INDUCTION OF FRUIT ABSCISSION OF TROPICAL ORNAMENTAL TREES WITH ETHEPHON AND CHLORFLURENOL

It is desirable to remove the fruits of trees, if these fruits are disagreeable in appearance, odor, or constitute a safety hazard. These experiments involve studying the effects of 2 growth regulators on abscission of fruits of tropical ornamental trees.

Species chosen for this experiment were the monkeypod (*Samanea saman* Jacq.), the golden shower (*Cassia fistula* L.), and 5 ornamental fig trees; the fiddle leaf fig (*Ficus lyrata* Warb.), the Indian laurel fig (*F. retusa* L.), the palauan fig (*F. palauanense* Merrill), the Moreton Bay fig

(*F. macrophylla* Desf.), and the comose fig (*F. benjamina* var. comosa Kurz.). These species were selected because of accessibility, abundant fruit set, and because they are among those species that produce fruit that is often undesirable.

S. saman, *C. fistula*, and *F. retusa* were treated with single application of (2-chloroethyl) phosphonic acid (ethephon) at 400, 600, and 800 ppm, and an untreated control. *F. retusa*, *F. macrophylla*, *F. palauanse*, and *F. benjamina* var. comosa received treatments of ethephon at the 3 concentrations mentioned above with 2-chloro-9-hydroxyfluorene-9-carboxylic acid (chlorflurenol) at 20 ppm added to each of these 3 concentrations in an attempt to enhance the abscissing effect. *S. saman* also received this treatment when the pods were very small, less than 5 cm long, following a seasonal flush of new vegetative growth. *F. benjamina* and *S. saman* also received a chlorflurenol control at 20 ppm. *F. lyrata* received 2 applications of ethephon alone, at 400, 600, and 800 ppm, as well as an untreated control.

Data were analyzed 2 and 3 weeks following treatment on the percentage of fruits remaining in the branches.

With monkeypod the abscission response was only mildly significant. Ethephon caused only a darkening of the pods of the golden shower. *F. retusa* when treated with ethephon alone responded very well, with only 8.4% of the fruit retained by the branches 3 weeks after treatment with ethephon at 800 ppm. The addition of chlorflurenol to the ethephon spray enhanced abscission with *F. retusa*, causing complete abscission of all fruit 3 weeks after treatment. The ethephon, and ethephon with chlorflurenol treatments were also effective with the other species of *Ficus* tested. With *F. benjamina* var. comosa, ethephon at 400, 600, and 800 ppm with chlorflurenol at 20 ppm caused complete abscission of all fruit 3 weeks after treatment. The treatment of young fruits of monkeypod with the ethephon and chlorflurenol combination also resulted in complete abscission only 2 weeks following application. This, however, resulted in severe defoliation.

With most species tested very little phytotoxicity was observed. With *F. retusa* there was a small amount of terminal die back when treated with ethephon at 600 and 800 ppm and with chlorflurenol at 20 ppm. With combined treatments of ethephon and chlorflurenol to *F. benjamina*, the 800 ppm concentration of ethephon caused a slight amount of leaf drop, and

600 ppm caused a slight yellowing of the leaves.

With most species, the highest concentration, 800 ppm produced the greatest amount of fruit abscission. However, in a number of cases this increase was not significant when compared to the 2 lower concentrations, 400 and 600 ppm.

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