

Prune Size Affected by 2,4,5-T

erratic response in fruit size obtained after experimental treatment of mature trees with sprays of growth regulator

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Fruit size was not increased uniformly in all of the 1955 trials in which mature French prune trees were sprayed with 2,4,5-T. The increase in the fresh weight of sprayed prunes varied from none up to 23%.

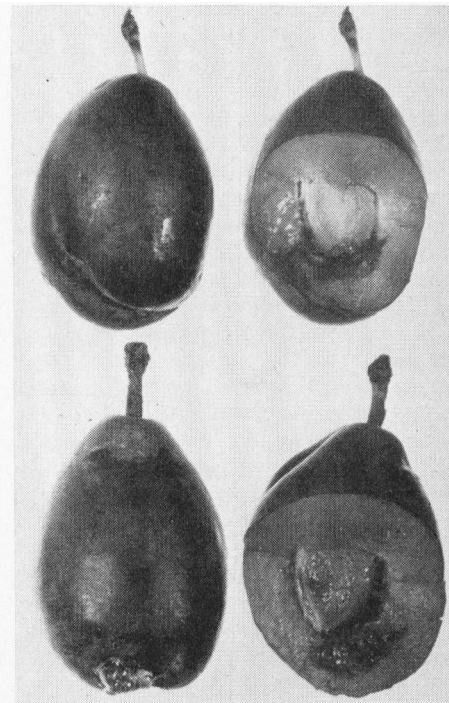
Fruit size was increased up to 20% in exploratory trials during 1954 in Santa Clara and Yolo counties. Sprays of 25 ppm—parts per million—and 50 ppm of 2,4,5-T—triethylamine salt of 2,4,5-trichlorophenoxyacetic acid—were applied to large limbs of mature trees just before or during the pit hardening stage of fruit development. These sprays caused some fruit injury and shoot die-back. The earlier and more concentrated the spray the more serious was the injury.

In the Davis trials during 1955 entire French prune trees were sprayed on May 5, 11, and 19. The tips of most of the pits had begun to harden by May 7. The entire pit was hard in most of the prunes by May 19. The trees were not uniform enough in size and amount of fruit set for the average yields of five trees to have much meaning. However, the yield data are helpful in interpreting the effects of 2,4,5-T on the size of these prunes.

All of the sprays increased the fresh weight of the prunes, from 8% to 23%. In all probability, the only cases where the yield may have greatly influenced the size of fruit were the two sprays applied on May 11. The 20 ppm probably would have appeared more effective in increasing fruit size if the trees had not been carrying such a heavy crop. On the other hand, the 40 ppm spray might have appeared less effective if the trees had had a heavier crop.

On the same dates that the entire trees were sprayed, other sets of trees were sprayed with 40 ppm 2,4,5-T so that half of a tree was sprayed and half unsprayed. When fruit from the sprayed half of each tree was compared to that of the unsprayed half, increases in size similar to that of the entire tree applications resulted. Increases of 19%, 13%, and 16% in the fresh weight followed the 40 ppm application to half trees on May 5, 11, and 19 respectively.

As far as increasing the size of prunes in this trial, there was little difference between the effectiveness of the two con-



French prunes injured by 50 ppm 2,4,5-T applied on May 1, 1954. Prunes on left show sunken discolored area along suture; the lower prune has exuded gum. On right, same fruit cut to show internal discoloration and gum.

centrations or the three dates of application.

This was not the case for the amount of injured fruit or the amount of fruit which dropped before harvest. The first two sprays, May 5 and 11, caused more fruit injury and fruit drop than did the

last spray on May 19. The 20 ppm spray was less toxic than the 40 ppm.

By the early part of June some of the fruit on the sprayed branches had begun to show injury. Dark purple sunken areas appeared on the tip half of the prunes, and the flesh was discolored beneath these areas, sometimes to the pit. Gum exuded from the more severely injured fruits. The number of injured fruits per 100 was counted on July 5. Most of the fruit that was injured early dropped before harvest and accounted for most of the preharvest drop of prunes. At harvest 9% to 15% of the sprayed fruit was cracked, gummy, or discolored. Even some of the sprayed fruit, 23%–33%, which appeared normal on the outside, had darkened areas in the flesh or along the pit suture. Less fruit from the trees sprayed on May 19 at 20 ppm was damaged than from the earlier or more concentrated sprays.

In addition to the trials at Davis in 1955, farm advisors and growers in several of the prune growing counties tested 2,4,5-T. These orchard trials gave quite varied results. The 2,4,5-T—20 ppm and 40 ppm—was applied at the start of pit hardening to three to six trees in each of 23 orchards. In only three out of the 17 trials where fruit size was measured at harvest was there a significant increase in fruit size. Few fruits or shoots were injured in any of these trials.

Fruit and shoots were seriously injured in two orchards that were sprayed

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The Effect of 2,4,5-T Sprays on the Weight, Drop, and Injury of French Prunes
Davis, 1955

Values are averages of five trees

Date	2,4,5-T application Conc. ppm	Yield		Fruit weight			Externally injured fruit		Internal but no external injury at harvest %
		lbs/tree	gms/fruit	Fresh Increase over unsprayed %	Dry* No/lb	Fruit drop before harvest %	July 5 %	at harvest %	
May 5	0	322	20.4	0	71	..	..	3	0
	20	348	23.7	16	62	13	18	9	26
	40	292	23.1	13	60	21	29	11	33
May 11	0	499	19.2	0	74	..	..	3	1
	20	550	20.8	8	78	16	8	14	23
	40	206	22.8	19	56	19	25	15	27
May 19	0	252	18.5	0	69	..	..	3	1
	20	235	22.8	23	55	5	2	3	12
	40	251	22.6	22	57	2	6	14	26
Least significant difference		5%	2.7	13	..	14	13	6	10
		1%	3.6	18	..	19	18	9	14

* Samples composited from five trees for dehydration. Data could not be analyzed statistically.

