZE, AND QUALITY OF TRIPLOID WATERMELON VARIEITES

Variety	—Total yield [1]—		Marketable yield		Early harvest [2]	Size [1]	Soluble solids content [3]
	lbs/ac	*no/ac*	*lbs/ac*	*no/a*	*%*	*lb*	*%*
Constitution	58,988	5,808	58,632	5,663	43	10.3	12.4
Millionaire	56,497	5,372	55,822	5,155	32	10.8	11.8
Tri-X Brand 313	55,060	5,372	53,426	4,864	48	11.0	12.5
Seedway 4502	54,406	4,719	54,160	4,574	43	11.8	11.8
Asgrow 9024	52,185	5,372	51,568	5,155	35	10.0	12.4
Triple Crown	51,590	4,937	50,639	4,646	46	10.9	11.3
RVM 8073-VP	49,883	4,501	49,644	4,356	51	11.4	12.3
Asgrow 9033	49,840	4,792	49,840	4,719	40	10.5	12.1
SWT8705	49,796	4,646	49,796	4,429	58	11.2	10.9
Gem-Dandy	48,591	5,372	47,923	5,009	35	9.6	12.0
Diamond	46,878	4,211	46,304	3,848	69	12.0	12.3
Summer Sweet 5544	46,493	4,574	45,963	4,283	54	10.7	11.9
Tri-X Brand Carousel	45,578	4,356	45,099	4,066	51	11.1	12.0
Sapphire	41,491	4,066	39,988	3,485	64	11.4	12.0
Genesis	41,171	4,792	39,640	4,283	61	9.3	11.5
lsd (P=0.05) [4]	***ns***	***ns***	***ns***	***1115.6***	***19.8***	***1.16***	***ns***

[1] Yield and size of melons based on melons greater than five pounds. Yield based on plant population of 2904 plants per acre (15 square feet per plant). Rows spaced six feet apart with plants 2.5 feet apart in the row. Least squares means are reported for fruit size.

[2] Percentage early by weight. Approximately 40% of the total marketable yield was considered "early" by selecting harvest dates.

[3] Average of three samples from each of four replications. Least squares means reported.

[4] Least Significant Difference (lsd) at P=0.05. Treatments not significantly different (ns).

The pollinizer variety was planted in every other plot in each block using a checkerboard pattern to be certain that pollen was well distributed among test varieties. Also, two honey bee hives were placed adjacent to the field to be sure that bee population was adequate.

The soil at the Truck Crops Station is a fine-silty, mixed, thermic Typic Fragiudalf. The rows were established on raised beds and were covered with black plastic mulch with trickle irrigation tubing beneath (rated at 0.5 gallons per 100 feet at 10 pounds per square inch). Plants were hand planted through holes cut in the mulch. Preplant and sidedressing fertilizer were applied according to the results of a soil test performed at the Mississippi State University Soil Testing Lab, with sidedressings via drip tape.

Harvest began on July 12 and concluded on July 28. Each melon was weighed individually. Data collected included total and marketable numbers and weights of fruit. Fruit smaller than five pounds were considered unmarketable. In addition, fruit Brix (soluble solids) was recorded on two dates. On each date, one mature fruit per plot was cut and three samples were drawn from near the center. The three readings from each fruit were averaged. Brix was read with a hand held refractometer.

Data were analyzed by analysis of variance, with mean separation by least significant difference.

'Constitution' had the highest total weights and numbers, as well as marketable weights and numbers, with 58,988 pounds per acre total and 58,632 pounds per acre marketable (see table). However, only marketable numbers were significantly different at p=0.05. Other high yielding cultivars, by marketable number, included 'Asgrow 9024', 'Millionaire' (these two are tied), and 'Gem Dandy'. Table 1 shows variables arranged in descending order by total weights per acre.

There were also significant differences in percentage early harvest, with 'Diamond', 'Sapphire', and 'Genesis' in the lead, with 69, 64, and 61 percent early, respectively. 'SWT8705' was also a good performer, with 58 percent early.

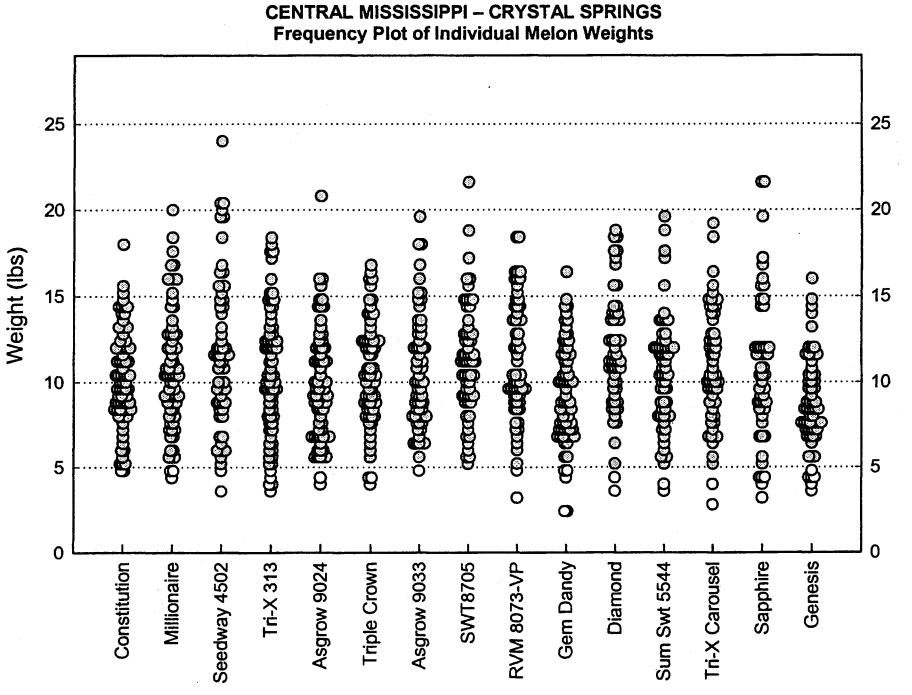
All varieties averaged 10 to 12 pounds in size, notably smaller than the size claimed by seed companies for most varieties. Melons less than five pounds were considered unmarketable. 'Diamond' was the largest, at 12 pounds, followed by 'Seedway 4502' at 11.8 pounds, 'Sapphire' at 11.4 pounds, and 'RVM 8073VP' at 11.4 pounds. The individual fruit size distribution is shown in the figure (each circle represents one melon). It is evident that some varieties were more uniform in size, while others had a wide variance around the mean.

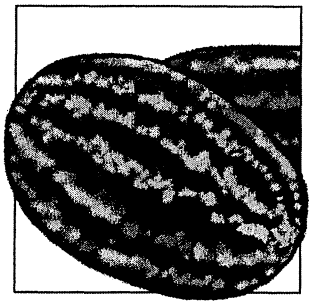
There were no significant differences in soluble solids, with all varieties consistently in the 10.9 to 12.5 percent range. The trend was for 'Tri-X Brand 313', 'Constitution', and 'Asgrow 9024' to lead in sweetness, all averaging 12.4 to 12.5 percent.

There was a very low incidence of hollow heart and rind necrosis in some fruit, though these traits did not appear to be consistent in any variety.

In a similar evaluation at Verona, Mississippi, 'Millionaire' was also one of the best varieties for yield.

Frequency plot of individual melon weights from triploid watermelon evaluation, summer 2000.





Seedless Watermelons Tested in Northern Mississippi

Kent E. Cushman, Rick G. Snyder, Thomas E. Horgan, David H. Nagel, and Muhammad Maqbool

This replicated trial was planted at the North Mississippi Research & Extension Center in Verona, Mississippi, during the summer of 2000. Seed of the 20 triploid entries were planted into 72-cell flats in greenhouses on April 21, 2000. All entries had red flesh and a 'Crimson Sweet' rind pattern and weighed from 12 to 20 pounds according to seed company descriptions.

Seedlings were planted to the field by hand on May 15 with the aid of a waterwheel transplanter. Seedlings were spaced two feet apart in plots 30 feet long, making a total of 15 plants per plot. This was equivalent to 2,904 plants per acre and 15 square feet per plant.

Triploid watermelons do not produce enough pollen on their own and therefore require a pollinator, a diploid, to supply pollen. 'Charleston Grey' was used as the pollinator in this study because of its distinctly different rind pattern that could be easily distinguished from the triploid entries. 'Charleston Grey' was seeded into 72-cell flats in the greenhouse on April 7 and again on April 17 and transplanted to the field April 28 and again May 8. Planting of 'Charleston Grey' one to two weeks prior to the triploids assured that pollen was available at the time triploids began to flower.

'Charleston Grey' produces a larger and more vigorous vine than the triploid entries and therefore was planted at half the density of the triploids. Transplants were spaced four feet apart in plots 30 feet long, making a total of seven plants per plot and providing about 30 square feet per plant. Triploid and pollinator plants were planted in a 1:1 ratio in this study, though the recommended ratio for commercial production is typically one pollinator for every two to four triploids. 'Charleston Grey' and triploid plots were arranged in a checkerboard pattern so that each triploid plot was surrounded on all sides by pollinator plots. Four beehives were placed in the center of the field for the duration of the study.

The experimental design was a randomized complete block design with four replications. Blocking was arranged according to location of rows so that outside rows were blocked with outside rows; that is, the first and fourth row of each set of four rows were blocked together, and inside rows were blocked with inside rows; that is, the second and third rows of each set of four rows were blocked together. Blocking in this manner controlled variation due to edge effect.

This study was located on upland soils of the Verona experiment station. Plant beds were formed six inches high and 30 inches across the top with a press-pan-type bed shaper. Beds were spaced 7.5 ft apart, center to center, with a drive row 17 feet wide located every four rows. The entire experiment, excluding drive rows, was one acre.

Preplant fertilizer was placed in the plant bed during formation at the rate of 80 pounds of N, 115 pounds of P_2O_5, and 225 pounds of K_2O per acre. Black plastic mulch and drip tape, rated at 0.5 gallons per minute per 100 feet at 10 pounds per square inch, was applied immediately after bed formation. Curbit EC (ethalfluaralin) herbicide was used to control weeds between the plastic-covered rows.

Water or fertilizer solution was applied through the drip tape to supply at least one acre-inch of irrigation per week. Soluble fertilizer was applied by injecting a concentrated solution of NH_4NO_3 or $CaNO_3$ when vines began to run and supplied an additional 25 pounds of N per acre. Asana XL or Thiodan EC was mixed with Bravo WS or Quadris and sprayed on a seven- to 10-day schedule for insect and disease control.

Harvest began July 10 and ended August 4. Melons from each plot were weighed individually. At least three melons from each plot were cut open and observed for severity of hollow heart and bacterial rind necrosis. These melons were also sampled for soluble solids content with a hand-held refractometer. Hollow heart and rind necrosis were rated using a rating scale of 1 = none, 2 = slight to moderate, and 3 = severe.

Number of marketable melons and total weight of marketable melons per acre were analyzed by using the general linear model procedure in SAS. Average marketable melon weight, soluble sugar content, rind necrosis

incidence, and hollow heart incidence were analyzed by using the mixed procedure in SAS. Only melons weighing 10 pounds or more were included in the analyses of marketable yield. There were very few culls in this experiment. None of the melons were rejected (culled) on the basis of rind necrosis or hollow heart ratings because most melons harvested during this study were not cut open for internal observations.

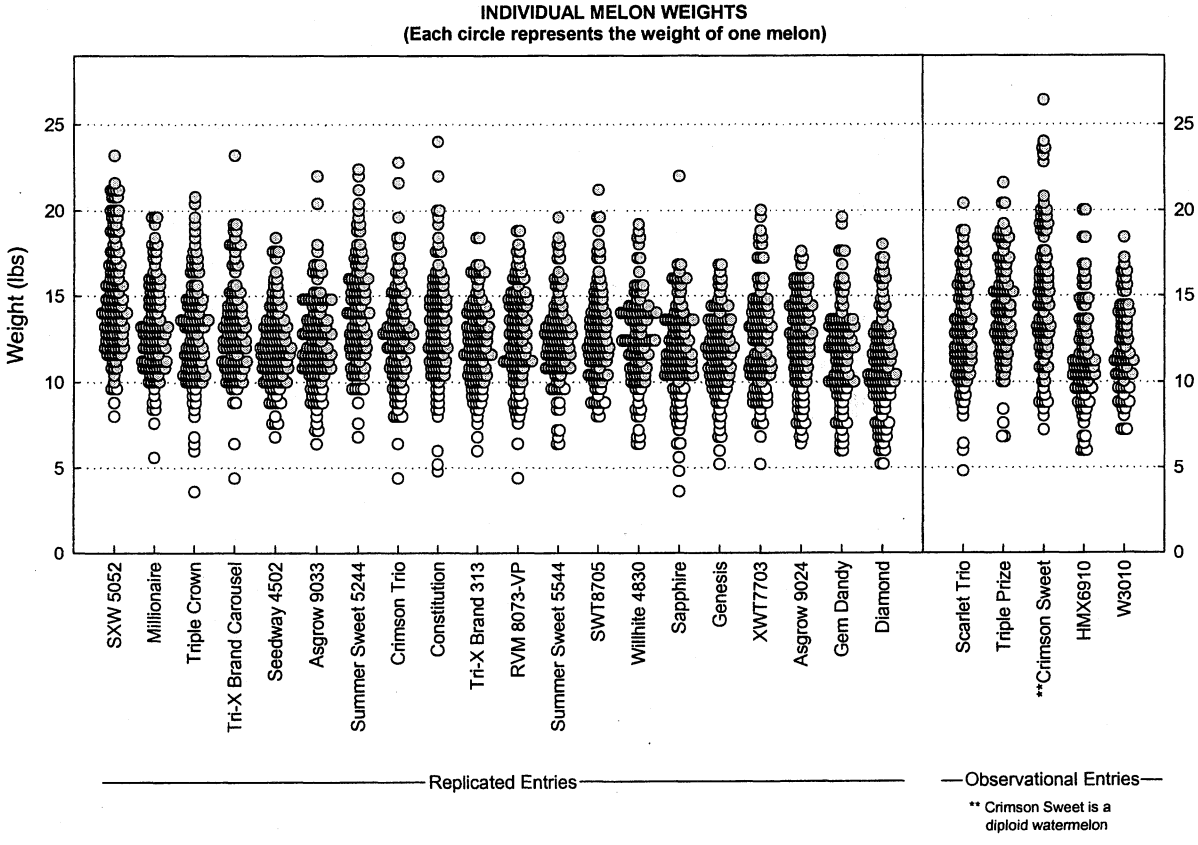
Several cultivars that were not included in the replicated trial were planted in plots along the edge of the field for observation. Observational entries were replicated three or four times but were not arranged in an experimental design. One of the observational entries, 'Crimson Sweet', is not a triploid.

'SXW 5052', an unnamed, experimental entry from Sunseeds, produced significantly greater marketable melons (93,000 pounds per acre) and significantly larger melons (15.1 pounds per melon) than 19 other entries. Yield of 'Millionaire,' an entry with the second highest yield (75,700 pounds per acre), was not significantly different than 15 other entries. Only 'Diamond', 'Gem-Dandy', and 'Wrigley' (formerly Asgrow 9024) produced yields significantly lower than 'Millionaire'. Average weight of 'Millionaire', the second largest melon (14.4 pounds per melon), was significantly greater than all other entries except 'Cooperstown' (formerly Asgrow 9033), averaging 13.8 pounds per melon.

Melons in this study were lighter in weight than expected. Seed companies list most of these entries in the expected weight range of 'Tri-X Brand 313', that is, 15 to 18 pounds. Average weight of marketable melons in our study averaged 12.4 to 15.1 pounds. Melons less than 10 pounds were considered too small for the triploid market and were not included in the analyses of marketable yield. This affected marketable yield because total yield (total yield is the sum of marketable yield plus culls) of several entries included a higher percentage of small melons (see figure). In contrast to marketable yield, there were no significant differences in total yield for any of the 20 entries or for any of the yield measurements (Table 1).

There were no significant differences between any of the entries for number of marketable melons per acre, which ranged from a high of 6,150 melons per acre for 'SXW 5052' to a low of 3,870 melons per acre for 'Diamond'. The lowest yielding entries, in general, were also the earliest to mature and produced the smallest melons. The highest yielding entry, 'SXW 5052', was the latest to mature and produced the largest melon.

Frequency plot of individual melon weights from seedless watermelon evaluation, northern Mississippi.



Low melon weights may have resulted from the high plant population, 2,904 plants per acre, used in this study. In addition, the total N applied to the crop was 105 pounds per acre and this may have been too low for this high plant population. Weather during the study was unusually hot and dry, but this probably did not affect melon size as irrigation was provided at the rate of one to two acre-inches per week and vines remained green and healthy throughout most of the harvest period.

In general, early-maturing entries produced small melons and, thus, low yields. Some of the lowest yields of marketable melons were produced by entries with the earliest maturities (Table 2). In a similar manner, late-maturing entries produced large melons and, thus, greater marketable yields. 'SXW 5052', for example, produced the highest yield and the largest melon, and it was the latest-maturing entry with only 16 percent of the marketable yield harvested early. Three other entries with large melons, 'Millionaire', 'Cooperstown', and 'Triple Crown', were also some of the latest to mature with only 27, 22, and 32 percent, respectively, of the marketable yield harvested early. In addition, three out of five entries with the smallest melons were some of the earliest to mature. 'Diamond', 'Genesis', and 'Gem-Dandy' produced small melons with 65, 49, and 50 percent, respectively, of the marketable yield harvested early. Not all entries followed this pattern of late maturity and large size or early maturity and small size. Two entries with small melons, 'Wrigley' and 'Constitution', matured rather late with both having only 29 percent of the marketable yield harvested early.

Average soluble solids content ranged from a low of 11.5 to a high of 12.7. While this is not a wide range, there were significant differences between entries. High soluble solids contents were measured in 'Sapphire', 'Millionaire', 'Tri-X Brand 313', 'Diamond', 'Constitution', 'Wrigley', 'RVM 8073-VP', and 'Tri-X Brand Carousel' (Table 2). Compared to most other entries, 'SXW 5052' was rather low at 11.7.

Rind necrosis and hollow heart were serious problems in this study. Average bacterial rind necrosis ratings ranged from a low of 1.1 to a high of 1.9. 'SXW 5052' and 'Tri-X Brand 313' exhibited very low incidence of rind necrosis. 'RVM 8073-VP', 'Willhite 4830', and 'XWT 7703' exhibited rather high incidence of rind necrosis. The cause

TABLE 1. TOTAL YIELD AND AVERAGE MELON WEIGHT

Entry	Yield [1] lbs/ac	Yield [1] melons/ac	Early harvest [2] % of total	Size [1] lbs/melon
Replicated trial				
SXW 5052	95,300	6,390	16	14.9
Triple Crown	79,200	6,000	31	13.2
Millionaire	79,100	5,610	26	14.0
Crimson Trio	78,900	6,390	35	12.3
Summer Sweet 5244	78,200	6,150	34	12.7
Tri-X Brand Carousel	77,500	6,000	40	12.9
Cooperstown Formerly Asgrow 9033	76,500	5,760	21	13.3
Tri-X Brand 313	76,100	6,200	42	12.3
Seedway 4502	75,800	5,810	37	13.1
Constitution	75,100	6,200	31	12.2
RVM 8073-VP	72,600	5,710	30	12.7
Sapphire	71,200	5,760	50	12.4
Summer Sweet 5544	70,600	5,660	39	12.4
Willhite 4830	70,200	5,610	42	12.5
Genesis	70,200	5,950	43	11.8
XWT 7703	70,100	5,710	46	12.3
SWT 8705	68,600	5,370	30	12.7
Wrigley Formerly Asgrow 9024	67,400	5,760	28	11.7
Gem-Dandy	66,800	5,710	47	11.6
Diamond	65,300	6,000	54	10.9
lsd (P=0.05) [3]	***ns***	***ns***	***13***	***0.7***
Observational trial				
Scarlet Trio	89,000	6,200	31	14.4
Triple Prize	87,200	6,780	30	12.9
Crimson Sweet	72,300	4,790	48	15.1
HMX 6910	68,200	5,940	23	11.5
W3010	60,800	5,030	27	12.1

[1] Yield and size of melons based on melons greater than 10.0 pounds. Yield is based on a plant population of 2,904 plants per acre (15 square feet per plant). Rows were spaced 7.5 feet apart with plants two feet apart in the row. Simple means reported except for size in replicated trial, which is least squares means.

[2] Approximately 35 percent of the total yield was harvested "early." Simple means reported.

[3] Least Significant Difference (lsd) at P=0.05. Treatments not significantly different (ns).

of rind necrosis is unknown, and though the incidence of rind necrosis in our study was extensive, its occurrence overall is rare.

Average hollow heart ratings ranged from a low of 1.1 to a high of 2.1. Many entries had low incidence of hollow heart, whereas 'Diamond', 'Sapphire', and 'Constitution' had the highest (Table 2). Hollow heart is undesirable, though it has been commonly associated with triploid melons. In some of the more severe cases, cracks more than an inch wide that spread in several directions throughout the melon's interior were observed. A hollow heart rating of 1.9 or more is unacceptable.

TABLE 2. MARKETABLE YIELD, AVERAGE MELON WEIGHT, AND QUALITY

Entry	Yield [1]		Early harvest [2]	Size [1]	Soluble solids content	Rind necrosis [3]	Hollow heart [3]
	lb/ac	*(melons/ac)*	*(% of total)*	*(lb/melon)*	*(%)*		
Replicated trial [4]							
SXW 5052	93,000	6,150	16	15.1	11.8	1.2	1.1
Millionaire	75,700	5,230	27	14.4	12.6	1.5	1.2
Triple Crown	74,600	5,470	32	13.7	12.1	1.5	1.1
Tri-X Brand Carousel	72,900	5,420	41	13.5	12.3	1.3	1.2
Seedway 4502	72,100	5,370	38	13.5	11.7	1.6	1.1
Cooperstown Formerly Asgrow 9033	71,800	5,180	22	13.8	12.0	1.3	1.1
Summer Sweet 5244	70,300	5,230	38	13.4	12.1	1.5	1.2
Crimson Trio	69,500	5,320	35	13.0	11.8	1.7	1.4
Constitution	67,900	5,370	29	12.7	12.4	1.6	1.9
Tri-X Brand 313	65,700	5,030	46	13.1	12.5	1.1	1.4
RVM 8073-VP	65,300	4,840	33	13.5	12.3	1.9	1.2
Summer Sweet 5544	63,500	4,840	41	13.1	12.1	1.3	1.1
SWT 8705	63,000	4,740	31	13.3	12.1	1.3	1.1
Willhite 4830	62,900	4,740	45	13.2	12.1	1.9	1.1
Sapphire	60,700	4,550	51	13.3	12.7	1.3	1.9
Genesis	60,400	4,740	49	12.7	11.5	1.5	1.2
XWT 7703	59,800	4,500	49	13.3	12.0	1.9	1.5
Wrigley Formerly Asgrow 9024	58,000	4,650	29	12.5	12.4	1.6	1.2
Gem-Dandy	53,700	4,160	50	12.8	12.0	1.6	1.4
Diamond	48,100	3,870	65	12.4	12.5	1.7	2.1
lsd (P=0.05) [5]	***16,600***	***ns***	***14***	***0.6***	***0.4***	***0.3***	***0.3***
Observational trial [4]							
Scarlet Trio	86,400	5,870	32	14.7	11.4	1.2	1.8
Triple Prize	80,800	6,000	30	13.5	11.7	1.4	1.5
Crimson Sweet	68,100	4,310	50	15.8	12.0	1.1	1.1
HMX 6910	52,900	4,130	25	12.8	11.4	1.8	1.2
W3010	50,600	3,870	29	13.1	12.4	1.3	1.2

[1] Yield and size of melons based on melons greater than 10.0 pounds. Yield based on plant population of 2904 plants per acre (15 square feet per plant). Rows spaced 7.5 feet apart with plants two feet apart in the row. Simple means reported except for size in replicated trial, which is least squares means.

[2] Approximately 35 percent of the total marketable yield was considered "early." Simple means reported.

[3] Rind necrosis and hollow heart incidence on a scale of 1 to 3 (1=none, 2=slight to moderate, 3=severe).

[4] Average of at least three samples from each of four replications for the replicated trial or from each of three or four replications for the observational trial. Least squares means reported for replicated trial and simple means for observational trial.

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

Seed Sources for Alabama Trials

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

Burpee
To order: 1-800-888-1447
300 Park Avenue
Warminster, PA 18991-0001
Ph: (800) 333-5805
Fax: (800) 487-5530
www.burpee.com

Harris Moran
To order: (209) 579-7333
Tech. Rep: Laura Isaac
P.O. Box 4938
Modesto, CA 95352
Ph: (209) 579-7333

Harris Seeds
To order: (800) 544-7938
Tech Rep: Mark Willis
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615 Weston Ridge Dr.
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Tech. Rep: Curt Pollard
Ph: (912) 560-1863, (912) 244-2922
E-mail: curt.pollar@seeds.novartis.com

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Hall, NY 14463
Ph: (716) 526-6398
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Sunseeds
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3261 S. Horizon Place
Chandler, AZ 85248
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Stokes Seeds Inc.
To order: (800) 263-7133
Tech. Rep: Joe Butwin
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Salinas, CA 93906
Ph: (408) 443-4901

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 (spring 2000).

When: September 25, 2001
Deadline for spring 2001 variety trial report submissions.

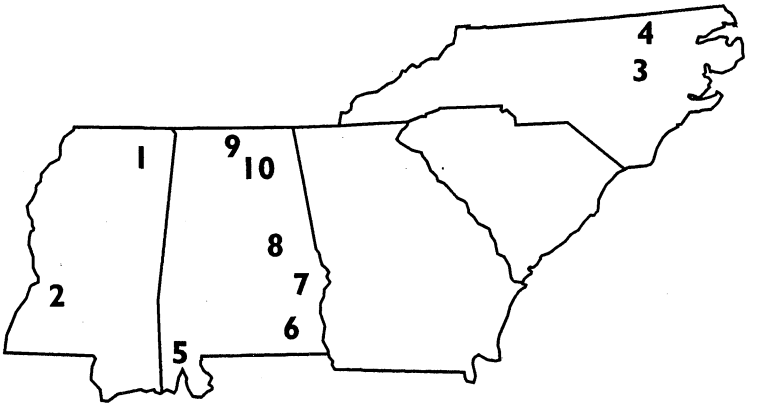
What: Results pertaining to variety evaluation in a broad sense. This includes field performance, quality evaluation, and disease resistance. Here are a few tips:

- Follow the format used in the first three 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



MISSISSIPPI STATE UNIVERSITY

1 North Mississippi Research and Extension Center, Verona, MS
2 Truck Crops Branch Experiment Station, Crystal springs, MS

NORTH CAROLINA STATE UNIVERSITY

3 Central Crops Research Station, Clayton, NC
4 Granville County Center, Oxford, NC

AUBURN UNIVERSITY AND ALABAMA A&M UNIVERSITY

5 Gulf Coast Research and Extension Center, Fairhope, AL
6 Wiregrass Research and Extension Center, Headland, AL
7 E.V. Smith Research Center, Shorter, AL
8 Chilton Area Horticulture Station, Clanton, AL
9 North Alabama Horticulture Research Center, Cullman, AL
10 Sand Mountain Research and Extension Center, Crossville, AL