



Figure 7.—Values of the ratio of estimated irrigation rates ( $I_e$ ) to observed irrigation rates ( $I_o$ ) as related to the maximum and minimum departures of the leaf temperature from  $T_m$ .

used successfully for cold protection if sufficient water is supplied. The requirement may be estimated from the theory. The result of deficient sprinkling is to increase cold damage by increasing the minimum permissible temperature, and by depression of the leaf temperature below air temperature. The important parameters in determining the required rate of sprinkling are the wind speed and the temperature of dry leaves. This temperature is slightly less than air temperature. If irrigation is to be used successfully for cold protection either the rate of sprinkling must be variable or the minimum temperature and

wind speed expected must be known before sprinkling begins. Once sprinkling begins it cannot be stopped until air temperatures are above the danger point.

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## THE RELATIONSHIP OF PRUNING FOR INVIGORATION TO FREEZE DAMAGE OF MATURE CITRUS TREES

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The influence of tree vigor on susceptibility of citrus trees to freezing temperatures has been evaluated, and reports (5, 6, 7, 10) indicate that trees in a vigorous, healthy condition are more resistant to freezing temperatures than trees in a weakened condition. Trees which are excessively

vigorous due to improper fertilization and cultural practices, undesirable growing conditions in the late fall or pruning too late in the growing season are reportedly (7, 10) more susceptible to damage from freezing temperatures.

Several methods for pruning old, crowded, canopied citrus trees are under investigation and the results concerning general tree response, yields and influence on fruit size and quality have been reported previously (3, 4). Because the various types and severity of pruning methods produced a substantial effect on tree vigor, the influence of these various methods on suscepti-

