TEMPERATURE EFFECTS ON STEPHANOTIS LEAF UNFOLDING RATE

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Plant leaf unfolding rate is influenced primarily by the average daily temperature which plants are grown under within a limited temperature range. For instance, Easter lily leaf unfolding rate increases linearly as average daily temperature increases between 50 and 86°F (Wilkins and Roberts, 1969; Karlsson et al, 1988). Similarly, leaf unfolding rate models, which are average daily temperature based, have been developed for chrysanthemum (Karlsson et al, 1988), poinsettia (Berghage, 1989), hibiscus (Heins, personal communication), fern (Erwin et al, 1991) and African violet (Faust and Heins, personal communication).

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Leaf unfolding models allow growers to make temperature management decisions early in crop development to insure an adequate rate of leaf unfolding to produce a final plant size which is desired. Leaf unfolding models are especially critical on determinant crops in which flowering is 'timed' very precisely such as Easter lilies. Leaf unfolding models could also be of importance on crops which develop flowers at each leaf axil since leaf number reflects total inflorescence number. For this reason, a leaf unfolding model was developed for stephanotis.

Stephanotis is grown primarily for cut flower production. Flowers are born on inflorescence in previously formed leaf axils. A leaf unfolding model would allow a grower to produce the desired number of leaves prior to flower initiation to insure adequate flower production for a given season.

As shown in Figure 1, stephanotis leaf unfolding rate is a linear function of average daily temperature between 54 and 86°F. With many species, data suggest that average daily temperatures around or slightly above 86°F result in a reduction in the leaf unfolding rate. Data presented in Figure 1 suggest that stephanotis leaf unfolding rate probably continues to increase linearly at least until 90°F. The base temperature for stephanotis, or the temperature at which the leaf unfolding rate is zero is

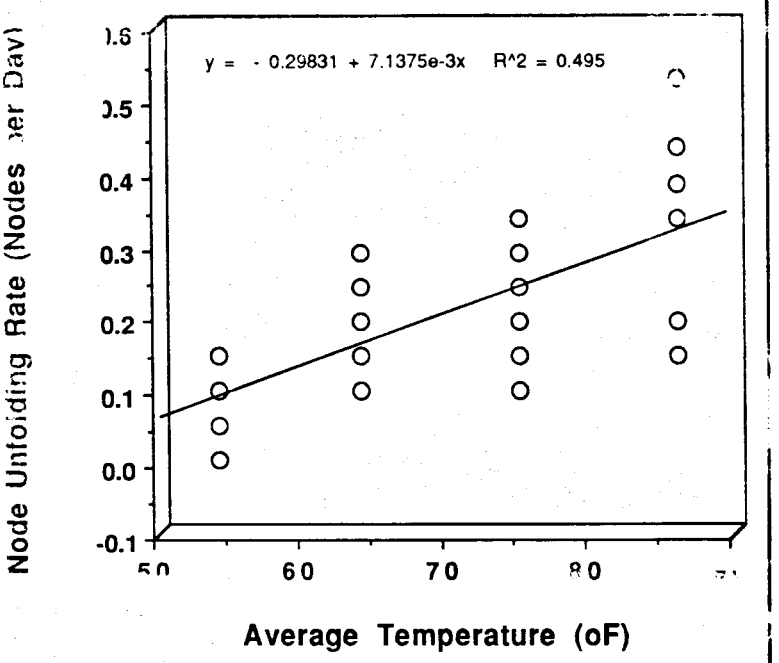

Figure 1. *The effect of average daily temperature on the node unfolding rate of stephanotis.*

42°F. These results are preliminary and will be replicated.

Literature cited

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