

II. Pome Fruits

d. Chemical control

Pear psylla (PP); Cacopsylla pyricola (Foerster)

Pear rust mite (PRM); Epitrimerus pyri (Nalepa)

Grape Mealybug (GMB); Pseudococcus maritimus (Ehrhorn)

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PEAR, INSECTICIDE EVALUATIONS, 1993: Mature 'Bartlett' pear trees were sprayed with handguns operating at 600 psi to evaluate pesticides for control of pear pests. Plots consisted of 5 single-tree replicates in randomized block design. All treatments except the Mitac formulations were applied three times during the post-bloom period, 13 May, 17 Jun and 16 Jul. Mitac formulation plots were sprayed on the first two dates, 13 May and 17 Jun. Treatments were evaluated for PP control by counts made at 2-wk intervals. Adult PP were counted from a 5 beating-tray sample per replication. PP nymphs were counted from a 25-leaf sample per replicate. Samples through 9 Jun consisted of fruiting spur leaves, those during the remainder of the season consisted of the proximal leaf, distal leaf and 3 leaves from the middle of 5 terminal shoots. Leaves were brushed and resulting slides were examined under 10 X magnification. Fruit damage by insects and mites was rated according to US grade standards for fresh market 'Bartlett' pears on 2 samples of 25 mature fruits per replication. Factors of fruit quality including firmness, soluble solids and size were evaluated from 2 10-fruit samples per replicate at normal harvest maturity. Fruit and foliage were examined for phytotoxicity after each spray.

PP populations in the test orchard were more dense than those normally encountered in commercial orchards because no prebloom treatments were applied. BAS 300 and Mitac CR 19073 counts of PP adults and nymphs were consistently as good as the standard treatment (Agri-Mek plus oil). Stalker has performed well against PP in past year's tests but by mistake I applied this material on 13 May and 17 Jun at a concentration much below that suggested by the developer, American Cyanamid Co. CGA 215944 and Mitac CR 16055 did not perform well in this test against PP. CM, SJS and spider mite densities were too low in the test orchard to adequately test effectiveness of the materials. GMB density was moderate and in this trial only Mitac CR 19073 provided good reductions in calyx infestation by this pest. Stalker, although applied at a low concentration, was the second most effective material against GMB. Although there were significant differences in means for fruit firmness and weight, these differences are probably not economically significant except for the low fruit weight in the check plot which reflects the season-long high density of PP.

Treatment	Rate							
	PP adults per 5 trays							
	Form./100 gal	18 May	1 Jun	14 Jun	30 Jun	12 Jul	26 Jul	9 Aug
Stalker 24.5% F	10 ml ¹	3.5cd	8.7cd	12.8cd	4.4bcd	8.9b	8.0ab	13.6cde
Sun Spray oil	2 qt							
Stalker 24.5% F	20 ml ²	2.9bcd	7.1bc	8.9abcd	4.2abc	7.7b	6.6ab	8.9abc
Sun Spray oil	2 qt	4.2d	10.9de	10.0bcd	7.2d	7.9b	8.1ab	18.2ef
CGA 215944 50% W	128 gr	1.6abc	3.7ab	8.0abc	1.6ab	3.0a	3.3a	11.4bcd
BAS 300	121 gr	1.2ab	2.6a	6.2ab	1.2a	1.6a	3.7a	4.5a
BAS 300	242 gr	3.3bcd	13.4e	13.1d	6.5cd	9.4b	15.6b	16.0def
Mitac CR 16055 50% W	24 oz	2.0abc	6.2abc	7.2ab	3.1ab	4.0a	8.9ab	10.0bc
Mitac CR 19073 50% W	24 oz	2.0abc	7.3bcd	6.8ab	3.2ab	3.0a	8.8ab	8.6abc
Mitac CR 19073 50% W	12 oz							
Agri-Mek .15 EC	5 oz	0.16a	3.0a	4.2a	1.9ab	2.8a	5.9ab	7.0ab
Sun Spray oil	1 qt	9.5e	38.8f	52.2e	26.0e	39.2c	68.3c	19.6f
Control no spray								

Means within columns followed by the same letter are not significantly different (P=0.05; Fisher's protected LSD).

Treatment	Rate							
	PP nymphs per 25 leaves							
	Form./100 gal	27 May	9 Jun	21 Jun	6 Jul	19 Jul	2 Aug	
Stalker 24.5% F	10 ml ¹	5.2ab	7.2b	5.6bc	24.0abc	6.0ab	2.4ab	
Sun Spray oil	2 qt							
Stalker 24.5% F	20 ml ²	5.2ab	2.4a	5.2abc	8.8ab	4.0ab	0.0a	
Sun Spray oil	2 qt	19.6c	11.2b	12.4de	29.6bc	14.8b	11.2b	
CGA 215944 50% W	128 gr	3.2ab	0.4a	0.8ab	0.0a	1.2a	0.0a	
BAS 300	121 gr	0.8a	0.0a	0.0a	0.8a	0.0a	0.4a	
BAS 300	242 gr	8.8b	10.4b	15.2e	51.2c	35.2c	26.4c	
Mitac CR 16055 50% W	24 oz	1.2a	2.4a	1.6ab	2.0ab	1.2a	2.4ab	
Mitac CR 19073 50% W	24 oz	3.6ab	2.0a	7.2cd	0.8a	1.6a	7.6ab	
Mitac CR 19073 50% W	12 oz							
Agri-Mek .15 EC	5 oz	0.4a	0.4a	0.8ab	2.0ab	0.0a	1.2a	
Sun Spray oil	1 qt	60.0d	30.0c	112.0f	264.4d	175.6d	29.2c	
Control no spray								

Means within columns followed by the same letter are not significantly different (P=0.05; Fisher's protected LSD).

¹The rate on 16 Jul was 150 ml/100 gal.

²The rate on 16 Jul was 300 ml/100 gal.

Treatment	Rate		Percent fruit damage from pests listed					Fruit Quality	
	Form./100 gal	PP US2	PP Cull	CM	SJS	PRM	GMB in calyx	Fruit firmness	Mean g/fruit
Stalker 24.5% F	10 ml ¹								
Sun Spray oil	2 qt	10.4b	2.8a	0.4ns	0.8ab	0.8a	13.2ab	17.7d	205def
Stalker 24.5% F	20 ml ²								
Sun Spray oil	2 qt	5.2ab	2.8a	0.4	0.8ab	0.4a	10.4ab	17.7d	192b
CGA 215944 50% W	128 gr	28.0c	4.0a	0.0	1.3ab	3.1b	22.4ab	17.7d	199bcd
BAS 300	121 gr	2.8a	0.4a	0.4	0.4ab	0.0a	48.8cd	17.3ab	208ef
BAS 300	242 gr	6.0ab	3.2	0.0	0.8ab	0.0a	64.4d	17.6cd	210f
Mitac CR 16055 50% W	24 oz	18.4c	4.4a	0.6	2.0b	0.4a	69.2d	17.6cd	200cd
Mitac CR 19073 50% W	24 oz	0.4a	0.0a	0.0	0.0a	0.0a	1.2a	17.4bc	206def
Mitac CR 19073 50% W	12 oz	3.6a	0.4a	0.0	0.0a	4.4b	0.4a	17.2a	202cde
Agri-Mek .15 EC	5 oz								
Sun Spray oil	1 qt	0.0a	0.0a	0.0	0.4ab	0.0a	21.6a	17.3ab	197bc
Control no spray		37.0d	37.2b	0.4	2.0b	3.2b	30.8bc	17.9e	165a

Means within columns followed by the same letter are not significantly different ($P = 0.05$; Fisher's protected LSD).

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²The rate on 16 Jul was 300 ml/100 gal.