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Fall 2001 Commercial Vegetable Variety Trials

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Contents

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

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Introduction: Tips for Interpreting Vegetable Variety Trial Results

Joe Kemble and Edgar Vinson

The fall 2001 variety trial regional bulletin includes results from Alabama, Mississippi, and North Carolina. 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 throughout 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 growers in selecting an appropriate variety. Here are a few tips for interpreting vegetable variety trial resuslts.

Open Pollinated vs. Hybrid Varieties

In general, hybrids (also referred to as F1) mature earlier and produce a more uniform crop. Often, they have improved disease, pest, or virus tolerances and/or resistances. Generally, hybrid seed is more expensive than that of open-pollinated (OP) cultivars, and seeds cannot be collected and saved for planting next year's crop. Despite the advantages hybrids offer, OP varieties are still planted in Alabama. Selecting a hybrid variety, however, is the first step toward earliness and improved crop quality.

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. 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 2001 pumpkin trial conducted at the Sand Mountain Research and Extension Center, 'Gold Bullion' yielded 32,135 pounds per acre, while 'Gold Medal' and 'Connecticut Field' yielded 28,853 and 24,548 pounds per acre, respectively. Since there was less than a 5,648 difference between 'Gold Medal' and 'Connecticut Field', there is no statistical difference between these two varieties. However, the yield difference between 'Gold Bullion' and 'Connecticut Field' was 7,587, indicating that there is a real difference between these two varieties.

From a practical point of view, producers should place the greatest importance on lsd values when interpreting results.

Ratings of Trials

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

Testing Conditions

AU vegetable variety trials are conducted under standard, recommended commercial production practices. If the cropping system to be used is different from that used in the trials, the results of the trials may not apply. Information on soil type (Table 2), planting dates, fertilizer rates, and detailed spray schedules are provided to help producers compare their own practices to the standard one used in the trials and make relevant adjustments.

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 source, such as the ones listed in Seed Sources for Alabama Trials at the end of this publication

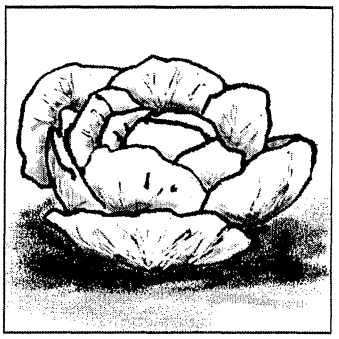
Several factors other than yield have to be considered when choosing a vegetable variety from a variety trial report. The main factors are type, resistance and tolerance to diseases, earliness and, of course, availability and cost of seeds. It is always better to try two to three varieties on a small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

TABLE 1. 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

TABLE 2. 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
EV Smith Research Center, Horticultural Unit (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



Cabbage Experimentals Are Top Performers at Sand Mountain

Joe Kemble, Edgar Vinson, and Tony Dawkins

Cabbage variety trials were conducted at the Sand Mountain Research and Extension Center in Crossville, Alabama (Tables 1 and 2). Six-week-old transplants were planted onto 15-foot long single row plots on September 26. Within row spacing was 1 foot, which created a stand of 8,700 plants per acre.

Fertilizer was applied according to the recommendations of the Auburn University Soil Testing Laboratory. Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Commercial Vegetables: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 2002IPM-2 from the Alabama Cooperative Extension System).

TABLE 1. RATINGS OF THE 2001 CABBAGE VARIETY TRIALS[1]

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

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

Preplant fertilizers 13-13-13 were applied at a rate of 1000 pounds per acre on September 25. No other fertilizers were applied. Plants were treated with insecticide on November 11. No other pesticides were applied.

Cabbage heads were harvested on December 24 when they reached marketable size. They were graded according to United States Standards for Grades of Cabbage (U.S. Department of Agriculture 46 FR 63203).

Overall cabbage yields were low due to a lower quality of transplants. There were little differences among variet-

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	Seminis	75	BR, FY
Cheers	F1	Green	Takii	84	BR, FY, Thrips
Headstart	F1	Green	Seminis	65	—
PSR54-1043-7	F1	Green	Seminis	—	—
Red Dynasty	F1	Red	Seminis	70	BR
RS3189	F1	Green	Novartis	—	—
RS914020	F1	Green	Novartis	—	—

[1] Type: F1=hybrid.
[2] Disease resistance/tolerance: FY=Fusarium Yellows; BR=black rot.
— = not available from seed catalogues.

ies (Table 3). The experimental varieties RS3189 and PSR54-1043-7 performed as well as 'Blue Dynasty' — an older more established variety. 'Red Dynasty' produced yields significantly lower than other cabbage varieties.

TABLE 3. YIELD OF SELECTED CABBAGE VARIETIES

Variety	Marketable yield *lbs/ac*	Marketable 50-lb cart *no/ac*
RS3189	16,872	337
PSR54-1043-7	15,654	313
Blue Dynasty	12,391	248
Cheers	12,033	241
RS914020	9,290	186
Headstart	6,591	132
Red Dynasty	6,028	121
r^2	***0.70***	
CV	***28***	
lsd	***5,510***	

Fall Carrot Variety Trial in North Carolina

Doug Sanders, Kirk Kreel, and Randy Herring

A carrot variety trial was conducted in 2002 at the Cunningham Research Station in Kinston, North Carolina. Carrots were planted on 20- x 5-foot quadruple row plots at a 1-inch spacing on August 23, 2001. The plots were planted with an Accord Vacuum Seeder with two double row seeding attachments. Irrigation was supplied by overhead irrigation. Fertilization consisted of five applications of 10-20-20. Carrots were harvested on December 6, 2001

Out of this trial, the best performers were 'Cheyenne', 'Five Star', 'Navarino', 'Neal', and 'Nevis' (see table). This trial indicates their yield potential. Previous trials have shown that they have good skin color and core appearance.

YIELD AND SEED SOURCE OF CARROT VARIETIES

Variety	Source	Total yield *lbs/ac*	Marketable yield *lb/sac*	Cull *lbs/ac*	Cull *%*
Cheyenne	SunSeed	2,552	1,659	893	35
Choctaw	SunSeed	2,585	1,695	889	34
Five Star	Seminis	2,530	1,746	784	32
HM 02	Harris Moran	2,073	1,158	915	45
Napoleon	Bejo	3,064	1,884	1,180	39
Narbonne	Bejo	2,468	1,735	733	29
Navarino	Bejo	3,332	2,472	860	26
Neal	Bejo	3,209	2,145	1,064	34
Nevis	Bejo	3,296	2,229	1,067	33
Topnotch	Seminis	2,276	1,336	940	42
lsd		***726***	***698***	***367***	***12***

Spring Carrot Variety Trial in North Carolina

Doug Sanders, Kirk Kreel, and Randy Herring

A carrot variety trial was conducted in spring of 2001 at the Cunningham Research Station in Kinston, North Carolina.

Carrots were planted on March 19, 2001 on 20- x 5-foot quadruple row plots at a 1-inch spacing. The plots were planted with an Accord Vacuum Seeder with two double row seeding attachments. Irrigation was supplied by overhead irrigation.

Fertilization consisted of one preplant application of 10-20-20 at a rate of 500 pounds on March 14 and two applications of 15.5-0-0 on April 30 and June 5 at rates of 125 and 160 pounds per acre, respectively. Weeds were controlled with two applications of herbicide on March 14 and April 30. Carrots were harvested by June 29, 2001.

Out of this trial, the best performers for fresh market production were 'Cheyenne', 'Five Star', 'Navarino', 'Neal', 'Nevis', and 'Top Notch' (see table). These varieties were chosen based on skin color, core appearance, and marketable yield.

Source, Total Yield, Cull Production, and Physical Characteristics of Selected Carrot Varieties

Variety	Source	Total yield per acre	Marketable yield per acre	Culls per acre	Culls %	Avg. color[1]	Avg. core[2]
XPH 18015	Seminis	2,236	937	1,300	58	4.63	3.88
XPH 18355	Seminis	2,167	1,405	762	36	3.38	4.00
Apache	SunSeed	2,120	1,401	719	34	3.63	3.75
Big Shot	Seminis	1,949	795	1,154	57	4.50	4.00
Cheyenne	SunSeed	1,833	1,067	766	42	4.50	4.50
Choctaw	SunSeed	2,026	1,539	486	24	3.25	3.75
Five Star	Seminis	2,574	1,786	788	33	4.00	4.50
Gold Pride	Harris Moran	1,848	984	864	47	3.63	3.13
HM 02	Harris Moran	2,349	1,604	744	32	3.25	3.50
Mokum	Bejo	1,946	795	1,151	66	3.25	3.63
Napoleon	Bejo	3,285	2,214	1,071	32	3.00	3.38
Narbonne	Bejo	2,784	2,360	425	16	2.50	2.38
Navarino	Bejo	3,180	2,327	853	30	3.50	3.63
Neal	Bejo	2,577	1,866	711	28	3.13	3.38
Nevis	Bejo	2,505	1,819	686	26	3.38	3.25
Sugar Snax	SunSeed	1,452	272	1,180	82	3.38	3.63
Temptation	Petoseed	2,258	1,191	1,067	50	3.88	4.00
Top Notch	Petoseed	2,174	1,594	581	27	4.38	4.25
Triumph	Petoseed	1,706	893	813	53	2.75	3.63
lsd		***378***	***751***	***497***	***21***	***1.05***	***0.96***

[1] Average color is determined by the overall skin color of 10 root samples where a scale of 1(light color) to 5 (dark color) is used.

[2] Average core uniformity is determined by the cortex uniformity of 10 root samples where a scale of 1(cortex rings highly visible) to 5 (no cortex rings visible) is used.

Hot Pepper Variety Trials Continued in Central Alabama

Joe Kemble, Edgar Vinson, and Jason Burkett

Hot pepper varieties trials were conducted at the E.V. Smith Research Center (EVSRC) in Shorter, Alabama (Tables 1 and 2).

Hot peppers were planted in 5- x 4-foot row plots with a within-row spacing of 12 inches. Plants were grown on plastic mulch with drip irrigation. Peppers were transplanted on June 8 at EVSRC.

Preplant fertilizer was 15.5-0-0 calcium nitrate applied 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. Insects were controlled by weekly applications of insecticide between June 11 and July 23.

Fertilizer was applied according to the recommendations of the Auburn University Soil Testing Laboratory. Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Commercial Vegetables: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 2002IPM-2 from the Alabama Cooperative Extension System).

TABLE 1. RATINGS OF 2001 HOT PEPPER VARIETY TRIAL[1]

Location	EVSRC
Weather	5
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 HOT PEPPER VARIETIES

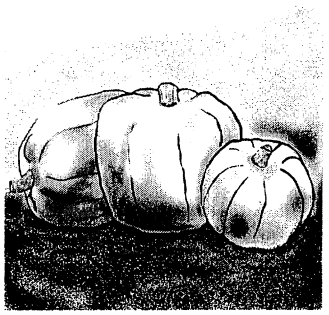
Variety	Type[1]	Classification	Seed source	Days to harvest	Pod shape	Color[2]	RSR[3]	Disease claims[4]
Magic Red	F1	Chili	Johnny's Select	60	Tapered end	G-R	—	TMV
Mitla	F1	Jalapeno	Seminis	72	Blunt point	G-R	4,000-5,000	—
Ortega	F1	Chili	Johnny's Select	70	Blunt point	G-R	—	—
Super Chili	F1	Chili	Johnny's Select	50	Tapered end	Y-R	30,000-40,000	—
Summer Heat 5000	F1	Jalapeno	A&C	75	Blunt point	G-R	—	PVY, TMV
XR3 Hot Spot	F1	Banana	Seminis	70	Tapered end	G-R	2,500-4,500	$BLS_{1,2,3}$

[1] Type: F1=hybrid.
[2] Color: Gr = Green; R = Red; Y = Yellow.
[3] RSR = Relative Scoville Rating; the higher the rating, the hotter the variety.
[4] Disease claims: TMV = Tobacco Mosaic Virus; PVY = Potato Virus Y; BLS = Bacterial Leaf Spot (races 1,2, and 3).
— = not available from seed catalogues.

Peppers were harvested July 23, July 30, August 6, August 20, August 27, and September 4. The weight of 25 pods was also determined (Table 3).

TABLE 3. YIELD OF SELECTED HOT PEPPER VARIETIES

Variety	Type	Total marketable weight *lbs/ac*	25-pod weight *lbs*
XR3 HotSpot	Banana	13,677	2.02
Magic Red	Chili	10,405	0.96
Ortega	Chili	9,696	2.36
Super Chili	Chili	8,690	0.26
Summer Heat 5000	Jalapeno	10,036	1.61
Mitla	Jalapeno	5,648	1.52
r^2		***0.60***	***0.93***
CV		***24***	***15***
lsd		***2,548***	***0.003***



Pumpkin Trials in North and South Alabama

Joe Kemble, Edgar Vinson, Tony Dawkins, Ron McDaniel, and Malcolm Pegues

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

Soils were fertilized according to the recommendations of the Auburn University Soil Testing Laboratory. Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Commercial Vegetables: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 2002IPM-2 from the Alabama Cooperative Extension System).

Planting dates were July 10 at GCREC and July 13 at SMREC. At both locations, pumpkins were direct seeded in hills on rows that were 60 feet long. There was a 5 foot spacing between hills.

At GCREC, pumpkin beds were made and 10-10-10 was applied preplant (at a rate of 500 pounds per acre) on July 7. Plots received no other fertilization. Pesticides were applied weekly from August 1 through August 30.

At SMREC, the ground was roto tilled on July 12. Preplant fertilization consisted of one application of ammonium nitrate (at a rate of 150 pounds per acre) on August 16. Insect, fungi, and weeds were controlled with weekly applications of pesticide between July 13 and September 24.

Harvest dates were September 15 at GCREC and October 3, October 6, and October 16 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). Due to intense pressure from silver leaf whiteflies, data from GCREC are not shown.

TABLE 1. RATINGS OF 2001 PUMPKIN VARIETY TRIALS[1]

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

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

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

Variety	Type[1]	Seed source	Maturity *days*	Fruit weight *lbs/ac*
Appalachian	F1	Seminis	90	20-25
Autumn King	F1	Novartis	95	2-3
Connecticut Field	OP	Rupp/Seminis	115	15-25
Ghost Rider	OP	Stokes	115	15-25
Gold Bullion	F1	Rupp Seeds	110	15-25
Gold Gem	F1	Rupp Seeds	105	15-25
Gold Metal	OP	Rupp Seeds	108	>25
Gold Rush	OP	Rupp Seeds	120	30-40
Gold Standard	F1	RuppSeeds	90	10-15
Gold Strike	F1	Rupp Seeds	110	25-40
Howden	OP	Harris Moran	100	15-20
Howdy Doody	—	Rupp Seeds	—	—
Jack-Be-Quick	OP	Rupp Seeds	95	0.25
Jumpin' Jack	OP	Rupp Seeds	120	25-40
Old Zebs	—	Rupp Seeds	—	—
Orange Dawn	—	Rupp Seeds	—	—
Pic-A-Pie	F1	Rupp Seeds	85	4-5
Touch of Autumn	F1	Novartis	95	2-3

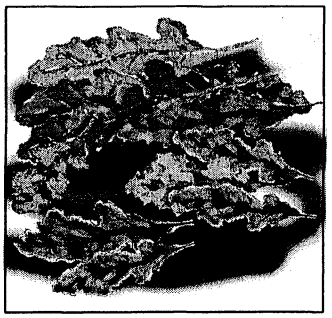
[1] Type: F1=hybrid; OP=open pollinated.
— = not available from seed catalogues.

At both locations, most pumpkin varieties produced fruit below their weight class. In the medium size category (15 to 25 pounds), 'Gold Medal' was the only pumpkin variety that produced fruit within its weight class. The yield of 'Gold Bullion' was similar to the yield of 'Gold Medal' though it produced fruit below its weight class. This was due to a higher number of fruit per acre. Both performed as well as the market standard 'Howden'.

TABLE 3. YIELD OF SELECTED PUMPKIN VARIETIES, SAND MOUNTAIN RESEARCH AND EXTENSION CENTER

	Weight class *lbs*	Total marketable weight *lbs/ac*	Total marketable number *no/ac*	Individual fruit wt. *lbs*
Prize Winnner	>40	43,920	1,069	30
Gold Rush	30-40	22,354	1,030	16
Gold Strike	25-40	26,385	1,742	11
Gold Bullion	15-25	32,135	2,495	10
Gold Metal	15-25	28,853	1,307	16
Howden	15-25	27,653	1,663	12
Connecticut Field	15-25	24,548	1,703	11
Gold Gem	15-25	19,448	1,148	12
Ghost Rider	15-25	15,555	1,742	7
Gold Standard	10-15	19,721	1,822	8
Pic-A-Pie	<10	14,022	2,930	4
Touch of Autumn	<10	12,819	5,465	2
Jack-B-Quick	<1	15,880	•	0.3
r^2		***0.61***		
CV		***38***		
lsd		***5,648***		

• = data not collected.



Leafy Greens Return to Trials

Joe Kemble, Edgar Vinson, and Randy Akridge

Leafy green variety trials were conducted at the Brewton Experiment Field (BEF) in Brewton, Alabama (Tables 1 and 2). Collard, mustard, and turnip greens were direct seeded on October 19 onto 20- x 5-foot plots. Plant population was approximately 500,000 plants per acre.

Fertilization consisted of preplant applications of dolomitic limestone (at a rate of 1 ton per acre) and 13-13-13 (at a rate of 450 pounds per acre) on September 21. After planting, leafy greens received 60 pounds of nitrogen per acre as ammonium nitrate (NH_4NO_3) on October 15 and November 27. Plants received one application of insecticide on November 27.

Fertilizer was applied according to the recommendations of the Auburn University Soil Testing Laboratory. Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Commercial Vegetables: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 2002IPM-2 from the Alabama Cooperative Extension System).

Leafy greens were harvested when they reached marketable size (Table 3). Harvest dates were December 21 for turnip and mustard greens and January 8, 2002 for collards. Yields were expressed in 30-pound bushels.

The varieties 'Top Bunch' and 'Flash' were significantly higher than the standard variety 'Vates'. Yields of 'Vates' were similar to 'Heavicrop' and 'Champion'. Three varieties of mustard greens were compared. 'Florida Broad Leaf' had yields significantly higher than 'Green Wave' and 'Red Giant'. Yields of 'Green Wave' were significantly higher than 'Red Giant'. Yet, 'Flash Hybrid' and 'Vates'

TABLE 1. RATINGS OF 2001 LEAFY GREENS VARIETY TRIALS[1]

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

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

TABLE 2. SEED SOURCE AND EARLINESSOF SELECTED LEAFY GREEN VARIETIES

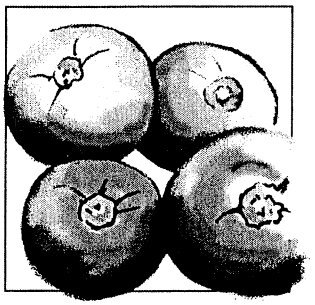
Variety	Type[1]	Crop	Seed source	Days to harvest
Purple Top White Globe	OP	Turnip	Seminis,Stokes	60
Heavicrop	F1	Collard	Takii	70
Seven Top	OP	Turnip	Seminis,Stokes	45
Florida Broad Leaf	OP	Mustard	Seminis,Stokes	50
Green Wave	OP	Mustard	Stokes	45
Red Giant	OP	Mustard	Harris Seed	40
Champion	OP	Collard	Harris Seed	75
Flash	F1	Collard	A&C,Stokes	73
Oasis	F1	Turnip	Takii	55
Top Bunch	F1	Collard	Sakata	70
Top Star	F1	Turnip	Sakata	36
Tyfon	F1	Turnip	Sieger	—
Vates	OP	Collard	Stokes	56

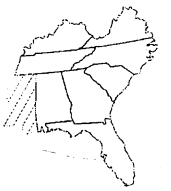
[1] Type: F1=hybrid; OP=open pollinated.
— = not available from seed catalogues.

were the highest yielding varieties. Among mustard varieties, yields of 'Red Giant' were significantly lower than those of the other varieties. Of the five turnip varieties tested, 'Top Star', 'Seven Top', and 'Purple Top White Globe' showed no significant differences; however; all three varieties were significantly higher than 'Oasis' and 'Tyfon'.

Table 3. Yield of Selected Collard, Mustard, and Turnip Varieties

Variety	Leaf yield *bu/ac*
Collard	
Top Bunch	437
Flash	405
Hevicrop	345
Vates	332
Champion	329
r2	***0.29***
CV	***21***
lsd	***96***
Mustard	
Florida Broad Leaf	618
Green Wave	445
Red Giant	382
r2	***0.90***
CV	***9***
lsd	***57***
Turnip	
Top Star	601
Seven Top	582
Purple Top White Globe	531
Oasis	513
Tyfon	450
r^2	***0.63***
CV	***9***
lsd	***57***





Variety Evaluation of Greenhouse Tomatoes, Spring 2001

Richard G. Snyder, Jim Curtis, and Lary Hawkins

A trial of 20 hybrid indeterminate greenhouse tomato varieties was performed in greenhouses #4, #5, and #6 at the Truck Crops Branch Experiment Station in Crystal Springs, Mississippi, during late fall of 2000 and spring of 2001. The purpose of this trial was to compare many of the popular European varieties—which for the most part have little presence in the United States—to 'Trust', the standard beefsteak variety used in North America.

'Trust' is grown on approximately 90% of the greenhouse tomato acreage in North America. DRW 57-19 is a Tomato Spotted Wilt resistant breeding line for the greenhouse. 'Azizia' is a cluster cocktail type, meaning it is about the size of a grape tomato, smaller than the other varieties in this trial.

Seeds were planted on October 17, 2000, and seedlings were transplanted on November 14, 2000 into 2 cubic foot pine-bark-filled white-on-black laminated polyethylene bags. There were three plants per bag, and 12 plants per plot. Replications, or blocks, were by entire greenhouse. The experimental design was a randomized complete block. Although the experiment was designed with three replications, in December 2000, the heating unit in greenhouse #6 failed, causing total crop loss in that greenhouse due to freeze damage. Therefore, there were only two replications available for analysis.

Data collected included marketable numbers and weights of fruit, and cull numbers and weights of fruit. Culls were graded severely and separated into a large

Table 1. Yield, Quality, and Size of Fruit From a Fall 2000–Spring 2001 Greenhouse Tomato Variety Trial

Variety	Marketable number	Marketable weight [1]	Total number	Total weight *(lbs)*	Fruit size *(oz)*
Trust	124 cdef	83 ab	516 c	209 bc	10.3 a
Blitz (3558)	116 cdef	54 abcd	604 c	218 abc	7.4 b
Match	157 cd	70 abcd	650 c	222 abc	7.1 bcd
Quest	168 cd	77 abc	568 c	202 bc	7.3 bc
DRW5719	159 cd	71 abcd	674 c	225 abc	7.2 bcd
Mississippi	96 cdef	46 cdef	480 c	193 bc	7.8 b
Baronie	133 cdef	62 abcd	548 c	215 abc	7.7 b
Mariachi (RZ 74-56)	170 cd	78 abc	516 c	191 bc	7.4 bc
Azizia (RZ 72-93)	470 a	35 def	2622 a	124 d	1.2 f
Electra	164 cd	70 abcd	618 c	194 bc	6.8 bcd
Colette	121 cdef	52 bcd	670 c	206 bc	6.8 bcd
Francesca	176 bcd	79 abc	605 c	219 abc	7.2 bc
Belladona	182 bcd	89 a	500 c	196 bc	7.8 b
Gabriela	136 cde	50 bcde	731 c	198 bc	5.8 bcde
E2031151	187 bc	86 ab	633 c	258 abc	7.3 bc
Dakota (8805270)	45 ef	14 ef	1201 b	264 a	5.0 de
Acoma (879219)	34 f	11 f	1087 b	219 abc	5.1 cde
Romana (851022)	272 b	64 abcd	1127 b	184 c	3.7 e
851000	52 ef	15 ef	1187 b	241 ab	4.5 e
8700816	85 def	39 def	512 c	176 cd	7.4 bc
signif. [2]	**	**	**	**	**
lsd	***100***	***37***	***226***	***37***	***2***

[1] Marketable weight is based on pounds per 12-plant plots. [2] Mean separation is by Duncan's New Multiple Range Test; ** indicates significant at $p \leq 0.01$; *NS* indicates not significant at p=0.05.

number of physiological disorder categories to determine possible quality problems with some of the new varieties and breeding lines. Total numbers and weights and fruit size were calculated from the recorded data. Fruit size was based on marketable fruit only. Data were analyzed by analysis of variance, with mean separation by Least Significant Difference.

There were significant differences among varieties in marketable number and weight, total number and weight, and fruit size. 'Azizia' 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 'Romana', E2031151, 'Belladona', and 'Francesca'. As for marketable weights, 'Belladona' had the most yield, but was not significantly different from E2031151, 'Trust', 'Quest', 'Match', 'Mariachi', DRW 5719, 'Francesca', 'Electra', 'Romana', 'Baronie', or 'Blitz'. 'Acoma' was lowest in both marketable numbers and weights. 'Dakota', 851000, 8700816, and 'Mississippi' were also low yielding varieties, by both marketable weight and number. The grape tomato variety 'Azizia', while high in marketable number, was among the lowest in marketable weights. The variety with the highest total number was also 'Azizia', due to its diminutive size.

Full-sized varieties with high total number include 'Dakota', 851000, 'Romana', and 'Acoma'. For total weights, 'Dakota' was highest, but not significantly different from E2031151, 851000, 'Match', 'Blitz', 'Acoma', 'Francesca', 'Baronie', or DRW 5719. The largest variety was 'Trust', averaging 10.3 ounces; this was significantly larger than all other varieties. The grape variety, 'Azizia' was smallest (1.2 ounces), as would be expected. However, several other varieties were very small, perhaps too small for the American beefsteak market. These include 'Gabriella'(5.8 ounces), 'Dakota' (5.0 ounces), 'Acoma' (5.1 ounces), 851000 (4.5 ounces), and 'Romana' (3.7 ounces).

There were many differences in physiological disorders among the 20 varieties tested. No significant differences were found in poor skin quality, zipper scar, skin splitting, or green fruit remaining at the end of the crop. Also, there was not enough occurrence in striping, so it was not analyzed.

The variety with the greatest number of small fruit was 'Azizia', the grape variety. These were undersized even for a grape type. For the beefsteaks, 'Dakota', 'Acoma', and 851000 had significantly more small fruit than the other varieties.

TABLE 2A. PHYSIOLOGICAL DISORDERS OF FRUIT FROM A FALL 2000–SPRING 2001 GREENHOUSE TOMATO VARIETY TRIAL[1]

Variety	Small	Rough shape	Poor skin	Radial cracks	Concentric cracks	Russetted skin	Zipper scar	Split skin
	no	*no*	*no*	*no*	*no*	*no*	*no*	*no*
Trust	232 def	78 def	40	67ab	1 bc	28 ghijk	8	12
Blitz (3558)	282 def	118 bcd	44	80 a	1 bc	75 bcd	6	22
Match	323 def	92 bcde	48	65 ab	4 bc	45 efgh	4	23
Quest	262 def	100 bcde	60	70 ab	0 c	13 ijk	4	2
DRW5719	328 def	84 cdef	60	82 a	1 bc	28 ghijk	2	2
Mississippi	168 f	124 abc	60	82 a	0 c	37 fghij	4	6
Baronie	215 ef	100 bcde	42	40 abc	1 bc	46 defgh	6	2
Mariachi (RZ 74-56)	201 ef	98 bcde	37	36 abc	0 c	37 fghij	4	4
Azizia	1964 a	44 fg	54	0 c	0 c	1 k	2	6
Electra	354 de	164 a	42	70 a	0 bc	18 hijk	2	4
Colette	343 def	118 bcd	60	30 abc	3 bc	60 cdef	0	3
Francesca	270 def	130 ab	44	66 ab	0 bc	36 fghij	8	2
Belladona	187 ef	136 ab	28	80 a	2 bc	12 jk	4	8
Gabriela	536 c	58 efg	68	32 abc	2 bc	41 efghi	2	2
E2031151	275 def	104 bcd	80	80 a	3 bc	26 ghijk	4	1
Dakota (8805270)	1092 b	78 def	102	12 bc	4 bc	78 bc	8	4
Acoma (879219)	974 b	58 efg	96	2 c	5 b	70 cde	1	2
Romana (851022)	408 cd	15 g	56	0 c	4 bc	296 a	0	6
851000	1064 b	45 fg	63	3 c	4 bc	54 cdefg	5	1
8700816	226 ef	98 bcde	60	74 a	11 a	101 b	0	16
signif.[2]	**	**	***NS***	*	*	**	***NS***	***NS***
lsd	***180***	***45***	***47***	***57***	***5***	***30***	***7***	***14***

[1] Yields are based on 12-plant plots. [2] Mean separation is by least significant difference; ** indicates significant at $p \leq 0.01$; * indicates $p \leq 0.05$; *NS* indicates not significant at p=0.05.

'Electra' had the most rough fruit, closely followed by 'Mississippi', 'Francesca', and 'Belladona'. 'Romana' had the least rough fruit.

While not statistically significant, 'Dakota' had the most fruit with poor quality skin.

Radial cracking was worse with DRW 5719, 'Mississippi', 'Belladona', and 8700816. There was no radial cracking at all in 'Azizia' and 'Romana', and very little in 'Acoma' and 851000.

Concentric cracking was higher in 8700816 than all other varieties. No concentric cracking was found in 'Quest', 'Mississippi', 'Mariachi', 'Azizia', 'Electra', or 'Francesca'.

Russetting was higher in 'Romana' than all other varieties. 8700816 was also quite high in russetted fruit. 'Azizia' had the least russetting.

While not statistically different, 'Trust', 'Francesca', and 'Dakota' had numerically more zipper scar than the other varieties. 'Colette' had no zipper scar.

Differences among varieties for skin splitting were not statistically significant either. However, 'Match' and 'Blitz' had the most, followed by 'Trust'.

Green shoulder was more evident in 'Azizia' and 'Romana' than all other varieties. 'Belladona' had the least, but 'Quest' was also very low in green shoulder.

Very few fruit of any variety exhibited catfacing problems. However, 'Francesca' had significantly more than the other varieties.

'Dakota' had more irregular ripening than any of the other varieties. 'Colette', 'Acoma', and 851000 also had some irregular ripening problems.

There were significantly more puffy fruit in DRW 5719 than any other variety. Puffy fruit was also evident, to a lesser degree, in 'Blitz', 'Match', 'Quest', 'Colette', 8700816. This was not a major problem for any variety.

There were significantly more fruit with blossom-end rot in E2031151 and 'Dakota' than the other varieties. However, this was not a serious problem in any variety.

'Blitz' and 'Match' had significantly more soft fruit than the other varieties. But this was not a serious defect in any variety.

At the end of the experiment, any remaining green fruit on the plants were removed and counted. This number can indicate whether there would have been much more yield if the crop had been extended longer. There

TABLE 2B. PHYSIOLOGICAL DISORDERS OF FRUIT FROM A FALL 2000–SPRING 2001 GREENHOUSE TOMATO VARIETY TRIAL[1]

Variety	Green shoulder *no*	Cat face *no*	Irregular ripening *no*	Puffy *no*	Blossom end rot *no*	Soft *no*	Green *no*
Trust	80 e	0 c	10 e	68 cdefg	2 cd	20 bc	30
Blitz (3558)	138 bcd	0 c	42 e	90 bcd	1 cd	23 ab	26
Match	98 cde	2 bc	14 e	96 bc	0 d	24 a	55
Quest	62 ef	2 bc	34 e	87 bcde	1 d	8 cde	36
DRW5719	107 cde	3 bc	26 e	146 a	0 d	8 cde	32
Mississippi	106 cde	2 bc	74 de	60 defgh	4 cd	8 cde	31
Baronie	136 bcd	2 bc	78 cde	60 defgh	8 bc	16 bcd	48
Mariachi (RZ 74-56)	85 e	2 bc	44 de	60 defgh	1 cd	6 cde	49
Azizia	334 a	0 c	12 e	30 hi	4 cd	3 de	47
Electra	92 de	2 bc	52 de	36 fgh	6 cd	2 e	58
Colette	159 b	6 b	162 bc	107 b	1 cd	6 cde	58
Francesca	91de	10 a	24 e	40 fgh	2 cd	3 de	55
Belladona	24 f	2 bc	18 e	33 ghi	2 cd	1 e	44
Gabriela	145 bc	1c	48 de	54 efgh	2 cd	3 de	51
E2031151	95 de	2 bc	19 e	70 cdef	20 a	4 de	38
Dakota (8805270)	103 cde	1c	290 a	67 cdefg	14 ab	3 de	48
Acoma (879219)	97 cde	0 c	130 bcd	62 cdefgh	1 cd	0 e	54
Romana (851022)	295 a	0 c	44 de	0 i	4 cd	0 e	46
851000	98 cde	0 c	195 b	56 defgh	6 cd	2 e	44
8700816	138 bcd	0 c	14 e	121 ab	2 cd	6 cde	41
signif.[2]	**	*	**	**	**	**	***NS***
lsd	***50***	***4***	***87***	***35***	***8***	***14***	***37***

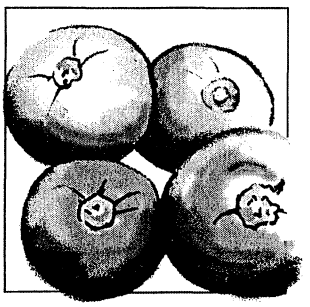
[1] Yields are based on 12-plant plots.[2] Mean separation is by least significant difference; ** indicates significant at $p \leq 0.01$; * indicates $p \leq 0.05$; *NS* indicates not significant at p=0.05.

were no significant differences in numbers of green fruit remaining.

In summary, any of the following varieties would be considered relatively high yielding: 'Belladona', E2031151, 'Trust', 'Quest', 'Match', 'Mariachi', DRW 5719, 'Francesca', 'Electra', 'Romana', 'Baronie', or 'Blitz'.

Of these varieties, however, 'Belladona' had more fruit that were rough and with radial cracking; E2031151 had more fruit with blossom-end rot (though not a high number); DRW 5719 had more fruit with puffiness and radial cracks; 'Francesca' had more fruit with catfacing (though not a high number) and rough shape; 'Electra' had more fruit with rough shape; and 'Romana' had more green shouldered fruit as well as a severe russetting problem.

The quality of fruit from 'Trust', 'Quest', 'Match', 'Mariachi', 'Baronie', and 'Blitz' was quite good, judging by the absence of the various physiological disorders recorded. Any of these would be good choices for greenhouse tomato growers, especially in the climate of the southeastern United States.



Thrips Populations in Summer Tomatoes Affected by Plastic Mulch

Kent Cushman, Jack Reed, and Thomas Horgan

Four cultivars of tomato and two types of plastic mulch were compared during 2001 at the North Mississippi Research and Extension Center (Table 1). This study was conducted in part due to the high incidence of Tomato Spotted Wilt Virus (TSWV) in Mississippi during 1999 and 2000.

Plants of each cultivar were planted in raised beds covered with either white-on-black or silverized plastic mulch. The silverized mulch used in this study was not a highly reflective mulch, but rather it appeared gray in color. Thrips populations have been reported to be reduced on tomato plants grown on silverized mulches compared to plants grown on black plastic mulch.

TABLE 1. CULTIVAR SOURCE AND CHARACTERISTICS

Cultivar	Source	TSWV tolerant	Heat tolerant
Mountain Spring	Syngenta	No	No
BHN 444	BHNSeed	Yes	No
Equinox	Agrisales	No	Yes
BHN 555	BHNSeed	Yes	Yes

The experimental design was a split plot with four replications. The main plot was mulch and the subplot was cultivar. Cultivars were transplanted to the field on May 18. Normal fertilization and pest control practices were followed for tomato production in Mississippi.

Each plot was three rows wide and 10 feet long. Plants were spaced 2 feet apart within rows, making a total of 15 plants per plot. The two outside rows, a total of 10 plants, were harvested for yield determinations, and the middle row, of five plants, was reserved for flower and leaf removal and subsequent determination of thrips populations. Plant beds were spaced 6 feet apart, center to center.

Plants were sampled by visual examination of all leaves on the plants and the numbers of adult thrips were counted. Thrips on foliage were not

TABLE 2. THRIPS POPULATIONS BY CULTIVAR AND PLASTIC MULCH

	Flower thrips [1]	Tobacco thrips [2]	Western flower thrips [3]	Eastern flower thrips [4]
	Thrips per plant (May 23 to June 18)		Thrips per 10 blooms (July 18)	
Cultivar				
Mt Spring	0.18	2.41	4.50	2.62
BHN 444	0.43	1.25	4.57	5.29
Equinox	0.41	3.00	6.38	4.88
BHN 555	0.24	2.83	9.00	9.57
r²				
CV				
lsd	***NS***	***NS***	***NS***	***NS***
Plastic mulch				
White	0.16	4.24	9.7	9.3
Silver	0.48	0.37	1.9	1.1
r²	***0.12***	***0.23***	***0.78***	***0.65***
CV	***215***	***215***	***65.6***	***108***
lsd	***0.37***	***1.27***	***7.4***	***7.3***

[1] Flower thrips (*Frankliniella occidentalis* and *F. tritici*).
[2] Tobacco thrips (*Frankliniella fusca*).
[3] Western flower thrips (*Frankliniella occidentalis*).
[4] Eastern flower thrips (*Frankliniella tritici*).
[5] Least Significant Difference (LSD) at *P=0.05*. Treatments not significantly different (NS).

collected, but were identified on the plants by color (dark = tobacco thrips [*Frankliniella fusca*]; light = flower thrips, a combination of western flower thrips [*F. occidentalis*] and flower thrips [*F. tritici*]). Plants were not damaged and leaves were not removed. After plants began flowering uniformly, 10 blooms per plot were strongly thumped with a finger over a white pan to dislodge thrips, and thrips were vacuumed into a vial with a battery-powered aspirator. Vials containing thrips were taken to the laboratory for identification under magnification (dissection microscope). Some of the thrips from blooms were mounted on microscope slides to further verify identifications made under the dissection microscope.

Tomato fruits were harvested once a week beginning July 19 and ending August 16 for a total of five harvests. Tomatoes were separated into marketable or unmarketable with marketable tomatoes further separated into size categories of jumbo, extra large, large, or medium.

Incidence of TSWV in this experiment was very low (two plants out of a total of 480) and incidence of TSWV throughout our region was generally reported to be very low during 2001. The main plot factor of plastic mulch significantly affected thrips populations (Table 2). On young plants, there were few flower thrips present, but of those present there was a significantly greater number of flower thrips detected on plants grown on silver mulch than on plants grown on white mulch. In contrast, there was a greater number of tobacco thrips present than flower thrips, and there was a significantly greater number of tobacco thrips on plants grown on white mulch than on plants grown on silver mulch. Later in the season, one day prior to first harvest, flower thrips were more numerous, and there appeared to be a significantly greater number on plants grown on white mulch than on plants grown on silver mulch. These results were consistent for the two species of flower thrips, *Frankliniella tritici* and *F. occidentalis*.

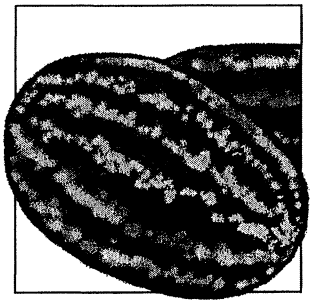
The subplot factor of cultivar did not affect thrips populations. In addition, cultivar did not affect total yield (Table 3). Percent marketable yield, however, was significantly lower for BHN 555 than the three other cultivars. BHN 555 also had significantly greater yield of tomatoes in the jumbo category than 'Mountain Spring' or 'Equinox' and it had significantly greater size (ounces per fruit) than 'Equinox'.

TABLE 3. YIELD, PERCENT MARKETABLE, AND AVERAGE WEIGHT OF TOMATOES[1]

	Total marketable [2]		——Jumbo——		—Extra large—		——Large——		—Medium—	
	lbs	*%*	*lbs*	*oz/fruit*	*lbs*	*oz/fruit*	*lbs*	*oz/fruit*	*lbs*	*oz/fruit*
Cultivar										
Mt Spring	154	82	15	15.3	111	9.6	20	6.0	9	4.3
BHN 444	175	79	20	15.7	132	9.7	16	6.2	7	4.6
Equinox	161	80	14	14.9	120	9.5	20	6.0	7	4.6
BHN 555	159	70	24	15.8	115	10.0	14	6.1	6	4.7
r²		***0.73***	***0.64***	***0.52***						
CV		***5***	***40***	***4.0***						
lsd	***NS***	***4***	***8***	***0.7***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***
Plastic mulch										
White	168	78	20	15.3	124	9.7	17	6.1	7	4.2
Silver	157	78	16	15.5	115	9.7	18	6.1	7	4.9
r²										
CV										
lsd	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***

[1] Values are means of four replications of 10 plants per replication.

[2] Values are means of four replications of 10 plants per replication.[1] Values are means of four replications of 10 plants per replication Total marketable yield (lb) is the sum of jumbo, extra large, large, and medium. Total marketable (%) is the relative number of marketable tomatoes as a percentage of total number harvested (marketable plus unmarketable).



Triploid Watermelon Cultivar Evaluation, Summer 2001

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

Fourteen 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 2001. A similar evaluation was conducted at the North Mississippi Branch Station at Verona, Mississippi.

Seed of 20 varieties of triploid watermelon were planted in the greenhouse on April 9, 2001. 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. Seed sources are shown in Table 1. Of these 20 varieties, five did not have high enough germination in the greenhouse, so were not included in the field trial. Germination percentages were recorded.

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 on April 3 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 April 23 and triploids were transplanted on April 30. Plants were arranged in a randomized complete block design with four replications. Plants were spaced 2.5 feet apart within the row, and 6 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 5 feet apart within the row (30 square feet per plant), with five plants per plot, due to its vigor, which is higher than the triploids.

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 psi). 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 applied via drip tape.

Harvest began on July 6 and concluded on August 3. Each melon was weighed individually. Data collected included total and marketable numbers and weights of fruit. Fruit smaller than 5 pounds were considered unmarketable. Percentage early was calculated from marketable weights of fruit harvested on the first of six harvest dates.

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.

TABLE 1. PERCENTAGE GERMINATION OF VARIETIES

Entry	Seed source	Percentage germination[1]
Constitution	Sunseeds	95.8
Cooperstown	Seminis	69.4
Crimson Trio	Rogers	79.2
Diamond	Hollar	76.4
Gem Dandy	Willhite	83.3
Millionaire	Harris Moran	91.7
Seedway 4502	Seedway	69.4
Summer Sweet 5244	Abbott & Cobb	70.8
Summer Sweet 5544	Abbott & Cobb	66.7
SWT8705	Sakata	70.8
Tri-X Brand 313 Diamond	American Sunmelon	78.1
Tri-X-Carousel	American Sunmelon	72.2
Willhite 4830	Willhite	77.8
Wrigley	Seminis	59.7

[1] Percentage germination is a ratio of seeds germinated to seeds planted; these data are not replicated.

Data were analyzed by general linear means, with mean separation by Least Significant Difference.

Germination ranged from 11 to 96%. Varieties that germinated less than 60% were not included in this trial; therefore, five varieties were eliminated from the original 20. Seed from another variety was not received in time to include it. Germination percentages are shown in Table 1. 'Constitution' and 'Millionaire' had the best germination, with 96% and 92%, respectively. These data were not replicated.

There were no significant differences in marketable numbers or weights, total numbers or weights, or percentage early yield. However, there were clear trends, though not statistically significant (Table 2). 'Gem Dandy' was highest in marketable and total weights and numbers (47,891 pounds per acre total and 47,266 pounds per acre marketable weights). Other varieties very close in yield to 'Gem Dandy' were 'Millionaire' (45,288 pounds per acre marketable weight), 'Summer Sweet 5244' (42,783 pounds per acre marketable weight), and 'Crimson Trio' (42,751 pounds per acre marketable weight). 'Constitution' also had quite high marketable numbers (4,066 melons per acre). This shows some agreements with the 2000 trial, in which 'Constitution', 'Millionaire', and 'Gem Dandy' were among the best yielding varieties. There were significant differences in percentage early harvest, with 'Seedway 4502' the earliest (48%), followed by 'Diamond' (47%) and 'Tri-X Carousel' (43%).' Diamond' was also early last year.

All varieties averaged 12 to 14.5 pounds in size, when fruit smaller than 10 pounds was not included in the size calculation. 'Seedway 4502' was the largest, at 14.5 pounds, followed by 'Tri-X 313' at 14.3 pounds, and 'Gem Dandy' at 13.8 pounds. 'Cooperstown' was the smallest, averaging 12.0 pounds.

Soluble solids, an indication of sweetness, was not significantly different among varieties. However, 'Crimson Trio' and 'Tri-X Carousel' were the sweetest, with Brix measurements of 13.2 and 13.1, respectively. All of the watermelon varieties tested would be considered sweet, with the full range from 11.9 to 13.2. 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.

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

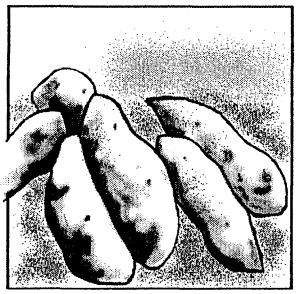
Variety	—Total yield—		Marketable yield [1]		Early harvest [2]	Size [1]	Soluble solids content [3]
	lbs/ac	*no/ac*	*lbs/ac*	*no/ac*	*%*	*lbs*	*%*
Constitution	41,756	4,211	41,171	4,066	33.4	12.6	12.8
Cooperstown	35,661	3,703	34,819	3,485	27.8	12.0	12.3
Crimson Trio	44,025	4,138	42,783	3,703	25.1	12.9	13.2
Diamond	42,711	4,066	41,858	3,848	47.1	13.1	12.2
Gem Dandy	47,891	4,429	47,266	4,283	38.9	13.8	12.9
Millionaire	45,723	4,356	45,288	4,211	16.8	12.8	12.4
Seedway 4502	38,304	3,194	37,425	2,977	48.0	14.5	11.9
Summer Sweet 5244	44,079	4,429	42,751	4,066	30.3	12.6	12.3
Summer Sweet 5544	42,072	3,848	40,961	3,557	33.1	13.3	12.6
SWT8705	39,429	3,775	37,788	3,340	25.3	13.4	12.4
Tri-X Brand 313 Diamond	38,340	3,122	36,903	2,759	35.8	14.3	12.6
Tri-X-Carousel	39,349	3,557	38,892	3,412	43.4	12.8	13.1
Willhite 4830	34,521	3,775	32,655	3,194	29.7	12.6	12.5
Wrigley	37,857	3,703	37,237	3,557	28.1	12.7	12.7
lsd (P=0.05) [4]	***NS***	***NS***	***NS***	***NS***	***NS***	*	***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).



Results of the 2001 Sweetpotato Collaborators' Trial

Joe Kemble, Edgar Vinson, and Arnold Caylor

The national sweetpotato collaborator's trial was conducted at the North Alabama Horticulture Research Center in Cullman, Alabama (Table 1). The standard cultivar 'Beauregard' was used as a check.

Sweetpotatoes were planted on June 14. Fertilization consisted of a preplant application of ammonium nitrate at a rate of 80 pounds of nitrogen per acre on May 8. Sweetpotato slips were transplanted onto single row plots 25 feet long and 3.5 feet wide with a within row spacing of 1 foot.

Fertilizer was applied according to the recommendations of the Auburn University Soil Testing Laboratory. Names of chemicals are mentioned only for describing the production practices used. This represents neither a recommendation nor an endorsement of these products. Current recommendations for pest and weed control in vegetable production in Alabama may be found in *IPM Commercial Vegetables: Insect, Disease, Nematode and Weed Control Recommendations* (Publication 2002IPM-2 from the Alabama Cooperative Extension System).

TABLE 1. RATINGS OF THE 2001 SWEETPOTATO VARIETY TRIALS[1]

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

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

Sweetpotatoes were harvested on October 24. Roots were graded as US #1 (roots 2 to 2.5 inches in diameter, 3 to 9 inches in length, well shaped and free of defects), canner (roots 1 to 2 inched in diameter, 2 to 7 inches in length), jumbo (roots that exceed the diameter, length and weight requirements of the US #1 grade, but that are of marketable quality), or cull (roots at least 1 inch in diameter but so misshapen and unattractive that they cannot be classified as marketable.

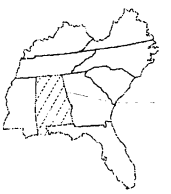
Marketable yield was calculated by adding the yields of the US #1, canner and jumbo grades. Percent US #1 was calculated by dividing the yield of the US #1 grade by the marketable yield (Table 2).

TABLE 2. TOTAL PRODUCTION AND GRADE DISTRIBUTION OF SELECTED SWEETPOTATO VARIETIES[1]

Selection	US #1 *bu/ac*	Canner *bu/ac*	Jumbo *bu/ac*	Cull *bu/ac*	Total marketable *bu/ac*	US #1 *%*
Beaugard	578	312	30	19	920	65
NC97A-04	256	465	0	62	721	35
L94-96	85	292	0	41	376	13
W334	82	329	0	130	410	20
W365	65	249	0	99	313	21
MSI52	62	385	0	96	448	15
W311	55	223	0	174	277	20
L97-96	50	311	0	38	361	14
W28	42	212	0	44	255	16
W375	24	247	0	64	271	7
W352	17	193	0	37	210	8
W346	11	188	0	60	199	6
W366	5	161	0	49	167	3
MSK39	4	118	0	25	121	3
r^2	***0.94***	***0.45***	***0.32***	***0.50***	***0.78***	***0.90***
CV	***48***	***48***	***636***	***78***	***40***	***39***
lsd	***85***	***230***	***—***	***99***	***267***	***14***

[1] Based on 50-pound bushels per acre.

Results of the 2001 Southernpea Cooperative Trials



Joe Kemble, Edgar Vinson, and Randy Akridge

Replicated and observational southernpea cooperative trials were conducted at the Brewton Experimental Field (BEF) in Brewton, Alabama (Table 1). The purpose of these trials was to evaluate the performance of southernpea cultigens that have to been released.

Southernpeas were planted onto bareground plots that were 20 feet long and 3 feet wide on July 3. Plots had a within-row spacing of 1 foot. Overhead irrigation was used. Preplant fertilizer (5-10-15) was applied at a rate of 800 pound per acre.

Southernpeas were harvested as needed between August 28 and September 6 when 80 percent of the pods were dry. To estimate yield and to compensate for different percentages of dry and mature green pods, all peas shelled from each plot were placed into containers with water to allow the dry ones to soak up water (imbibe) overnight. Comparisons are then more realistic since all peas are at the same moisture level. Imbibed weights are estimates of mature green, shelled weight yield (Table 2.). Bushels of fresh, in-pod yield per acre may be estimated by multiplying the imbibed weight by 2 (assuming an average shellout of 50 percent) and dividing it by 25 (the average weight of a bushel of fresh, unshelled southernpeas).

TABLE 1. RATINGS OF THE 2001 SOUTHERNPEA COOPERATIVE TRIAL[1]

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

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

TABLE 2. YIELD OF SELECTED ENTRIES IN THE 2001 REPLICATED AND OBSERVATIONAL SOUTHERNPEA COOPERATOR'S TRIAL

Entry	Days to harvest	Number of harvests	Hand shell-out yield %	In-pod shelled yield *lb/ac*	Imbibed yield *lb/ac*
Replicated Test					
ARK 92-574	62	1	77	1,090	1,456
ARK 96-918	64	1	65	1,611	1,570
ARK BE #1	54	1	70	3,433	2,815
Coronet	57	1	67	4,075	2,880
Early Acre	62	1	65	2,074	1,830
LA 92-180	62	1	76	2,001	2,522
LA 96-21	54	1	69	2,953	2,514
Mississippi Silver	64	1	43	3,685	3,042
TX 128BE	54	1	70	3,083	2,603
TX 139CRM	64	1	76	1,497	1,798
TX 148PE	57	1	62	4,238	2,693
TX 149PE	62	1	64	2,668	2,375
TX 159BE	54	1	73	1,879	2,123
TX 164PE	57	1	66	3,807	2,636

continued

TABLE 2, CONTINUED. YIELD OF SELECTED ENTRIES IN THE 2001 REPLICATED AND OBSERVATIONAL SOUTHERNPEA COOPERATOR'S TRIAL

Entry	Days to harvest	Number of harvests	Hand shell-out yield %	In-pod shelled yield lb/ac	Imbibed yield lb/ac
US-1033	62	1	73	2,790	3,042
US-1035	64	1	68	3,254	3,376
US-1036	64	1	62	3,091	2,839
US-904	57	1	55	4,588	2,530
r^2				***0.71***	***0.50***
CV				***25***	***24***
lsd				***1,073***	***833***
Observational Test					
US-1031	64	1	•	1,867	2,031
US-1032	62	1	•	1,573	2,064
US-1068	64	1	•	1,278	1,802
US-1069	64	1	•	1,966	1,638
US-1070	64	1	•	2,064	1,769
ARK 96-1022	57	1	•	2,359	1,736
ARK 98-348	64	1	•	1,409	1,474
ARK 95-356	62	1	•	2,293	2,785
TX 123BE	62	1	•	2,588	2,621
TX 158BE	54	1	•	4,095	2,654
TX 160BE	57	1	•	5,013	2,293
TX 158PE	54	1	•	3,309	2,195
LA 92-86	62	1	•	2,424	2,457
LA 95-62	62	1	•	2,424	2,359
LA 96-7	54	1	•	2,031	2,097
Coronet	77	1	•	4,521	3,276
ARK BE #1	54	1	•	3,735	3,309
Early Acre	62	1	•	2,326	1,900

Seed Sources for Alabama Trials

Abbot and Cobb, Inc.
To order: (800) 345-SEED
In TX: (800) 277-8177
Tech. Rep: Russ Becham
4517 Tilman Bluff Road
Valdosta, GA 31602
Fax: (912) 249-8135

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

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

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

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

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

Sunseeds
Richard Wojciak
12214 Lacewood Lane
Wellington, Florida 33414_4983
Phone : 561 791 9061
Fax: 561 798 4915
Mobile: 561 371 2023
richard.wojciak@sunseeds.com

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To order: (800) 828-1840
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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 2002).

When: September 25, 2002
Deadline for spring 2002 variety trial report submissions.

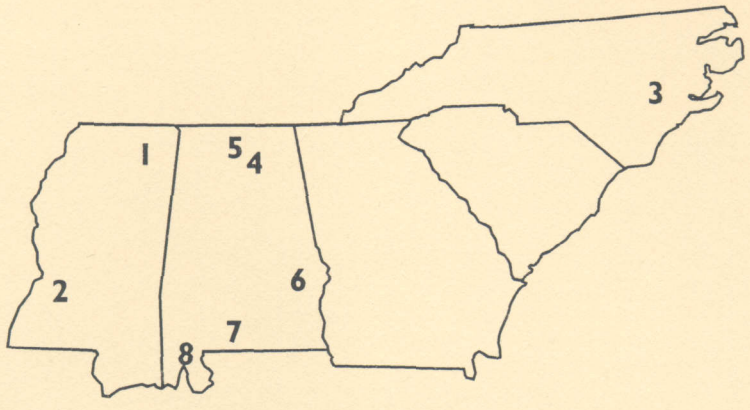
What: Results pertaining to variety evaluation in a broad sense. This includes field performance, quality evaluation, and disease resistance. Here are a few tips:

- Follow the format used in the first eight 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 Cunningham Research Station, Kinston, NC

AUBURN UNIVERSITY

4 Sand Mountain Research and Extension Center, Crossville, AL
5 North Alabama Horticulture Research Center, Cullman, AL
6 E.V. Smith Research Center, Shorter, AL
7 Brewton Experiment Field, Brewton, AL
8 Gulf Coast Research and Extension Center, Fairhope, AL