allowed to overflow into the basin to a depth of 4″ of the Vapam-water mixture. with the 85% wettable Mylone, nine ounces of the powdered material was spread over the soil surface of the basin and 4″ of water run into a container as with Vapam.

Treated sites were dusted with 12.7% Bordeaux mixture, on March 7 and 26, 1958, to help delay recontamination of the treated basins. The water used on the plot was from wells and presumably free of the fungi, but the basins could be recontaminated by soil bearing oöspores blowing or splashing into them from the outside contaminated areas. After the Bordeaux mixture was removed from the soil surface, samples were taken from all of the treated basins. None yielded brown rot or gummosis fungi.

After a period of 133 days to allow the chemicals to disinfest the soil and to degrade to forms noninjurious to roots, trees were planted on July 10, 1958. Around the trees small basins about 3′ in diameter were made from treated soil within the large basins. The trees were irrigated by running water into the inner basins with a hose.

To evaluate the effect of the treatments on growth of the trees, measurements of the circumference of the trunks 6″ above the bud union were made on July 23, 1958, April 8, 1959, and October 28, 1959. The increases in size of the trees growing in the treated and untreated sites are shown in the accompanying table.

The average increment of growth in circumference of the trees in the disinfested sites after 437 days was 74% greater than those in untreated areas.

If a young tree grows well during its first two years it usually—with good subsequent cultural treatment—becomes a successful orchard tree. A young tree in soil with a high concentration of root-destroying organisms may be killed or so handicapped in its growth that it never develops into a commercially productive orchard tree.

A group of trees—Washington Navels on Troyer citrange rootstocks—of same age: *left*, tree in untreated soil; *center*, in soil treated with 9 ounces of 85% Mylone in basin of 50 square feet; *right*, in soil treated with a pint of Vapam in the basin of 50 square feet.

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Influence of extractives on

Seasoning Stain

of redwood lumber

The distinctive color of redwood is due—in part, at least—to the nature of its extractive components. The excellent durability of redwood heartwood also is attributed to the fungicidal properties of its extractives. However, one of the problems associated with the manufacture of redwood lumber is the chemical seasoning stain resulting from the chemical nature of some of the extractives.

The dark brown, blackish stain, which may appear as streaks, in patches, or sticker stain, is more apt to occur in the heavy redwood sinker stock generally derived from the peripheral and intermediate heartwood regions from the butt log. This material usually contains a higher extractive content as well as being very high in moisture content.

When redwood lumber dries, the moisture moves from its center toward the surface of the boards carrying some of the water soluble extractives. As the moisture evaporates, a heavy deposition of extractives is left in the surface zones of the lumber.

The over-all appearance of redwood boards can be governed somewhat by kiln conditions such as high temperatures producing darker boards while the lower temperatures generally produce the lighter appearing boards.

Preliminary studies indicated that steaming of the lumber prior to seasoning may reduce the occurrence of stain. This and other treatments are being investigated in attempts to minimize or obviate the redwood stain problem.

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