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CHEMICAL THINNING OF PEACHES AND PLUMS WITH AMMONIUM THIOSULFATE

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INTRODUCTION

Peach thinning by hand is one of the most costly orchard operations. The alternatives to hand thinning are chemical and mechanical. Neither of these methods have been successful. The objective of this study was to evaluate a fertilizer called ammonium thiosulfate (ATS) as a thinning agent for peaches and plums.

MATERIALS AND METHODS

In 1985, Harvester, Redskin, Loring, and Milam peaches and Morris plum trees were sprayed with 0, 1 1/2, 2 or 2 1/2% solutions of ATS. In 1986, Morris plum trees were sprayed with 0, 2 1/2, 3, or 3 1/2% solutions of ATS. All treatments were applied at 80% full bloom with a backpack sprayer. Thinning effectiveness was evaluated one month after treatment application by counting the number of fruit remaining on 1/2 inch shoots.

RESULTS AND DISCUSSION

Results from 1985 were mixed; partial thinning by ATS occurred for Harvester, Milam, and Morris, but not Redskin or Loring (Table 1). The concentrations of ATS were probably too low to induce abscission for a sufficient number of flowers. In 1986, a severe frost killed all the peach flowers. This occurred whether or not they were treated with ATS. Results from Morris plum, which were not affected by the frost, indicated that the 2 1/2 to 3% range is the proper concentration for thinning approximately 1/2 to 2/3 of the fruit (table 2). In 1987, several more thinning experiments were initiated. Unfortunately, all fruit, thinned or unthinned, were killed by the severe late frost.

There is considerable industry resistance to chemical thinning of peach flowers because of fear of late frost killing any remaining blossoms. These fears may not be justified. If a severe frost does occur, it will usually kill all the flowers, whether or not they have been thinned.

CONCLUSIONS

Considerably more trials are required before ATS can be recommended for peach or plum thinning in Texas. However, it does appear to be an effective thinning agent and has already been successfully used on a limited basis by growers in South Carolina.

Table 1. Effect of Ammonium Thiosulfate as a Thinning Chemical on Peach and Plum trees in 1985.

Concentration	Number of fruit on 1/2 inch shoots ± SE				
Used (%)	Harvester[a]	Redskin[b]	Loring[b]	Milam[c]	Morris Plum[d]
0	62 ± 7	7 ± 2	13 ± 6	18 ± 4	32 ± 3
1 1/2	40 ± 3	6 ± 2	10 ± 2	6 ± 3	-
2	44 ± 14	5 ± 2	11 ± 1	9 ± 6	-
2 1/2	50 ± 7	7 ± 3	8 ± 1	7 ± 6	17 ± 10

[a] 4 whole tree Reps per treatment, 6 shoots per Rep.

[b] 3 scaffold Reps per treatment, 10 shoots per Rep.

[c] 1 scaffold Rep per treatment, 10 shoots per Rep.

[d] 3 whole tree Reps, 6 shoots per Rep.

Table 2. Effect of Ammonium Thiosulfate as a Thinning Chemical on Morris Plum in 1986.

Concentration (%)	Number of fruit per 1/2-3/4 inch shoot ± SE*
0	5.5 ± 10
2 1/2%	3.2 ± 0.5
3%	1.3 ± 1.5
3 1/2%	0.3 ± 0.1

*5 scoffold Reps per treatment, 9 shoots per Rep.