

1968 Suggestions for

SPRAYING COMMERCIAL *Apple Orchards*

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# DORMANT SPRAY

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Insects</u> Scale Rosy Aphids and Red Mite Suppression	DN 289 (Elgetol 318) (Chemox 289)	3 quarts	Where scale populations are heavy a dormant spray is advisable. Regular summer sprays of GUTHION, DIAZINON or CARBARYL are usually adequate to prevent development of a scale problem. A dormant or pink spray is essential where rosy aphids are a problem. DN 289 should be used as a dormant spray only. Freezing weather after application does not result in injury.

<u>Fireblight</u>	BORDEAUX  OR 50% FIXED COPPER	4-4-100  2 lbs.	Apply at green tip stage.
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# PRE-BLOOM SPRAYS

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>PRE-PINK</u>  Diseases	Preferred: DITHANE M45  Alternates: CAPTAN 50W plus ZINEB 75W	1½ lbs.  1 lb. 1 lb.	

Specials:

SULFUR

microfine wettable

4 lbs.

Use where mildew is a problem. See discussion on mildew.

DODINE 65W

$\frac{1}{4}$  lb.

Use where scab is a problem.

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Insects

Red Mites

Preferred:

MORESTAN 25W

$\frac{1}{2}$  lb.

Do not apply Morestan during periods of slow drying or later than pre-pink.

Alternates:

DEMETON 26 EC

$\frac{1}{2}$  to  $\frac{3}{4}$  pint

For aphid and mite control.

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Fireblight

STREPTOMYCIN

100 ppm

Apply in tight cluster stage (tinge of pink). See special discussion on Fireblight. Apply at night if possible.

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PINK

Diseases

Same as for PRE-PINK

With early season extended cool weather which retards bud development or where mildew was present last year, an additional fungicide spray should be applied between PRE-PINK and PINK.

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Insects

Preferred:

GUTHION 25W

$1\frac{1}{4}$  lbs.

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Fireblight

STREPTOMYCIN

100 ppm

Apply just before any blossoms open. See special discussion on Fireblight. Apply at night if possible.

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# BLOSSOM SPRAYS

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Diseases</u>	Preferred: DITHANE M45	1 lb.	Repeat sprays as necessary to maintain 7 to 8 day interval between applications. Avoid spraying during a period of 3 to 4 days at full bloom.
	Alternates: SULFUR microfine wettable plus ZINEB 75W	3-4 lbs. 1 lb.	
<u>Insects</u>	<u>N O N E</u>		Do not use insecticides in blossom sprays.
<u>Fireblight</u>	STREPTOMYCIN	100 ppm	Apply 7 days after last STREPTOMYCIN spray. See special discussion on Fireblight. Apply at night if possible.

# PETAL-FALL SPRAY

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Diseases</u>	Preferred: DITHANE M45	1½ lbs.	Use KARATHANE where mildew is a problem. See discussion on Mildew.
	Alternates: CAPTAN 50W plus ZINEB 75W	1 lb. 1 lb.	
	Specials: KARATHANE 25W	½ lb.	
<u>Insects</u>	Preferred: DIELDRIN 50W	½ lb.	Special for Curculio
<u>Fireblight</u>	STREPTOMYCIN	100 ppm	Apply 7 days after last STREPTOMYCIN spray. See special discussion on Fireblight. Apply at night if possible.

# FIRST COVER SPRAY

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Diseases</u>	Preferred: DITHANE M45	1½ lbs.	
	Alternates: CAPTAN 50W plus ZINEB 75W	1 lb. 1 lb.	
	Specials: KARATHANE 25W	½ lb.	Use KARATHANE where mildew is a problem See discussion on Mildew.
<u>Insects</u>	Preferred: GUTHION 25W plus TETRADIFON*25W	1¼ lbs. 1 lb.	Use TETRADIFON only in first, third, and fifth cover sprays. *See special discussion on TETRADIFON.

## FRUIT THINNING SPRAYS

Fruit thinning sprays generally work best when applied separately from seasonal fungicides and insecticides. The separate treatment permits you to adjust to the amount of bloom on individual trees, giving heavy blooming trees thorough applications and light blooming trees less material or none.

Suggestions for thinning sprays may be found in MU Guide 6002, Chemical Thinning of Apples and Peaches for Commercial Growers, obtainable from your County Extension Center office or from the Mailing Room, 417 South Fifth St., University of Missouri-Columbia, Missouri 65201

## SECOND COVER SPRAY

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Insects</u>	Preferred: DIAZINON 50W	1 lb.	For codling moth and leaf roller control.
	Alternates: GUTHION 25W	1¼ lbs.	

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# SECOND COVER SPRAY (continued)

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Diseases</u>	Preferred: DITHANE M45	1½ lbs.	
	Alternates: CAPTAN 50W plus ZINEB 75W	1 lb. 1 lb.	

## TRANSITION PERIOD SPRAYS

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Insects</u>	Preferred: DIAZINON 50W plus TETRADIFON* 25W	1 lb. ½ lb.	* Use TETRADIFON only in third and fifth cover sprays, see special discussion on TETRADIFON.
	Alternates: GUTHION 25W plus TETRADIFON* 25W	1¼ lbs. ½ lb.	* Use TETRADIFON only in third and fifth cover sprays. See special discussion on TETRADIFON.
<u>Diseases</u>	Preferred: DITHANE M45	1½ lbs.	
	Alternates: CAPTAN 50W plus ZINEB 75 W	1 lb. 1 lb.	

# MID-SEASON SPRAYS

(EARLY AND MID-JULY)

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Insects</u>	Preferred:		
	DIAZINON 50W	1 lb.	
	or		
	GUTHION 25W	1½ lbs.	
	Specials:		
	KELTHANE 35W	1 lb.	Use when mites build up. Repeat in 5-7 days.
	or		
	CHLOROPROPYLATE 2E (Acaralate)	2 pints	Repeat in 10-14 days
<u>Diseases</u>	Preferred:		
	DITHANE M45	1½ lbs.	
	Alternates:		
	CAPTAN 50W	1 lb.	
	plus ZINEB 75W	1 lb.	

# LATE SEASON SPRAYS

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Insects</u>	Preferred:		
	DIAZINON 50W	1 lb.	Do not use within 14 days of harvest.
	or		
	GUTHION 25W	1½ lbs.	Do not use within 15 days of harvest.
	Alternate:		
	CARBARYL 50W	2 lbs.	May be used to within 1 day of harvest.
	Specials:		
	KELTHANE 35W	1 lb.	Use when mites build up. Repeat in 5 to 7 days. Do not use within 7 days of harvest.
	or		
	CHLOROPROPYLATE 2E (Acaralate)	2 pints	Use when mites build up. Repeat in 10 to 14 days if needed. Do not use within 14 days of harvest

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# LATE SEASON SPRAYS (continued)

SITUATION	MATERIALS TO USE	RATES PER 100 GALS.	SPECIAL INSTRUCTIONS
<u>Diseases</u>	Preferred: DITHANE M45	1½ lbs.	Do not use within 15 days of harvest.
	Alternates: CAPTAN 50W plus ZINEB 75W	1 lb. 1 lb.	No time limitations. No time limitations.
<u>Fireblight</u>	COPPER SULFATE (no lime) or 50% FIXED COPPER	2 lbs. 2 lbs.	This is a reminder to apply COPPER for Fireblight prevention. Apply post-harvest but before leaf fall. Usually around October 15 to 25.

## SPECIAL COMMENTS

Fireblight: It is strongly suggested that Streptomycin be applied alone. Laboratory results indicate the absorption of the antibiotic by the leaves is significantly reduced when applied in combination with other materials.

Recent research indicates greater absorption of the antibiotic when it is applied at night.

Mildew: Mildew is primarily a problem on Jonathans. Since the introduction of the organic fungicides, mildew can become a problem in Missouri. It is suggested that you watch the mildew problem closely on Jonathans and when an outbreak is apparent, switch to SULFUR in Pre-Bloom and Blossom sprays and KARATHANE in Petal Fall and First Cover sprays. To control mildew once it is established, it is very important to spray the tops of the trees and use a good wetting agent such as TRITON B1956.

TETRADIFON (Tedion): This miticide is most effective when applied ahead of or during hatching of mite eggs. It is relatively free of hazard to the operator.

Apply 1 lb. per 100 gallons at first cover. Make two additional applications using ½ lb. in 100 gals. of water at third and fifth covers. Do not use TETRADIFON later than in the fifth cover spray. Pomace must not be fed to livestock.

If TETRADIFON is used other than as suggested in this spray schedule, or if oil sprays have been used in the dormant spray, consult the label for special directions.

## RESIDUE TOLERANCES

The statutes of Public Law 518, commonly known as the Miller Amendment to the Federal Food, Drug and Cosmetic Act, provide for tolerances on the amount of chemical residue that may be on fruit at harvest. It is the duty of the Food and Drug Administration to see that the tolerances are not exceeded and to bring civil action where evidence of violation is strong enough to warrant it. It is the responsibility of the grower to use chemicals in such a way that excessive residues will not be on the crop at harvest time.

In an effort to help the grower discharge this responsibility, a table of tolerances is given for chemicals suggested in this circular with a listing of approved intervals of time between the last application of each chemical and harvest. In any instance where the intervals are less than those given by the manufacturer on the label of the pesticide container, the manufacturer's label must be followed. Always read the "Directions for Use" on the manufacturer's label before using the material.

## TOLERANCE AND INTERVAL CHART

Compound	Tolerance	Approved Interval (Days)
Bordeaux mixture	exempt	No time limitations
Captan	100 ppm	No time limitation
Carbaryl	10 ppm	1
Chloropropylate (Acaralate)	5 ppm	14
Demeton	0.75 ppm	21; not more than 3 applications per season
Diathane M45	10 ppm	15
Diazinon	0.75 ppm	14
Dieldrin	0.25 ppm	35
DN-289 (Elgetol 318) (Chemox-289)		Dormant only
Dodine	5 ppm	7
Dormant oils		Dormant only
Guthion	2 ppm	15
Karathane		21
Kelthane	5 ppm	7
Morestan		Pre-bloom only
Streptomycin		Do not apply after fruit is visible.
Sulfur	exempt	No time limitations
Tetradifon	5 ppm	Not more than 3 applications after petal fall
Zineb	7 ppm	No time limitations





