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# Performance of Strawberry Cultivars in Central and North Alabama Grown on the Matted Row System

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## CONTENTS

	<i>Page</i>
INTRODUCTION .....	3
MATERIAL AND METHODS .....	4
Location and Climate .....	4
Description of Experiments .....	5
Data Collection .....	6
RESULTS AND DISCUSSION.....	7
DESCRIPTION OF TOP PERFORMING CULTIVARS .....	9
Earliglow.....	9
Titan .....	9
Sunrise .....	10
Allstar .....	10
Cardinal .....	10
Scott .....	11
Delite .....	11
APPENDIX.....	15
LITERATURE CITED .....	31

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

# PERFORMANCE OF STRAWBERRY CULTIVARS IN CENTRAL AND NORTH ALABAMA GROWN ON THE MATTED ROW SYSTEM

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## INTRODUCTION

**SELECTING THE PROPER** cultivar is crucial to the success of a commercial strawberry production operation (5). Numerous cultivars are currently available to growers. However, only a few of these will provide high yields and superior fruit quality essential for successful commercial strawberry production. Selection of well-adapted productive cultivars is a primary concern in profitable strawberry production. Total yield is one important performance characteristic that should be considered in the cultivar selection process. However, other important performance criteria that should be considered include consistency of annual cropping, fruit quality, and plant performance (vigor, runner making ability, disease resistance etc.). Characteristics of fruit quality include berry size, firmness, percent soluble solids (sugar content) and flavor.

Strawberry cultivars are geographically limited. A given cultivar may perform well in one area of the state and poorly in another area. Cultivar performance varies more longitudinally than latitudinally and yield performance in a given location may vary from year to year. The highest

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yielding cultivars in most years may produce low yields some years for a number of reasons. Therefore, the use of more than one cultivar is essential to maintain consistent acceptable yields over a period of years.

Cultivars are listed as early, mid, or late season in ripening. Generally, the differences in the first harvest date does not vary greatly between cultivars. The greatest differences in ripening is time of peak harvest which may be 7-10 days between the earliest and latest ripening cultivars. In some years the differences in the ripening season's may be short and the peak harvest season of the cultivars overlap.

Very little performance and evaluation information has been published on strawberries grown in the matted row system in the southern United States. In her review of matted row cultivars and production in the South, Caldwell (1) reported Cardinal, Earliglow, Apollo and Allstar to be the predominant choices. Other major cultivars of note included Titan, Atlas, Arking, Darrow, Albritton, Redchief, Honeyoye, Tennessee Beauty, Lateglow, and Guardian. Chandler (2) reported a shift in the major strawberry cultivars grown in the southeastern U.S. from Tangi, Sunrise, and Earlibelle in 1980 to Chandler Earliglow, Cardinal and Apollo in 1990. Scheerens and Breneman (6) mentioned 18 cultivars as being adapted to the southeast region. In addition to some of the cultivars previously mentioned, they also included Florida 90, Jerseybelle, Redglow, Surecrop, Marlate, Delite, Floridabelle, Dover and Tribute. Galletta and Bringham (3) selected Chandler, Dabreak, Douglas, Dover, Headliner and Tangi as the major cultivars adapted to production in the South. Many of these cultivars were evaluated under Alabama climatic conditions during the 1985 through 1990 growing seasons to determine the cultivars best suited for the matted row production system in central and north Alabama. The absolute and relative performance of individual cultivars fluctuated dramatically in response to seasonal and location variables.

## MATERIALS AND METHODS

### Location and Climate

Strawberry cultivar trials were conducted at three research substations; (1) Chilton Area Horticulture Substation located in central Alabama at Thorsby (32° 50' N latitude), with a Ruston fine sandy loam soil; (2) North Alabama Horticulture Substation located (34° 10' N latitude) at Cullman, AL, with a Hartselle fine sandy loam soil; and (3) Tennessee Valley Substation located in North Alabama (34° 42' N latitude) at Belle Mina, with a Decatur silty clay loam soil type. All these sites have an average growing season length of 210 freeze-free days.

Monthly average rainfall and temperatures are listed in table 1.

TABLE 1. MONTHLY AVERAGE TEMPERATURE AND RAINFALL PATTERNS AT AUBURN UNIVERSITY ALABAMA AGRICULTURAL SUBSTATIONS

Month	Rainfall (in)			Mean temperature (°F)		
	Thorsby	Belle Mina	Cullman	Thorsby	Belle Mina	Cullman
January .....	5.4	5.2	5.7	42.7	40.4	38.8
February.....	5.1	4.6	5.2	45.8	43.8	42.0
March .....	7.4	6.5	6.9	53.2	51.5	50.1
April.....	6.1	4.8	5.4	62.5	61.5	60.1
May.....	4.2	4.4	4.8	69.8	69.0	68.8
June .....	3.7	3.4	3.9	76.6	75.8	74.6
July.....	5.1	4.5	4.6	79.5	79.0	78.8
August.....	4.1	3.2	3.4	78.8	78.3	77.2
September.....	4.6	3.7	4.9	73.9	72.4	71.8
October .....	2.8	2.9	3.1	62.2	60.9	59.8
November .....	3.5	4.4	4.3	51.9	50.5	49.0
December .....	5.6	5.4	5.6	45.0	43.2	41.5

## Description of Experiments

**1982 Experiments:** Twenty-one cultivars were planted in March 1982 on the matted row system at the North Alabama Horticulture Substation (Appendix Table 1) and the Tennessee Valley Substation (Appendix table 2). Plants were set 24 inches apart in the rows and the rows were 44 inches apart. A randomized complete block design was used at each location with five replications of five plants per replication. Plots were 10 feet long and separated with 3-foot-wide alleyways between each plot. The plantings were mulched with straw in February 1983. Fruit was harvested two to three times per week beginning May 10 until June 13 at each location (Appendix Table 3). This time frame encompassed the entire fruiting season of all cultivars at each location. The peak harvest period of the cultivars are presented in Appendix table 3.

**1984 Experiments:** Sixteen cultivars were planted in April 1984 on the matted row system at the Chilton Area Horticulture Substation (Appendix table 4) and the Tennessee Valley Substation (Appendix table 5). Plants were set 24 inches apart in the rows which were spaced 42 inches apart. A randomized complete block design was used at each location with four replications of 10 plants per replication. Plots were 20-foot-long and separated with 3-foot-wide alleyways. Plantings were mulched with straw each February except at the Tennessee Valley Substation in 1985 and 1986. Fruit from the plantings was harvested two to

three times per week in 1985 and 1986 at the Chilton Area Horticulture Substation and in 1985, 1986, and 1987 at the Tennessee Valley Substation. The harvest season in 1985 was from April 22 until May 26 and in 1986 was from April 13 until May 23 at the Chilton Area Horticulture Substation (Appendix table 6). The harvest season in 1985 was from April 23 until May 23, in 1986 from April 24 until May 18, and in 1987 from May 6 until May 27, at the Tennessee Valley Substation. This harvest time frame encompassed the entire fruiting season of all cultivars are presented in Appendix table 6.

**1987 Experiment:** Twenty-three cultivars were planted September 11, 1987, at the Chilton Area Horticulture Substation (Appendix table 7). Plants were set 6 inches apart in the rows and the rows were spaced 42 inches apart. A randomized complete block design was used with four replications of 36 plants per replication. Plots were 18 feet long and separated with 3-foot-wide alleyways. Fruit was harvested in the spring of 1988 from the individual plants in the ribbon row. Plots were allowed to develop runners and form a matted row in the summer of 1988 and 1990. The planting was mulched with straw each year in February. Fruit was harvested two to three times per week. The harvest season in 1988 was from April 29 until May 26, in 1989 was from April 26 until June 5, and in 1990 was from April 20 until May 30 (Appendix table 8). This harvest time frame encompassed the entire fruiting season of all cultivars each year. The peak harvest season of the cultivars are presented in Appendix table 8.

Standard recommended cultural practices were followed for the life of each planting (4). Irrigation was supplied for frost protection and during drought periods. Each year plantings were renovated immediately after harvest by cultivation, leaving a 6-inch-wide strip of plants in the center of the bed. Herbicides and cultivation were used to control weeds and grasses. Runners were allowed to develop and form matted rows which were maintained 18-inches-wide by cultivation.

## Data Collection

Total marketable yields were recorded at each harvest date for each cultivar. Berry characteristics, such as size, firmness, color, etc., were determined from two 25 fruit samples collected at peak harvest for each cultivar at weekly intervals. Berry firmness was subjectively rated by hand while percent and degree of color were visually rated. Other berry characteristics, such as neck shape, cap size and shape, and cavity also were rated visually. Percent soluble solids were measured on expressed juice using a hand-held refractometer.

## RESULTS AND DISCUSSION

Plant response was quite variable between seasons and research sites. Large seasonal and location fluctuations were evident for many important characteristics such as yield and berry size. Annual yield, fruit quality, and ripening sequence data are presented in Appendix tables 1, 2, and 3 for experiment I; Appendix tables 4, 5, and 6 for experiment II; and Appendix tables 7 and 8 for experiment III. The seven best performing cultivars averaged over all seasons and locations were Earliglow, Sunrise, Titan, Allstar, Cardinal, Scott, and Delite (table 2).

The economics of successful strawberry production dictate that high yields be a primary consideration when selecting cultivars. Additional fruit quality considerations also must be evaluated in making the final planting decisions. Several of the top yielding cultivars were not included in the list because of additional undesirable qualities. For example, Tennessee Beauty is not listed because it has a relatively soft small berry and average dessert and processing quality. Apollo was not listed because it produces sterile pollen and variable yields as well as being drought susceptible. Alternatively, some cultivars of only acceptable yields such as Earliglow, are listed because of other characteristics such as earliness and exceptionally good fruit qualities, including flavor and processing quality for freezing.

The dates of the first and last harvest and the peak harvest seasons for experiments I, II, and III are presented in Appendix tables 3, 6, and 8, respectively. The average date of the first and last harvest and the peak harvest season of the seven best performing cultivars are presented in table 3. The average first harvest date was on April 25 and the last harvest date was on May 25 for all seven of the best performing cultivars. Earliglow and Titan were the cultivars with the earliest peak harvest. Sunrise, Allstar, Cardinal, and Scott were the cultivars with a mid-season peak harvest. Delite was the latest ripening cultivar. Peak harvest between ripening seasons were separated by 7-9 days. In some years, the differences in peak harvest were more pronounced as in the 1989 harvest season at the Chilton Area Horticulture Substation (Appendix figure 2 and Appendix table 8) and in other years the peak harvest season was similar for all cultivars as in the 1983 harvest season at the North Alabama Horticulture Substation (Appendix figure 1 and Appendix table 3).

Titan had the highest yield, the largest fruit, the lowest percent soluble solids, and lowest internal fruit color of the early peak harvest cultivars (table 2). Whereas, Earliglow had the lowest yield, but the highest percent soluble solids and internal fruit color. Scott and Allstar pro-

TABLE 2. PERFORMANCE OF STRAWBERRY CULTIVARS AVERAGED OVER SEVEN YEARS AND THREE LOCATIONS

Cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g)	Percent soluble solids	Berry firmness <sup>1</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>2</sup>	Neck <sup>3</sup>	Cap size <sup>4</sup>	Cap shape <sup>5</sup>	Cavity <sup>6</sup>
Earliglow .....	7,170	7	6.9	8.1	8.0	92	79	4.5	4.2	2.7	1.9	5.0	1.5
Titan.....	8,761	4	9.8	7.2	7.3	93	64	4.2	3.6	1.9	2.3	4.7	1.9
Sunrise.....	8,439	5	9.0	7.3	7.7	94	80	4.2	3.7	2.1	2.1	4.9	2.2
Allstar .....	8,806	3	10.2	6.9	9.0	93	59	3.6	2.5	2.5	2.3	4.8	1.3
Cardinal.....	8,302	6	10.2	7.2	8.0	98	83	4.5	4.1	2.8	2.5	4.8	1.7
Scott.....	9,582	2	9.9	7.2	8.7	95	83	4.4	4.1	1.9	2.3	5.0	2.1
Delite.....	10,040	1	10.0	6.4	7.9	95	44	3.9	2.7	2.4	2.1	4.7	1.9

<sup>1</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>2</sup>Degree of color: 1=green, 5=dark red.

<sup>3</sup>Neck rating: 1=sunken, 4=elongated.

<sup>4</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>5</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>6</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.



duced the highest yields of the mid-season peak harvest cultivars. Fruits of Scott were large, but a little smaller than Allstar. Scott also had a higher percent soluble solids level and internal and external color than Allstar. Cardinal produced the lowest yields of the mid-season cultivars, but had good fruit size and internal and external fruit color. Delite was the latest maturing cultivar and produced the highest yields. Delite had the lowest percent soluble solids and internal fruit color of all the best performing cultivars. The seven best performing cultivars all had acceptable fruit firmness (table 3).

TABLE 3. AVERAGE HARVEST DATES AND PEAK HARVEST SEASON OF STRAWBERRY CULTIVARS FROM EIGHT YEARS AND TWO LOCATIONS

Cultivar	Average harvest dates		
	First	Last	Peak
Earliglow .....	4/25	5/25	4/28-5/05
Titan.....	4/25	5/25	5/01-5/04
Sunrise.....	4/25	5/25	5/05-5/11
Allstar.....	4/25	5/25	5/06-5/12
Cardinal.....	4/25	5/25	5/06-5/13
Scott.....	4/25	5/25	5/06-5/13
Delite.....	4/25	5/25	5/15-5/21

### Description of Top Performing Cultivars

The following strawberry cultivars grown on matted row system performed best for commercial production in central and north Alabama tests. The average performance is presented in tables 2 and 3. The following descriptions presented in the text and table 4 are from published information and research results.

#### Earliglow

Earliglow, which was developed in Maryland, ripens very early. Berries are medium size, attractive, have uniformly symmetrical conic shape, and have firm flesh, and firm, glossy, deep red surfaces. The rich uniform red flesh color and sweet flavor are very good in a frozen pack. This berry has an outstanding flavor only matched by Albritton. Earliglow plants have good runner making ability and are resistant to many diseases. Plants are not drought tolerant and require adequate irrigation for optimum yield.

#### Titan

Titan, which was developed in North Carolina, has very large fruit,

high yield, good quality, and produces a good flavored berry especially suited for local markets. Plants are vigorous, productive and resistant to leaf spot and leaf scorch. Plants have a relatively low runner making ability, and the fruit may have hollow centers in some years. Low yields have been reported in some commercial fields.

### **Sunrise**

Sunrise, which was developed in Maryland, produces medium size berries, which have a glossy surface and bright red color that does not darken. Berries are conic in shape with a slight neck. Plants of Sunrise are very vigorous, produce runners freely, and are resistant to verticillium wilt. Leaves are resistant to leaf scorch and mildew but susceptible to leaf spot. Its fruit has a good flavor and outstanding aroma. Plants have excellent field toughness to maintain good annual plant stands. Plant fruiting habit holds berries off the ground and helps to prevent fruit rots. It is not recommended for freezing because of light colored flesh.

### **Allstar**

Allstar, another Maryland developed cultivar, is vigorous and productive with large, firm fruit of good quality in late mid-season. Allstar combines multiple race resistance to red stele with resistance to other root and leaf diseases, has unusually broad adaptation within the eastern United States, and performs well under a number of cultural regimes. Its name implies superior performance under diverse soil, climatic, and cultural conditions. Berries are very large, symmetrical and shapely, with a sweet and mild flavor, making them a real treat for table use. Their firm flesh and glossy red skin make them well suited for shipping and freezing, and they retain their attractive color and good flavor in a frozen pack. Plants have exceptional vigor in runner production and may need late runners removed for best results.

### **Cardinal**

Cardinal, which was developed in Arkansas, produce exceptionally large fruit, firm and uniformly red throughout the interior. The fruit is excellent in quality when processed or used fresh. This firm fruit is good for the Pick-Your-Own marketers as well as roadside markets and shipping. Because of heavy daughter plant production, plant thinning may be necessary to avoid fruit size reduction. It may be site sensitive, with soil fumigation being necessary for maximum yields. Fruits can be too dark on occasion.

### **Scott**

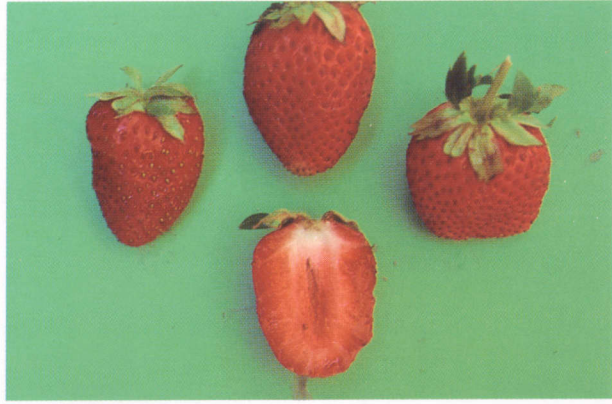
Scott, which was developed in Maryland, produces very attractive berries, which are of a uniform symmetrical, short conic shape. They are large, with firm flesh and skin, which resist bruising. They have good red internal color and are good for freezing. Fruit has a relatively mild flavor with a pleasant aroma. Plants are consistently vigorous, productive, and runners make a good plant bed. Runners should be controlled and thinned for best flavored fruit. Plants also require careful management to maintain berry size and maximum yields. Fruit may be susceptible to fruit rot.

### **Delite**

Delite, which was developed in Illinois, produces cone shaped berries, which are large in size, and hold size well into the season. Berries have a glossy surface, bright orange-red color, and moderately firm pink flesh. Flavor is good, and the berries have a good aroma and dessert quality. Delite has a mild and slightly acid taste and shouldn't be used for freezing. Plants of Delite are very vigorous and produce runners freely. Daughter plants set heavily and may reduce fruit size if not thinned. Irrigation is essential for best fruit size and yield.



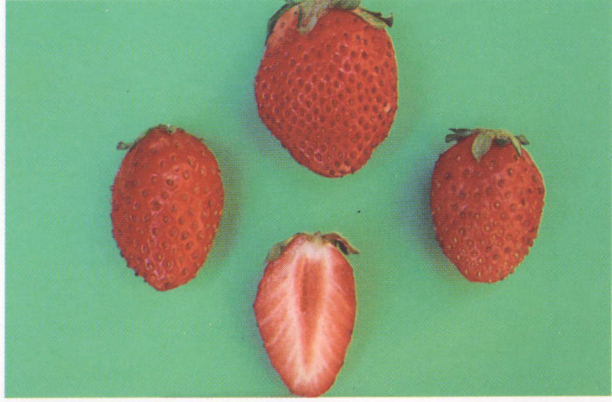
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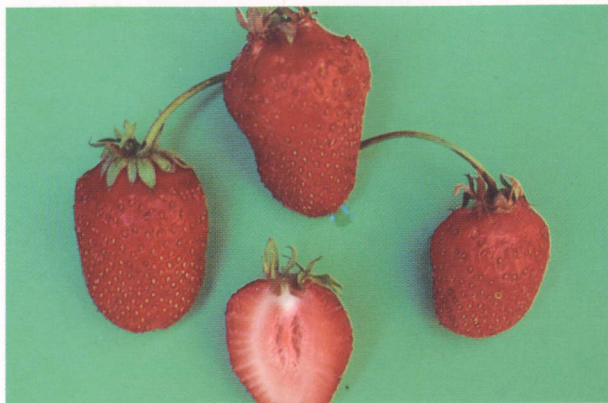
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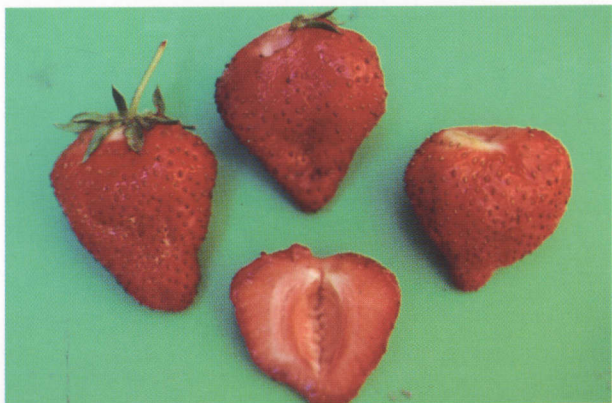
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The seven best performing cultivars were Earliglow (1), Titan (2), Sunrise (3), Allstar (4), Cardinal (5), Scott (6), and Delite (7).

TABLE 4. DESCRIPTION OF TOP PERFORMING CULTIVARS

Cultivar	Ripening season	Fruit size	Flesh firmness	Skin firmness	Quality		Verticillium wilt	Disease resistance				
					Fresh	Freezing		Leaf spot	Leaf scorch	Powdery mildew	Anthracnose	Red Stele
Earliglow .....	Early	Small-Med	Firm	Firm	Excellent	Excellent	I-R	I-R	I-R	R-S	VS	R
Titan.....	Early-Mid	Large	Firm	Firm	Excellent	Very good	S-R	R	R	S	VS-I	S
Sunrise.....	Early	Medium	Firm	Firm	Good	Fair	T	S	R	R	S-T	R
Allstar.....	Mid	Large	Firm	Firm	Good	Very good	R-T	S-T	T	T	S	R
Cardinal.....	Early	Large	Firm	Firm	Good	Very good	S	R	R	R	I	S
Scott.....	Mid-Late	Large	Firm	Firm	Good	Very good	S-I	S-T	R	R	VS	R
Delite.....	Late	Large	Firm	Medium	Fair	Fair	R	S-R	R	S	S	R

Disease resistance: VS = very susceptible; S = susceptible; T = tolerant; I = intermediate; R = resistant; R-S = variable responses in different locations/year.

## APPENDIX

APPENDIX TABLE 1. PERFORMANCE OF STRAWBERRY CULTIVARS AT NORTH ALABAMA HORTICULTURE SUBSTATION, 1983

Cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Berry firmness <sup>3</sup>	Degree exterior color <sup>4</sup>	Degree interior color <sup>5</sup>	Neck <sup>6</sup>	Cap size <sup>7,8</sup>	Cavity <sup>9</sup>
<b>Early Season</b>										
Earlibelle .....	9,730cde <sup>1</sup>	6	13.6defg	5.8de	6.2def	3.2cde	2.5bcd	1.8cdefg	1.9defg	2.5abcd
Sunrise .....	3,436fg	19	10.7hi	7.1a	5.8efg	2.4f	1.3gh	2.0cdef	2.0cdefg	3.0a
Earliglow .....	6,674efg	14	11.4ghi	7.0a	5.7efg	4.5a	3.4a	2.4abc	2.8a	2.8ab
Titan .....	13,382bcd	4	18.3ab	7.0a	7.0cde	3.2cdef	2.4cde	1.8defg	1.9defg	1.8efg
Prelude .....	9,556cde	7	15.6bcde	7.2a	4.6g	3.4cde	3.3a	1.5fgh	1.7defg	2.0cdef
Surecrop .....	5,790efg	16	12.0fghi	7.1a	4.9fg	3.7bcd	1.8efg	2.1cde	2.1bcde	1.5fg
Pocahontas .....	9,922cde	5	10.8hi	5.9cde	5.8efg	3.1cdef	2.0def	2.1cde	2.2bcd	1.7efg
<b>Mid Season</b>										
Scott .....	5,657efg	17	14.9cdef	6.9ab	8.3abc	4.2ab	3.1ab	1.8defg	2.2bcd	2.8ab
Cardinal .....	5,484efg	18	17.0bc	7.1a	8.4ab	3.7bcd	2.4cde	2.4abc	2.4abc	2.9ab
Ark 6086 .....	2,804g	21	10.2i	5.5de	7.5bcd	3.8abc	2.6bcd	1.6efg	2.6ab	1.8efg
Allstar .....	13,892bc	3	13.4defgh	6.0bcde	9.0a	2.6ef	1.0h	1.9cdef	2.1bcdef	1.2g
Atlas .....	9,296cde	9	14.8cdef	7.0a	6.4de	2.9def	2.1def	2.7ab	1.6g	2.0cdef
Douglas .....	9,072de	10	18.0ab	5.5de	6.4de	3.2cde	2.9abc	1.0h	2.2bcd	2.3bcde
Pajaro .....	3,495fg	20	11.8ghi	5.8cde	8.4ab	3.0cdef	1.8efg	1.3gh	2.1bcde	1.5fg
Vista .....	7,594g	12	11.9fghi	6.4abcd	5.7efg	3.2cde	2.1def	2.2cde	1.7efg	2.1cdef
Rosanne .....	9,366cde	8	12.7efghi	6.7abc	6.7de	3.3cde	2.4cde	2.8a	1.9defg	2.0cdef
<b>Late Season</b>										
Sentinel .....	6,382efg	15	15.8bcd	7.0a	8.1abc	3.4cde	2.3cde	1.0h	2.0cdefg	1.6fg
Ark 6686 .....	8,138ef	11	11.4ghi	5.4e	8.7ab	2.8ef	1.7efgh	1.9cdef	2.2bcd	2.7abc
Arkling .....	7,252efg	13	20.2a	5.9cde	6.5de	3.3cde	1.5fgh	2.3bcd	2.0cdefg	2.9ab
Delite .....	21,213a	1	13.9defg	5.4e	5.7efg	3.3cde	1.3gh	2.1cde	1.6fg	2.3bcde
Tenn. Beauty .....	14,860b	2	9.9i	5.3e	5.5efg	3.2cde	2.2cde	2.2bcd	2.1bcde	2.7abc

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.<sup>2</sup>One ounce equals 29 grams.<sup>3</sup>Firmness rating: 1=rotten, 10=firm.<sup>4</sup>Degree of color: 1=green, 5=dark red.<sup>5</sup>Percent color ratings for exterior and interior color were not made.<sup>6</sup>Neck rating: 1=sunken neck, 4=elongated neck.<sup>7</sup>Cap size rating: 1=small cap, 2=medium cap, 3=large cap.<sup>8</sup>Cap shape not rated for this study.<sup>9</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

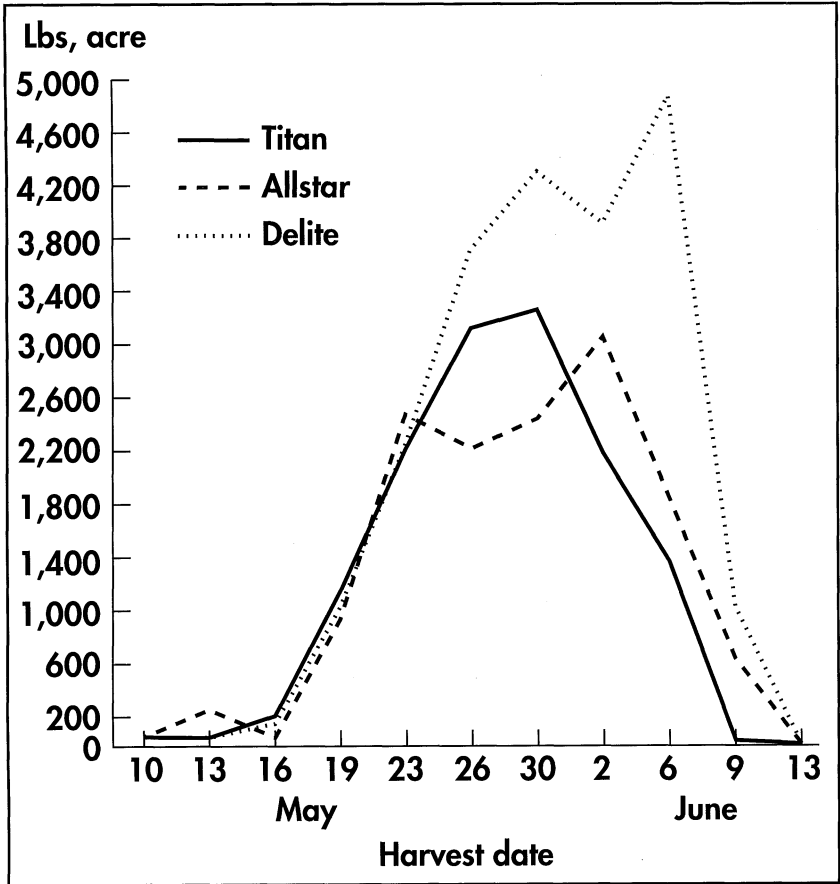


APPENDIX TABLE 2. PERFORMANCE OF STRAWBERRY CULTIVARS AT BELLE MINA, ALA. 1983

Cultivar	Total yield (lb/A)	Rank in yield
<b>Early Season</b>		
Earlibelle.....	7,088	17
Sunrise.....	10,919	8
Earliglo.....	6,225	18
Titan.....	14,745	2
Prelude.....	8,211	14
<b>Mid Season</b>		
Surecrop.....	7,772	15
Pocahontas.....	11,463	7
Scott.....	12,384	5
Cardinal.....	8,434	13
Ark 6086.....	1,750	21
Allstar.....	12,743	3
Atlas.....	7,438	16
Douglas.....	8,779	11
Pajaro.....	5,227	19
Vista.....	4,744	20
Rosanne.....	8,871	10
<b>Late Season</b>		
Sentinel.....	12,723	4
Ark 6636.....	8,470	12
Arking.....	11,830	6
Delite.....	16,585	1
Tenn. Beauty.....	9,844	9

APPENDIX TABLE 3. HARVEST DATES AND PEAK HARVEST SEASON OF STRAWBERRY CULTIVARS AT THE NORTH ALA. HORTICULTURE SUBSTATION (NAHS) AND TENNESSEE VALLEY SUBSTATION (TVS), 1983

Cultivar	NAHS 1983			TVS 1983		
	Harvest dates			Harvest dates		
	First	Last	Peak	First	Last	Peak
<b>Early Season</b>						
Earlibelle .....	5/10	6/09	5/19-5/26	5/10	6/13	5/23-6/02
Sunrise .....	5/10	6/09	5/23-5/30	5/10	6/13	5/30-6/06
Earliglow.....	5/10	6/09	5/19-5/23	5/10	6/13	5/30-6/02
Titan .....	5/10	6/09	5/23-6/02	5/10	6/13	5/30-6/09
Prelude.....	5/10	6/09	5/23-5/27	5/10	6/13	5/23-6/02
<b>Mid Season</b>						
Surecrop .....	5/10	6/09	5/19-5/30	5/10	6/13	5/30-6/06
Pocahontas.....	5/17	6/09	5/19-5/26	5/10	6/13	5/30-6/09
Scott .....	5/10	6/09	5/26-6/06	5/10	6/13	5/30-6/09
Cardinal .....	5/10	6/09	5/26-6/02	5/10	6/13	5/30-6/09
Ark 6086.....	5/10	6/09	5/26-5/30	5/10	6/13	5/19-6/02
Allstar .....	5/10	6/13	5/30-6/06	5/10	6/13	5/30-6/02
Atlas.....	5/10	6/09	5/29-6/05	5/10	6/13	5/16-6/02
Douglas.....	5/13	6/13	5/29-6/05	5/10	6/13	5/16-5/23
Pajaro .....	5/10	6/09	5/19-6/06	5/10	6/13	5/30-6/02
Vista.....	5/10	6/13	5/19-5/26	5/10	6/13	5/30-6/06
Rosanne .....	5/10	6/09	5/30-6/06	5/10	6/13	5/30-6/09
<b>Late Season</b>						
Sentinel.....	5/13	6/09	5/30-6/06	5/10	6/13	5/30-6/02
Ark 6686.....	5/13	6/09	5/26-6/02	5/10	6/13	5/30-6/02
Arking .....	5/13	6/13	6/02-6/06	5/10	6/13	5/23-6/09
Delite .....	5/10	6/13	5/26-6/06	5/10	6/13	5/30-6/02
Tenn. Beauty .....	5/10	6/13	5/26-6/06	5/10	6/13	5/30-6/09



Appendix Fig. 1.

APPENDIX TABLE 4. PERFORMANCE OF STRAWBERRY CULTIVARS AT CHILTON AREA HORTICULTURE SUBSTATION, 1985

Season and cultivar	Total yield (lb/A)	Rank in yield	Percent soluble solids	Berry firmness <sup>1,3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>												
Earlibelle .....	9,605 <sup>1</sup>	14	6.5bcd <sup>2</sup>	7.5	98a	82abc	4.0abc	4.2ab	1.6bcde	1.9ef	4.9bc	1.9abcd
Earlglow .....	10,644	13	7.7a	8.5	95abc	68cdef	4.5a	4.1ab	1.7abcd	1.8f	5.1bc	1.5cd
Prelude .....	11,468	12	5.9cde	4.5	96abc	88a	4.0abc	4.2a	1.1e	2.4abcd	4.9bc	2.4abcd
Sunrise .....	17,677	1	6.1bcde	8.3	93abc	73abcd	4.1abc	4.0abc	1.6bcde	2.0ef	5.5a	2.2abcd
Titan .....	12,342	11	6.7abcd	6.3	93abc	49gh	4.0abc	3.5bcd	1.6bcde	2.2bcdef	5.1bc	2.2abcd
<b>Mid Season</b>												
Allstar .....	12,390	10	6.6abc	9.8	90bc	35h	3.6cd	2.0e	2.0ab	2.1def	5.0bc	1.2d
Cardinal .....	15,945	3	6.2bcde	10.0	97abc	83ab	4.3ab	4.5a	1.7abcd	2.6ab	4.9bc	1.7bcd
Redchief .....	15,609	4	6.6abc	5.6	95abc	47gh	4.0abc	3.5bcd	1.6bcde	2.1def	5.0bc	2.3abcd
Scott .....	14,965	5	5.8de	9.3	92abc	72bcde	4.1abc	4.0ab	1.5bcde	2.3bcde	5.1bc	2.1abcd
Surecrop .....	12,101	8	7.0abc	6.5	93abc	54fg	3.8bcd	3.1d	1.5bcde	1.8f	5.1bc	1.5cd
Tioga .....	11,820	9	6.6abcd	7.5	98a	52g	4.0abc	3.3cd	1.1e	1.8f	4.9bc	2.5abc
<b>Late Season</b>												
Albritton .....	7,795	15	7.2ab	6.5	98a	60defg	3.8bcd	3.1d	1.5bcde	2.5abc	4.8c	2.2abcd
Apollo .....	5,929	16	6.7abcd	6.5	96abc	58efg	4.0abc	3.5bcd	1.8abc	2.7a	5.0bc	1.9abcd
Delite .....	17,301	2	5.2e	8.7	89c	35h	3.4d	2.2e	1.6bcde	2.0ef	5.0bc	2.9a
Sentinel .....	12,745	7	5.9cde	6.5	91abc	81abc	4.1abc	4.3a	1.2cde	2.2bcdef	5.2ab	1.4cd
Tenn. Beauty .....	13,627	6	6.4bcd	5.8	97abc	75abcd	3.9bc	3.5bcd	2.2a	2.2bcdef	5.1bc	2.7ab

<sup>1</sup>Original data by replicate unavailable for analysis.

<sup>2</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.z

<sup>3</sup>Firmness rating: 1=rotten, 10=firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken neck, 4=elongated neck.

<sup>6</sup>Cap size rating: 1=small cap, 2=medium cap, 3=large cap.

<sup>7</sup>Cap shape rating: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 4 CONTINUED. PERFORMANCE OF STRAWBERRY CULTIVARS AT CHILTON AREA HORTICULTURE SUBSTATION, 1986

Cultivar	Total yield (lb/A) <sup>1</sup>	Rank in yield	Average fruit weight (g) <sup>3</sup>	Percent soluble solids	Berry firmness <sup>4</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>5</sup>	Neck <sup>6</sup>	Cap size <sup>7</sup>	Cap shape <sup>8</sup>	Cavity <sup>9</sup>
<b>Early Season</b>													
Earlible	2,511bcd <sup>2</sup>	11	6.8cde	7.8abc	8.2ab	89a	80abc	4.0bcd	3.9ab	1.8def	2.1bc	4.7cde	1.9cdef
Earlignow	3,541abc	4	5.8e	8.4abc	9.0a	84a	80abc	4.3abcd	3.8ab	2.6abcd	1.7c	5.2ab	1.2fg
Prelude	1,416de	14	9.0abc	8.7ab	7.7ab	87a	50ef	4.1abcd	3.3bc	2.3bcde	2.1bc	4.8abcde	2.7ab
Sunrise	4,591a	1	9.8ab	8.4abc	7.8ab	86a	82ab	4.5a	4.1a	2.4abcde	2.1bc	5.3a	2.3abcd
Titan	2,867abcd	9	7.5abcde	6.2d	6.8abc	80a	58def	3.8dc	3.0c	1.1f	1.9bc	4.8abcde	2.8a
<b>Mid Season</b>													
Allstar	2,439cd	12	10.3a	7.7abc	8.3ab	83a	73abcd	3.9bcd	1.9d	2.4abcde	2.6ab	4.8abcde	1.5defg
Cardinal	4,304abc	2	9.2abc	8.0abc	8.8ab	97a	80abc	4.6a	4.1a	2.9abc	2.4abc	4.8abcde	1.6defg
Redchief	3,212abcd	5	9.2abc	7.7abc	6.7abc	82a	70bcd	4.2abcd	3.5abc	2.2bcde	2.4abc	5.0abcd	2.8a
Scott	4,376ab	3	9.2abc	7.8abc	8.0ab	85a	80abc	4.5a	4.0a	1.6def	2.4abc	5.2ab	2.5abc
Surecrop	1,632de	13	7.2bcde	9.2a	7.5ab	82a	62de	4.3abcd	3.1c	3.3a	2.1bc	5.3a	2.3abcd
Tioga	1,355de	15	7.8abcde	8.1abc	4.4c	92a	90a	4.2abcd	3.8ab	1.5ef	2.4abc	4.7cde	2.4abc
<b>Late Season</b>													
Albritton	2,915abcd	8	7.2bcde	8.6ab	6.0bc	86a	65cde	4.2abcd	3.0c	2.2bcde	2.5ab	4.7cde	2.2abcd
Apollo	606e	16	6.0de	8.2abc	8.0ab	90a	80abc	4.3abcd	3.8ab	2.0cdef	2.9a	4.6de	2.0bcde
Delite	3,007abcd	7	8.6abcd	7.2bcd	8.9ab	89a	45f	3.8d	2.4d	3.0ab	2.2abc	4.8abcde	1.4efg
Sentinel	2,733abcd	10	8.5abcde	7.6bcd	6.5abc	89a	88a	4.3abcd	4.0a	1.8def	1.9bc	4.4e	1.0g
Tenn. Beauty	3,093abcd	6	7.0bcde	7.0cd	6.4abc	82a	88a	4.2abcd	3.8ab	2.9abc	2.3abc	5.1abc	2.7ab

<sup>1</sup>Plants accidentally sprayed with MSMA herbicide previous summer.  
<sup>2</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.  
<sup>3</sup>One ounce equals 29 grams.  
<sup>4</sup>Firmness rating: 1=rotten, 10=very firm.  
<sup>5</sup>Degree of color: 1=green, 5=dark red.  
<sup>6</sup>Neck rating: 1=sunken, 4=elongated.  
<sup>7</sup>Cap size rating: 1=small, 2=medium, 3=large.  
<sup>8</sup>Cap shape: 4=clinging, 6=reflexed.  
<sup>9</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 5. PERFORMANCE OF STRAWBERRY CULTIVARS AT TENNESSEE VALLEY SUBSTATION, 1985

Season and cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>													
Earlibelle.....	6,268bc <sup>1</sup>	5	9.7def	6.4bc	8.2abcd	98a	84ab	4.1bcd	4.8a	2.2ab	2.4a	4.8abc	2.1de
Earliglow.....	6,642b	4	7.1h	6.4bc	8.2abcd	95a	68de	4.6a	4.6abcd	2.2ab	1.3e	5.0ab	1.4gh
Prelude.....	5,602bcd	7	9.6def	7.2ab	6.2e	98a	92a	3.9cd	4.7ab	1.5fg	2.3ab	4.5c	2.0ef
Sunrise.....	10,420a	1	14.0a	5.8c	9.7a	97a	77bcd	4.1bcd	4.4abcde	1.7ef	1.8cde	5.0ab	2.7a
Titan.....	4,255de	14	7.8gh	6.1c	7.5bcde	96a	63e	4.4ab	4.5abcde	1.8cdef	1.9bcd	4.7abc	2.0ef
<b>Mid Season</b>													
Allstar.....	5,152bcde	10	10.3cde	5.7c	9.2ab	97a	62e	3.4e	3.0f	2.4a	2.2abc	4.9abc	1.2hi
Cardinal.....	6,050bc	6	10.9bcd	5.7c	9.7a	96a	70cde	4.4ab	4.2abcde	2.5a	2.2abc	4.6bc	1.6fg
Redchief.....	3,762ef	15	9.2efg	6.2bc	8.2abcd	94ab	61e	4.6a	4.5abcd	1.8cdef	2.0abcd	4.7abc	2.3cde
Scott.....	8,878a	3	14.1a	5.8c	9.8a	98a	83ab	4.1bcd	4.6abcd	1.8cdef	2.1abc	5.1a	2.5abc
Surecrop.....	4,652cde	13	8.9efg	5.8c	6.8de	92b	64e	4.0bcd	4.0cde	1.8cdef	1.6de	5.1a	1.2hi
Tioga.....	2,532f	16	11.2bcd	5.7c	8.0abcde	86b	64e	3.8cd	4.0cde	1.2gh	1.8cd	5.0ab	2.4bcd
<b>Late Season</b>													
Albritton.....	5,092bcde	11	11.6bc	7.4a	7.0cde	97a	81abc	3.8cd	4.1bcde	2.0bcde	2.2abc	4.6bc	2.7a
Apollo.....	5,280bcde	9	11.1bcd	6.2c	7.5bcde	93ab	59e	3.9cd	3.9e	2.2ab	2.4a	4.6bc	1.4gh
Delite.....	9,330a	2	14.3a	5.9c	8.7abc	97a	59e	3.7de	3.2f	1.8cdef	2.2abc	4.8abc	1.5gh
Sentinel.....	4,775cde	12	12.4b	6.4bc	8.0abcde	97a	83ab	4.2abc	4.7ab	1.1h	2.2abc	4.6bc	1.0i
Tenn. Beauty.....	5,340bcde	8	8.4fgh	5.4c	9.0ab	93ab	78bcd	4.0bcd	4.0cde	2.4a	2.2abc	5.1a	2.6abc

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.

<sup>2</sup>One ounce equals 29 grams.

<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken, 4=elongated.

<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 5 CONTINUED. PERFORMANCE OF STRAWBERRY CULTIVARS AT TENNESSEE VALLEY SUBSTATION, 1986

Season and cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>													
Earlibelle.....	3,415c <sup>1</sup>	8	5.1efg	9.1abcd	6.5ef	100a	92ab	4.1bcde	3.4bcd	2.1bc	2.2cd	4.9ab	2.2bc
Earliglow.....	3,462c	7	4.9fg	10.0a	7.5bcdef	90ab	93ab	4.4ab	4.3ab	2.8a	2.0d	5.4a	1.6de
Prelude.....	2,875cd	10	6.5abcdef	9.2abc	4.5g	99ab	100a	3.8defg	3.4bcd	2.0bcd	2.8ab	4.0b	2.2bc
Sunrise.....	7,228a	1	7.0abcd	8.6bcd	8.0abcde	93ab	89ab	4.2abcd	3.4bcd	2.5ab	2.4bcd	5.2ab	2.4ab
Titan.....	2,120cd	15	6.0bcdefg	9.2abc	8.2abcd	82c	54e	3.8defg	2.3de	2.0bcd	2.5abcd	5.1ab	2.7ab
<b>Mid Season</b>													
Allstar.....	3,292cd	9	7.6ab	8.4cd	9.2a	90ab	47e	3.2g	2.1de	2.6ab	2.6abc	4.4ab	1.6de
Cardinal.....	4,028bc	4	7.1abcd	8.4cd	9.2a	100a	87abc	4.4ab	3.3bcde	3.1a	2.7abc	4.3ab	1.8cde
Redchief.....	2,458cd	13	6.0bcdefg	9.8ab	8.0abcde	92ab	54e	3.6fg	2.2de	2.1bc	2.4bcd	5.0ab	2.9a
Scott.....	6,078a	2	6.9abcde	8.5bcd	8.8ab	95ab	84abcd	4.0bcdef	3.0cde	2.5ab	2.4bcd	5.5a	2.6ab
Surecrop.....	3,890bc	6	6.0bcdefg	9.0abcd	6.2f	92ab	62de	3.7efg	2.2de	3.0a	2.5abcd	5.4a	1.7cde
Tioga.....	1,297d	16	6.8abcde	7.0e	8.5abc	92ab	56e	4.0bcdef	2.0e	1.8cd	2.4bcd	5.4a	2.2bc
<b>Late Season</b>													
Albritton.....	2,692cd	11	5.2defg	8.9abcd	6.2f	98ab	65cde	3.9defg	2.2de	1.9bcd	2.7abc	5.1ab	2.4ab
Apollo.....	2,395cd	14	5.4cdefg	8.3cd	6.8def	96ab	70bcde	4.0bcdef	3.0cde	2.8a	3.0a	5.2ab	1.4ef
Delite.....	5,785ab	3	8.0a	8.1cde	7.9abcde	98ab	54e	3.5gh	2.2de	2.5ab	2.9ab	5.2ab	2.1bcd
Sentinel.....	2,459cd	12	7.2abc	8.0de	7.0cdef	98ab	100a	4.6a	4.8a	1.4d	2.6abc	4.6ab	1.0f
Tenn. Beauty.....	3,915bc	5	4.6g	8.0de	7.5bcdef	96ab	90ab	4.0bcdef	3.7abc	3.0a	2.6abc	5.4a	2.9a

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.

<sup>2</sup>One ounce equals 29 grams.

<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken, 4=elongated.

<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 5 CONTINUED. PERFORMANCE OF STRAWBERRY CULTIVARS AT TENNESSEE VALLEY SUBSTATION, 1987

Season and cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>													
Earlibelle .....	5,138bcd <sup>1</sup>	6	5.3f	6.8abc	6.7bc	100a	93a	4.3abc	4.7a	2.1cd	1.4g	4.9a	2.2ab
Earliglow .....	5,000bcd	7	5.8ef	7.5a	8.2a	92a	85ab	4.6ab	4.5a	3.0ab	1.4g	5.2a	1.6bc
Prelude .....	4,270bcde	10	5.5ef	5.4d	5.0d	87a	93a	4.1abcd	4.5a	1.5de	1.6efg	4.8a	1.7bc
Sunrise .....	12,150a	1	8.4abcd	6.0bcd	7.2ab	90a	85ab	4.1abcd	4.4a	1.9cd	2.2abcde	4.8a	2.1abc
Titan .....	3,355cde	13	6.2ef	6.5abcd	8.3a	100a	63cde	4.2abc	3.0bc	2.0cd	2.0cdef	5.0a	2.0abc
<b>Mid Season</b>													
Allstar .....	3,300cde	14	7.2bcdef	5.9bcd	8.5a	90a	42fg	3.4d	1.8d	2.8b	2.6abc	5.3a	1.6bc
Cardinal .....	8,108ab	4	8.6abc	7.0ab	8.5a	98a	82abc	4.6ab	4.6a	3.6a	2.4abcd	5.2a	2.0abc
Redchief .....	3,020cde	15	6.1ef	6.6abcd	8.5a	100a	48ef	4.3abc	3.2b	1.9cd	2.8ab	4.2a	2.0abc
Scott .....	11,478a	2	8.8ab	6.4abcd	7.2ab	100a	85ab	4.6ab	4.6a	1.6de	2.1bcde	5.2a	2.1abc
Surecrop .....	8,268ab	3	7.3bcdef	6.5abcd	5.8cd	95a	78abcd	4.0bcd	3.8ab	2.5bc	2.1bcde	5.1a	2.0abc
Tioga .....	3,413cde	12	10.2a	6.3abcd	8.5a	85a	70bcd	4.3abc	4.5a	2.2cd	2.9a	4.9a	2.4a
<b>Late Season</b>													
Albritton .....	4,513bcd	9	7.6bcde	6.8abc	5.5cd	90a	58def	3.7cd	3.2b	1.9cd	1.8defg	4.5a	2.1abc
Apollo .....	4,043bcd	11	6.7cdef	6.8abc	7.3ab	100a	73abcd	4.1abcd	3.7ab	2.0cd	2.8ab	5.0a	1.5cd
Delite .....	4,910bcd	8	6.4def	5.4d	7.5ab	100a	28g	3.8bcd	2.0cd	3.0ab	2.0cdef	4.9a	1.8bc
Sentinel .....	1,600e	16	8.6abc	6.9ab	5.8cd	95a	85ab	4.8a	4.5a	1.2e	2.6abc	4.6a	1.0d
Tenn. Beauty .....	6,223bc	5	5.5ef	6.0bcd	6.2bcd	92a	78abcd	4.1abcd	3.8ab	2.4bc	2.8ab	5.2a	2.1abc

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.

<sup>2</sup>One ounce equals 29 grams.

<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken, 4=elongated.

<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.



APPENDIX TABLE 6. HARVEST DATES AND PEAK HARVEST SEASON OF STRAWBERRY CULTIVARS AT THE CHILTON AREA HORTICULTURE SUBSTATION, 1985 AND 1986, AND TENNESSEE VALLEY SUBSTATION, BELLE MINA, 1985, 1986, AND 1987

Cultivar	Harvest dates														
	CHS 1985			CHS 1986			TVA 1985			TVA 1986			TVA 1987		
	First	Last	Peak	First	Last	Peak	First	Last	Peak	First	Last	Peak	First	Last	Peak
<b>Early Season</b>															
Earlibelle .....	4/22	5/27	5/03-5/06	4/20	5/19	4/20-4/23	4/23	5/13	4/29-5/03	4/24	5/20	5/02-5/06	5/6	5/27	5/08-5/18
Earliglo .....	4/22	5/27	4/26-5/01	4/20	5/19	4/22-4/29	4/23	5/13	4/27-5/03	4/24	5/20	5/02-5/06	5/6	5/27	5/08-5/18
Prelude .....	4/22	5/27	5/03-5/08	4/20	5/19	4/22-4/29	4/23	5/13	4/29-5/03	4/24	5/20	5/02-5/06	5/6	5/27	5/15-5/18
Sunrise .....	4/22	5/27	5/06-5/15	4/20	5/19	5/04-5/11	4/23	5/13	5/01-5/05	4/26	5/20	5/06-5/12	5/6	5/27	5/20-5/22
Titan .....	4/22	5/27	5/03-5/06	4/20	5/19	5/04-5/06	4/23	5/13	5/01-5/03	4/24	5/20	5/04-5/06	5/6	5/27	5/11-5/13
<b>Mid Season</b>															
Allstar .....	4/22	5/27	5/06-5/13	4/20	5/19	5/08-5/13	4/23	5/13	5/03-5/05	4/24	5/20	5/04-5/06	5/6	5/27	5/15-5/20
Cardinal .....	4/22	5/27	5/03-5/08	4/20	5/19	4/27-5/04	4/23	5/13	5/01-5/05	4/26	5/20	5/04-5/06	5/6	5/27	5/18-5/22
Redchief .....	4/22	5/27	5/01-5/08	4/20	5/10	5/04-5/08	4/23	5/13	5/01-5/03	4/26	5/20	5/08-5/12	5/6	5/27	5/25-5/20
Scott .....	4/22	5/27	5/01-5/10	4/20	5/19	5/04-5/11	4/23	5/13	5/01-5/05	4/26	5/20	5/06-5/12	5/6	5/27	5/15-5/22
Surecrop .....	4/22	5/27	5/06-5/08	4/20	5/19	4/27-4/29	4/23	5/13	5/01-5/03	4/26	5/20	5/02-5/08	5/6	5/27	5/18-5/22
Tioga .....	4/22	5/27	5/10-5/15	4/20	5/19	5/06-5/11	4/23	5/13	5/03-5/05	4/26	5/20	5/10-5/12	5/6	5/27	5/11-5/15
<b>Late Season</b>															
Albritton .....	4/22	5/27	5/10-5/15	4/20	5/19	4/22-4/27	4/23	5/13	5/05-5/11	4/26	5/20	5/04-5/06	5/6	5/27	5/11-5/15
Apollo .....	4/22	5/27	5/03-5/08	4/20	5/19	5/06-5/11	4/23	5/13	5/01-5/05	4/26	5/20	5/02-5/06	5/6	5/27	5/15-5/20
Delite .....	4/22	5/27	5/10-5/17	4/20	5/19	5/11-5/15	4/23	5/13	5/05-5/13	4/26	5/20	5/06-5/12	5/6	5/27	5/15-5/22
Sentinel .....	4/22	5/27	5/06-5/13	4/20	5/19	4/27-5/04	4/23	5/13	5/01-5/05	4/24	5/18	5/04-5/06	5/6	5/27	5/11-5/13
Tenn. Beauty.....	4/22	5/27	5/03-5/13	4/20	5/19	5/04-5/11	4/23	5/13	5/03-5/05	4/26	5/20	5/04-5/06	5/6	5/27	5/11-5/15

APPENDIX TABLE 7. PERFORMANCE OF STRAWBERRY CULTIVARS AT CHILTON AREA HORTICULTURE SUBSTATION, 1988

Cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Date of first bloom	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>														
Chandler.....	2,613abc <sup>1</sup>	11	9.9abc	7.1f	3/26	8.5abcd	98ab	79abc	4.1be	4.9a	1.8cd	3.0a	5.8a	1.3h
Douglas.....	1,991abcdef	14	12.1ab	8.7bcde	3/25	8.0abcde	99a	76abc	4.9ab	4.3abcde	1.8cd	2.3abc	5.5ab	1.7defgh
Earliglow.....	2,209abcdef	13	8.7abc	10.2a	4/03	9.0ab	100a	86a	5.0a	4.4abcd	2.8abc	2.3abc	5.5ab	1.4h
Sunrise.....	1,635bcdef	15	8.5bc	8.7bcde	4/05	6.8cde	99a	70abcd	4.1de	3.3defg	2.3bcd	2.5abc	5.8a	2.0cde
Titan.....	3,147ab	5	12.3ab	8.4bcde	3/23	6.3e	99a	81abc	4.9ab	4.8a	2.5abcd	3.0a	4.5b	1.6efgh
<b>Mid Season</b>														
Aiko.....	2,381abcd	12	12.5a	8.3bcde	4/03	7.8abcde	97ab	41de	4.4bcde	3.6bcdefg	1.5d	3.0a	5.5ab	2.7a
Allstar.....	636f	23	10.5abc	8.6bcde	4/03	8.8abc	99a	54bcde	4.3bcde	3.2efg	2.8abc	1.8c	5.3ab	1.2h
Atlas.....	650f	22	7.0c	8.4bcde	3/20	7.8abcde	100a	41de	4.6abcd	2.9fg	2.8abc	2.3abc	5.0ab	1.4h
Cardinal.....	1,019def	18	10.3abc	8.8bcd	4/03	9.3a	100a	90a	4.9ab	4.9a	2.8abc	2.8ab	5.3ab	1.4h
Guardian.....	3,277a	3	11.9ab	8.7bcde	4/03	7.8abcde	98ab	54bcde	3.8e	2.9fg	3.0ab	2.8ab	5.8a	2.0cde
Honeyoye.....	704ef	21	8.8abc	7.5ef	3/25	7.8abcde	99a	75abc	4.2cde	4.6abc	2.3bcd	1.8c	4.8ab	1.5fgh
Lester.....	1,156cdef	17	10.5abc	9.0abc	4/03	6.3e	100a	54bcde	4.5abcd	4.3abcde	2.0bcd	2.8ab	4.8ab	2.2bcd
Pocahontas.....	3,321a	1	8.5bc	8.5bcde	3/20	6.5de	100a	91a	4.7abcd	3.8abcdefg	3.5a	2.0c	5.3ab	1.3h
Redchief.....	2,846ab	8	9.7abc	8.5bcde	3/21	8.3abcde	99a	66abcde	4.4bcde	4.5abc	2.5abcd	2.3abc	5.5ab	2.6ab
Scott.....	910def	19	9.8abc	8.7bcde	4/03	9.3a	99a	79abc	4.7abcd	4.4abcd	1.8cd	2.3abc	5.5ab	1.7defgh
Sequoia.....	2,986ab	6	10.3abc	7.5ef	3/25	6.8cde	99a	55bcde	4.9ab	4.0abcdef	1.5d	2.8ab	5.3ab	2.0cde
Surecrop.....	2,292abcde	7	9.3abc	7.7def	4/03	6.8cde	98ab	83ab	4.9ab	4.8a	2.5abcd	2.3abc	5.8a	1.4h
<b>Late Season</b>														
Albritton.....	1,618bcdef	16	9.8abc	8.6bcde	3/30	6.5de	100a	86a	4.5abcd	4.7ab	2.3bcd	2.8ab	5.5ab	1.9cdefg
Apollo.....	3,222ab	4	11.4ab	7.9cdef	4/03	7.0bcde	98ab	63abcde	4.7abcd	3.6bcdefg	3.0ab	2.8ab	5.5ab	2.0cde
Delite.....	3,308a	2	12.1ab	7.5ef	4/05	7.3abcde	97ab	36e	4.9ab	3.6bcdefg	2.0bcd	2.3abc	5.3ab	2.3abc
Lateglow.....	786def	20	10.5abc	8.7bcde	4/09	7.3abcde	99a	51cde	4.7abcd	3.7abcdefg	1.8cd	2.3abc	4.5b	1.9cdefg
Marlate.....	2,771ab	9	10.2abc	9.2ab	4/05	7.3abcde	95ab	39e	4.0de	2.7g	1.5d	3.0a	5.3ab	2.0cde
Tenn. Beauty.....	2,743ab	10	7.2c	8.9bcd	3/21	7.3abcde	93b	70abcd	4.6abcd	4.2abcde	2.8abc	2.5abc	5.5ab	2.4abc

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.<sup>2</sup>One ounce equals 29 grams.<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.<sup>4</sup>Degree of color: 1=green, 5=dark red.<sup>5</sup>Neck rating: 1=sunken, 4=elongated.<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 7 CONTINUED. PERFORMANCE OF STRAWBERRY CULTIVARS AT CHILTON AREA HORTICULTURE SUBSTATION, 1989

Cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Date of first bloom	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>
<b>Early Season</b>														
Chandler.....	15,196abcd <sup>1</sup>	6	7.4efgh	7.2efg	3/26	9.0a	99a	85abcd	4.9ab	4.8ab	3.0abc	3.0a	6.0a	1.2h
Douglas.....	8,494gh	22	7.6defg	6.9g	3/25	9.0a	98ab	76def	4.8abc	4.6abc	2.0de	2.3abc	6.0a	2.3b
Earliglow.....	11,672cdefgh	16	5.9j	9.4a	4/03	9.0a	100a	83abcde	5.0ab	4.5abcd	3.7a	2.3abc	6.0a	1.7cdefg
Sunrise.....	7,953h	23	6.3ij	8.1bcde	4/05	8.5a	100a	82abcdef	5.6a	4.2abcde	2.2cde	2.5abc	5.5abc	2.1bcd
Titan.....	15,483abc	5	8.7bc	8.5b	3/23	8.7a	97ab	69fghi	4.8abc	4.5abcd	3.0abc	3.0a	6.0a	1.3gh
<b>Mid Season</b>														
Aiko.....	14,162bcde	8	8.5cd	7.4defg	4/03	9.0a	98ab	49j	4.5bc	2.6g	2.0de	3.0a	6.0a	2.8a
Allstar.....	18,223a	1	8.9bc	7.3efg	4/03	9.0a	97ab	74defgh	4.1c	3.7ef	3.0abc	1.8c	6.0a	1.4fgh
Atlas.....	11,169defgh	19	7.0fghi	7.5cdefg	3/20	9.0a	99a	62ghij	4.6bc	3.8def	3.2ab	2.3abc	5.0c	1.6defgh
Cardinal.....	13,136cdef	11	7.9cdef	7.1fg	4/03	9.0a	100a	94a	5.0ab	4.9a	3.0abc	2.8ab	6.0a	1.6defgh
Guardian.....	11,333defgh	18	7.6defg	7.6bcdefg	4/03	9.0a	98ab	70efghi	4.4bc	3.9cdef	2.7bcd	2.8ab	5.7ab	2.0bcde
Honeyoye.....	13,844bcde	10	6.4hij	8.1bcde	3/25	9.0a	100a	91abc	5.0ab	4.9a	3.0abc	1.8c	5.7ab	2.0bcde
Lester.....	15,784abc	3	9.4ab	7.7bcdefg	4/03	8.7a	98ab	73defgh	4.4bc	3.8def	3.0abc	2.8ab	5.7ab	2.0bcde
Pocahontas.....	13,088cdef	12	6.2ij	7.3efg	3/20	8.2a	100a	93ab	5.2ab	4.5abcd	3.0abc	2.0c	5.7ab	1.2h
Redchief.....	10,892efgh	20	6.5hij	7.4defg	3/21	8.5a	99a	59ij	4.8abc	4.3abcde	3.0abc	2.3abc	5.7ab	2.4ab
Scott.....	15,726abc	4	6.8ghij	8.4bc	4/03	9.0a	99a	92ab	4.9ab	4.7ab	2.5bcde	2.3abc	5.7ab	1.7cdefg
Sequoia.....	11,361defgh	17	7.1fghi	7.7bcdefg	3/25	8.5a	100a	61hij	5.0ab	4.4abcde	1.7c	2.8ab	5.2bc	1.8cdef
Surecrop.....	9,472fgh	21	6.8ghij	7.5cdefg	4/03	8.7a	100a	80abcdef	5.0ab	4.4abcde	3.2ab	2.3abc	5.7ab	1.3gh
<b>Late Season</b>														
Albritton.....	13,858bcde	9	6.7ghij	8.1bcde	3/30	8.7a	99a	78cdef	4.5bc	4.1bcde	2.7bcd	2.8ab	5.7ab	2.0bcde
Apollo.....	17,662ab	2	8.1cde	7.1fg	4/03	9.0a	100a	79bcdef	4.9ab	4.6abc	3.0abc	2.8ab	6.0a	1.4fgh
Delite.....	12,103cdefg	15	7.9cdef	7.3efg	4/05	9.0a	96ab	49j	4.5bc	3.3f	3.0abc	2.3abc	5.7ab	1.8cdef
Lateglow.....	14,806abcde	7	9.9a	8.3bcd	4/09	8.7a	98ab	75defg	4.6bc	3.8ef	3.0abc	2.3abc	5.7ab	2.4ab
Marlate.....	12,572cdef	14	7.9cdef	7.9bcdef	4/05	8.5a	95b	53j	4.6bc	3.3f	2.7bcd	3.0a	6.0a	2.2bc
Tenn. Beauty.....	12,770cdef	13	5.1k	7.8bcdefg	3/21	8.7a	98ab	86abcd	4.8abc	4.2abcde	3.2ab	2.5abc	6.0a	2.3b

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.

<sup>2</sup>One ounce equals 29 grams.

<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken, 4=elongated.

<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 7 CONTINUED. PERFORMANCE OF STRAWBERRY CULTIVARS AT CHILTON AREA HORTICULTURE SUBSTATION, 1990

Cultivar	Total yield (lb/A)	Rank in yield	Average fruit weight (g) <sup>2</sup>	Percent soluble solids	Date of first bloom	Berry firmness <sup>3</sup>	Percent exterior color	Percent interior color	Degree exterior color	Degree interior color <sup>4</sup>	Neck <sup>5</sup>	Cap size <sup>6</sup>	Cap shape <sup>7</sup>	Cavity <sup>8</sup>	
<b>Early Season</b>															
Chandler .....	16,717a <sup>1</sup>	1	9.2bcdef	5.3bc	3/13	7.3abcd	82a	77abcd	3.9a	4.0a	1.1ij	2.0abcd	5.0a	1.0fg	
Douglas .....	7,375fg	20	11.7abc	5.8abc	3/13	8.6abcd	95a	76abcd	4.4a	4.2a	1.1ij	2.6ab	5.8a	2.2ab	
Earliglow .....	15,633ab	6	5.9f	7.0ab	3/18	7.6abcd	86a	71abcde	4.3a	4.3a	3.1abcd	1.5cd	5.2a	0.9g	
Sunrise.....	8,388efg	18	7.7def	7.3a	3/23	7.5abcd	99a	88abc	4.7a	4.6a	2.5bcdefg	1.8bcd	5.6a	1.3defg	
Titan.....	15,917a	5	11.6abcd	6.4ab	3/16	7.0bcd	99a	81abcd	4.8a	4.7a	1.7ghij	2.8ab	5.2a	1.2fg	
<b>Mid Season</b>															
Aiko.....	13,889abcd	10	11.8ab	6.5ab	3/10	7.7abcd	96a	65cdef	4.4a	4.1a	1.0j	2.2abcd	6.0a	2.5a	
Allstar .....	15,996a	4	13.5a	6.6ab	4/04	9.7a	99a	86abcd	4.5a	4.2a	3.2abcd	3.0a	5.8a	1.3defg	
Atlas.....	13,981abcd	9	11.1abcde	6.5ab	3/16	8.2abcd	99a	61def	4.7a	4.3a	3.7a	2.2abcd	5.0a	1.8bcde	
Cardinal .....	16,516a	3	11.0abcde	6.7ab	3/21	9.5ab	100a	82abcd	4.8a	4.8a	3.7a	3.0a	5.7a	1.3defg	
Guardian .....	12,035abcdef	13	10.9abcde	5.9abc	3/28	8.1abcd	99a	81abcd	4.5a	4.1a	2.8abcdef	2.8ab	5.7a	1.6def	
Honeyoye .....	14,265abc	8	7.9cdef	4.5c	3/29	7.5abcd	86a	78abcd	4.1a	4.1a	1.2hij	1.3d	4.5a	1.1fg	
Lester .....	8,766defg	16	10.2abcde	6.0abc	3/16	7.5abcd	87a	80abcd	4.1a	4.1a	2.2efghi	2.3abcd	4.7a	1.8bcde	
Pocahontas .....	13,642abcde	11	7.5ef	7.0ab	4/04	8.0abcd	100a	95a	4.7a	4.6a	3.3abc	2.2abcd	5.8a	1.3defg	
Redchief .....	8,607defg	17	8.4bcdef	6.8ab	3/16	9.1abc	98a	74abcde	4.5a	4.6a	2.2efghi	2.5abc	5.7a	1.9bc	
Scott.....	15,377abc	7	8.7bcdef	6.8ab	3/29	9.1abc	99a	93ab	4.7a	4.8a	2.8abcdef	2.6ab	6.0a	1.4defg	
Sequoia.....	6,120g	22	9.6bcdef	6.3abc	3/19	6.7cd	98a	61def	4.6a	4.1a	1.0j	2.6ab	5.6a	1.8bcde	
Surecrop.....	10,258bcdefg	14	6.3f	6.4ab	3/28	6.3d	83a	67bcdef	4.0a	3.9a	2.3cdefgh	1.5cd	5.0a	0.9g	
<b>Late Season</b>															
Albritton .....	13,451abcde	12	8.6bcdef	7.0ab	3/13	7.7abcd	100a	81abcd	4.6a	4.5a	2.0efghij	2.5abc	5.8a	1.7bcde	
Apollo .....	16,492a	2	11.0abcde	6.6ab	3/28	7.7abcd	100a	82abcd	4.8a	4.7a	3.5ab	2.8ab	5.6a	1.5defg	
Delite.....	6,859fg	21	9.1bcdef	6.3abc	4/04	7.5abcd	99a	49ef	4.7a	4.1a	3.0abcde	2.2abcd	5.2a	1.4defg	
Lateglow.....	9,979cdefg	15	9.7bcdef	5.8abc	4/04	7.1abcd	86a	77abcd	4.0a	4.0a	1.8fghij	2.6ab	4.7a	1.5defg	
Marlate .....	6,051g	23	8.7bcdef	7.0ab	4/04	7.8abcd	98a	43f	4.5a	4.2a	1.7ghij	2.5abc	5.7a	1.9bc	
Tenn. Beauty.....	7,820g	19	6.1f	6.3abc	3/28	7.1abcd	87a	84abcd	4.2a	4.1a	3.2abcd	2.2abcd	5.0a	1.9bc	

<sup>1</sup>Mean separation in columns by Duncan's multiple range test, P=0.05.

<sup>2</sup>One ounce equals 29 grams.

<sup>3</sup>Firmness rating: 1=rotten, 10=very firm.

<sup>4</sup>Degree of color: 1=green, 5=dark red.

<sup>5</sup>Neck rating: 1=sunken, 4=elongated.

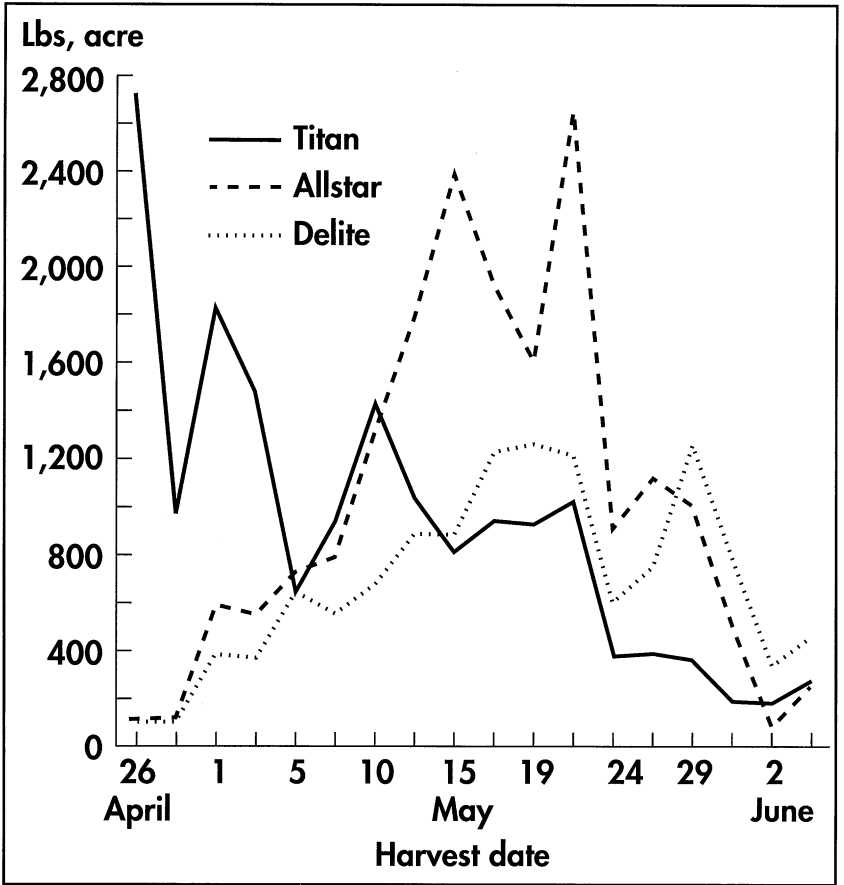
<sup>6</sup>Cap size rating: 1=small, 2=medium, 3=large.

<sup>7</sup>Cap shape: 4=clinging, 6=reflexed.

<sup>8</sup>Cavity rating: 1=closed, 2=semi closed, 3=open.

APPENDIX TABLE 8. HARVEST DATES AND PEAK HARVEST SEASON OF STRAWBERRY CULTIVARS AT THE CHILTON AREA HORTICULTURE SUBSTATION IN 1988, 1989, AND 1990

Cultivar	Harvest dates								
	1988			1989			1990		
	First	Last	Peak	First	Last	Peak	First	Last	Peak
<b>Early Season</b>									
Earlibelle .....	4/29	5/26	4/30-5/08	4/26	6/5	5/01-5/08	4/20	5/30	4/20-4/25
Douglas .....	4/29	5/26	5/02-5/08	4/26	6/5	4/26-4/28	4/20	5/30	4/20-4/25
Earliglow .....	4/29	5/26	4/30-5/08	4/26	6/5	5/05-5/12	4/20	5/30	4/20-4/25
Sunrise .....	4/29	5/26	4/30-5/08	4/26	6/5	5/17-5/22	4/20	5/30	4/20-4/25
Titan .....	4/29	5/26	4/30-5/08	4/26	6/5	4/26-5/01	4/20	5/30	4/20-4/25
<b>Mid Season</b>									
Aiko .....	4/29	5/26	4/30-5/08	4/28	6/5	5/19-5/22	4/20	5/30	4/27-5/09
Allstar .....	4/29	5/26	4/30-5/08	4/26	6/5	5/15-5/22	4/20	5/30	4/27-5/09
Atlas .....	4/29	5/19	4/29-5/16	4/26	6/5	4/26-5/01	4/20	5/30	4/20-4/23
Cardinal .....	4/29	5/26	4/30-5/08	4/26	6/5	5/17-5/22	4/20	5/30	5/11-5/16
Guardian .....	4/29	5/26	4/30-5/08	4/26	6/5	5/12-5/17	4/20	5/30	4/27-5/02
Honeyoye .....	4/29	5/26	4/30-5/08	4/26	6/5	4/28-5/01	4/20	5/30	4/30-5/07
Lester .....	4/29	5/26	4/30-5/08	4/26	6/5	5/19-5/22	4/20	5/30	5/14-5/18
Pocahontas .....	4/29	5/26	4/30-5/08	4/26	6/5	5/15-5/22	4/20	5/30	4/20-4/23
Redchief .....	4/29	5/26	4/30-5/08	4/26	6/5	5/12-5/17	4/20	5/30	4/20-4/23
Scott .....	4/29	5/26	4/30-5/08	4/26	6/5	5/15-5/19	4/20	5/30	5/11-5/16
Sequoia .....	4/29	5/26	4/30-5/08	4/26	6/5	5/05-5/10	4/20	5/30	5/14-5/18
Surecrop .....	4/29	5/26	4/30-5/08	4/26	6/5	5/08-5/15	4/20	5/30	4/20-4/25
<b>Late Season</b>									
Albritton .....	4/29	5/26	4/30-5/08	4/26	6/5	5/17-5/22	4/20	5/30	5/14-5/16
Apollo .....	4/29	5/26	4/30-5/08	4/26	6/5	5/15-5/22	4/20	5/30	5/14-5/17
Delite .....	4/29	5/26	5/24-5/28	4/26	6/5	5/26-5/31	4/20	5/30	5/21-5/30
Lateglow .....	4/29	5/26	4/30-5/08	4/26	6/5	5/15-5/22	4/20	5/30	5/11-5/28
Marlate .....	4/29	5/26	4/30-5/08	4/26	6/5	5/12-5/22	4/20	5/30	5/14-5/18
Tenn. Beauty .....	4/29	5/26	5/24-5/28	4/26	6/5	5/10-5/15	4/20	5/30	4/20-4/25



Appendix Fig. 2.

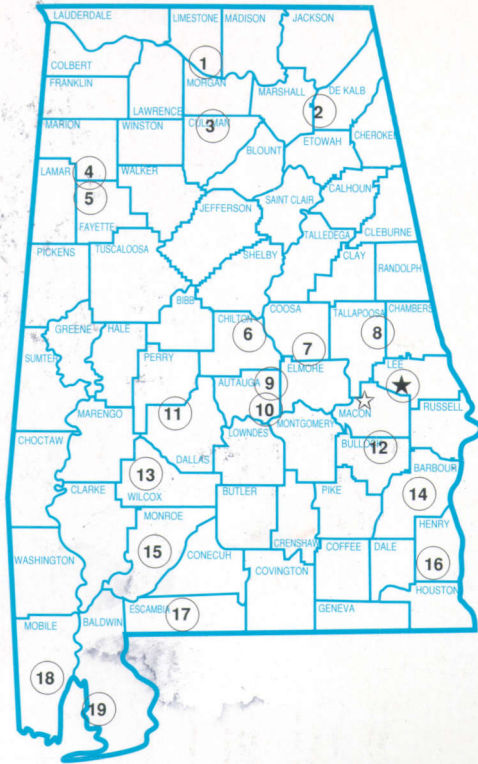
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# Alabama's Agricultural Experiment Station System

## AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the state has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



### Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Forestry Unit, Autauga County.
10. Prattville Experiment Field, Prattville.
11. Black Belt Substation, Marion Junction.
12. The Turnipseed-Ikenberry Place, Union Springs.
13. Lower Coastal Plain Substation, Camden.
14. Forestry Unit, Barbour County.
15. Monroeville Experiment Field, Monroeville.
16. Wiregrass Substation, Headland.
17. Brewton Experiment Field, Brewton.
18. Ornamental Horticulture Substation, Spring Hill.
19. Gulf Coast Substation, Fairhope.