Twig Dieback on orange and grapefruit trees

L. J. Klotz

Severe twig dieback sometimes develops during the spring on navel, Valencia, and grapefruit trees, being particularly extensive on navel trees. The problem was general throughout the citrus growing areas this spring and in the spring of 1946, being particularly severe in Tulare County navel orchards.

Twigs and small branches are killed back in length from a few inches to two feet or more. A small side shoot of the current spring’s growth may wilt and die. From such a shoot the infection may enter the larger main twig, which is girdled, killing everything beyond to the end of the twig.

During investigations, several bacterial species and many fungus species including the genera Alternaria, Colletotrichum, Fusarium, Hormodendrum and Stemphyllum were isolated from injured twigs. The stimulation to growth and release of moisture into the air by the leaves caused by unusually early warm spring weather probably plays a part in causing the injury. The foliage suddenly starting to give off moisture rapidly cannot be supplied with sufficient soil moisture by the still relatively inactive roots in the cold soil.

The stress may also induce the formation of gums which plug the water-conducting vessels. As a result, the new and some older growth is injured or killed by water depletion.

This may occur even where the tree has an adequate supply of good feeder roots and in the presence of abundant soil moisture. The fungi and bacteria present complete the destruction of the injured leafy twigs.

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Prevaling in the cold-frame beds, which could account for the slower emergence. The differences in the field tests were less than those shown in the data for the seeds planted in the flats.

Conclusions

1. In both cold-frame and field tests pelleted seed germinated as well, but at a slightly slower rate than uncoated seed. However, it does not seem that the slight delay would be very apparent or of any consequence in commercial field plantings.

2. Standard laboratory germination tests show some depression in germination due to pelleting.

3. Under the conditions of these experiments, it appears that the process of pelleting has had no harmful effect upon the seed and that any differences noted between pelleted and uncoated seed—in percentage germination or rate of emergence—can be attributed to the presence of the clay coating itself.

4. No significant difference in percentage germination or rate of emergence were noted between pellets oven-dried immediately after coating at 90°F and pellets air-dried for 48 hours before oven-drying at 90°F.

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