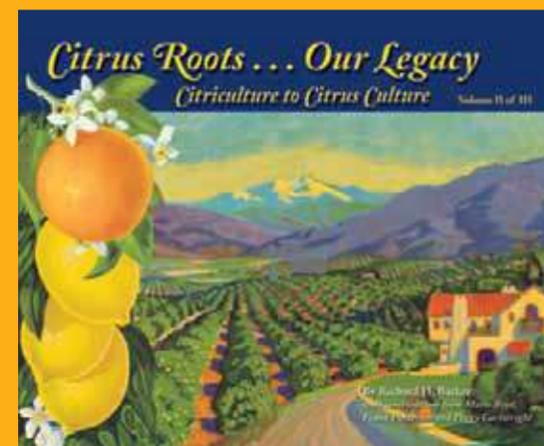


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Citrus Roots – Preserving Citrus Heritage Foundation

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The views of the author are not necessarily those of the foundation.

The assault against Jack Frost

Burning solid fuels and other combat methods

Richard H. Barker

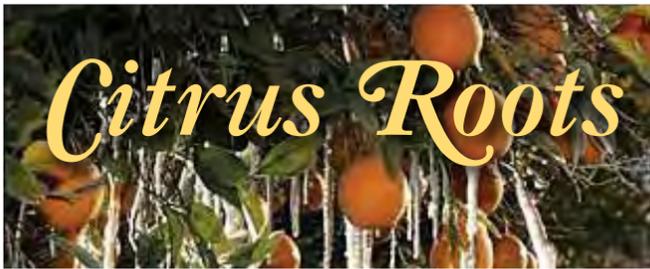
As we head into winter, it's time for our annual Citrograph journey through the history of the citrus industry's "Assault Against Jack Frost." We began our series in 2011 with an article on the work of Floyd D. Young and the Fruit Frost Service, which was launched in 1917. The 2012 article focused on the Scheu family. This year, we'll take a visual look at the heaters that were designed to consume solid fuels in the battle against cold damage; and we'll also examine some of the more unorthodox methods that were used.

Following the 1913 freeze, growers became more aware of the heavy losses that could be incurred due to deep dips in the thermometer. When the citrus belt was hit by the freeze of 1922, it was obvious to all concerned that those with orchard heaters had been spared some of the damage incurred by those without heaters. This spurred trials of a variety of concepts. One approach utilized solid fuels; another made use of liquid fuels; while still others tried air circulation and several "creative" means.

In our next annual installment in the "Jack Frost" series, we will examine oil-fueled orchard heaters, which will be followed by a look at the evolution of wind machines. ●



In 1904, a lattice ceiling was applied to a Riverside grove to prevent frost damage. It was removed two years later.



(Above) Firewood, as shown in this 1925 photo, was burned to keep groves above freezing temperatures. (Below left) Although not very effective, briquettes were used to radiate heat, as seen in this 1928 photo. (Below right) In the 1930s, some orchard heaters were fired by coke.



Facing page: (1) E.S. Cobb introduces his temperature regulator, designed to distribute warm air from the center to the outside of a 10-acre grove. (2) W.L. Whitlock shows a model of a 30'-40' tower to be erected in the center of a grove. The propellor on top throws warmer air downward from its high altitude. (3) Growers inspecting various smudge pots. (4) Another E.S. Cobb invention - a 30' tower with an engine in its revolving cupola that allows the propellor to keep the air in motion. (5) This device distributes heat generated by crude oil throughout the grove via a central heating plant and pipe system.

Farm and Tractor Section Sunday, May 14, 1922

Devices to Prevent Frost Injury, Shown at Covina.

1

Here is the temperature of the device intended to be kept at the safety level during cold snaps. That is the question debated by citrus growers at the recent frost prevention conference. E. S. Cobb at Los Angeles and his temperature controller, designed to distribute warm air from the center to the outside of a 10-acre grove.

2

Here is a model showing on a different principle. It was devised by W. L. Whitlock, Ontario. A large propellor is fastened to the center of the tower and in top of this is situated a propellor which causes the warm air of the tower to drift downward.

3

These growers, realizing that the Covina meeting was an important step in solving the problem of frost prevention, have organized a committee to investigate the various methods of smudge potting. In the lower left-hand corner is seen a smudge pot in which crude oil is burned. To upper right, a demonstration is being made to burn a smudge pot in a grove.

4

This machine was also invented by E. S. Cobb. The tower is built thirty feet high, and the cupola on top, which contains the engine, revolves, thus allowing the propellor to keep the air all around in motion. It is in use in the Elandy district with some success. The cost is from \$1 to \$1.25 per hour, using either a gas engine or electricity. It is started.

5

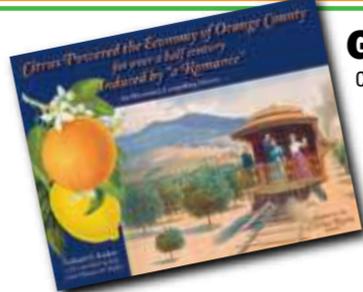
Device designed to distribute heat generated by crude oil throughout the grove by means of a central heating plant and a system of pipes.

A 1922 symposium was convened to evaluate various frost-fighting concepts.



This 1947 view of the Hugh Bashore Ranch in Covina shows heat lights that were used to help ward off the damaging effects of frost.

Citrus Roots Series...

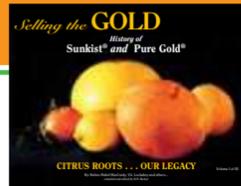


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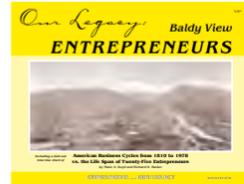
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