

Fungicides Have Tripled the Productivity of Pecan Trees

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The pecan is native to North America. The earliest orchards were established in the mid 1800s and resulted in an extensive expansion of the pecan industry into the southeastern US. Pecan trees have a productive life of 100-200 years.

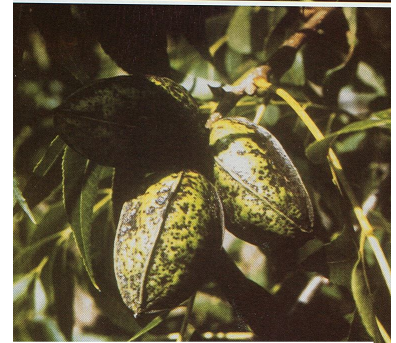
Pecan scab is the most significant disease affecting the trees. The fungus was first found on a tree in 1882. The scab fungus survives the winter in masses of cells in lesions on twigs. During the spring, spores are abundantly produced. Infection by the fungal spores occurs during periods when rains, high humidity, and dew periods are frequent and spores are ejected. These conditions are very common in the Southeast. Within 10 days of infection, the fungus erupts back through the plant surface ejecting additional spores. This cycle repeats itself many times during a growing season [1]. The nuts may have so many infections on them that practically the entire surface of the nut appears black. Nuts remaining on the tree are usually of very poor quality because the kernels do not develop [2].

In the absence of control programs, widespread losses approaching 100 percent can occur in wet years while losses of 50-70 percent can occur in dry years [3]. Tests in the early 1900s showed that spray applications of copper and lime controlled scab. However, the copper-lime mixture also damaged the leaves on the pecan tree. The mixture was used for many years despite periodic losses due to tree damage and failure of the sprays in years with very wet springs [4]. Several highly effective scab control chemical fungicides were introduced in the 1960s. Growers switched to the synthetic chemicals because they were more effective in controlling scab and did not damage the pecan trees [5]. Research in the 1960s indicated that the chemical fungicides increased the yield of pecan trees by almost 100 percent in comparison to the copper-lime mixture [6].

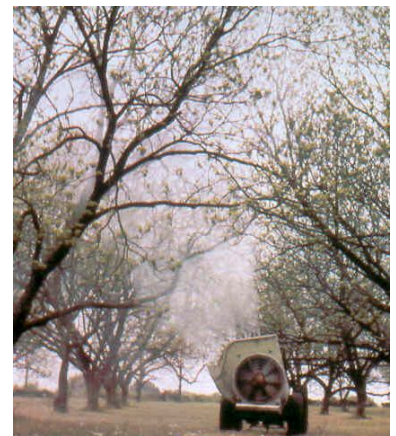
Two of the main reasons for the tripling of pecan production per tree in the U.S. (Figure 1) are the introduction of chemical fungicides for scab control and the development of airblast sprayers for dispersing the fungicides throughout an orchard [7].

References

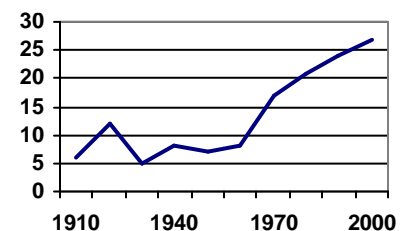
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Top: Fungicide treated
Bottom: Scab infected



Spraying pecan trees



U.S. Pecan Yield in Lbs/Tree