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APPLE VARIETY PERFORMANCE AND QUALITY IN EAST TEXAS

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Summary

Production and fruit quality data for 24 apple varieties are presented. Yields ranged from nearly 2 bushels per tree to only a few fruit per tree, depending on the variety and age of trees. Fruit quality of varieties ranged from excellent to mediocre. The highest rated varieties tested, according to the month in which they ripened, were: June -- Jersey Mac; July -- Mollies Delicious; early August -- Stark Laura Red; late August -- Redchief; early September -- Starkspur Golden Delicious.

Introduction

Although East Texas has little commercial production of apples, good quality apples can be produced. Hot temperatures during fruit development and ripening make production of highly attractive apples difficult, and most interests in apples for East Texas are directed toward home production and local markets.

Little information is available on varieties of apples adapted to Texas. A progress report[2/] of 1978 data from variety evaluation trials at Overton presented initial results. Results for 1979 trials are discussed below.

Materials and Methods

Approximately 20 varieties of apples were planted in three tree plots beginning in 1974. Most trees were started on semidwarfing rootstocks--primarily MM 106 and MM 111. Trees were spaced 18 feet

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2/ Lipe, J. A. 1979. Apple variety performance and quality in East Texas. Tex. Agr. Expt. Sta. PR-3554.

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apart in 20-foot rows. This tree spacing was chosen to conform to spacing of peaches and plums in the same block. Apples on these rootstocks can easily be grown as close as 10 feet. Cultural care included mechanical tillage of weeds in the row middles and spring and summer applications of 2.0 pounds of Simazine per acre in 5-foot bands on either side of the tree row. In 1979 this was modified to a berm system with 5-foot clean bands on either side of the tree row and a 10-foot strip of natural grass and weeds in the middles. Maintenance of the clean band using Simazine in the fall was continued, but spring weed control was maintained with a mix of 1.0 pound Karmex and 1.0 pound Sinbar per acre. Karmex-Sinbar has proved much longer lasting for spring weed control than Simazine. Paraquat was used for postemergent control of weeds.

Trees were fertilized by surface applications of 12-12-12. Trees received 0.5 pound each in the spring after planting. This rate was increased to 1.5 pounds per tree at 3 years of age and 2 pounds per tree each succeeding year. Insects and diseases were controlled by standard commercial practices. Trees were irrigated with a drip system beginning in 1975, receiving a weekly maximum of 60 gallons of water in two to three applications.

All varieties were rated on the basis of color, attractiveness, shape, flavor, and firmness. Highest color ratings were for fruit with a deep red or yellow peel color, depending on the variety. Attractiveness was judged strictly on the basis of eye appeal. Shape was rated highest for fruits that were most characteristic of their type (delicious or other). Flavor ratings, although carefully evaluated, were based strictly on the opinions of the authors. Sweetness was generally rated highest in delicious types, while a sharp, slightly acid flavor received highest marks in varieties regarded as cooking apples. Firmness was evaluated simply by handling mature fruits. Low ratings of firmness are indicative of mealiness and high ratings of a crisp texture.

Results and Discussion

Trees in the trial ranged from 4 to 6 years old. Top production was near 2 bushels per tree. Highest ratings for production are indicative of a fruiting density equivalent to 2 bushels per tree.

June -- Jersey Mac (rootstock MM 106) was the only selection ripening in June (late June) (Table 1). Production was moderate and quality very good, especially for cooking (Table 2).

July -- Mollies Delicious (MM 106) was the best of four varieties ripening in July although none were rated as superior. Mollies had large fruit, moderate production, and average quality.

Early August -- Stark Laura Red (MM 106) had very good production and large, good quality fruit. Jonathon (MM 106), Jonee (MM 106), and Ozark Gold (MM 106) also had reasonable production.

Late August -- Redchief (MM 106) was easily the top variety in this period. Redchief has produced heavy crops of large, attractive delicious-type apples for three consecutive years. Starkrimson (MM 106) had the best sweet flavor of any variety in the test, but the trees were young and production was light.

Early September -- Starkspur Golden Delicious (MM 111) was the best selection with good production and quality, although it russetted badly.

Late September -- Granny Smith ripens in this period and was considered to have good potential, but the trees were young and production was very light.

Comparison of the 1979 results with 1978 production data (TAES PR-3554) indicate that Jersey Mac, Redchief, and Starkspur Golden Delicious have been the most consistent varieties. Insect and disease control have been mediocre, although a commercial schedule that included Zolone, Pencap-M, Imidan, and Sevin for insect control and Benlate and Captan for disease was followed. An air sprayer was used for pesticide application, and it is believed that amounts of chemical applied were less than actually recommended. Pesticide rates will be increased and control monitored more closely in 1980.

New varieties are being added to the planting as they become available; however, only selections of bearing age are reported here.

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Table 1. Apple production data and overall potential of cultivars at Overton, 1979.

Variety (Rootstock)	Harvest Date	Yield	Tree age (yrs)	Composite Rating[2/]
Jersey Mac (106)	6/27	6[1/]	6	√√√√
Gravenstein (111)	7/18	5	5	√
Starkspur Earliblaze (111)	7/18	4	6	√√
Double Red Delicious (106)	7/24	2	6	√√
Mollies Delicious (106)	7/24	6	4	√√√
Nured Jonathon (106)	8/1	6	4	√√
Starkrimson Delicious (111)	8/6	3	4	√√√
Jonnee (106)	8/6	7	4	√√√
Stark Laura Red (106)	8/6	9	4	√√√
Earliharvest (111)	8/6	3	6	√√
Ozark Golden Delicious (106)	8/9	6	4	√√√
Jonathon (106)	8/9	7	6	√√√
Prima (106)	8/15	6	5	√√
Redchief (106)	8/15	8	5	√√√√
Starkspur Golden Delicious (106)	8/15	5	6	√√√√
Priscilla (106)	8/15	3	5	√√
Waynespur (111)	8/15	3	6	√√
Imperial Red Delicious (106)	8/15	3	4	√√
Starkrimson Delicious (106)	8/25	6	4	√√√
Waynespur (106)	9/3	6	6	√√
Richared Delicious (111)	9/3	5	6	√√√
Red Prince Delicious (26)	9/3	5	4	√√
Spuree Rome (111)	9/3	3	4	√√
Redspur Delicious (111)	9/3	3	4	√√
Starkspur Golden Delicious (111)	9/6	7	6	√√√√
Ruby (111)	9/12	2	6	√√√
Starkspur Arkansas Black (111)	9/20	5	6	√√
Granny Smith (106)	9/30	2	4	√√

[1/] 1 = poor, 10 = excellent.

[2/] Based on the overall potential of each cultivar; √ = no potential, √√ = slightly promising, √√√ = promising, √√√√ = strongly promising for commercial production.

Table 2. Apple fruit quality characteristics at Overton, 1979.

Variety (Rootstock)	Size (in. dia.)	Color	Attract-iveness	Firmness	Shape	Fruit Disease	Flavor
		[1/]	[1/]	[1/]	[1/]	[1/]	[1/]
Jersey Mac (106)	2.5-3.0	6	7	8	8	8	8
Gravenstein (111)	2.5-3.0	1	5	7	6	4	8
Starkspur Earliblaze (111)	2.5-3.0	7	8	7	7	-	7
Double Red Delicious (106)	2.8-3.0	6	6	8	7	-	7
Mollies Delicious (106)	3.0-3.8	3	6	8	7	-	8
Nured Jonathon (106)	2.3-3.0	9	8	8	8	8	8
Starkrimson (111)	3.0-3.5	6	6	6	5	8	8
Jonnee (106)	2.8-3.0	7	8	8	8	8	8
Stark Laura Red (106)	3.0-3.5	5	7	8	7	8	7
Earliharvest (111)	2.8-3.4	4	5	8	7	8	8
Ozark Gold (106)	2.8-3.3	8	7	7	8	7	8
Jonathon (106)	2.8-3.3	4	6	8	6	8	7
Prima (106)	2.5-3.3	6	6	5	6	-	6
Redchief (106)	2.5-3.5	7	8	8	8	8	8
Starkspur Golden Delicious (106)	2.6-3.0	7	4	8	7	8	7
Pricilla (106)	2.5-3.5	7	7	9	6	9	8
Waynespur (111)	2.8-3.0	6	7	8	8	10	8
Imperial Red Delicious (106)	2.5-3.3	5	5	7	6	10	8
Starkrimson (106)	3.0-3.3	8	5	9	5	-	10
Waynespur (106)	2.5-3.5	5	6	8	8	8	8
Richared Delicious (111)	2.5-3.5	5	6	8	7	8	8
Red Prince Delicious (26)	2.5-3.5	8	6	8	7	8	7
Spuree Rome (111)	2.5-3.3	4	6	9	8	9	6
Redspur Delicious (111)	2.8-3.8	7	7	8	6	8	8
Starkspur Golden Delicious (111)	2.6-3.0	7	4	8	7	8	7
Ruby (111)	2.8-3.5	5	7	8	8	7	8
Starkspur Arkansas Black (111)	2.5-3.0	8	5	9	8	8	6
Granny Smith (106)	2.8-3.5	7	7	8	8	8	8

[1/] 1 = poor, 10 = excellent.