

RESEARCH UPDATE

1993

FRUITS & VEGETABLES

Tomato Variety Trials

Thirteen tomato varieties were tested at the E.V. Smith Research Center (EVSRC) in Shorter and the North Alabama Horticulture Substation (NAHS) in Cullman. Six-week-old tomato plants were planted on April 20 at EVSRC and on May 4 at NAHS.

Plants were spaced 20 inches apart and trellised on raised, fumigated beds five feet apart. Drip irrigation was scheduled when soil moisture tension indicated 15% of available moisture had been depleted. At EVSRC, reflective plastic mulch was used over drip lines.

Before planting, 50% of nitrogen

(N) and potassium (K) and all phosphorous requirements were applied. The remainder of N and K was applied as liquid through the drip system as described in Circular ANR-660. Pesticides were applied according to the Alabama Pesticide Handbook or Circular ANR-2.

Three harvests were made at EVSRC, and six at NAHS when tomatoes were at the pink to red stage of maturity. Fruit were culled for small size, disease and insect damage, cracks, blotchy ripening, and catfacing. Total yield, as shown in the table, is the combined weight of marketable fruit

and culls. A large difference between total and marketable yields may indicate poor adaptability of a variety, or the opportunity to improve marketable yield through different cultural practices.

All the tomato varieties tested turned red after one week of ripening, except for Spitfire which was dark pink to maroon. Sunny and Mountain Delight have been grown for several years in Alabama and can be used as the standards for judging new tomato varieties.

S. Kovach, A.G. Hunter, and O.L. Chambliss

1992 TOMATO VARIETY TRIALS AT E.V. SMITH RESEARCH CENTER (EVSRC) AND NORTH ALABAMA HORTICULTURE SUBSTATION (NAHS)

Variety	Marketable yield per acre (Cwt.) ¹		Total yield per acre (Cwt.) ¹		Average fruit size (In.)	
	EVSRC	NAHS	EVSRC	NAHS	EVSRC	NAHS
Cobia	243	614	517	789	7.1	8.6
Colonial	376 ²	698	635	880	7.9	8.3
Heatwave	343	722 ²	600	948	6.3	7.7
Magambo	234	655	473	775	8.3	9.2
Merced	361 ²	734 ²	601	915	7.9	8.7
Mtn. Delight	341	774 ²	538	870	7.5	8.1
Olympic	384 ²	599	662	754	8.4	8.7
Solar Set	334	744 ²	640	880	6.8	8.0
Spitfire	312	642	627	834	6.5	9.5
Sunny	359 ²	751 ²	639	912	6.7	7.8
Sunrise	361 ²	692	560	854	6.3	8.3
Tough Boy	220	405	348	535	5.3	6.9
Whirlaway	293	650	534	827	6.4	8.7

¹Cwt. = hundred weight. Example: 24,300 pounds = 243 Cwt.
²Variety is one of the top five in marketable yield.

Summer Pruning, Reduced Nitrogen Improve Red Delicious Apples

Excessive vegetative growth in Red Delicious apples, caused by Alabama's long growing season and high rates of nitrogen applied in the spring, adversely affects fruit color and increases the cost of annual pruning.

An AAES study in 1992 showed that summer pruning and reduced nitrogen rates were effective in controlling excessive growth and enhancing

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Pole Bean Variety Trials

Twenty-one pole bean varieties were tested in 1992 at the North Alabama Horticulture Substation in Cullman.

On May 15, pole bean seeds were planted at six-inch intervals in rows spaced five feet apart. Plants were trained onto a two-wire and string trellis as they grew.

Most of the beans tested have green pods. Goldmarie pods are yellow, and Alford has grayish-purple pods. Landfrauen, Rattlesnake, and Selma Zebrina have striped pods. Most varieties tested have round to oval pods. Dade, Early Riser, Goldmarie and Precoces have flat pods.

Belmont, Precoces, and Selma Zebrina produced less vigorous vines than the other beans tested. Halo blight was generally absent and only moderate levels were found on Early Riser and Goldmarie. Most varieties required 51-55 days to reach first harvest. Goldmarie required only 46 days, while Blue Lake, Blue Lake FM-1 and Belmont required 60 days. Late varieties had fewer harvests than early varieties and may have made higher yields had weather conditions been normal.

Results from more than a year are needed before new varieties should replace beans currently grown. Bertina, Rinox, Goldmarie, Selma Star, and Rattlesnake have produced consistently higher yields in the last three years, while others appear to be sensitive to changes in the environment and/or management conditions. For example, Belmont produced the highest yield in 1990, but the lowest in 1992.

Growers should use caution by planting promising new pole beans on a limited scale to determine how they will produce under local conditions and how well they will be accepted by consumers.

A.G. Hunter and O.L. Chambliss

1992 POLE BEAN VARIETY TRIAL

Variety	Days to 1st harvest	Number of harvests	Pod length	Pod width	Total yield
	No.	No.	In.	In.	Lb./a.
Bertina	51	12	5.8	0.4	13,659
Alford	51	12	6.4	0.5	13,564
Rattlesnake	51	12	6.4	0.5	13,320
Rinox	51	12	5.6	0.5	11,475
Genuine Cornfield	55	10	5.5	0.4	10,896
Goldmarie	46	11	6.9	0.5	10,702
Alabama No. 1	55	10	4.4	0.4	9,886
Early Riser	51	12	8.4	0.8	9,318
Kentucky Wonder	55	10	5.8	0.4	9,093
Dade	51	12	6.6	0.4	8,793
Selma Star	53	12	6.0	0.4	8,673
Precoces	51	12	7.5	0.7	7,824
Selma Zebrina	51	9	6.3	0.5	7,806
Kentucky Wonder 191	51	12	6.4	0.5	7,364
Novax	53	12	5.4	0.5	6,752
McCaslin	51	12	6.9	0.5	6,748
Blue Lake	60	9	4.8	0.4	6,576
Landfrauen	51	12	5.0	0.5	6,524
Blue Lake FM-1	60	9	5.1	0.3	6,088
Kentucky Blue	53	11	5.8	0.3	5,799
Belmont	60	8	5.0	0.3	4,264

Red Delicious Apples, continued

fruit color and foliar nutrient levels of two Red Delicious cultivars — Red Spur and Sharp Red — without affecting fruit yield and quality. Summer pruning also resulted in fewer fruit nutritional disorders, such as cork spot and bitter pit.

Trellised, mature trees grown on dwarf EM 26 rootstock at the North Alabama Horticulture Substation in Cullman were used in the study. All trees were dormant pruned in mid-February, and some were pruned in

late April, early June, and early August. Nitrogen rates of 60, 30, and 15 pounds per acre were applied to all pruning treatments.

Summer pruning and reduced nitrogen rates did not affect fruit yield, size, firmness, or sweetness. Fruit color was enhanced by summer pruning. Average shoot length of the non-summer-pruned trees averaged 37.3 inches long, but was only 2.8 inches long in summer-pruned trees.

W.A. Dozier and A.W. Caylor



Watermelon Variety Trials

Sixteen watermelon varieties were tested throughout Alabama in 1992. Trials at the North Alabama Horticulture Substation in Cullman, Chilton Area Horticulture Substation in Clanton, and Gulf Coast Substation in Fairhope are summarized in the table.

Overall, the highest average yields were seen in Royal Jubilee, a hybrid Jubilee type; and Starbrite, a hybrid Mirage type. Hybrid varieties generally yield higher than open-pollinated ones, but the seed cost up to 15 times more.

Among the Crimson Sweets, Crimson Tide had the highest yield with an average of 27,881 pounds per acre. This dramatically illustrates the effect of hybrid vigor since all the other Crimson Sweet types are open-pollinated varieties. Open pollinated types are, however, true to type and offer greater seed source reliability, factors that can save seed.

Tiffany is a unique addition to the trials because it is seedless. Such varieties are not truly seedless, but rather the embryos that would normally develop into hard seed remain small, soft, and edible. Unfortunately, Tiffany has not been a very good yielding variety.

J.D. Norton, G.E. Boyhan, and H.W. Huang

Evaluation of Bush Snap Beans for Early Once-Over Production

Twenty-eight bush bean varieties, selected for their potential to perform well as fresh market and garden varieties in Alabama, were evaluated at the North Alabama Horticulture Substation in Cullman.

Seeds were planted four inches apart in rows spaced 44 inches apart. Standard cultural practices were followed. Rainfall was supplemented

WATERMELON VARIETY TRIALS AT THREE ALABAMA LOCATIONS.

Cultivar	Cullman	Clanton	Fairhope	Average	Fruit type ¹	Flesh color
	Lb./a.	Lb./a.	Lb./a.	Lb./a.		
AU Golden Producer ...	27,525	15,801	8,621	17,316	Crimson Sweet	Yellow
AU Sweet Scarlet	29,276	19,733	11,834	20,281	Crimson Sweet	Red
AU-Producer	30,434	24,657	12,288	22,459	Crimson Sweet	Red
Crimson Sweet	44,643	17,469	9,129	23,747	Crimson Sweet	Red
Crimson Tide	40,837	24,875	17,932	27,881	Crimson Sweet	Red
Cutter 55	19,609	14,758	13,177	15,848	Jubilee	Red
Fiesta	29,936	17,899	14,429	20,755	Allsweet	Red
Jubilation	45,295	22,122	15,791	27,736	Jubilee	Red
Jubilee	30,508	15,715	12,124	19,449	Jubilee	Red
Jubilee II	50,739	20,885	15,046	28,890	Jubilee	Red
Mirage LS	48,343	18,236	11,307	25,962	Mirage	Red
Royal Jubilee	59,564	20,665	27,824	36,018	Jubilee	Red
Sangria	34,965	19,519	14,937	23,140	Allsweet	Red
Starbrite	44,471	30,660	20,056	31,729	Mirage	Red
Tastigold	33,225	25,844	14,593	24,554	Small Grey	Yellow
Tiffany	18,327	6,760	7,913	11,000	Triploid CS	Red

¹ Crimson Sweet: round, striped, 20-25 pounds. Jubilee: oblong, striped, 25-35 pounds. Allsweet: oblong, dark green rind with light stripe, dark red flesh, slightly smaller than Jubilee. Mirage: shaped between Crimson Sweet and Jubilee with rind pattern similar to both, slightly larger than Crimson Sweet. Small Grey: ice box type less than 15 pounds with light green rind. Triploid CS: seedless Crimson Sweet.

EVALUATION OF BUSH SNAP BEAN VARIETIES FOR EARLY ONCE-OVER PRODUCTION¹

Variety	Total yield	Pod shape ²	Pod length	Pod width	Plant Vigor ³	Halo blight ⁴
	Lb./a.		In.	In.		
Wrangler	6,728	RC	5.5	0.3	5	1
Seville	6,538	RC	5.7	0.3	5	2
Duchess	5,689	RC	5.0	0.4	5	2
FM-359	5,558	RS	5.9	0.3	4	2
NUN-0820	5,519	OC	5.1	0.4	5	1
Bronco	5,077	RC	5.4	0.5	4	2
Jumbo	4,892	FC	6.5	0.7	4	1
Hialeah	4,723	RC	6.0	0.2	2	1
Magnum	4,658	RC	6.7	0.5	4	2
Venture	4,566	RC	6.4	0.5	4	2
Podsquad	4,566	RC	5.1	0.3	4	2
Strike	4,381	RC	5.1	0.3	5	1
Tennessee Green Pod ..	4,174	FC	5.6	0.6	4	2
Roma II	3,856	FC	5.0	0.7	4	1
Derby (FM-175)	3,588	OS	5.7	0.5	5	1
Contender	3,288	RH	5.5	0.5	4	2
Mustang	3,223	RS	5.0	0.4	4	2
RB-BD716-T2	3,170	FC	5.2	0.5	4	2
Mirada	3,161	RC	4.6	0.4	4	2
Greencrop	3,074	OC	6.2	0.5	4	2
Homestyle	2,774	RC	5.4	0.4	4	1
Opus	2,685	RC	5.0	0.4	5	1
Topcrop	2,682	RC	5.0	0.4	4	2
Kentucky Wonder 125 ...	2,569	OC	5.7	0.5	5	1
Blue Lake	1,895	RC	6.0	0.5	5	1
Blue Ridge	1,776	RC	5.2	0.5	4	2
White Half-runner	1,649	OC	4.4	0.5	4	2
Labrador	1,346	RC	4.7	0.4	4	2

¹ Date of planting was May 15. All plots were once-over harvested 50 days after planting.
² Pod shape: F=flat, O=oval, R=round, C=curved, H=hooked, S=straight.
³ Plant vigor rating: 1=poor, 5=excellent.
⁴ Halo blight rating: 1=no symptoms, 5=severe symptoms.

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Snap Beans, continued

with overhead irrigation when needed to equal one inch per week. Earliness and concentrated pod set are features that commercial producers look for when they machine harvest bush beans in a single harvest.

Bean rust was not present in noticeable levels on any of the bush beans tested. See the table for other results of the study.

Experiments will be conducted for two more years to determine which varieties consistently produce well in north Alabama. Small test plantings should be made by commercial growers and home gardeners to determine how well bush bean varieties produce locally.

A.G. Hunter and O.L. Chambliss

Cucumber Variety Trial

Twelve varieties of slicer cucumbers were direct seeded into bare soil at the North Alabama Horticulture Substation in Cullman on May 28 and harvested 10 times starting July 10 and ending July 31. Each plot consisted of one 42-inch X 20-foot row. The plant spacing in each row was six inches. See the table for results of the variety trials.

R.P. Yates and J.E. Brown

1992 CUCUMBER VARIETY TRIALS

Variety (seed source)	Yield	Total fruit weight	Average fruit weight
	No./a.	Lb./a.	Lb.
Dasher II	69,975	28,713	.41
(Abbott & Cobb, Twilley)			
Poinsett 76	62,356	26,847	.43
(Asgrow)			
Marketmore 76	36,387	15,211	.41
(Asgrow, Petoseed)			
General Lee	77,750	32,200	.41
(Ferry Morse)			
Early Triumph			
Hybrid	56,136	22,671	.40
(Abbott & Cobb, Twilley)			
Comet A II	76,040	33,062	.43
(Asgrow)			
Maximore Brand			
Blend #103	77,284	33,167	.42
(Twilley)			
XPH 1653			
[Meteor]	64,222	26,780	.41
(Asgrow)			
Centurion	77,906	33,338	.42
(Abbott & Cobb)			
Monarch	67,954	32,173	.47
(Asgrow)			
A&C Hybrid #1811	60,023	28,210	.46
(Twilley)			
Slice Nice	90,812	37,977	.41
(Twilley)			

Annual Hill Strawberry Cultivar Evaluation

Ten strawberry cultivars were evaluated at three AAES substations in 1991 and 1992. At the Brewton Experiment Field in Brewton, Chilton Area Horticulture Substation in Clanton, and Gulf Coast Substation in Fairhope, freshly dug plants were planted using the annual hill plasticulture system.

Plants were grown in double rows on each bed and spaced 12 inches between plants and 12 inches between rows with row centers at five feet. A total of 17,424 plants per acre were planted. Plants from Canadian nurseries had leaves intact, while plants from California had the leaves removed before digging.

Chandler was the top-yielding cultivar overall and was rated highly in terms of berry size, flavor, and shelf life. It remains the single cultivar recommended for commercial production. Oso Grande also was high yielding and produced large berries, but it may have mite problems when other cultivars are unaffected.

D.G. Himelrick, W.A. Dozier,
and A.W. Caylor

Virus Epidemic in Field Tomatoes in North Alabama

A 1992 viral epidemic wiped out up to 25% of Alabama's tomato crop. Tests indicate that cucumber mosaic virus (CMV) alone or combined with potato virus Y (PVY) and/or tobacco etch virus (TEV), were responsible for the crop failure.

Low winter temperatures may help avoid an epidemic in 1993 by reducing aphids and weeds, which are hosts for the viruses. Studies show that the best control strategies include eradicating weeds in and out of fields, using virus-free transplants, planting earlier, isolating later settings from fields planted earlier, destroying early settings when production is complete, and controlling aphids through scouting and timely insecticide use.

Blount and St. Clair counties sustained most of the damage. CMV, PVY, and TEV also were identified in fields in Cullman and Morgan counties. All to-

STRAWBERRY YIELD AT THREE ALABAMA LOCATIONS, 1991-92

	Brewton		Chilton		Gulf Coast	
	1991	1992	1991	1992	1991	1992
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.
Chandler ¹	23,531	29,304	8,049	9,308	24,534	30,950
Selva ¹	—	18,845	—	6,730	—	21,461
Douglas ¹	—	21,933	—	11,002	—	32,858
Grace ¹	—	12,055	—	12,246	—	18,252
Parajo ¹	—	16,052	—	5,922	—	20,014
Oso Grande ¹ ...	—	20,509	—	9,936	—	27,538
Chandler ²	20,133	20,611	15,152	8,169	22,477	27,821
Seascape ²	15,662	12,188	10,190	6,580	16,523	24,054
Oso Grande ² ...	14,901	21,013	11,904	8,388	22,142	24,738
Capitola ²	14,025	9,054	11,652	3,013	16,163	18,765
Douglas ²	13,511	—	8,385	—	15,474	—
Irvine ²	13,358	—	12,669	—	21,353	—
Muir ²	10,194	—	6,178	—	12,363	—
Selva ²	7,736	8,505	5,745	5,077	14,992	18,725
Pajaro ²	—	9,341	—	4,179	—	16,499

¹Plants from Canadian nurseries.

²Plants from California nurseries.

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Bell Pepper Variety Trial

Thirteen varieties of bell peppers were transplanted into bare soil plots at the North Alabama Horticulture Substation in Cullman during late May.

Each variety was planted in a 44-inch X 20-foot row. The plant spacing in the rows was 18 inches. The peppers were seeded in a greenhouse on March 27 and were harvested July 16, Aug. 13, Sept. 15, and Oct. 2. Results for mean fruit number and fruit weight were calculated for an acre.

R.P. Yates and J.E. Brown

Southernpea Variety Trials

Southernpeas were tested for yield potential at the E.V. Smith Research Center (EVSRC) in Shorter and the North Alabama Horticulture Substation (NAHS) in Cullman. Thirty-five varieties and five AAES advanced breeding lines were planted on May 25 at EVSRC and on May 27 at NAHS.

Standard cultural practices were used, except for the use of drip irrigation at EVSRC. Insect, Disease, Nematode, and Weed Control Recommendations for Commercial Vegetables (Circular ANR-2) was followed for control of pests.

To simulate machine harvesting, a single harvest was made on each plot. The difference in days to harvest between EVSRC and NAHS was due to variation in percentage of dry pods at harvest and the unusually cool and wet weather at NAHS. In multiple harvest situations where only mature green pods are picked, days to harvest would be less.

To compensate for different percentages of dry and mature green pods at harvest, all peas shelled from each plot were soaked in water to allow dry seeds to soak up water (imbibe) and reach equilibrium with the green seeds. Imbided weights in the table are realistic estimates of mature green, shelled weights of harvested peas.

Blackeye cowpea mosaic virus (BICMV), in combination with cucumber mosaic virus, can reduce or eliminate southernpea yields. Southernpea varieties resistant to BICMV are indicated in the table by the abbreviation BVR. CSC (green seed coat) and GT indicate that dry seed are green.

O.L. Chambliss and A.G. Hunter

1992 BELL PEPPER VARIETY TRIAL

Variety (seed source)	Yield	Total fruit	Individual fruit weight	Plant height
	No./a.	Lb./a.	Lb.	In.
Bell Captain (Petoseed, Twilley)	73,483	26,088	.35	25.14
Belmont (Asgrow)	84,936	25,276	.29	23.31
Camelot [PS 17885]	79,581	25,732	.32	26.31
(Abbott & Cobb, Petoseed)				
Emerald Giant (Twilley)	63,219	19,809	.31	26.11
Gator Bell (Abbott & Cobb, Petoseed)	103,679	31,449	.30	26.11
Jupiter (Twilley)	75,119	23,369	.31	21.83
Keystone Resistant Giant #3 (Asgrow)	54,294	15,747	.29	18.65
Marengo (Asgrow)	90,886	29,160	.32	25.17
Memphis [P 100] (Abbott & Cobb)	83,895	27,581	.32	22.05
Ranger (Asgrow)	87,911	26,693	.30	23.48
Orobelle [P 324] (Abbott & Cobb)	78,838	23,523	.29	24.41
Pip (Asgrow)	59,946	17,561	.29	24.50
Verdel [P 1796] (Abbott & Cobb)	58,756	20,599	.35	26.36

1992 SOUTHERNPEA VARIETY TRIALS

Type of Pea	Days to harvest		Imbided seed Lb./a.		Bushels/a. (Est.) ¹	
	NAHS	EVSRC	NAHS	EVSRC	NAHS	EVSRC
Blackeyes:						
AUBE	86	69	1,951	2,873	156	230
Bettergro Blackeye	80	69	2,114	2,595	169	208
California Blackeye #5	111	71	784	706	63	56
California Blackeye #46	120	70	1,408	476	113	38
California Blackeye #88	120	73	827	425	66	34
Genegreen	81	69	823	2,330	66	186
Giant Blackeye	120	75	1,206	840	96	67
Royal Blackeye	97	72	3,042	2,895	243	232
AU-M-90-84GC67	81	69	1,624	2,496	130	200
Creams:						
Bettergreen	89	69	925	2,000	74	160
Carolina Cream	82	69	657	1,588	53	127
Freezegreen	101	72	1,444	1,604	116	128
Green Acre	96	69	961	1,157	77	93
Mississippi Cream	80	69	2,078	1,710	166	137
Sa-Dandy	91	69	899	1,470	72	118
Crowders:						
Carolina Crowder	81	69	2,732	3,234	219	259
Carolina Sugar	120	71	2,161	2,483	173	199
Clemson Purple	101	69	4,905	3,716	392	297
Colossus 80	81	69	6,074	3,234	486	259
Dimpled Brown Crowder ...	101	70	2,375	1,799	190	144
Tennessee White Crowder	97	70	1,229	1,837	98	147
Mississippi Purple	80	71	3,006	3,125	240	250
Mississippi Shipper	80	69	2,307	3,742	185	299
Mississippi Silver	80	69	2,529	2,933	202	235
Worthmore	106	70	2,307	2,000	185	160
AU-EVS-91-BC-9	97	69	2,065	1,972	165	158
AU-EVS-91-298	91	69	2,944	2,796	236	224
Pinkeys:						
Corona	-	69	-	2,211	-	177
Coronet	83	69	2,967	2,425	237	194
Pinkeye Purplehull	83	69	2,908	2,489	233	199
Kiawah	83	69	1,457	2,358	117	189
Mississippi Pinkeye	91	69	2,418	3,348	193	268
Pinkeye Pinkpod	80	69	1,764	2,988	141	239
Pinkeye Purplehull-BVR	86	69	1,777	1,202	143	96
Pinkeye Purplehull-GSC ...	80	69	1,219	1,606	98	129
Santee Early Pinkeye	80	69	1,778	2,032	142	163
Texas Pinkeye	80	69	1,578	1,825	126	146
AU-C-91-INC-328-GT	93	69	2,291	2,112	183	169
AU-C-91-INC-328-MIX	83	69	2,572	2,275	206	182

¹ Bushels of pods per acre were estimated by multiplying the imbided weight by two (assuming an average shell-out of 50%) and dividing this by 25 (the average in-pod weight of a bushel of southernpeas).

Virus Epidemic, continued

mato varieties grown in the area — Mountain Delight, Mountain Spring, Mountain Pride, Mountain Gold, and Spitfire, as well as both cherry and plum types — appear to be susceptible. Disease incidence ranged from a few plants up to 100% in some fields. Damage was most severe in fields transplanted after June 1.

Over 87% of the tomato samples collected in an AAES study tested positive for virus (see table). CMV was detected alone or in combination with PVY and/or TEV in over 71% of the samples tested. CMV was also present in 27 of the 30 fields sampled.

Symptoms vary, but the most common one is terminal stunting of the plant. Leaf symptoms varied from typical mosaic patterns to severe interveinal chlorosis. This was often associated with leaf distortion in the form of curling, crinkling or rolling of the leaf blade. Infected plants rarely produced fruit.

CMV, PVY, and TEV are spread by aphids. Both the green peach aphid and the potato aphid were identified in affected fields. Numerous weeds can serve as reservoirs for all three viruses and contribute to virus spread and overwintering. CMV alone can infect nearly 800 plant species. Weather conditions in 1990-91 may have favored aphids and weed hosts of the viruses. Cropping histories and production practices could also have provided field conditions favorable for causing the epidemic.

E.J. Sikora, R.T. Gudauskas, and G.W. Zehnder

ANALYSIS OF VIRAL INFECTION
OF NORTH ALABAMA TOMATO PLANTS

Virus	No. Tested	No. Positive	Pct. Infected
CMV alone	317	140	44.1
PVY alone	259	14	5.4
TEV alone	259	8	3.0
CMV+PVY	259	22	8.4
CMV+TEV	259	8	3.0
CMV+PVY+TEV	259	37	14.2
PVY+TEV	259	11	4.2

Beauregard Still the Highest-Yielding Sweet Potato Variety

Seventeen sweet potato varieties were evaluated at two Alabama locations in 1992. Although the average yields for the standard varieties were considerably greater than the average yields for the new varieties, a few of the introductions showed promise for producing high yields in Alabama.

Potatoes were planted at the North Alabama Horticulture Substation in Cullman in late June and harvested after 108 days. Spacing was one foot within rows and 3.7 feet between. Nitrogen (N), phosphorous (P), and potassium (K) were applied at the rate of 35-70-105 pounds per acre. Rainfall during the growing season was 15 inches

At the Chilton Area Horticulture Substation in Clanton, potatoes were planted in mid-July and harvested after 112 days. Spacing was one foot within rows and three feet between. N, P, and K were applied at the rate of 50-100-150 pounds per acre. Rainfall during the season was 21 inches

At both locations, highest yields of U.S. #1 roots were obtained with Beauregard. At Clanton, the highest yield of total marketable roots also was obtained with Beauregard.

At Cullman, however, high yields of total marketable yields also were

YIELDS (50-POUND BUSHELS) OF US#1 AND TOTAL MARKETABLE ROOTS
PRODUCED BY STANDARD AND NEW VARIETIES.

Type of potato	Clanton		Cullman	
	US#1 ¹	Total marketable	US#1	Total marketable
Standard varieties				
Cordner	161	268	166	403
Jewel	41	158	169	371
Beauregard	242	481	352	566
Nugget	102	298	138	422
GA Jet	237	540	227	344
Hernandez	82	240	131	354
Average	144	331	197	414
New varieties				
L-87-58	70	149	211	323
L-87-59	54	154	96	190
L-87-95	56	241	203	578
L-87-104	74	204	124	295
L-87-105	64	191	149	330
L-88-217	13	48	— ²	—
W-270	36	48	50	158
W-274	72	198	91	362
W-279	26	117	71	154
NCM-810 ³	92	237	209	534
NCA-12 ⁴	57	274	43	133
Average	56	169	113	278

¹US#1 = Roots 2-3 1/2 inches in diameter, 3-9 inches in length, well shaped, and free of defects.

²Not evaluated in Cullman this year.

³Released as Red Star.

⁴Released as Gold Star.

obtained with Red Star and L-87-95. However, the cooking quality of L-87-95 may limit its acceptability. Hernandez did not produce high yields of U.S.#1 roots, but it did produce high yields of canners. Higher yields of larger roots would have been likely if the growing season was extended.

J.M. Dangler

Latex Spray Mulch Increases Watermelon and Muskmelon Yields

A study was conducted at the E. V. Smith Research Center in Shorter to demonstrate the advantages of using latex spray mulch in the production of watermelons and muskmelons.

A common boom sprayer can be used to apply latex spray mulch on the soil over young plants or on bare soil before planting. The mulch conserves moisture, warms the soil, and controls erosion. Plus, it is biodegradable and

requires no additional equipment to remove it.

Treatment spray rates per square foot were: 0.2 ounce at a 12-inch band width; 0.2 ounce, 18-inch band width; 0.2 ounce, 24-inch band width; 0.4 ounce, 12-inch band width; 0.4 ounce, 18-inch band width; 0.4 ounce, 24-inch band width; and no mulch.

Latex spray rates were applied to

Continued on page 7

Alternative Method for Growing Strawberries

An AAES study has resulted in an alternative method for growing strawberries that provides yields at least as good as the matted-row culture but allows a faster return on investment.

Planting in mid-July to early August at close spacing with dormant, cold-storage plants is a viable alternative to producing spring-planted strawberries in the matted row culture. Also, the non-fruiting year inherent in matted-row culture is eliminated, weed problems are reduced, and runner removal is eliminated.

Ten plantings of dormant Delite strawberries were made from July 18 to Nov. 12 in single rows with 6-, 12-, and 18-inch spacings between plants and in double rows at 9 X 12 inches. For three seasons, runner and plant development were determined in late fall after planting, and mortality, yield, fruit weight, and total soluble solids were determined the following spring.

Highest yields were seen at the earliest planting date in single rows spaced at six inches and in the double rows (Table 1). Yield decreased with each succeeding date and increased spacing.

Latex Spray Mulch, continued

20-foot rows spaced six feet apart over the tops of four-week-old Chilton muskmelon and AU Producer watermelon transplants. Muskmelon seedlings were transplanted at two-foot intervals,

while watermelon seedlings were spaced at three-foot row intervals. The 0.4-ounce, 18-inch band width application of mulch increased melon yield 20-55% over melons grown with no latex treatment. This application produced 20% more muskmelons, the best muskmelon yield increase in the study. Watermelon yield was 55% greater at the same latex application rate (see table). Size was not affected by latex treatments. Soil temperature ranged from three to five degrees higher under mulch treatments.

Individual fruit weight was highest for the July 18 planting date and decreased with each succeeding date. Percent of soluble solids (a measurement of sweetness) was lowest for the July 18 planting date with the single-row, six-inch plant spacing and the 9 X 12-inch double rows. It increased with each succeeding planting date and each increase in spacing (Table 2).

Greatest runner development occurred on plants set July 18 and decreased with Aug. 1 and 15 planting dates. No runners were produced by plants set after Aug. 15.

In 1989, all plants set after Sept. 12

TABLE 1. EFFECT OF PLANTING DATE AND PLANT SPACING ON AVERAGE TOTAL YIELD OF DELITE STRAWBERRIES

Planting date	Yield (lb./a.) at each plant spacing				
	6"	12"	18"	9" X 12"	Mean
7/18	16,500.6	13,211.9	12,984.9	18,000.2	15,174.4
8/01	13,847.1	11,146.8	9,428.8	15,197.2	12,404.9
8/15	12,315.6	9,514.9	8,074.7	13,311.1	10,804.1
8/29	9,456.8	7,254.8	4,845.3	11,868.6	8,356.4
9/12	7,015.3	5,374.4	4,447.3	9,090.7	6,481.9
9/26	8,995.5	6,364.8	4,868.1	9,199.1	7,356.9
10/10	4,449.0	3,142.2	2,256.1	4,430.2	3,569.4
10/24	3,277.3	809.1	523.4	1,471.0	1,520.2
Mean	9,482.2	7,102.4	5,928.6	10,321.0	

TABLE 2. EFFECT OF PLANTING DATE AND PLANT SPACING ON AVERAGE PERCENT TOTAL SOLUBLE SOLIDS OF DELITE STRAWBERRIES¹

Planting date	Percent total soluble solids at each plant spacing				
	6"	12"	18"	9" X 12"	Mean
7/18	6.0	6.2	6.2	6.0	6.1
8/01	6.2	6.4	6.6	6.3	6.4
8/15	6.1	6.5	6.6	6.3	6.4
8/29	6.6	6.8	6.9	6.5	6.7
9/12	6.7	6.9	7.0	6.7	6.8
9/26	6.8	7.3	7.3	6.9	7.1
10/10	7.0	7.7	7.6	7.4	7.4
10/24	7.3	7.2	6.7	7.4	7.1
Mean	6.6	6.9	6.9	6.7	

¹The higher the percent of soluble solids, the sweeter the strawberry.

TABLE 3. EFFECT OF PLANTING DATE ON PERCENT PLANT MORTALITY OF DELITE STRAWBERRIES

Planting date	Mean percent plant mortality		
	1990	1991	Two-year average
7/18	7	0	3
8/01	5	4	4
8/15	5	3	4
8/29	9	3	6
9/12	6	2	4
9/26	5	5	5
10/10	27	2	14
10/24	38	7	23
11/07	47	14	31
11/21	70	8	39

were killed by a freeze. In 1990 and 1991, plant mortality increased with later planting dates (Table 3). Greatest mortality occurred at planting dates of Oct. 10 and later.

In-row plant spacing did not affect fruit weight, runner development, or plant mortality.

W.A. Dozier, A.W. Caylor, and D.G. Himelrick

J.E. Brown and C.B. Ogburn

YIELDS OF CHILTON MUSKMELON AND AU PRODUCER WATERMELON TREATED WITH LATEX SPRAY MULCH

Treatment	Muskmelon		Watermelon	
	No./a.	Lb./melon	No./a.	Lb./melon
18" band width, .4 oz./sq. ft.	6,413	3.73	4,598	15.21
24" band width, .4 oz./sq. ft.	5,203	3.08	4,235	17.76
12" band width, .4 oz./sq. ft.	6,171	2.89	2,702	16.33
No spray	5,143	3.23	2,541	15.15
18" band width, .2 oz./sq. ft.	5,566	2.82	2,420	14.95
24" band width, .2 oz./sq. ft.	5,805	2.93	3,025	16.95
12" band width, .2 oz./sq. ft.	5,687	2.90	3,388	18.77



Squash Variety Trials

Twelve varieties of yellow summer squash were transplanted into black plastic mulched plots on April 28 in Clanton and direct seeded into bare soil plots on May 28 in Cullman.

Each plastic mulched plot had one variety per 5 X 20-foot row. Plant spacing in each row was 18 inches. Squash were harvested 11 times starting May 24 and ending June 18.

Each direct seeded plot had one variety per 42-inch X 20-foot row. Plant spacing in each row was 12 inches. Squash were harvested 12 times starting July 6 and ending July 31.

R.P. Yates, J.E. Brown, and M.A. Reeser

TABLE 1. YELLOW SUMMER SQUASH GROWN ON BLACK PLASTIC MULCHED PLOTS IN CLANTON

Variety (seed source)	Squash/a.	Squash weight/a. ¹	Average squash weight
	No.	Lb.	Lb.
Crookneck			
Dixie (Asgrow)	46,001	8,943.60	.19
Goldie (Abbott & Cobb)	51,548	10,312.98	.20
Sundance (Petoseed, Twilley)	60,574	13,253.15	.21
Medallion (Abbott & Cobb)	56,224	11,357.85	.20
FMX 586 (Ferry Morse)	48,068	7,399.35	.15
FMX 564 (Ferry Morse)	32,843	6,714.23	.20
Pavo (Asgrow)	43,065	11,494.88	.26
Crescent (Abbott & Cobb)	56,333	10,155.08	.18
Straightneck			
Goldbar (Petoseed, Twilley) ...	41,869	10,483.50	.25
Lemondrop L (Asgrow)	35,126	8,415.08	.23
Enterprise (Abbott & Cobb) ...	46,328	10,346.48	.22
Smoothie (Twilley)	50,025	9,252.45	.18

¹Approximate summer squash net weight for 1/2-bushel basket is 21 pounds.

TABLE 2. YELLOW SUMMER SQUASH DIRECTLY SEEDED INTO BARE SOIL PLOTS IN CULLMAN

Variety (seed source)	US#1 Squash weight/a. ¹	US#2 Squash weight/a. ₁
	Crookneck	
Dixie (Asgrow)	20,897.33	6,555.90
Goldie (Twilley)	21,651.82	7,493.85
Sundance (Twilley)	20,858.77	5,112.84
Medallion (Abbott & Cobb)	20,613.08	4,811.17
FMX 586 (Ferry Morse)	23,228.59	6,036.51
FMX 564 (Ferry Morse)	25,548.65	6,743.72
Pavo (Asgrow)	23,043.85	8,380.20
Crescent (Abbott & Cobb)	19,117.17	5,594.90
Straightneck		
Goldbar (Twilley)	17,631.83	3,699.03
Lemondrop L (Asgrow)	25,601.52	8,493.41
Enterprise (Abbott & Cobb)	21,219.53	4,705.45
Smoothie (Twilley)	21,156.08	5,991.73

¹Approximate summer squash net weight for 1/2-bushel basket is 21 pounds.

Effect of Mechanical Pruning on Sunland Peaches

An AAES study indicates that mechanical pruning can be used to eliminate time-consuming hand pruning in peach production. Mechanical pruning would reduce production costs and make more time for other needed cultural practices.

A planting of Sunland peaches on Lovell rootstock was established in 1984 at a spacing of 10 X 20 feet. The trees were hand pruned to an open center the first two seasons to develop the proper scaffold branch system. Beginning with the third season, a variety of treatments was used.

Treatments included pruning to an open center by conventional hand pruning. Also, a Fossom tree pruner mounted on the front of a tractor was used to prune some trees to an open center and to hedge the tops and sides

of others. A fourth treatment involved mechanical pruning to an open center followed by detailed hand pruning.

From 1987-92, no pruning treatment significantly affected fruit yield (see table), fruit size, or fruit color. However, trees which were only hedged developed a thick canopy that made picking difficult, causing many fruit to be knocked off during harvest. Also, there was more fruit rot due to poor spray penetration.

Trees exclusively machine-pruned to an open center produced

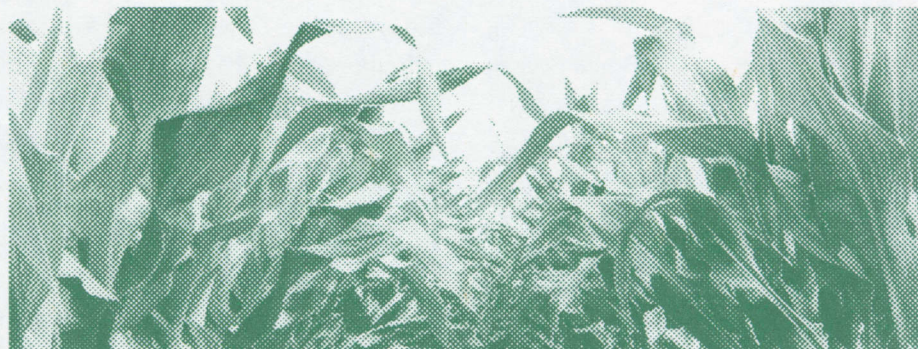
the total highest yield with fruit quality equal to trees that were only hand pruned. The canopies of these trees were as open as hand-pruned trees, allowing efficient harvest and disease control.

W. A. Dozier and A.W. Caylor

EFFECT OF PRUNING METHOD ON YIELD OF SUNLAND PEACHES

Treatment	Total yield (Lb./tree)						Six-year average
	1987	1988	1989	1990	1991	1992	
Hand prune	42.2	140.1	100.8	217.1	136.4	95.5	122.1
Machine prune ... to open center	32.8	197.8	107.6	178.6	167.9	73.0	126.3
Hedge prune	48.8	145.4	88.7	200.9	71.9	73.9	104.9
Machine prune ... to open center plus hand prune	24.2	140.4	83.2	190.3	137.8	90.4	110.9

1992 Sweet Corn Variety Trials



Seven varieties of "super sweet" corn were tested in 1992 at the Sand Mountain Substation in Crossville and the Gulf Coast Substation in Fairhope. Six varieties were tested at the Chilton Area Horticulture Substation in Clanton.

The day before planting in Crossville, nitrogen (N), phosphorus (P) and potassium (K), in the form of 13-13-13, were applied at 400 pounds per acre. The corn was later sidedressed with ammonium nitrate at 435 pounds per acre. Rows were 3 X 20 feet. Overhead

irrigation was used periodically to maintain the soil moisture level at 50% or more of available water capacity. Lannate also was applied periodically at the rate of one pint per acre.

Corn was planted on April 30 in Crossville. Varieties 7630Y, Sweet Belle, Challenger, and 7801W were picked July 20. Dazzle was picked July 21. Varieties 7710Y and Even Sweeter were picked July 24.

At the Gulf Coast Substation, corn was planted March 19 and picked on June 9. Before planting, Dual herbi-

cide was applied at the rate of one quart per acre. No P or K was applied, but an N application of 120 pounds per acre was used as a sidedress. Rows were 2.5 X 20 feet.

At the Chilton Area Substation, corn was planted April 27 and picked on July 8 and 14. Fertilizer, in the ratio of 13-13-13, was applied prior to planting and ammonium nitrate was used as a sidedress. The plots were irrigated to maintain the soil moisture level at 50% of available water capacity. Rows were 2.33 X 20 feet.

R.P. Yates, J.E. Brown, W. Boldin, M.A. Reeser

RESULTS FROM SWEET CORN VARIETY TRIALS AT THE SAND MOUNTAIN SUBSTATION (S), GULF COAST SUBSTATION (G), AND CHILTON AREA HORTICULTURE SUBSTATION (C)

Variety (seed source)	Performance Index ¹	Ears/a. ²		Plants/a. No.	Days to harvest ³	Ear length In.	Ear diameter In.	Ear set height In.	Ear fill ⁴	Tip cover ⁴	Eye appeal ⁴
		Doz.	Lb.								
YELLOW											
7710Y (Abbott & Cobb)	4.47(S)	1,074(S)	.69(S)	12,160(S)	86(S)	7.96(S)	1.85(S)	20.45(S)	4.55(S)	5.00(S)	3.85(S)
	4.08(G)	1,869(G)	.60(G)	- (G)	82(G)	7.73(G)	1.73(G)	22.30(G)	3.65(G)	5.00(G)	3.60(G)
	3.60(C)	2,413(C)	.50(C)	16,579(C)	73(C)	7.42(C)	1.41(C)	19.80(C)	4.90(C)	2.30(C)	3.60(C)
7630Y (Abbott & Cobb)	4.43(S)	968(S)	.64(S)	11,253(S)	82(S)	7.92(S)	1.66(S)	21.00(S)	4.35(S)	5.00(S)	3.95(S)
	4.51(G)	1,615(G)	.65(G)	- (G)	80(G)	7.47(G)	1.93(G)	21.24(G)	4.25(G)	5.00(G)	4.30(G)
	3.65(C)	2,374(C)	.45(C)	16,112(C)	73(C)	7.49(C)	1.38(C)	19.74(C)	4.80(C)	2.00(C)	4.15(C)
Sweet Belle (Asgrow)	4.48(S)	938(S)	.70(S)	11,616(S)	82(S)	7.98(S)	1.81(S)	22.00(S)	4.35(S)	5.00(S)	4.10(S)
	4.40(G)	1,869(G)	.61(G)	- (G)	81(G)	7.54(G)	1.83(G)	24.20(G)	4.25(G)	4.85(G)	4.10(G)
	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)	- (C)
Challenger (Asgrow)	4.60(S)	938(S)	.60(S)	11,434(S)	82(S)	7.81(S)	1.85(S)	18.03(S)	4.60(S)	5.00(S)	4.20(S)
	4.18(G)	1,615(G)	.67(G)	- (G)	81(G)	7.64(G)	1.76(G)	23.00(G)	3.95(G)	4.75(G)	3.85(G)
	4.06(C)	2,296(C)	.49(C)	16,462(C)	73(C)	7.03(C)	1.55(C)	14.68(C)	4.90(C)	2.70(C)	4.60(C)
WHITE											
7801W (Abbott & Cobb)	4.65(S)	1,134(S)	.57(S)	12,160(S)	82(S)	6.76(S)	1.92(S)	14.83(S)	4.50(S)	5.00(S)	4.45(S)
	4.55(G)	1,579(G)	.64(G)	- (G)	81(G)	7.55(G)	1.86(G)	22.00(G)	4.35(G)	5.00(G)	4.10(G)
	3.42(C)	2,724(C)	.37(C)	14,827(C)	73(C)	6.44(C)	1.55(C)	11.82(C)	4.80(C)	2.05(C)	3.40(C)
Even Sweeter (Asgrow)	4.33(S)	953(S)	.51(S)	11,253(S)	86(S)	7.44(S)	1.84(S)	21.00(S)	3.90(S)	5.00(S)	4.10(S)
	4.55(G)	1,694(G)	.70(G)	- (G)	81(G)	7.60(G)	1.96(G)	20.86(G)	4.53(G)	4.60(G)	4.53(G)
	3.45C	2,705C	.41(C)	16,228(C)	73(C)	7.36(C)	1.42(C)	18.79(C)	5.00(C)	1.95(C)	3.40(C)
BI-COLOR											
Dazzle (Asgrow)	4.27(S)	817(S)	.52(S)	11,979(S)	83(S)	7.43(S)	1.73(S)	20.96(S)	3.95(S)	5.00(S)	3.85(S)
	4.23(G)	1,542(G)	.68(G)	- (G)	81(G)	7.58(G)	1.95(G)	17.65(G)	4.25(G)	4.25(G)	4.20(G)
	3.33(C)	2,423(C)	.48(C)	16,112(C)	73(C)	7.66(C)	1.47(C)	19.84(C)	4.50(C)	2.20(C)	3.30(C)

¹Performance Index is an average of tip cover, ear fill, and eye appeal. See footnote 4 for a description of the scale.

²Ears/acre for the Chilton trial is a total of two harvests conducted on July 8 and 14.

³Days to harvest for the Chilton trial are for the early harvest.

⁴Tip cover, ear fill, and eye appeal index: 5 = excellent; 4 = good; 3 = fair; 2 = poor; and 1 = very poor.

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Research reported in this publication could not have been completed without the support and participation of the outlying units of the Alabama Agricultural Experiment Station. Participating units in the projects included in this Research Update are the E.V. Research Center in Shorter, J.S. Bannon, director; North Alabama Horticulture Substation, Cullman, M.H. Hollingsworth, superintendent; Chilton Area Horticulture Substation, Clanton, J.A. Pitts, superintendent; Gulf Coast Substation, Fairhope, E.L. Carden, superintendent; Sand Mountain Substation, Crossville, J.T. Eason, superintendent; and Brewton Experiment Field, Brewton, J.R. Akridge, superintendent.

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