FROST HARDY PEACH CULTIVARS

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ABSTRACT: A major limiting factor in peach production in Mississippi and across the southeastern U. S. is crop loss due to frosts and freezes during and after the bloom period. The peach bloom period in Mississippi is typically in March. Seven cultivars purported to be frost hardy were planted in 1997 to evaluate production. In 2004, there were no significant differences in bloom date among the cultivars in this trial. 'La Premier' had a larger number of fruit thinned on April 30, 2004 compared to the other cultivars in this trial. This could be an indication of bloom hardiness. Evidence of root rot problems within the planting led to the decision to not collect harvest data in 2004.

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MATERIALS AND METHODS: The peach cultivars evaluated in this trial have high chill requirements with a ripening period ranged from 43 days before Elberta to approximatey 6 days after Elberta (Table 1). The peach trees were planted on raised beds in a Quitman silt loam soil in 1997. The trees were trained to a 'Y' shape with two scaffold branches perpendicular to the row. Tree rows were spaced 20 ft apart and the trees were spaced 10 ft apart within the row. The trees were pruned in January to maintain similar fruiting potentials for each tree in the trial. Pesticides were applied weekly during the growing season and drip irrigation was applied in the absence of rain.

The experimental design was a randomized complete block with single trees serving as the experimental unit. There were four replications. The data were analyzed by SAS PROC GLM (SAS Institute Inc, Cary, NC). Mean separation was conducted with Fisher's Protected LSD at the 0.05 significance level.

RESULTS AND DISCUSSION: There were no significant differences in the bloom stage on March 15, 2004 (Table 2). 'La Premier' required the greatest amount of fruit thinning in 2004 (Table 3). The number of fruit that needed to be thinned from the trees is probably a good indication of the bloom hardiness. The number and weight of fruit at harvest is dependent on additional factors other than the number of blooms that survived through the spring. The fruit was not harvested in 2004 due to evidence of poor tree health, probably due to root rots.

Table 1. Ripening season and chill hour requirement

Cultivar	Ripening season (days before/after Elberta)	Chill hour requirement
Surecrop	-43	950
Red Haven	-28	950
Harvester	-21	750
Jay Haven	-16	850
La Premier	-12	1050
Contender	-9	1050
Ruston Red	-5	850
Bobeva	+6 (?)	?

Table 2. Bloom stage for peach trees March 15, 2004.

Cultivar	Bloom stage [z]
Bobeva	4.1 a [y]
Ruston Red	4.1 a
Jay Haven	4.0 a
La Premier	3.7 a
Harvester	3.6 a
Sure Crop	3.4 a
Contender	3.2 a

[z] Bloom stage from Temperate Zone Pomology, M. N. Westwood: 1=first bud swell 2=calyx green 3=calyx red 4= first pink 5=first bloom 6=full bloom 7= post bloom

Temperature for 90% kill at each bloom stage: 1= 1.4°F 2= 5°F 3= 8.6°F 4= 15°F 5= 21°F 6= 24°F 7= 25° F

[y] Means with the same letter do not differ at the 5% significance level by Fisher's Protected LSD.

Table 3. Number of fruit thinned April 30, 2002

Cultivar	Number of fruit thinned per tree
La Premiere	157.5 a [z]
Ruston Red	80.0 b
Bobeva	65.2bc
Jayhaven	60.2 bc
Contender	52.5 bc
Surecrop	29.7 cd
Harvester	7.2 d

[z] Means with the same letter do not differ at the 5% significance level by Fisher's Protected LSD.