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by
O. T. McWhorter
Extension Horticulturist
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ZINC TREATMENTS FOR LITTLE LEAF

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A disorder of fruit trees, known as "Little Leaf", causes heavy losses to deciduous fruit orchards at The Dalles, Oregon. The trouble is especially severe on young cherry trees and occurs also on peaches, apricots, prunes, pears, and apple trees. This same disorder is found in apple orchards in the Milton-Freewater fruit district, and in cherry orchards in parts of Union county.

"Little Leaf" has been checked and overcome by zinc treatments at The Dalles since 1933. California reports that zinc treatments have been used with success since 1927. The disorders of fruit trees which respond to or are benefited by zinc treatments are now regarded as "Little Leaf" or "Rosette".

In the severe forms the leaves of stone fruits at The Dalles are dwarfed, pale yellow in color, often clustered, and leaves sometimes fail to form at all. Twigs and limbs die as a result and the tree is dwarfed and often dies.

The zinc treatments which have been used successfully are described here-with:

Zinc Sprays Considered Practical Means of Control: Sprays of zinc sulphate solution have given uniformly beneficial results in checking or bringing about recovery on affected trees from "Little Leaf" disease when such sprays have been used either as a dormant or as a foliage spray in young or aged stone fruit trees at The Dalles. Cherry trees were benefited by zinc sulphate sprays in Union county in 1936.

Directions for Using Zinc Sprays on Stone Fruits:

(1) For Aged Stone Fruit Trees Affected With "Little Leaf": Spray with a solution of 50 pounds of zinc sulphate in 100 gallons of water just before the buds swell and break open. Spraying after the buds have burst may result in injury to the opening buds. If the disease is not severe, 25 or 30 pounds of zinc sulphate in 100 gallons of water may give the desired control. Use the sprays alone. More information is needed before mixing with other sprays can be recommended. The spraying of stone fruit trees after the fruit is set may result in injury to the fruit. Other districts have reported such injury.

(2) Sprays for Young Trees Affected with "Little Leaf":

- (1) Same as for aged trees when sprayed during the dormant period.
- (2) When the dormant spray has been omitted or complete control has not been secured from the dormant zinc spray the following is recommended.

- (a) Dissolve 20 to 25 pounds of zinc sulphate in 100 gallons of water. Add $1/3$ pound of Hydrated lime for each pound of zinc sulphate used. The Hydrated lime should be soaked

in water for several hours and thoroughly dissolved into milk of lime before it is added. Spray thoroughly all the foliage of the trees. Only occasionally has foliage burning occurred. There has been no severe burning when the lime has been used in the spray or when the sprays were applied early in the morning or after the middle of the afternoon. Foliage sprays have been very successful when they have been applied about one month to six weeks after the foliage has appeared. It must be remembered that young trees carrying fruit may have the fruit damaged by the foliage sprays.

Zinc Injections: Treatment consists of boring $3/8$ inch holes 4 to 5 inches apart and $1-3/4$ inches deep about the base of tree just under the ground line, and filling holes with powdered zinc to within $1/2$ inch of the outside. The openings are then closed with grafting wax. This treatment, when made in the fall or very early winter, has never failed to give beneficial results which last about three years when it must be repeated. Objections to this treatment are its tediousness of application, and the killing of wood about the treatment. If the opening does not close there is an entrance way for wood rotting fungi. This method of treatment is not now recommended in California where it has been used.

Zinc Tacks: Small glaziers tacks of pure zinc when properly placed have given very good results at The Dalles on young cherry, peach and apricot trees. These zinc tacks must be carefully placed. Ask the county agent for a demonstration of their use. Zinc tacks are not recommended for aged trees.

Zinc strips, driven into affected trees, have met with success in California as a treatment for "Little Leaf". The difficulty locally has been to drive the zinc strips into trees. These strips must be an inch or more apart to prevent girdling of the tree or limb. A small area about the zinc strip is usually killed or deadened.

Comments:

Zinc Dusts: Have not been at all successful in their limited trials at The Dalles.

Soil Treatment Not Recommended: Extensive soil treatments with zincs have not been made at The Dalles, because reports from other sections indicate detrimental effects from accumulations of zinc in the soils from continued treatments. Relatively large amounts must be used and repeated about every three years.

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