Management Practices That Are Controlling Peach Diseases

NORMAN E. McGLOHON
University of Georgia, Athens

If the southeastern peach industry survives, and I am confident it will, it will be due to the innovative management practices adopted by growers during the past few years. Practices being used to control peach diseases today could not have been visualized 20 years ago, even with a crystal ball. Who would have ever thought that growers would hang up their pruning shears during the winter months? Replacing the harrow with the rotary mower is a miracle within itself. Seeing lime trucks in a peach orchard is the rule today but was an exception a few years ago.

You have heard the old saying, "People don't change their practices unless they have to." What made peach growers change? The main reason was dead trees. The peach tree population in Georgia alone dropped from 16 million in 1930 to 3 million in 1965. Over 200,000 peach trees died in 1962 alone. The life span of an average orchard dropped from 20 years to 7 years. By 1965, many growers had lost 30% of their trees.

The name given this new catastrophic problem was "peach tree decline" or "peach tree short life." The most common disease was bacterial canker, but cold injury, nematodes, and nutritional problems were thought to contribute to this complex problem. It was evident that some unknown factors were weakening the trees and allowing bacterial canker and other problems to move in.

Observations by extension workers and growers revealed there was less canker and lower tree mortality in orchards where the pH was in the 6.5 range. It was also noted that unpruned trees seemed to be stronger and have fewer disease problems than pruned trees. With these and other observations in mind, researchers in Georgia, South Carolina, and North Carolina attacked the peach decline problem through a coordinated regional effort. Their research, conducted in the late '60s and early '70s, concluded that peach tree short life can be greatly reduced with the following management practices:

1. *Maintain a soil pH of 6.5 in all orchards.* Soil in most southeastern peach orchards has a tendency to be acid because of the high sulfur content of the fertilizers often used. Research proved that the life of an orchard could be extended several years by maintaining a pH of 6.5 or above. In some orchards it was necessary to apply 4 tons of lime per acre to lower the acidity. Most new orchard sites are subsoiled and the lime is plowed into the soil about 16 in. deep before trees are set.

2. *Never prune peach trees in October, November, December, or January.* Since Samuel H. Rumph planted the first Elberta seed in 1870 in Marshallville, Georgia, peach growers have pruned their trees during the winter months. One of the first peach decline research projects completed was a pruning test comparing winter and spring pruning. The results showed that 61% of the trees pruned in December died but none of the trees pruned in April died. Based on pruning tests conducted in three states, the best time to prune peach trees is March and April, with August the second choice. Many growers now prune after bloom during their fruit-thinning operation in April and May.

3. *Never use a harrow in the peach orchard.* The custom 15 years ago was to control weeds between peach trees with disc harrows. These plows often penetrated to a depth of 4 in. or more. Since 60% of all peach feeder roots are in the top 6 in. of soil, you can imagine what happened to the roots during each cultivation. Research indicated that Pythium root rot was much more prevalent in orchards where the roots had been injured. Now you rarely see a cultivated orchard. Sod middles, with chemical control in the row, is the accepted practice today.

4. *Control nematodes.* Nematodes have a tendency to weaken trees and seem to be a part of the total decline complex. The use of chemicals as a preplant treatment for controlling nematodes was of little or no value unless a postplant fumigant was used every year. Using a postplant fumigant was very difficult (even when we had a fumigant) because of the sod middles. We found the best approach to root-knot nematode control was to eliminate the nematodes before setting trees. This could be accomplished by selecting the orchard site about 18 months before planting.

Since most future orchard sites are planted in soybeans or some other row crop, the best time to begin the site preparation is in the fall, immediately after harvest. The site can be subsoiled, limed, and deep plowed, then planted in rye. The rye is harvested the following spring, the site is fallowed during the summer and fall, and the trees are set in late winter. The root-knot nematode population is down to zero after 18 months or by the time the trees are set.

Our better growers are selecting new orchard sites at least 2 years ahead and eliminating root-knot nematodes before setting trees. This practice is much cheaper than using preplant chemicals, which give only partial control at best.

These management practices, along with such others as applying extra nitrogen after harvest and using Lovell rootstocks, have become routine with our better peach growers. Convincing some growers to adopt brand new management practices so different from what they had always done, however, was a real challenge for extension specialists. At first, growers indicated they could prune trees only during winter months when labor was available; but now most growers, or at least the ones still in business, have found a way to implement these practices.

Now when I visit an orchard and see lime being spread or trees being pruned during the fruit-thinning operation or the rotary mower cutting sod middles, I consider the entire operation routine management practices. But when I think back 15 years and realize what it was like without these simple management practices, I suddenly feel a deep appreciation for each research worker who contributed to the solution of this problem. The solution to many of our serious disease problems is often found in the area of simple management, yet we sometimes overlook this area while searching for more dynamic cures.