

OSU

Current Report

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1980 APPLE, PEAR INSECT AND DISEASE CONTROL

O. Norman Nesheim
Pesticide Coordinator

Ken Conway
Extension Plant Pathologist

Stanley Coppock
Extension Entomologist

Glenn Taylor
Extension Horticulturist

COMMERCIAL GROWERS: In the following tables the quantity of materials to mix to apply to apples and pears is based on a 400 gal/A rate which is the amount of spray volume needed to cover one acre of well pruned, standard size trees. To determine the gallonage to use, fill your spray tank completely with water and spray one acre of your trees, then determine how much water was used from your tank. Add the amount of chemical listed below in rate/acre column to that amount of water. For instance, if you use 200 gallons of water to cover your one acre, you would use the rate of chemical/acre listed in the tables added to 200 gallons of water or double the amount listed in the rate/100 gal column.

HOMEOWNERS: To determine the amount of spray

necessary to cover one tree you have two options. (1) Fill your spray container with water and determine the amount of spray needed to wet the leaves just to the point where the material is almost ready to drip off the leaves. Consult the amount of chemical per gallon column in the table and add that amount to each gallon of spray used. (2) Consult Table 2 at the end of this report which will give you an approximation of the amount of spray necessary to cover an average sized tree based on its height and spread. Add the amount of chemical listed to each gallon needed. For instance, if the rate is 1 tablespoon (tbs)/gal and you only need 2 gallons of spray to cover the tree, you would add 2 tbs to your sprayer to treat that one tree.

APPLE

REVISED: January 1980

APPLICATION AND TIMING	PESTS INVOLVED	MATERIAL ¹	AMOUNT OF MATERIALS NEEDED		
			Per Acre	Per 100 Gal.	Per Gal
DORMANT: Apply when trees are dormant and temperature is above 40°F.	San Jose Scale Forbes Scale	Dormant Spray Oil ²	8 gal	2 gal	5 tbs
DELAYED DORMANT: When buds first show pink.	Scab	Bordeaux Mixture	-	8 - 8 - 100	-
PREPINK: When flower buds first show pink.	Scab	Benlate 50W ⁵ + Manzate 200 80W <i>or</i> Benlate 50W + Captan 50WP <i>or</i> Cyprex 65W <i>or</i> Orthocide 50W <i>or</i> Captan 50W ⁶	1/2 - 3/4 lb + 3 lb 1/2 - 1/4 lb + 3 - 4 lb 2 lb 8 lb 8 lb	2 - 3 oz + 3/4 lb 2 - 3 oz + 3/4 - 1 lb 1/2 lb 2 lb 2 lb	1/3 - 1/2 tsp + 2 1/4 tsp 1/3 - 1/2 tsp + 3/4 - 1 tbs 1/2 tbs 2 tbs 2 tbs
	Cankerworm Aphids	Malathion 57% EC	4 pt	1 pt	1 tsp
BLOOM STAGE: Apply when the first blossom opens. Repeat with two or more applications at 4 day intervals (Agri-Strep) or 2-3 day intervals (Dithane Z-78). To protect bees do not use insecticide during the bloom stage.	Fireblight	Agri-Strep (Streptomycin ⁷) Dithane Z-78	- 8 lb	50 - 100 ppm 2 lb	- 2 tbs

(Apple Cont'd)

APPLE

APPLICATION AND TIMING	PESTS INVOLVED	MATERIAL ¹	AMOUNT OF MATERIALS NEEDED		
			Per Acre	Per 100 Gal	Per Gal
PETAL FALL: When most of the petals have fallen. ⁴	Scab, Cedar Apple Rust, Quince Rust	Dikar 76.7% <i>or</i> Dithane M-45 80W Manzate 200 80W <i>or</i> Zineb 75W <i>or</i> Carbamate 76W	8 lb 8 lb 8 lb 4 - 6 lb 4 - 6 lb	2 lb 2 lb 2 lb 1 - 1 1/2 lb 1 - 1 1/2 lb	2 tbs 2 tbs 2 tbs 1 - 1 1/2 tbs 1 - 1 1/2 tbs
	Codling Moth, Curculio	Guthion 50W ³ <i>or</i> Imidan 50W	2 - 2 1/2 lb 4 - 6 lb	1/2 - 5/8 lb 1 - 1 1/2 lb	⁻³ 1 1/2 tbs
FIRST COVER: Two weeks after petal fall.	Scab, Cedar Apple Rust	Same as Petal Fall.			
	Blotch	Carbamate 76W <i>or</i> Dithane Z-78 78% <i>or</i> Thylate 65% <i>or</i>	4 - 6 lb 8 lb 6 lb	1 - 1 1/2 lb 2 lb 1 1/2 lb	1 - 1 1/2 tbs 2 tbs 1 1/2 tbs
	Codling Moth	Guthion 50W ³ <i>or</i> Imidan 50W	2 - 2 1/2 lb 4 - 6 lb	1/2 - 5/8 lb 1 - 1 1/2 lb	⁻³ 1 - 1 1/2 tbs
SECOND COVER: Ten days after first cover.	Blotch, Scab	Same as Petal Fall Spray above.			
	Bitter Rot	Captan 50W ⁶ <i>or</i> Orthocide 50W ⁶ <i>or</i> Phaltan 50W	8 lb 8 lb 4 - 5 lb	2 lb 2 lb 1 - 1 1/4 lb	2 tbs 2 tbs 1 - 1 1/4 tbs
	Codling Moth	Same as First Cover Sprays above.			
THIRD COVER: Ten days after Second Cover.	Blotch, Scab	Same as Petal Fall or Second Cover Sprays above.			
	Codling Moth	Guthion 50W ³ <i>or</i> Imidan 50W <i>or</i> Sevin 50W	2 - 2 1/2 lb 4 - 6 lb 4 lb	1/2 - 5/8 lb 1 - 1 1/2 lb 1 lb	⁻³ 1 - 1 1/2 tbs 1 tbs
FOURTH COVER: Ten days after Third Cover. About June 1.	Bitter Rot	Same as Second Cover Sprays.			
	Codling Moth	Same As Third Cover Sprays.			
	Mites	Kelthane 35W <i>or</i> Omite 30W ⁸	4 lb 6 lb	1 lb 1 1/2 lb	1 tbs 1 1/2 tbs
FIFTH AND LATER COVERS: At 10 day intervals until 2 weeks before harvest.	Codling Moth	Sevin 50W <i>or</i> Guthion 50W ³ <i>or</i> Imidan 50W	4 lb 2 - 2 1/2 lb 4 - 6 lb	1 lb 1/2 - 5/8 lb 1 - 1 1/2 lb	1 tbs ⁻³ 1 - 1 1/2 tbs
	Mites	Same as Fourth Cover			

1. Check Table 1 for date of last application prior to harvest and grazing restrictions.
2. Scale insects may not be a problem if trees were regularly sprayed in cover application with Guthion in the previous year.
3. Guthion is a very effective short life spray for apple insects. It is a highly toxic insecticide and should be used by the commercial grower only.
4. Sevin should not be applied until two weeks after petal Fall to avoid thinning of fruit.
5. Benlate has an adverse effect on Golden Delicious fruit finish and color. Reduce rate to 2 oz.
6. Early season application of Captan may injure Red Delicious and other sensitive varieties.
7. Fifty ppm - 1/4 lb of Agri-Strep/100 gallons of water.
8. Do not apply more than 3 applications per season.

PEAR

APPLICATION AND TIMING	PESTS INVOLVED	MATERIAL ¹	AMOUNT OF MATERIALS NEEDED		
			Per Acre	Per 100 Gal	Per Gal
DORMANT: Apply when trees are dormant and temperature is above 40°F and will remain above 40°F for 24 hours after application.	San Jose Scale Forbes Scale	Dormant Spray Oil ²	8 gal	2 gal	5 tbs

(Pear Cont'd)

PEAR

APPLICATION AND TIMING	PESTS INVOLVED	MATERIAL ¹	AMOUNT OF MATERIALS NEEDED		
			Per Acre	Per 100 Gal	Per Gal
DELAYED DORMANT: When buds first show pink.	Scab Fireblight	Bordeaux mixture	-	8 - 8 - 100	-
PREPINK: When flower buds first show pink.	Scab	Benlate 50W <i>or</i>	1 - 1 1/2 lb	4 - 6 oz	3/4 - 1 1/4 tsp
		Captan 50W <i>or</i>	8 lb	2 lb	2 tbs
		Carbamate 76 <i>or</i>	4 - 6 lb	1 - 1 1/2 lb	1 - 1 1/2 tbs
		Orthocide 50W <i>or</i>	8 lb	2 lb	2 tbs
		Manzate 200 80W <i>or</i>	4 - 8 lb	1 - 2 lb	1 - 2 tbs
		Cankerworm Aphids	Malathion 57% EC	4 pt	1 pt
BLOOM STAGE: Apply when first blossom opens. Repeat with two more applications at 4 day (Agri-Strep), 2-3 day (Dithane Z-78), or 5 day intervals (Kocide 101). Do not use insecticides during bloom stage.	Fireblight	Agri-Strep (Streptomycin) <i>or</i>	-	50 - 100 ppm ⁵	-
		Kocide 101 <i>or</i> Dithane Z-78	1 lb 8 lb	0.25 lb 2 lb	1/4 tbs 2 tbs
PETAL FALL: When most of the petals have fallen. ⁴	Scab	Same as Prepink Spray above.			
	Codling Moth Curculio	Guthion 50W ³ <i>or</i> Imidan 50W	2 - 2 1/2 lb 4 - 6 lb	1/2 - 5/8 lb 1 - 1 1/2 lb	- ³ 1 - 1 1/2 tbs
FIRST COVER: Two weeks after petal fall.	Scab	Same as Prepink Spray above.			
	Codling Moth	Sevin 50W <i>or</i> Guthion 50W ³ <i>or</i>	4 lb 2 - 2 1/2 lb	1 lb 1/2 - 5/8 lb	1 tbs ₃ - ³
SECOND COVER: Ten days after first cover.	Scab	Same as Prepink Spray above.			
	Codling Moth	Same as First Cover Spray above.			
THIRD COVER: Ten days after second cover.	Scab	Same as Prepink Spray above.			
	Codling Moth Leafhoppers	Same as First Cover Spray above.			
FOURTH COVER: Ten days after third cover - about June 1.	Bitter Rot	Manzate 200	4 - 8 lb	1 - 2 lb	1 - 2 tbs
	Codling Moth	Same as First Cover Sprays above.			
	Mites	Kelthane 35W <i>or</i> Guthion 50W ³	4 lb 2 - 2 1/2 lb	1 lb 1/2 - 5/8 lb	1 tbs ₃ - ³
FIFTH AND LATER COVERS: At 10 day intervals until 2 weeks before harvest.	Codling Moth	Sevin 50W <i>or</i> Imidan 50W	4 lb 4 - 6 lb	1 lb 1 - 1 1/2 lb	1 tbs 1 - 1 1/2 tbs
	Mites	Kelthane 35W <i>or</i> Guthion 50W ³	4 lb 2 - 2 1/2 lb	1 lb 1/2 - 5/8 lb	1 tbs ₃ - ³

1. Check Table 1 for date of last application prior to harvest and grazing restrictions.
2. Scale Insects may not be a problem if trees were regularly sprayed in cover applications with Guthion in the previous years.
3. Guthion is a very effective short life spray for pear insects. It is a highly toxic insecticide and should be used by the commercial grower only.
4. Sevin should not be applied until two weeks after petal fall to avoid thinning fruit.
5. Fifty ppm - 1/4 lb of Agri-Strep/100 gallons of water.

MITES. The most important mites of this region are red mites and two-spotted mites. Red mites pass the winter as somewhat spherical eggs of a bright red to orange color on twigs and smaller branches of the tree. Two-spotted mites generally overwinter as orange, hibernating females in protected locations

of cover crops or other debris. They then migrate to the foliage of the trees in the spring and summer. Mites overwintering on the tree may be controlled by delayed dormant oil sprays. In the event control is not satisfactory, one should rotate between Kelthane, Omite, Morocide, or Guthion sprays.

WOOLY APPLE APHID. The winter is spent as eggs and young nymphs on elm trees. After 2 spring generations on elm, they migrate to apples, usually in late June or early July. Several generations are produced on apples during the remainder of the summer. These aphids are purplish and characteristically covered with a white, waxy secretion. Their presence can be detected by visual observations of the scaffold limbs. They are usually found where there are wounds from pruning or at the base of water sprouts. Apply sprays if populations build. Chemicals, such as Guthion, applied to control other aphids usually suppress populations of this pest as well.

POWDERY MILDEW. Use Benlate 50W 4-6 oz in 100 gallons of water at green tip and repeat at 7-14 day intervals or as needed. Karathane LC 4-6 oz in 100 gallons of water applied full coverage spray. Begin application at delayed dormant to prepink stage, 7-14 day interval until mildew activity is completed. Follow label instructions.

BITTER ROT: Use Captan 50W at manufacturer's recommended rates, beginning with second spray and continuing in later sprays.

BLOTCH: Either Carbamate, Thylate or Dithane Z-78 are very effective in controlling blotch. Blotch is more serious when weather is warm and humid during April and May. It is important to follow the schedule completely for control. Blotch may cause serious injury to leaves, twigs, buds, branches, and fruits. Twig and branch infections appear at leaf nodes or at the base of spurs as dark purple spots which continue to enlarge with growth of the branch until complete girdling has occurred. On the fruit, infected areas appear brownish to black with small black spots scattered over them. The margins of the spots are feathery or very irregular and may cover large areas of the fruit.

CEDAR APPLE RUST OR QUINCE RUST: Dikar, Dithane M-45, or Manzate 200 must be applied in the petal fall and first cover for control. (See OSU Fact Sheet No. 7611), Cedar Apple Rust.

TABLE 1 - LIMITATIONS

CHEMICALS	NO. OF DAYS BEFORE HARVEST	GRAZING RESTRICTIONS	TREE
Benlate, Dikar, Dithane M-45, Manzate 200	30	No Grazing	Apple
Benlate	0	No Grazing	Pear
Captan	0	No Restriction	Apple and Pear
Dithane Z-78	30	No Restriction	Apple
Dithane Z-78	7	No Restriction	Pears
Carbamate, Kelthane, Guthion*, Imidan	7	No Restriction	Apple and Pear
Cyprex 75, Omite	7	No Grazing	Apple
Malathion	3	No Restriction	Apple
Malathion	1	No Restriction	Pear
Manzate 200	15	No Grazing	Pear
Sevin	1	No Restriction	Apple and Pear
Streptomycin	50	No Restriction	Apple
Streptomycin	30	No Restriction	Pear
Thylate	0	No Restriction	Apple
Zineb	30	No Restriction	Apple

*See Label for other limitations.

TABLE 2

HOMEOWNER CHART FOR APPROXIMATE AMOUNT OF SPRAY
TO ADEQUATELY COVER FRUIT TREES

HEIGHT IN FEET	SPREAD IN FEET	GALLONS PER APPLICATION
5 - 8	3 - 6	0.5 - 1.0
8 - 10	4 - 8	1.0 - 2.0
10 - 15	8 - 15	4.0 - 6.0
15 - 20	15 - 25	8.0 - 10.0

Either the height or the spread of the tree may be used to determine the amount of spray material to be used. These amounts are for newly full leaf,

less spray is needed for the dormant spray when no leaves are on the tree.