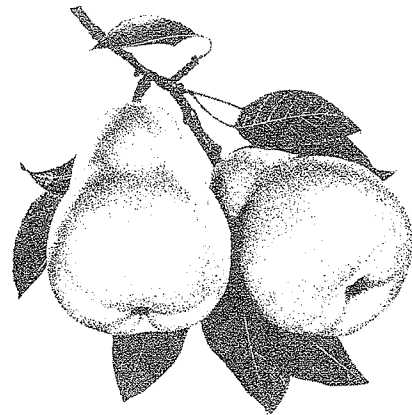
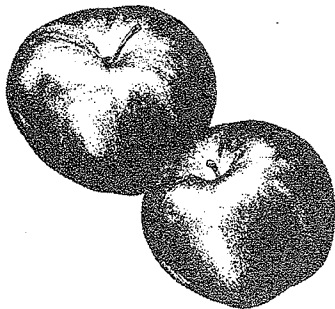


**Summary of
Fruit & Nut
RESEARCH**



AT FIVE MISSISSIPPI BRANCH STATIONS



MAFES

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Summary of Fruit and Nut Research at Five MAFES Branch Stations

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Published by the Office of Agricultural Communication, Division of Agriculture, Forestry, and Veterinary Medicine, Mississippi State University. Edited by Keith H. Remy, Senior Publications Editor. Cover designed by Lê Phong, Student Graphic Artist.

Summary of Fruit and Nut Research at Five MAFES Branch Stations

This report summarizes fruit and nut research conducted at four branch stations of the Mississippi Agricultural and Forestry Experiment Station over a period of 8 years, 1986-1993. Research conducted at the South Mississippi Branch Experiment Station, Poplarville, is also presented and includes findings from 1973 to 1986, the year fruit and nut research was terminated at that station.

The research conducted at each branch station will be presented by year beginning with the most recent year (1993) in the following order: (1) Pontotoc Ridge - Flatwoods Branch Experiment Station, Pontotoc; (2) MAFES Main Station, Mississippi State University Campus, Starkville; (3) South Mississippi Branch Experiment Station, Poplarville; (4) Truck Crops Branch Experiment Station, Crystal Springs; and (5) Alcorn Branch Experiment Station, Alcorn State University, Lorman, MS.

A list of articles and publications from the research summarized in this bulletin is also included for reference. Copies of publications listed may be obtained directly from the author(s); MAFES publications are available from the Office of Agricultural Communications, Box 9625, Mississippi State, MS 39762.

Pontotoc Ridge - Flatwoods Branch

1993

A pecan trellising experiment was initiated in 1992 to compare growth and productivity of pecan cultivars. Cultivars included 'Chickasaw', 'Cheyenne', 'Choctaw', 'Shoshoni', 'Pawnee', and 'Cape Fear'. One-year-old pecan seedlings were planted in March 1993, and sheltered with Tubex (plastic tubes that were placed over the seedlings to partially exclude light). Tubex increased height of seedlings.

Fourteen cultivars of raspberry and thornless blackberry were rated for yield potential. 'Navaho' blackberry and 'Dormanred' raspberry had high yield potential. 'Boyne' and 'Bababerry' raspberries were rated low. Dikegulac-sodium increased the number of branches of 'Shawnee' blackberry.

Euroasian pears 'Orient', 'LeConte', and 'Keiffer' yielded 88.3 kg (177 lb), 83.7 kg (184 lb), and 67.8 kg (149 lb) per tree, respectively. 'Moon Glo' trees were killed by fireblight.

An apple/rootstock variety trial was planted in 1991. Apple cultivar 'Ultra Mac' on MM111 rootstock had the greatest leaf area. In the third year, 'Ultra Gold' on M26 gave the highest yield of 4.4 kg (9.7 lb) per tree. The highest fruit number was obtained with

'Royal Gala' on M26. 'Sundale Golden Delicious' and 'Yellow Delicious' planted in 1987 were the highest producers compared to 'Redchief' and 'Paula Red'.

Asian pears grafted onto *Pyrus calleryana* rootstock in 1991, generally bloomed at the same time as peaches (mid-March). There were no differences in yield between cultivars; yields ranged between 43 kg (94.6 lb) per tree for 'Erisuinge' to 3.2 kg (70.4 lb) per tree for 'Tsu-Li'.

Southern highbush blueberries planted in 1992 did not produce measurable yields in 1993.

Ethephon ((2-Chloroethyl)phosphonic acid) was applied in November to delay peach bloom in spring. High concentrations of ethephon killed some terminal flower buds. Yield was not affected, but bud development was delayed by ethephon. Acclimation and deacclimation curves for blueberry and pecan are being identified.

1992

Grafting success of 14 Asian pear cultivars on *P. calleryana* was 100 percent for 'Chojuro', 'Japanese Golden Russet', 'Kikusui', and 'Isuri'. Grafting was performed in 1991 on *calleryana* seedlings planted in spring 1988. Early budbreak was observed in 'Korean Giant', 'Seuri', 'Pai-Li', and 'Tsu-Li'. 'Chojuro', and 'Seigyoku' were infected with fireblight. 'Erisuinge', 'Kikusui', and 'Seuri' did not exhibit fire blight symptoms. Ethephon applied in the fall delayed bud development and bloom delay was cultivar dependent.

1991

Bloom delay by evaporative cooling to prevent spring freeze damage to peaches was observed in 'Cresthaven' at bud stages 3 and 5, in 'Redhaven' at bud stages 3 and 5, and in 'Correll' at stage 5. Bud development was not delayed beyond the average date of last spring frost.

In plum cultivar trials established on a 14-foot x 20-foot spacing in the spring of 1985, 'Auburn #1', 'Crimson M1', 'Morris', and 'Methley' produced 31.7 kg (69.7 lb), 30 kg (66 lb), 29 kg (63.8 lb), and 27.6 kg (60.7 lb) per tree, respectively. Cultivars producing less than 9 kg (19.8 lb.) per tree were 'Bruce', 'Six Weeks', 'AU Roadside', 'Frontier', and 'Explorer'.

Apple cultivar 'Redchief' (Campbell strain) had the greatest yield.

'LeConte' pear exhibited greatest resistance to fireblight.

Nectarine cultivar 'Nectared #4' produced the

highest yield of 35.4 kg (55 lb) per tree. 'Lafayette,' 'Garden State,' and 'Tiger' produced less than 25 kg per tree.

1990

Plum cultivars 'Methley' and 'Frontier' were the highest producers with 92 kg (202 lb) and 75 kg (165 lb) per tree, respectively.

Peach cultivars 'Correl' and 'Redhaven' out-produced 'Cresthaven.' First-year results with peach tree training systems indicated that the trashy trunk system produced lower yield than open center.

Pear cultivars 'Orient' and 'Keiffer' out-produced 'LeConte' and 'MoonGlo.'

Blackberry cultivars 'Shawnee,' 'Rosborough,' and 'Comanche' out-produced 'Cheyenne,' and 'Cherokee.'

Apple cultivars 'Sundale,' 'Golden Delicious,' and 'Yellow Delicious,' outproduced 'Granny Smith,' 'Redchief MS,' 'Paula Red,' and 'Grandspur.'

Asian pear scions were grafted onto *P. calleryana* rootstock. 'Yakumo' and 'Chojuro' produced a greater number of branches, the least amount of shoot growth, and the greatest branching angles. 'Seuri' and 'Hosui' produced larger leaves and 'Yakumo' and 'Chojuro' produced smaller leaves.

1989

Peach, nectarine, rabbiteye blueberry, and plum cultivars with high and low yield potential were identified and reported in MAFES publications and annual progress reports of the station at Pontotoc (see publication list). Tests on pear, apple, blackberries, and highbush blueberries were established.

1988

Ethephon at 200 ppm applied on peach trees in November delayed bloom by approximately 7 days. XE-1019 (uniconazole) applied as a bark band retarded vegetative growth of peach trees the first and second year after applications. Foliar sprays of uniconazole also retarded vegetative growth the same year of application (1988).

1987

In a pruning study, peach trees topped June 10 had a significantly greater number of blooms than trees pruned on later dates. 'Harbite' had a greater number of blooms per tree, regardless of pruning. Trees pruned June 10 produced significantly longer and thicker shoots than trees pruned on later dates. In frost protection studies initiated in 1986, Vapor Gard® or Frost-free did not increase survival of developing peach fruit after late spring freezes.

Captan (cis-N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide) applied on blueberries at the rate of 1 kg/3.78 liter (2.2 lb/gal) prior to harvest was an effective treatment for prolonging the shelflife of blueberries stored at 4°C in plastic bags.

Plastic mulch treatments on peach cuttings under field conditions did not increase survival or rooting of 'Royalvee' or 'Stark Frost King.' 'Stark Frost King' cuttings had a higher survival rate and rooting percentage than 'Royalvee.'

In a peach orchard weed control study initiated in 1985, postemergence applications at 4- to 8-week intervals of paraquat (1,1'-Dimethyl-4,4'-bipyridinium ion) and glyphosate (isopropylamine salt of N-(phosphonomethyl)glycine) did not provide adequate weed control. Semiannual applications of one-half label rates of two herbicides – tank mixture combinations of norflurazon (4-chloro-5-(methylamino)-2-(a,a-trifluoro-m-tolyl)-3(2H)pyridazinone), diuron (3-(3,4-Dichlorophenyl)-1,1-dimethylurea) and N'-(3,4dichlorophenyl)-N,N-dimethylurea), and simazine (2-chloro-4,6-bis(ethylamino)-striazine) – gave good year-long weed control and were better than norflurazon and simazine used alone at label rates.

1986

Vapor Gard sprayed on mature peach trees did not serve as an ice nucleation barrier and did not protect developing fruit from a late spring frost. Peach fruit yields were not recorded because of a late spring frost, which destroyed 97 percent of the blossoms and developing fruit, except for 'Stark Frost King,' 'Redkist,' 'Royalvee,' and 'NJ 97,' each of which produced a significant crop.

Preemergence herbicides simazine, diuron, norflurazon were applied at 3.36 kg active ingredients/hectare (ai/ha) and as a two-herbicide tank mixture combination. Diuron alone showed good year-round weed control. Simazine showed good broadleaf weed control but poor late summer grass control. Norflurazon alone showed good year-long grass control and fair late summer broadleaf control.

MAFES Main Station

1993

Cold hardiness of blueberry and pecan cultivars is being determined under controlled freezing conditions in the laboratory. Pecan bud and stem structures differ in cold hardiness depending on tissue type.

1992

Blueberry fruit thinning trials conducted over 2

years indicated that BA (6-benzlamino purine), GA₃ (2,4a,7-Trihydroxy-1-methyl-8-methylenegibb-3-ene-1,10-carboxylic acid 1 → 4-lactone), NAA (alpha-naphthylacetic acid), and carbaryl (1-Naphthyl N-methylcarbamate) effectively thinned 'Tifblue' fruit. BA showed the most consistent response from year to year. Maximum thinning occurred 10 days after corolla drop when fruit was 5.2 mm (0.19 inch) in diameter. Yields and fruit weight were not influenced by any of the treatments.

An experiment was conducted to determine emergence, endogenous ethylene, free abscisic acid (ABA), and total indole acetic acid (IAA) levels in 'Hughes' and 'Owens' pecan nuts subjected to common storage (10°C (50°F) and 45% relative humidity) and stratification for 45, 90, and 135 days. 'Hughes' nuts stratified for 135 days had greater emergence percentages than stratified 'Owens' nuts. Emergence was not related to levels of free ABA and total IAA. Free ABA and total IAA levels were not related to days in stratification.

Cold hardiness experiments on passion fruit species were conducted. Two passiflora species showed the capacity to acclimate several degrees. Lethal temperatures of the two species were -9°C (15.8°F) to -10.5°C (13.1°F) for yellow passion fruit, -10°C (14°F) to -12.5°C (9.5°F) for purple passion fruit, and 11.1°C (12°F) to -13.5°C (7.7°F) for Maypop. A tissue culture regeneration experiment showed that yellow passion fruit did not regenerate callus at 0°C (32°F), -3°C (26.6°F), or -6°C (21.2°F). Purple passion fruit showed callus formation at 6°C (21.2°F).

In peach cold hardiness experiments, two low-temperature exotherms (energy given off when tissue water freezes) associated with injury to primordium (-8°C (17.6°F) to -13°C (8.6°F)) and bud axis (-16°C (3.2°F) to -21°C (-5.8°F)), were identified. When various bud tissue types were separated by aluminum foil, the artificial barrier prevented ice from spreading; therefore, two or three exotherms were detected. These exotherms corresponded to the supercooling capacity of each tissue type. When no barrier was used, only one exotherm occurred. Flower buds acclimated from September 4 to January 4. A maximum acclimation temperature (LT₅₀) of -17°C (1.4°F) was reached. Deacclimation began February 4.

1991

Differential thermal analysis (analytical procedure to determine plant cold hardiness) showed the following: Peach flower buds showed only a primary exotherm either in slow freezing (2°C/hr, 28.4°F/hr) or fast freezing (20°C/hr, 68°F/hr); the secondary exotherm, which corresponds to the freezing of primordia, was hardly detectable in an intact flower bud.

Primary exotherms for dormant flower bud, isolated primordia, and isolated bud axis occurred at -17°C (2.6°F), -8°C (17.6°F), and -7°C (19.4°F), respectively, on Jan. 22, and deacclimated to -8°C (17.6°F), -6°C (21.2°F), and -4°C (24.8°F), respectively, on March 15 during bloom. The killing point (low temperature for primordia) coincided with the primary exotherm of the intact flower bud. The LT₅₀ for primordia of an intact flower bud was not significantly different from that of isolated primordia kept on moist filter paper. There were no significant differences in the temperature of primary exotherm among cultivars ('Candor,' 'Centennial,' 'Harken,' 'Redhaven,' 'Cresthaven,' and 'Loring').

Biochemical changes in pecan seeds as influenced by accelerated aging were as follows: Levels of carbohydrates slightly declined for 'Schley,' 'Desirable,' and 'Stuart.' Free fatty acid content increased after 48 hours of aging, but remained constant for longer periods of aging. The content of amino N dramatically increased during the first 48 hours of aging and remained stable up to 192 hours. Seeds of 'Schley' and 'Desirable,' the most vigorous seed lots, exhibited contrasting trends.

Post-harvest studies were conducted on passion fruit. In purple passion fruit, sucrose concentration decreased and fructose and glucose concentrations increased after storage for 10 days, regardless of ethylene treatment. Fruit harvested 55 or 60 days after anthesis, with or without ethylene, had the same sugar and soluble solids concentrations and pH as vine-ripened fruit. Ethylene enhanced surface purple pigmentation of fruit harvested mature green. Fruit growth of purple passion fruit and maypop (native to Mississippi) followed a sigmoidal growth curve. Yellow and purple passion fruit juice had higher fructose and glucose contents than did maypop juice.

1990

Uniconazole sprays applied as a bark band to peach trees retarded vegetative growth linearly with increasing concentrations. This retardation effect was evident 3 years after application. Tests on pears, apples, blackberries, and highbush blueberries were established at Pontotoc Branch Station. Asian pear scions were grafted onto *P. calleryana*; 'Yakumo' and 'Chojuro' pears produced a greater number of branches, the least amount of shoot growth, and wider branch angles, after three growing seasons. Northern highbush blueberry cultivars such as 'Patriot,' 'Blue Crop,' and 'Blue Jay' were poorly adapted to growing conditions in northern Mississippi.

Since the accelerated aging technique tested in 1988 increased germination after a given period following treatment of pecan seeds, biochemical changes influenced by this technique were monitored.

1989

The accelerated aging technique utilized in 1988—exposing pecan seeds to 100% relative humidity and 49.3°C (120°F) temperature—differentiated vigorous from nonvigorous seed of pecan. Tetrazolium testing (live tissue stains red, dead tissue remains clear) showed various patterns of kernal staining and was related to seed viability.

Uniconazole, a growth retardant produced by Valent Chemical Company, retarded vegetative growth of pecan. The retarding effect was evident the third year after application. Uniconazole sprays and uniconazole applied as a bark band retarded vegetative growth of pecan trees linearly with increasing concentrations. This retardation effect was evident 3 years after application. Uniconazole studies were conducted at Heaton Pecan Orchard, Lyons, MS, on 12-year-old trees. In Starkville, MS, 'Desirable' and 'Cheyenne' were identified as very susceptible to pecan scab while 'Cape Fear,' 'Hughes,' 'Mallet 720,' 'Pecou II,' 'Big Dan,' 'Whit,' and 'Farley' were resistant.

1988

Seed germination studies were initiated at Mississippi State utilizing the accelerated aging technique; seeds were exposed to 100% relative humidity and 49.3°C (120°F) temperature to assess seed viability.

Differential thermal analysis (an analytical procedure to determine cold hardiness) of peach and blueberry floral buds indicated that critical freezing temperatures in January, on the average, occurred at -10°C (14°F) for peaches and at -9°C (13°F) for rabbiteye blueberries.

1987

A climatological assessment on peach crop damage due to spring freezes was conducted. Temperatures below 28°F, causing an estimated 10% peach crop loss, have occurred in 21% of the past 57 years (1913-1987) in southern Mississippi, and 54% of the past 57 years in northern Mississippi. Temperatures below 25°F, causing an estimated 90% peach crop loss, have occurred in the state 9% to 26% (south to north) of the years during the bloom period (March 14-April 1).

1986

A study to determine the relationship between catkins and cropping in pecans was initiated this year at Young's Pecan Orchard and 6 miles south of MSU campus. Removing catkins at different stages of their development did not influence fruit set, nuts per terminal, or yield in 1986 of 'Cheyenne,' 'Choctaw,' and 'Desirable.' The removal of a potentially large sink for

carbohydrates may influence flowering and fruit set in subsequent years. Apical meristems from mature wood of 'Desirable' were micrografted to newly emerged seedlings in the spring under aseptic conditions in the laboratory. The success of micrografting was evaluated as a means of pre-conditioning mature wood for subsequent tissue culture propagation. Micrografting proved unsuccessful.

South Mississippi Branch

1973-1986

Sixteen cultivars of pecan were planted in 1973 and 1974: 'Apache,' 'Barton,' 'Caddo,' 'Cape Fear,' 'Choctaw,' 'Davis,' 'Desirable,' 'Forkert,' 'Mahan,' 'Mohawk,' 'Owens,' 'Pensacola Cluster,' 'Shawnee,' 'Sioux,' 'Stuart,' and 'Wichita.'

Dolomitic limestone and fertilizer application was based on soil tests. The fertilization program generally consisted of annual applications of 40 to 50 lb N, 30 lb P₂O₅, 60 lb K₂O, and 30 lb ZnSO₄ per acre in early March and at half these rates in June each year. Spray applications and materials for weed, insect, and disease control were in accordance with MCES pest control guidelines for Mississippi. Sod strips between rows were mowed with a clipper as required.

Tree caliper in 1984 for all cultivars ranged from 6.5 to 8.8 inches per tree. Yields in pounds per tree in 1983 and 1984, respectively were: 'Apache,' 3, 0; 'Barton,' 33, 12; 'Caddo,' 20, 0; 'Cape Fear,' 36, 16; 'Choctaw,' 21, 9; 'Davis,' 28, 11; 'Desirable,' 17, 15; 'Forkert,' 21, 10; 'Mahan,' 8, 5; 'Mohawk,' 18, 0; 'Owens,' 22, 17; 'Pensacola Cluster,' 22, 21; 'Shawnee,' 2, 9; 'Sioux,' 12, 6; 'Stuart,' 46, 13; and 'Wichita,' 6, 0.

Hurricane Elena in fall 1985 severely damaged many trees in this evaluation and no crop was harvested in 1985. The study was terminated in 1986.

Two to four trees of 33 peach cultivars were planted in 1979 and evaluated for yield. The trees were grown on a 20 x 22-ft² spacing and irrigated with a trickle irrigation system. Dolomitic limestone and fertilizer application was based on soil tests. The fertilization program generally consisted of annual applications of 40 to 50 lb N, 30 lb P₂O₅, 60 lb K₂O, and 30 lb ZnSO₄ per acre in early March and at half these rates in June each year. Spray applications and materials for weed, insect, and disease control were in accordance with MCES pest control guidelines for Mississippi.

In 1982, peach cultivars with 30 kg (14 lb.) or more of fruit tree were 'Armgold,' 'Armking N,' 'June Gold,' and 'Springbrite.' Fruit set was extremely poor and may have been associated with a late freeze on March 8, and possibly the low temperature of 6°F, which occurred on January 11.

In 1983 'Armgold,' 'Armking N,' 'Bicentennial,' 'Camden,' 'Early Amber,' 'Fla 66 N,' 'Fla 15-34,'

'Harvester,' 'June Gold,' and 'Springbrite' produced yields of 70 pounds (32 kg) or more per tree.

Yields in 1984 of 70 pounds or more per tree were obtained with 'Armgold,' 'Armking N,' 'Bicentennial,' 'Desert Gold,' 'Early Amber,' 'Florida Gold,' 'Harvester,' 'June Gold,' 'May Gold,' 'Redtop,' 'Suncrest,' 'Starking Delicious,' and 'Sunhigh.'

Yields in 1985 averaging 57 pounds per tree or higher were obtained with 'Bicentennial,' 'May Gold,' 'Springbrite,' 'Suncrest,' 'Sunlite N,' and 'Rio Grande.'

High velocity winds of Hurricane Elena Sept. 1, 1985 removed all foliage of most cultivars. Spring-like growth, but very little flowering, was observed in the orchard after Hurricane Elena and before frost. Tree damage was extensive. Ten trees were blown down and the study was terminated in 1986.

In 1983, container-grown pecan root stocks of 'Cape Fear' and 'Davis' were produced from seed with shucks not removed and removed and grown under natural daylengths and natural daylengths with night interruption. Shuck removal hastened and increased seedling emergence. Seedlings from both cultivars did not differ in percent emergence. Trunk height, but not caliper of seedling rootstocks was greater with 'Cape Fear.' Daylength treatment did not affect seedling height or caliper.

In a subsequent experiment the rootstocks produced from 'Cape Fear' and 'Davis' seed were grafted with scion wood of 'Cape Fear' and 'Davis' using the 4-flap and modified spliced approach grafting method. The 4-flap method with 'Davis' resulted in the highest level of successful grafts (71%). Largest caliper and shortest trunk length of forced scions was obtained with 'Cape Fear' with the 4-flap method. Results indicate that grafted pecan trees can be produced in one year, although only minimal caliper size of 4.7 mm was obtained with rootstocks and the tallest forced scions were only 69 cm.

An experiment was established in 1975 to evaluate survival and growth of transplanted pecan trees. Field-grown and container-grown trees of pecan [*Carya illinoensis* (Wang) K. Koch] were evaluated 5 years after transplanting to the field. Tree survival was 100% with 2-year field-grown and 2-year and 1-year container-grown trees. Trunk height, caliper, and the number of roots were not significantly different for nursery-grown vs. container-grown trees, but roots of field-grown trees grew to a greater soil depth. Container-grown plants had circular and kinked roots, but growth of trees 5 years after transplanting was not affected adversely. Root pruning at transplanting did not influence trunk height and weight, root depth, number of roots, and root weight.

In 1983, results from an experimental pecan orchard established in 1972 to study the effects of cultivar, tree spacing, and trickle irrigation on pecan production

were reported. When the yields, calculated as pounds of kernels per acre, and only 'Cape Fear' and 'Mahan' were considered, there were no differences due to irrigation for results combined over years. However, 'Cape Fear' irrigated trees produced 416 pounds (189 kg) per acre compared to 296 pounds (135 kg) for check trees in 1980. In 1981, irrigated plots of 'Cape Fear' produced 686 pounds (312 kg) of kernels per acre and check trees produced 478 pounds (217 kg). Irrigation effects for 1980 and 1981 were statistically significant.

Percent shell-out is a multiplier to determine pounds of kernels per acre. This factor is influenced by cultivar and irrigation. 'Wichita' had the highest 3-year average percentage shell-out (56%), while Cape Fear had the least (52%) and Mahan was intermediate. No differences in shell-out percentages were observed between cultivars due to tree spacing. Pecans from trickle irrigated plots had a significantly higher percent shell-out (3% over check plots). Percent shell-out for all plots varied by year with 51% shell-out in 1981, and 58% shell-out for all plots in 1982. In a comparison of shell-out percentages, Mahan was 2 percentage points better than 'Cape Fear' for 3 years. Irrigated trees of both 'Cape Fear' and 'Mahan' had significantly better shell-out than check trees.

Truck Crops Branch

1993

The severe spring freeze (-6°C or 21.2°F) of March 14, 1993, killed all blueberry buds and flowers on seven rabbiteye blueberry varieties and caused varying degrees of damage to the buds and flowers of 24 peach varieties. 'Cherrygold,' 'LaFelciana,' 'LaGold,' 'Sam Houston,' 'Starlite,' 'Sunfire,' and 'Sunglo' all had yields of less than 11 kg (24 lb) per tree. 'Allgold,' 'Cresthaven,' 'Fireprince,' 'Goldlocks,' 'Harvester,' 'Idlewild,' 'Jay Haven,' 'Juneprince,' 'LaWhite,' 'Majestic,' 'Mitchen,' 'Quachita Gold,' 'Red Gold,' 'Red Haven,' 'Sunprince,' and 'Winblo' all had harvestable yields ranging from up to 166 kg (365 lb) per tree for 'Sunprince.'

1992

In yield comparisons of peach cultivars, 'La Felciana' and 'Winblo' produced the highest yields with 61 kg (134 lb) per tree and 52 kg (114 lb) per tree, respectively.

1991

Four pecan selections grafted in 1988 produced nuts 3 years after 4-flat grafting. Grafts of selected scions on seedling rootstocks continue to be evaluated for overall performance.

Peach cultivars identified as high producers were

'Cresthaven,' 'Fireprince,' 'Harvester,' 'Mitchem,' and 'Winblo' with 96 kg (211 lb), 69kg (152 lb), 75 kg (132 lb), 60 kg (132 lb), and 71 kg (156 lb) per tree, respectively. Rabbiteye blueberry plants topped, thinned, and topped and cut to 1.5 meters (4.9 feet) in 1988, yielded 13.6 kg (30 lb), 10.9 kg (24 lb), and 7.7 kg (17 lb) per plant in 1991, respectively.

1990

Grafts of selected pecan scions on seedling rootstocks that were unsuccessful in 1989 were again grafted to ensure orchard establishment for evaluation purposes. All grafts were successful and had excellent growth during 1990.

1989

Seedling pecan trees established in 1988 were grafted using selected scions; survival percentage of grafted pecan scions on seedling rootstock was eighty.

Rabbiteye blueberry and muscadine grape cultivars superior in quality and overall performance were identified. It was determined that fireblight severely limited production of low-chilling apple cultivars 'Anna,' 'Einshimar,' and 'Golden Dorsett.'

1988

A seedling pecan research orchard was established at Crystal Springs to evaluate grafted scions of selected seedlings.

1986

Apple cultivars were rated for fireblight susceptibility as follows: 'Anna,' 0%; 'Einshamer,' 65%; 'Golden Dorset,' 1%; 'Granny Smith,' 45%; 'Orleans,' 5%; 'Yates,' 25%; 'Red Jonathon,' 25%; 'Dwarf Granny Smith,' 10%; 'Double Red Stayman,' 5%; 'LawRed Rome,' 50%; 'Rose Red Delicious,' 1%; 'Yellow Delicious,' 25%; and 'Improved Winesap,' 10%.

Peach cultivar 'Stark Delicious' produced 15.9 kg (35 lb) per tree after a late spring freeze of -3.9°C (24.9°F) on March 21.

Blueberry yield reductions due to a late spring frost were recorded as follows: 'Bluebell,' 60%; 'Briteblue,' 52%; 'Climax,' 73%; 'Delite,' 90%; 'Southland,' 63%; 'Tifblue,' 38%; and 'Woodard,' 65%.

Alcorn Branch, ASU

1993

All fruit trees made excellent growth and produced a full crop of peaches, nectarines, and plums. Most productive peach and nectarine cultivars were those re-

quiring low-medium chilling hours. Peach cultivars 'Red Cap,' 'SuziQ,' and 'Sam Houston' produced higher yield as compared to all other cultivars included in this study. Nectarine cultivars 'Durbin' and 'Early King' out-performed all other cultivars included in this research.

Pecan trees planted in 1988-89 grew very well, but none reached production stage.

From fruit tree yield data collected over a period of 3-4 years, it was concluded that trees planted at a spacing of 15 x 10 feet were much less productive as compared to conventional spacing (20 x 20 ft). All fruit (peaches, nectarines, and plums) trees planted at a spacing of 15 feet x 10 feet (high density) were eliminated.

1992

Plum cultivars 'Methley' and 'Robusto' were high producers of good quality plums.

Peaches, nectarines, and plums planted at a spacing of 20 feet x 20 feet produced higher yields per tree compared to trees planted 15 feet x 10 feet (high density).

Propagation of peach and nectarine trees by cuttings under field conditions was continued and results showed that mulching increased survival of cuttings.

1991

Cultivar evaluations of peaches, nectarines, and plums were continued. A heavy crop was reported for all fruits. Fruit thinning was performed, but small fruit of peach, nectarine, and plum was reported possibly due to the insufficient thinning.

1990

Cultivar evaluations of peaches, nectarines, apples, and plums identified high- and low-yielding cultivars. The limiting factor in crop yield was a late spring freeze, which occurred 4 out of 5 years during the study. In a propagation study, nectarines produced a greater number of rooted cuttings than peaches. Uniconazole sprays retarded vegetative growth of peach trees linearly with increasing concentrations.

1988

A pecan cultivar test of 10 cultivars was established at Alcorn State University.

Four out of 20 cultivars of peaches failed to produce a crop due to low temperature during bloom. Similar variations in cropping among nectarine and plum cultivars was noted. Insignificant fruit set occurred on apples, pears, and apricots due to young age of

trees. A root cutting experiment under field conditions on peaches resulted in 20% rooting success.

1986-1987

Cultivar evaluations of peaches, nectarines, apples, and plums were conducted on test orchards established in 1984.

Acknowledgments

The research reported in this bulletin was supported by the Mississippi Agricultural and Forestry Experiment Station through the following projects:

#0138538 – Pecan Culture and Testing of Selected Seedlings and Cultivars.

#0150183 – Evaluation of Deciduous Fruit Crops.

#W-130 – Freeze Damage and Protection of Fruit and Nut Crops (Regional Project).

Thanks and appreciation are extended to all the researchers, extension specialists, technical staff, support staff, graduate students, secretarial staff, and administrative staff statewide for their valuable contributions to this research.

Special thanks are extended to people from each branch station who made this research possible.

Publications

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