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## PEACH VARIETY PERFORMANCE AND QUALITY IN EAST TEXAS

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### Summary

Production and fruit quality data for 65 peach varieties are presented. Fruit size, flavor, and firmness were generally poorer in early ripening varieties than in later ripening selections. There was also a trend for soluble solids and titratable acidity to be greater in later ripening varieties. Attributes used to judge potential for commercial production included yield, fruit size, color, attractiveness, shape, flavor, and firmness. Top rated varieties were: May — Springcrest; early June — Harbelle, Surecrop, Dixired, Sentinel; late June — Harvester, Velvet, La Gold, Troy; early July — Milam, WCT-707, Summergold; late July — Fayette, Cresthaven, Redskin.

### Introduction

In the early 20th century, East Texas was reputed to be the top peach producing area in the United States with nearly 15,000 acres. Acreage has diminished considerably since that time, largely the result of marketing and production problems. Prices have been exceptionally good in recent years, and acreage is presently increasing from an estimated 3,000 acres in East Texas.

Varieties produced in East Texas ripen over a period usually beginning in early May and ending in early August. Several good varieties are grown, but no variety is without weaknesses that make it subject to replacement. Good quality early season varieties are especially lacking. The present study was established to evaluate new varieties and breeding selections developed at various locations in the United States and Canada for production and quality attributes in East Texas.

### Methods and Materials

An open-ended planting of more than 60 peach varieties was planted in three tree plots beginning in

1973. Trees were spaced 18 feet apart in 20-foot rows. Cultural care included mechanical tillage of weeds in the row middles and spring and fall applications of 2.0 pounds of simazine per acre in 5-foot bands on either side of the tree row. Paraquat was used for control of weeds that escaped the simazine.

Fertilization was with surface applications of 12-12-12. Trees received 0.5 pound each in the spring after planting. This rate was increased to 3.0 pounds per tree at 3 years of age and 4.0 pounds per tree each succeeding year. Insects and diseases were controlled by standard commercial practices. Trees were irrigated with a drip system beginning in 1974, receiving a weekly maximum of 60 gallons of water in three applications.

Measurements of soluble solids (S.S.) were made using a drop of juice from three replicates of blended ripe fruits. These blended samples were also used to measure pH and titratable acidity. Titratable acidity was recorded by diluting a 5-gram sample of pulp to 125 milliliters (4.5 ounces) with distilled water and titrating it to an end point of pH 8.2 using 0.1 NaOH.

All varieties were rated on the basis of color, attractiveness, shape, flavor, and firmness. Highest color ratings were for fruit with a rich yellow ground color overlaid with considerable red. Attractiveness was judged strictly on the basis of eye appeal. Shape was rated highest for fruits that were nearly round with no protruding suture and very little tip. Flavor ratings, although carefully evaluated, are based strictly on the opinions of the author and his assistant. Firmness was evaluated simply by handling mature fruits.

### Results and Discussion

Production for the three years reported — 1976, 1977 and 1978 — was not adversely affected by late winter weather. Bloom occurred exceptionally early in 1976 and early in 1977 (Table 1), but no frost damage was received. A freeze in late March 1975 destroyed what would have been a light crop on the older trees (Table 1).

Bloom was exceptionally late in 1978, and ripening dates for 1978 were much later than would be normally expected.

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**KEYWORDS:** Peaches/peach variety performance/peach variety quality/East Texas/yield/commercial production/culture



Fruit set in 1978 was extremely heavy, and thinning measures did not result in removal of a large enough portion of the crop. The heavy fruit load was subjected to frequent temperatures above 100°F, and the resultant stress caused poor fruit size for all varieties in 1978.

**May** — No variety that normally ripened in May was clearly outstanding. Camden, with 373 bushels per acre in 1978 (Table 1), had the best production figure, but all of these varieties were rated low on flavor (Table 2) and were recorded having low S.S. (essentially sugars) (Table 3). Springcrest was considered to be the best selection in this period — primarily because of slightly better shape and attractiveness. Camden had very good peel color, but had an exceptionally high amount of split pit. Bicentennial shows very good potential, but only one year of data has been collected and an assessment cannot be made.

**Early June** — Top-rated peaches which ripened in early June were Harbelle, Dixired, Surecrop, and Sentinel. Sentinel, with 373 bushels per acre in 1978 (Table 1), had the highest production. Harbelle had the best shape and attractiveness of this group (Table 2), although each of these varieties has suitable attributes for commercial production. Legacy, Marglow, and Rubired lacked firmness (Table 2), and are not considered suitable for commercial production.

**Late June** — Harvester, Velvet, Troy, and La Gold possessed the most outstanding characteristics among peaches ripening in this period. Harvester produced 373 bushels per acre in 1978 (Table 1) and had good production in 1976 and 1977 as well. Harvester also had very good color, attractiveness, shape, and firmness. Harvester's chief weakness appears to be exceptionally heavy fruit set requiring heavy thinning to get good fruit size.

**Early July** — Summergold, WCT-707, and Milam showed good potential with 1978 production of 424, 333, and 313 bushels per acre, respectively (Table 1). Milam received the best overall rating among these selections with good color and size (Table 2). Summergold was lacking in color and shape. Loring and Red Globe are commercial varieties that ripened during this period but they failed to produce well. Babygold 5 and 6 had good production, but both are cling peaches with low acid (Table 3) and a resulting bland taste which is not generally desired in a fresh peach.

**Late July** — Top-rated varieties were Fayette, Cresthaven, and Redskin. Cresthaven and Fayette had outstanding shape and were considered to be particularly attractive (Table 2). Jefferson also had very good quality ratings, but lacked good production (Table 1). Madison had very good production in 1978 but was discounted because of extremely poor shape (Table 2).

**Early August** — None of the peaches ripening in this period has exhibited consistent commercial characteristics. So Good yielded 343 bushels per acre in 1977, but had only average quality. Tyler had

the best shape and attractiveness (Table 2), but lacked production. Soluble solids were well above average in all of the selections ripening in August, and acidity was also high in most varieties.

Production by each of these varieties will be evaluated for 4 to 5 years. As new varieties and breeding selections become available, they are being added to the planting; however, only selections of bearing age have been reported here.

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Table 1. Bloom and production data of peach varieties at Overton.

Varieties	Harvest Date			Yield (bu/ac)			Full Bloom Date			Tree age (yrs) 1978
	1976	1977	1978	1976	1977	1978	1976	1977	1978	
Camden	5/10	5/12	5/30	845	61	373	2/24	3/8	3/27	5
Springcrest	5/10	5/16	5/30	91	91	287	2/27	3/8	3/29	6
Springgold	5/10	5/19	5/30	86	106	272	2/24	3/8	3/29	6
Bicentennial	-	-	6/2	0	0	91	-	-	3/30	3
Candor	5/28	5/27	6/5	20	61	313	3/1	3/14	3/30	4
Earlired	5/21	5/27	6/6	71	136	262	2/27	3/14	3/31	6
Harrow 719	5/21	5/29	6/12	151	141	242	2/28	3/10	3/31	6
Dixired	5/27	6/2	6/12	10	222	182	3/2	3/16	4/1	5
Harbelle	5/31	6/6	6/16	50	266	202	2/28	3/15	3/31	5
Surecrop	5/27	6/6	6/13	60	272	242	2/28	3/14	4/1	5
Redcap	5/26	6/6	6/14	15	91	202	2/28	3/10	3/31	6
Marglow	-	6/2	6/8	0	20	303	-	3/10	3/30	5
Rubired	-	6/5	6/14	0	81	242	3/2	3/14	3/31	6
Legacy	5/26	6/10	6/15	2	132	282	2/27	3/11	3/31	6
Sentinel	6/3	6/13	6/25	202	141	373	2/26	3/10	3/31	6
Coronet	6/8	6/10	6/17	20	40	272	2/24	3/9	3/30	5
Harrow 2043	6/13	6/17	7/2	272	121	121	3/1	3/9	3/31	6
FV4-4506	6/4	6/17	6/24	50	61	91	2/25	3/9	3/31	5
Pekin	6/8	6/17	6/21	50	101	182	2/29	3/11	3/31	5
Harbrite	6/10	6/20	7/4	176	182	262	3/2	3/10	3/31	6
Harrow 593	6/10	6/20	7/8	70	141	101	3/2	3/11	3/31	6
Velvet	6/13	6/21	7/5	55	333	272	2/25	3/8	3/29	5
Harvester	6/8	6/23	6/28	101	282	373	2/25	3/9	3/31	5
FV4-7140	6/15	6/20	7/2	121	61	272	2/26	3/10	3/31	6
Sunshine	6/10	6/22	7/6	0	141	182	3/2	3/14	3/31	5
Suwanee	6/12	6/23	7/11	0	121	232	2/24	3/9	3/28	5
La Gold	6/15	6/23	7/11	20	232	292	2/24	3/8	3/29	5
Norman	6/15	6/23	7/5	70	171	348	2/24	3/9	3/29	5
Glohaven	6/21	6/23	7/13	30	45	121	3/2	3/12	3/31	5
Marland	-	6/22	7/9	0	91	202	-	3/14	3/30	5
Troy	6/19	6/27	7/11	60	282	348	2/25	3/10	3/31	5
Harrow 4219	6/10	6/25	7/4	30	121	121	3/2	3/10	3/31	5
La Red	6/17	6/27	7/6	151	121	111	3/4	3/15	3/30	5
Red Globe	6/21	7/3	7/21	70	81	151	3/1	3/9	3/29	6
Loring	6/17	7/6	8/5	176	71	121	2/23	3/9	3/29	6
Summergold	6/21	7/3	7/21	20	212	424	3/4	3/8	3/29	5
Harmony	6/21	7/3	7/20	181	161	222	3/3	3/10	3/30	5
Harrow 2091	6/21	7/3	7/15	55	161	161	3/2	3/10	3/31	6
La Premiere	6/24	6/30	7/21	80	121	272	3/8	3/11	3/31	5
Winblo	6/21	7/5	7/24	197	30	242	3/3	3/10	3/31	6
WCT-707	6/24	7/9	7/24	333	91	333	2/26	3/10	3/31	6
Milam	6/21	7/9	7/21	322	91	313	2/23	3/12	3/29	6
Babygold 5	-	7/7	7/19	0	141	323	3/2	3/15	3/31	6
Babygold 6	6/25	7/7	7/20	201	161	393	2/23	3/9	3/29	6
Madison	7/21	7/17	7/22	5	101	373	3/8	3/14	4/1	5



Table 1. Continued

Varieties	Harvest Date			Yield (bu/ac)			Full Bloom date			Tree age (yrs)	
	1976	1977	1978	1976	1977	1978	1976	1977	1978	1978	
Cresthaven	7/15	7/17	7/26	10	182	212	3/4	3/15	4/1	5	
Redskin	7/8	7/23	8/8	212	202	121	2/27	3/7	3/29	6	
Blake	7/2	7/18	8/9	40	182	81	3/1	3/10	3/31	6	
Babygold 7	7/7	7/20	8/3	50	242	303	2/29	3/15	3/30	6	
Jersey Queen	-	7/22	8/9	0	61	161	3/12	3/14	3/30	5	
Fayette	7/7	7/24	8/2	212	182	222	2/21	3/8	3/29	6	
Jefferson	7/14	7/24	8/14	121	182	141	3/4	3/8	3/31	6	
Monroe	-	7/26	8/13	0	101	101	3/3	3/12	3/30	6	
Marhigh	7/8	8/3	8/5	5	141	252	2/24	3/7	3/28	5	
Tyler	-	8/3	8/14	0	222	61	-	3/15	3/31	5	
Babygold 8	7/26	7/30	8/18	30	61	282	3/2	3/15	4/1	6	
Douthits Cling	-	8/4	8/9	0	61	136	-	3/12	3/31	4	
Marqueen	7/20	8/3	8/14	70	182	166	2/27	3/9	3/29	5	
Babygold 9	7/25	8/4	7/19	50	121	363	2/27	3/14	3/31	6	
Marpride	7/21	8/6	8/16	15	182	166	2/27	3/9	3/29	5	
So Good	7/20	8/7	8/16	20	343	111	3/6	3/15	3/30	5	
Jim Bowie	-	8/30	-	0	61	0	3/1	3/13	3/31	5	
Marsun	-	9/3	9/28	0	101	20	2/27	3/9	3/29	5	
Pair Pride	-	9/3	9/28	0	81	40	-	3/13	3/31	4	
Fairtime	8/10	9/3	9/28	0	81	40	2/27	3/12	3/29	6	



Table 2. Fruit quality characteristics of peach varieties at Overton

Variety	Size <sup>1/</sup> (in. dia.)	Color <sup>2/</sup> (1-10) <sup>4/</sup>	Attr. <sup>2/</sup> (1-10)	Shape <sup>2/</sup> (1-10)	Flavor <sup>2/</sup> (1-10)	Firmness <sup>3/</sup> (1-10)
Camden	1.8 - 2.2	8	7	5	5	4
Springcrest	1.8 - 2.2	7	8	8	4	6
Springgold	1.8 - 2.1	8	7	7	4	6
Bicentennial	1.8 - 2.0	6	7	5	4	-
Candor	2.0 - 2.2	8	8	7	4	6
Earlired	2.0 - 2.3	7	7	6	4	8
Harrow 719	1.9 - 2.1	8	8	7	6	8
Dixired	2.1 - 2.3	6	6	7	5	6
Harbelle	2.0 - 2.4	8	8	7	6	6
Surecrop	2.0 - 2.3	7	6	6	6	6
Redcap	2.3 - 2.4	7	7	8	6	6
Marglow	1.8 - 2.5	8	7	7	4	4
Rubired	2.2 - 2.5	7	7	7	5	4
Legacy	2.2 - 2.5	7	7	7	5	2
Sentinel	2.0 - 2.3	7	7	6	6	6
Coronet	2.3 - 2.5	6	7	7	6	6
Harrow 2043	2.2 - 2.4	7	7	6	6	6
FV4-4506	2.2 - 2.4	8	7	7	5	6
Pekin	1.9 - 2.1	7	7	4	6	4
Harbrite	2.2 - 2.3	7	8	7	6	6
Harrow 593	2.3 - 2.6	8	6	6	6	6
Velvet	2.0 - 2.4	6	7	6	5	6
Harvester	2.2 - 2.3	8	8	8	6	8
FV4-7140	2.0 - 2.1	5	5	6	6	6
Sunshine	2.1 - 2.5	6	7	5	5	6
Suwanee	2.3 - 2.7	7	7	5	7	6
La Gold	2.2 - 2.5	6	7	6	6	6
Norman	2.0 - 2.3	7	7	5	7	6
Glohaven	2.0 - 2.5	6	7	8	6	6
Marland	2.0 - 2.3	7	7	5	6	4
Troy	2.0 - 2.3	7	8	6	7	6
Harrow 4219	2.0 - 2.5	7	6	5	6	6
La Red	2.0 - 2.3	7	6	6	5	6
Red Globe	2.2 - 2.4	6	7	8	6	8
Loring	2.4 - 2.7	7	7	6	7	6
Summergold	2.2 - 2.4	6	7	5	6	6
Harmony	2.4 - 2.8	7	8	8	6	6
Harrow 2091	2.3 - 2.8	6	8	9	6	6
La Premiere	2.1 - 2.3	7	8	7	6	6
Winblo	2.3 - 2.4	7	8	7	6	4
WCT-707	2.1 - 2.4	8	7	7	6	6
Milam	2.2 - 2.6	8	8	7	7	6
Babygold 5	2.3 - 2.6	5	6	6	5	8
Babygold 6	2.3 - 2.7	6	7	7	6	8
Madison	2.0 - 2.4	8	5	3	7	6



Table 2. Continued

Variety	Size <sup>1/</sup> (in. dia.)	Color <sup>2/</sup> (1-10) <sup>4/</sup>	Attr. <sup>2/</sup> (1-10)	Shape <sup>2/</sup> (1-10)	Flavor <sup>2/</sup> (1-10)	Firmness <sup>3/</sup> (1-10)
Cresthaven	2.2 - 2.5	8	8	8	6	6
Redskin	2.2 - 2.4	7	7	6	7	8
Blake	2.2 - 2.4	8	8	7	7	8
Babygold 7	2.3 - 2.4	6	6	5	5	-
Jersey Queen	2.2 - 2.6	6	8	6	7	6
Fayette	2.2 - 2.6	8	8	8	7	8
Jefferson	2.3 - 2.6	8	8	7	7	8
Monroe	2.3 - 2.6	5	6	6	5	-
Marhigh	2.0 - 2.5	7	8	6	5	8
Tyler	2.3 - 2.8	7	8	8	7	8
Babygold 8	2.3 - 2.6	6	6	6	6	8
Douthits Cling	2.0 - 2.5	4	4	3	6	-
Marqueen	2.3 - 2.6	8	8	6	7	8
Babygold 9	2.2 - 2.4	5	5	7	5	8
Marpride	2.2 - 2.5	8	8	6	6	8
So Good	2.3 - 2.6	6	7	6	7	8
Jim Bowie	1.8 - 2.1	6	7	5	-	-
Marsun	2.4 - 2.8	6	7	7	7	8
Pair Pride	2.0 - 2.5	5	6	7	5	-
Fairtime	2.5 - 2.9	7	7	8	7	8

<sup>1/</sup>Average of 1976, 1977 and 1978 data.

<sup>2/</sup>Average of 1977 and 1978 data.

<sup>3/</sup>1977 data.

<sup>4/</sup>1 = poor, 10 = excellent.



Table 3. Soluble solids (S.S.), pH and titratable acidity of peach varieties at Overton, 1977

Variety	<u>S.S.</u> <u>%</u>	<u>pH</u>	<u>Acid</u> <sup>1/</sup> <u>%</u>
Camden	8.4-- <sup>2/</sup>	3.8	0.78+
Springcrest	7.0---	3.7-	0.56
Springold	8.8--	3.6-	0.75+
Candor	8.4--	3.9	0.54
Earlired	9.4-	3.8	0.47-
Harrow 719	9.0--	4.1+	0.31--
Dixired	10.4	4.0+	0.46-
Harbelle	10.5-	4.0+	0.55
Surecrop	11.0	4.1+	0.55
Redcap	11.8	4.1+	0.42-
Marglow	10.5	3.8	0.58
Biscoe	-	-	-
Rubired	11.7	4.0+	0.51
Legacy	10.7	4.0+	0.46-
Sentinel	11.0	4.2++	0.40-
Coronet	12.3	3.9	0.46-
Harrow 2043	9.3-	3.8	0.70
FV4-4506	9.6-	3.7-	0.83+
Pekin	9.9-	3.7-	0.87++
Harbrite	11.1	3.8	0.51
Harrow 593	14.8+++	3.7-	0.71
Velvet	12.1	3.8	0.58
Harvester	11.9	3.7-	0.75+
FV4-7140	9.6-	3.7-	0.74+
Sunshine	10.5-	3.9	0.66
Suwanee	11.1	3.8	0.62
La Gold	10.0-	3.8	0.56
Norman	11.0	3.8	0.66
Glohaven	11.5	3.5--	0.96++
Marland	12.4+	3.8	0.67
Troy	11.2	3.5--	0.99+++
Harrow 4219	10.7	3.9	0.54
La Red	10.9	3.7-	0.87++
Red Globe	11.1	3.6-	0.71
Loring	11.8	3.7-	0.59
Summergold	10.3-	3.7-	0.60
Harmony	10.7	3.7-	0.52
Harrow 2091	11.5	3.7-	0.60
La Premiere	13.7++	3.7-	0.64
Winblo	11.8	4.0+	0.47-
WCT-707	12.5+	3.8	0.60
Milam	11.5	3.7-	0.80+
Babygold 5	11.3	4.2++	0.35--
Babygold 6	10.5	4.3+++	0.27---
Madison	11.2	4.1+	0.50-



Table 3. Continued

Variety	S.S. %	pH	Acid <sup>1/</sup> %
Cresthaven	12.4+	4.0+	0.56
Redskin	12.1	3.8	0.56
Blake	-	-	-
Babygold 7	11.4	4.3+++	0.36--
Jersey Queen	14.1++	3.8	0.79+
Fayette	13.0+	3.7-	0.72
Jefferson	13.5++	4.2++	0.55
Monroe	11.8	3.5--	1.46+++++
Marhigh	14.5++	4.3++	0.54
Tyler	12.4+	3.6-	0.94++
Babygold 8	-	-	-
Douthits Cling	-	-	-
Marqueen	13.9++	4.4++++	0.67
Babygold 9	14.7+++	4.3+++	0.34--
Marpride	15.7+++	3.8	0.78+
So Good	13.6++	3.7-	0.87++
Jim Bowie	-	-	-
Marsun	13.9++	3.7-	0.60
Pair Pride	-	-	-
Fairtime	16.6++++	4.2++	0.64

<sup>1/</sup> Titratable acidity expressed as malic acid.

<sup>2/</sup> Standard deviation within columns. Each + or - represents one standard deviation above or below the population mean.