II. Pome Fruits
d. Chemical control of codling moth
1. *Cydia pomonella* , apple

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APPLE, CODLING MOTH CONTROL TEST #2, 1991.   Different treatment schedules of Sevin were compared against the standard rate and timing of Guthion for its ability to control CM. The test was conducted in an orchard located at the Tree Fruit Research and Extension Center, Wenatchee. Trees used in this test were 17 years old non-spur Red and Golden Delicious. The orchard was irrigated by under-tree sprinklers on a 14 day schedule. The test design consisted of four single-tree replicates per treatment arranged in a randomized complete block design. Treatments were applied with a handgun sprayer at 300 psi to the point of drip, simulating a dilute spray of approximately 400 gallons per acre. In all cases the first treatment was applied at the beginning of the egg hatch period, May 28, (250 degree days [°D]) following first capture of moths in a pheromone trap. The number of sprays applied each CM generation varied and is shown in the table. After the first CM generation (July 16), 100 fruit from each replicate were examined and the amount damaged by CM recorded. At harvest (August 29), 200 fruit were picked from each replicate and examined for damage by CM and PLR. Codling moth damage was rated as a "sting" [an unsuccessful entry in the fruit denoted by a scar but no penetration] or a deep entry. Mites were sampled from June through July. Twenty-five leaves were collected from each tree and returned to the laboratory. Leaves were processed through a mite brushing machine and the number of each mite species counted with aid of a dissecting microscope.

Average CM damage in all treatments was significantly less than the untreated plot. Statistical differences shown in the table are the result of analysis of variance run on data for the chemical treatments only. After the first generation there was no difference in the amount of CM damage in any treatments. At harvest there was a definite relationship between the rate of Sevin and level of CM damage. Sevin applied at 12 times per season provided control the same as Guthion applied 4 times. A similar trend was evident in the data on PLR damage where the more frequent Sevin applications provided better control. Sevin applied 12 times per season reduced levels of the WPM resulting in an outbreak of spider mites (McD and ERM). This effect was less pronounced when Sevin was applied only 6 times per season and absent when applied only 4 times per season.

Table 1. Percent codling moth and pandemis leafroller injury following seasonal application of Sevin and Guthion.

Material & form., rate/acre	No. appl. per CM generation[2]	Fruit Injury[1]				
		Codling moth damage				
		first gen. % damage	Harvest sample			%PLR damage
			No.Stings	No. Deep	%Total	
Sevin 4F, 1 qt	6	0.3a	0.3a	0.0a	0.1a	1.1a
Sevin 4F, 1 qt	3	1.0a	0.8a	1.3a	1.0ab	5.0 b
Sevin 4F, 1 qt	2	0.8a	2.0 b	0.8a	2.4 b	3.5ab
Guthion 35WP, 3 lbs	2	0.0a	0.3a	0.0a	0.1a	0.9a
UNTREATED	0	12.0	5.3	32.3	19.5	6.8

[1] Means followed by the same letter not significantly different (p=0.10,Fisher's protected LSD).

[2] Application dates for Sevin applied 6 times per generation: May 28; June 4, 10, 17, 26; July 1, 22, 29; August 5, 12, 19, 26. Application dates for Sevin applied 3 times per generation: May 28, June 10, 26; July 22, August 5, 19. Application dates for Sevin and Guthion applied 2 times per generation: May 28, June 17, July 22 and August 12.

Table 2. Mite levels in plots following seasonal application of Sevin and Guthion.

Material & form., rate/acre	Mites per leaf											
	7/10/91				8/14/91				9/17/91			
	McD	ERM	ARM	WPM	McD	ERM	ARM	WPM	McD	ERM	ARM	WPM
Sevin 4F, 1 qt	0	0	6a	0.0a	2.7b	0.4bc	1	0.2a	11.4b	2.4c	1	0.5a
Sevin 4F, 1 qt	0	0	11ab	0.0a	3.2b	0.6c	4	0.1a	2.6a	1.0b	5	0.4a
Sevin 4F, 1 qt	0	0	49cd	0.0a	0.5a	0.1ab	3	0.2a	0.3a	0.4ab	11	1.5b
Guthion 35WP, 3 lbs	0	0	29abc	0.1ab	0.0a	0.1ab	6	0.8ab	0.0a	0.1a	6	0.5a
UNTREATED	0	0	18ab	0.6c	0.0a	0.3abc	2	1.7b	0.0a	0.1a	3	1.7b

[1] Means in columns without letters or followed by the same letter within a column were not significantly different (p=0.05, Student-Newman-Kules).