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G76-292 Home Fruit Spray Schedules (Revised May 1986)

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Baxendale, Frederick P.; Steinegger, Don; and Wysong, David, "G76-292 Home Fruit Spray Schedules (Revised May 1986)" (1976). *Historical Materials from University of Nebraska-Lincoln Extension*. 1677. <https://digitalcommons.unl.edu/extensionhist/1677>

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NebGuide

PUBLISHED BY COOPERATIVE EXTENSION SERVICE
INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
UNIVERSITY OF NEBRASKA - LINCOLN



G76-292
(Revised May 1986)

Home Fruit Spray Schedules

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Insects and diseases of home fruit plantings must be controlled to produce quality fruit. Home orchards must be sprayed several times during the growing season. Spraying only a few times will not produce acceptable results for most fruits.

Several all-purpose fruit tree sprays are available. These contain both insecticides and fungicides, and are suggested if only a few trees are to be protected. Effective and safe spray mixtures can be prepared at home at less cost than pre-mixed sprays.

Hose-end sprayers are available for use by home gardeners. They can be used to apply emulsifiable concentrates, but are not efficient for wettable powders. If hose-end sprayers are used, apply emulsifiable concentrates and wettable powders separately.

Knapsack or pressure tank sprayers can be used for both emulsifiable concentrates and wettable powders, or for combinations. Agitate the tanks during spraying so that materials do not separate.

Power sprayers are preferred as they will keep materials in suspension, and provide sufficient delivery rates to cover plants.

Sprays must be applied in a sufficient quantity of water to cover fruits and leaves. Do not expect effective results when sprays are not applied correctly or if their timing is incorrect. Apply them until the spray begins to drip off the leaves. It will require approximately 1 gallon of spray mixture for each 5 feet of tree height. Larger trees with full foliage may require slightly higher volumes.

Read the Label

Pesticide labels have complete directions for mixing and applying materials. Safety directions and waiting periods from last application to harvest are also on all labels.

None of the materials suggested in this guide are highly hazardous, but they must be handled carefully. **ALWAYS READ AND ADHERE TO THE LABEL DIRECTIONS.** For safety and efficiency, the 10 minutes required to read and understand the label may be the most important time you can spend in fruit pest control.

Table 1. Materials for insect and disease control.

	<i>Amount to use in 1 gallon of water</i>	<i>Amount to use in 10 gallons of water</i>
<i>Insecticides</i>		
A. Sevin (carbaryl) 50% WP	2 Tbs	1 1/3 cups
B. Diazinon 25% EC	2 tsp	6 1/2 Tbs
C. Methoxychlor 50% WP	2 Tbs	1 1/3 cups
D. Malathion 50% EC	2 tsp	6 1/2 Tbs
E. Imidan (phosmet) 50% WP	1 Tbs	2/3 cup
<i>Fungicides</i>		
F. Benlate (benomyl) 50% WP	1 Tbs	2/3 cup
G. Funginex (triforine) 1.6 EC	1/2 tsp	2 Tbs
H. Phaltan 50% WP	1 1/2 Tbs	1 cup
I. lime sulphur 26% L*	2/3 cup	6 1/4 cups
J. mancozeb 80% WP	1 Tbs	2/3 cup
K. streptomycin sulfate 21% S	1 tsp	10 tsp
L. zineb 75% WP	2 Tbs	1 1/4 cups

*Dormant spray rate.

Spray Schedules

Select one insecticide and one fungicide designated by letters for the spray mixture (*Table 1*). Some sprays need only one chemical.

APPLE AND PEAR

1. Dormant spray in March.....dormant oil
2. Pre-pink (flower buds in tight cluster)G *or L
3. Pink (flower buds separated in cluster)G *or L
4. Petal fall (when 90% of flower petals have fallen off)B or E + G* + F or L
5. First cover spray (one week after petal fall)B or E + G* or J or L
6. Second cover spray (two weeks after petal fall)B or E + G* or J or L
7. Third cover spray (10 to 14 days after second cover)B or E + G* or J or L
8. Fourth cover spray (10 days after third cover)B or E + G* or J or L
9. Fifth cover spray (10 days after fourth cover)B or E + G* or J or L
10. Sixth cover spray (10 days after fifth cover)B or E + G* or L
11. Remaining cover sprays every 10 days to September 1B or E + G* or L

*Not registered for use on pear. Do not exceed a total of 5 applications.

PEACH, APRICOT, PLUM, CHERRY

1. Dormant spray in March**I
2. Petal fall (when 90% of petals have fallen off)C or E + F or G
3. Shuck split (one week after petal fall spray).....C or E + F or G
4. First cover spray (10 to 14 days after shuck split spray)C or E + F or G
5. Second cover spray (10 to 14 days after first cover spray)C or E + G
6. Third cover spray (2 weeks after second cover spray)C or E + G
7. Fourth cover spray (2 weeks after third cover spray)C or E + G
8. Cover sprays at 2-week intervals to within 1 week of harvestC or E + G

**For apricots, use Bordeaux mixture 12.75% (4-4-50) as a dormant spray in March.

GRAPES

1. New shoots 4 to 8 inches longJ
(If powdery mildew is a problem, add benomyl)
2. New shoots 12 to 18 inches longB or D + L
3. First cover spray (immediately after bloom)B or D + L
4. Second cover spray (10 to 14 days after first cover spray).....B or D + L
5. Third cover spray (10 to 14 days after second cover spray).....B or D + L
6. Fourth cover spray (10 to 14 days after third cover spray)L

RASPBERRY

1. Dormant spray in MarchI
2. Leaf buds swellingL
3. New shoots 4 to 6 inches longB or D + L
4. New shoots 14 inches longB or D + L
5. After harvestL

CURRENT AND GOOSEBERRY

1. When first leaves are 1/2 to 1 inch in diameterL
2. Just after bloomC + L
3. Two weeks after bloomC + L
4. After harvestL

STRAWBERRIES

1. Before bloom when growth begins in springL
2. Before bloom (14 days after first spray)L
3. Bloom to harvestA + L or F
4. During harvest (only if leafrollers are severe or if weather is rainy)A + F
5. After harvest (spray immediately after harvest and repeat at 14 days intervals if leafrollers or leaf spots are severe)A + L or F

Specific Pests Not in Spray Schedules

Fireblight on Apples and Pears. Fireblight is a bacterial disease that is very difficult to prevent, but can be reduced by good sanitary practices and spraying properly with streptomycin (follow package directions).

Fireblight is more serious on Jonathan, Rome Beauty, Wealthy, Transparent and Indared apples and Bartlett, Clapp Favorite and Bosc pears. Other varieties are susceptible, but are generally not severely damaged.

Examine trees, especially susceptible varieties, once a week from blossoming time through July. If infected twigs are found, remove them by cutting infected portions off at least 6 inches below the visible infection. If removal is made with a knife or pruning shears, dip them in a solution of 1/2 cup household bleach in one gallon of water after each cut. Burn, bury or place diseased materials in refuse cans for burial in a sanitary landfill. For more information, see NebGuide G73-23, "Fire Blight of Apples and Pears."

Mites. Several kinds of mites attack fruit trees and small fruits. Diazinon has miticide activity, but if mites become a serious problem the specific mite killer Kelthane can be used at the rate of 1 1/2 teaspoons of the 18.5% EC or 1 1/3 tablespoons of 35% wettable powder to each gallon of water. Kelthane is registered for use on apples, pears, cherries, peaches, apricots, necta-

rines, grapes, strawberries, raspberries, plums and prunes. Since mites feed on the underside of leaves, it is *ESSENTIAL* that sprays be applied to the undersides or control will not be effective. Kelthane can be used to within 7 to 14 days of harvest for fruits ... *FOLLOW LABEL DIRECTIONS.*

Peach tree borers. Peach tree borers feed in the cambium layer of trunks at or just below the soil surface. They attack peaches, cherries, plums, and apricots.

Prevent infestations by spraying trunks of trees at soil line with Lorsban 4E, 2 tablespoons to 1 gallon of water; or Thiodan 25% EC, 2 tablespoons per 1 gallon of water; or Lindane 20% EC, 1 tablespoon to 1 gallon water. Apply in early July, about July 25, and August 15.

Established infestations can be removed by hand with a sharp knife. Paradichlorobenzene crystals applied in a ring around the trees, one inch from the trunk and covered with soil, will kill borers in the trunk. Apply these crystals the last week of September and remove any remaining three weeks later to prevent injury to trees. Use 1 tablespoon of paradichlorobenzene for trees 1 to 3 years old; 2 tablespoons for trees 4 to 5 years old; 3 tablespoons on trees 6 years old or older. Paradichlorobenzene is available from most department stores and supermarkets as moth crystals.

Table 2. Days before harvest after last application of insecticides or fungicides.

Where a dash (—) appears, there is no registration.

	Apples	Pears	Peaches	Plums	Raspberries	Gooseberries	Grapes	Strawberries	Apricots	Cherries
Sevin (carbaryl)	1	1	1	1	7	—	1	1	3	1
Diazinon	14	14	20	10	7	—	18	5	10	10
Methoxychlor	7	7	21	7	14	14	14	14	21	7
Malathion	3	1	7	3	1	3	3	3	7	3
Imidan (phosmet)	7	7	14	7	—	—	7	—	14	7
Benlate (benomyl)	0	0	0	0	3	—	7	0	0	0
Funginex (triforine)	0*	—	0	0	—	—	—	—	0	0
Phaltan	0	—	—	—	0	0	0	—	—	0
lime sulphur**	0	0	0**	—	0**	0**	—	—	—	—
mancozeb	30	15	—	—	—	—	66	—	—	—
streptomycin sulfate	50	30	—	—	—	—	—	—	—	—
zineb	30	7	30	—	14	14	7	7	30	7

*Do not apply after petal fall

**Applied as a dormant spray or refer to label.

Some Important Fruit Tree Insects in Nebraska

Apple maggots are the larval stage of a small fly. The damage is caused by maggots burrowing into the fruit, leaving brown "trails" that cause deterioration of the fruit. Adults emerge from pupae that overwinter in the soil in early to mid-June and may be active through July. Flies deposit eggs under the skin of apples. Egg laying punctures cause the fruit to have a "dimpled" appearance.

It is very important to have insecticide sprays on trees during the egg laying period to kill the flies because control is impossible after the eggs are deposited.

Checking for first adult activity can be done with special pheromone traps that can be purchased by commercial growers, or by using a red sphere about the size of an apple. Cover the sphere with a light coating of Tanglefoot and suspend it in apple trees the first of June. Flies are attracted to the red sphere and become trapped in the sticky substances. If Tanglefoot is not available, use a thin layer of petroleum jelly. Female flies are black, with four white crossbands on the abdomen, about 1/4 inch long. The wings are clear with black bands, and the wing span is about 3/8 inch. Five days after the first flies are trapped, use cover sprays every 7 to 10 days until August. For more information, see NebGuide G73-11, "Apple Maggot Control in Home Orchards."

Codling moth adults emerge from overwintering pupae in the spring about the time apples are in bloom. A second and partial third generation may overlap, and moths may be present throughout the growing season. Eggs are laid on the upper surface of leaves or on the fruit. After hatching in about 7 to 14 days, small larvae enter fruit, frequently at the flower end, and tunnel to the center feeding on pulp and seeds. After feeding, they chew an exit hole from which a sawdust-like frass extrudes.

To prevent codling moth damage, spray apple trees every 7 to 10 days from the time petals fall until 2 weeks before harvest. The spray schedule is important because moths are present most of the time from blooming until September. Thorough coverage of fruit is essential for successful control.

Cherry fruit fly adults are very similar to apple maggot flies in appearance. Adults emerge from overwintering pupae in the soil, probably in early to mid-June and are active until late July or early August. Eggs are inserted under the skin of cherries. The maggots feed for about 2 weeks, destroying the fruit, and then drop to the ground and enter the soil.

The red sphere used for apple maggot adult monitoring can also be used for cherry fruit flies. Place the spheres in trees in late May or early June. Start the spray schedule 5 days after the first fly has been trapped, and repeat every 7 to 10 days until 2 weeks before harvest. Like apple maggots, the fly adults must be killed as control after the eggs are deposited is impossible.

Spraying Tips

- An all-purpose spray mixture usually contains wettable powder formulations of malathion, methoxychlor, and a fungicide. Although safe and convenient, this mixture is not the most effective and economical choice. Purchasing the chemicals separately and using them when needed will provide better control at a lower cost.
- Only emulsifiable concentrate chemicals are satisfactory for use in hose-end sprayers. Apply wettable powders with power sprayers or compression type sprayers in which a suspension can be maintained by agitation.
- Spraying must be thorough enough that all of the foliage and fruit are completely wet.
- Never apply insecticides during bloom—honeybees and other pollinating insects are essential for fruit set.
- Sprays should be repeated if heavy rainfall occurs within 24 hours after spraying.
- Select a spray schedule and maintain it. A few applications could be wasted effort and money.
- Always read the labels and observe cautions.

File under: INSECTS & PESTS

E-4, Fruits & Vegetables

Revised May 1986, 10,000