THE PERFORMANCE OF ETHEPHON AS A STAMINATE BLOOM (CATKIN) REMOVAL AGENT ON ENGLISH WALNUTS

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ABSTRACT

The ability to remove excess catkins on walnut cultivars subject to pistillate flower abortion appears to be desirable based upon initial research which has shown that excess pollen may interfere with pollination. Ethephon has previously been shown by the author to be effective in pistillate flower removal (Walnut Research Reports 1985-88). In the spring of 1991, ethephon (Ethrel) was applied at three rates (two, five and ten pints/100 gal water) just prior to the beginning of pollen release utilizing the 'Pedro' cultivar. Results confirmed last years findings that ethephon appears to be ineffective for catkin removal in the spring. Further research should be pursued utilizing ethephon in the fall or winter to confirm prior observations of the inhibition of catkin formation.

OBJECTIVES

Reducing the pollen load in walnut orchards subject to pistillate flower abortion may be desirable due to initial research indicating that excess pollen may interfere with pollination. The purpose of this research was to document the efficacy of ethephon as a catkin (staminate flower) removal agent.

Previous research by the author and Dr. George Martin has shown that ethephon is very effective in reducing or eliminating pistillate flowers on walnuts when applied at full bloom or shortly thereafter. Rates utilized were 2 to 4 pints of Ethrel/100 gal water for complete removal and 1/2 to 1 pint of Ethrel/100 gal water for partial removal.

In 1990, three rates (one, two and five pints/100 gal water) of Ethrel at two timings were applied to 'Serr' trees (see 1990 Walnut Research Reports). Little or no excess catkin removal was noted compared to the control.

The purpose of this years research was to re-evaluate last years research utilizing fresh supplies of Ethrel at a higher rate in a different orchard.

PROCEDURES

Three rates of ethephon (Ethrel) (two, five and ten pints/100 gal water) were applied on April 12 just prior to the beginning of pollen release. Two trees were treated at each rate utilizing the 'Pedro' cultivar. Approximately two gallons of spray material were applied per tree (180 gal/acre). The trees chosen were young mature trees in a replant situation north of Hollister (Al Bonturi-grower) on Class 1 Sorrento series soil. Trees were much smaller than in last season's trial due to cultivar differences and the replant status.

RESULTS

No differences were noted in any of the treatments or the check when evaluated for catkin drop at one and two weeks following treatment. As the rate increased, an increase in foliar phytotoxicity was noted.
CONCLUSIONS

Ethephon (Ethrel) is ineffective as a catkin removal agent when applied just prior to staminate bloom on English walnuts. Increasing rates did not increase efficacy but did increase phytotoxicity.

Questions remaining to be answered are the effects of ethephon as an inhibitor of catkin formation when applied in the fall or winter. Some observations seem to indicate reduced catkin formation when ethephon is used as a harvest aid.