

Mechanism of Leaf Scorch and Dieback

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While most of the scorch associated with prune dieback appear in mid-summer, symptoms due to potassium deficiency appear early in the summer. This suggests that possibly other factors than low potassium are involved.

Portable equipment and operating techniques were developed to artificially subject leaves and fruits in the field to high air temperatures. Limited heating trials indicated that leaves under certain conditions can be scorched when subjected to a temperature of 50°C (122°F) for 1 hour. Pale, potassium deficient leaves became scorched while green leaves did not. The experimentally produced scorch looked just like some of the naturally occurring leaf scorch symptoms that appear in late summer.

Limited transpiration measurements indicated that yellow leaves (prone to eventual scorch) have a lower rate of transpiration than green leaves.

Now that a satisfactory heating technique has been developed, heating trials and other experiments under many different tree conditions should be conducted to see how transpiration, air and leaf temperatures, low potassium, high crop, etc., are inter-related in producing leaf scorch and dieback.