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## Fungicide Spray Schedule for Home Garden Small Fruits

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Home grown strawberries, raspberries and grapes are a rewarding experience for the gardener as well as the consumer of the fresh fruits and jellies. If properly managed, these crops can be a source of enjoyment for years. To be successful, however, the home gardener must develop a sound integrated pest management (IPM) approach to controlling diseases and insect pests. If this isn't done, growing small fruits in the backyard garden can be a frustrating and disappointing experience. A good IPM program makes use of cultural, varietal and chemical means of preventing or reducing disease losses.

Some diseases can be controlled by cultural practices such as sanitation, rotation and by planting resistant varieties. With other diseases resistance or cultural measures may not be sufficient and the home gardener must resort to fungicide sprays. When used properly and timed appropriately, fungicides can effectively control diseases

without posing a threat to the environment, the applicator or the consumer. When you choose to use a fungicide or other pesticide, as the applicator you must accept responsibility for its proper use, storage and disposal. Fungicide sprays must be applied in a sufficient quantity of water to cover fruits and leaves. Apply the spray until the solution begins to drip off the leaves. Do not expect effective results when sprays are not properly timed or properly applied.

The most important component of your fungicide program is taking time to read the product label. These labels have complete directions for mixing and applying materials. Safety directions and waiting periods from last application to harvest are also on all labels.

*Table I* indicates which fungicides are listed for which disease of small garden fruits. *Table II* provides a recommended fungicide treatment schedule.

**Table I. Target diseases listed on labels of fungicides<sup>1,2,3</sup> for use on home garden small fruits.**

<i>Small Fruit/Disease</i>	<i>Bordeaux mixture</i>	<i>Captan</i>	<i>Liquid copper</i>	<i>Ferbam<sup>5</sup></i>	<i>Lime sulfur</i>	<i>Mancozeb<sup>4</sup></i>	<i>Maneb<sup>5</sup></i>	<i>Sulfur<sup>6</sup></i>	<i>Neem oil<sup>7</sup></i>
<b>Grapes</b>									
Anthracnose					X				
Black rot	X	X		X		X	X		X
Botrytis bunch rot		X				X			
Downy mildew (berries)		X	X			X			X
Eutypa dieback (Deadarm)						X			
Powdery mildew	X		X		X			X	X
Rust								X	
<b>Currants and Gooseberries</b>									
Powdery mildew					X			X	
<b>Raspberries and Blackberries</b>									
Anthracnose			X		X				
Cane blight			X		X				
Septoria leaf spot			X		X				
Powdery mildew					X			X	X
Rust			X		X				
<b>Strawberries</b>									
Botrytis rot (gray mold)		X							
Leaf scorch			X						
Leaf spot	X	X	X						
Powdery mildew								X	X

<sup>1</sup>Product guide of home garden small fruit fungicide trade names.

Bordeaux mixture: Acme Bordeaux Mixture, Dragon Bordeaux Mix

Captan: Acme Liquid Fruit Tree Spray, Dragon Captan Wettable

Liquid copper: Bonide Liquid Copper Fungicide, Dragon Copper Fungicide

Ferbam: Dragon Ferbam Wettable Fungicide

Lime sulfur: Acme Lime Sulfur Spray, Ortho Dormant Disease Control Lime Sulfur Spray, Earl May Lime Sulfur

Mancozeb: Bonide Mancozeb Flowable with Zinc, Green Light Broad Spectrum Mancozeb Fungicide

Maneb: Acme Maneb Tomato and Vegetable Fungicide, Earl May Tomato Blight Control

Neem oil: Green Light Powdery Mildew Killer

Sulfur: Bonide Sulfur Plant Fungicide, Dragon Wettable or Dusting Garden Sulfur

<sup>2</sup>The time limit between the last treatment and harvest will vary among the different fungicide products. Read the label before applying and observe the pre-harvest interval. Always wash fruits before eating or processing.

<sup>3</sup>Fungicides listed are intended for information purposes. No criticism is intended of products not listed, nor is endorsement by the University of Nebraska given to those listed. Read and follow all product label directions for mixing and application.

<sup>4</sup>Mancozeb products cannot be applied after fruit set or within 66 days before harvest.

<sup>5</sup>Maneb and Ferbam products have a seven-day waiting period between treatment and harvest.

<sup>6</sup>Do not apply sulfur products to Concord or other sulfur-sensitive grape varieties.

<sup>7</sup>Do not apply to stressed plants or to new transplants. Apply in early morning or evening.

**Table II. Spray schedule for diseases of home garden small fruits.**

<i>Time to spray</i>	<i>Fungicide<sup>1,2</sup></i>	<i>Notes</i>
<b>Grapes</b>		
Bud break	Sulfur	Do not apply to Concord or sulfur-sensitive grape varieties.
Green tip	Captan	
New growth 1 to 2 inches long	Mancozeb or Liquid copper	
New growth 4 to 6 inches long	Lime sulfur or Mancozeb or Liquid copper or Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
Pre-bloom just before blooms open	Bordeaux mixture or Maneb or Captan or Liquid copper or Sulfur <sup>†</sup> or Ferbam	<sup>†</sup> Use caution when weather is hot.
Post-bloom after petal fall	Bordeaux mixture or Maneb or Captan or Liquid copper or Sulfur <sup>†</sup> or Ferbam	<sup>†</sup> Use cautioned when weather is hot.
Cover spray as necessary, beginning 10 days after petal fall and continuing at 14-day intervals for three to four cover sprays.	Captan or Mancozeb <sup>‡</sup> or Liquid copper or Neem oil <sup>§</sup> or Sulfur <sup>†</sup> or Maneb <sup>¶</sup>	<sup>‡</sup> Up to fruit set only.  <sup>§</sup> Apply in early morning or evening.  <sup>†</sup> Use caution when weather is hot  <sup>¶</sup> Up to seven days before harvest.

**Table II. continued.**

<i>Time to spray</i>	<i>Fungicide</i> <sup>1,2</sup>	<i>Notes</i>
<b>Currants and Gooseberries</b>		
Pre-bloom just before blossoms open	Lime sulfur or Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
Post-bloom after petal fall	Lime sulfur or Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
Cover sprays during season, as necessary, to control powdery mildew	Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
<b>Raspberries and Blackberries</b>		
Bud break	Lime sulfur	
New growth 6 to 12 inches long	Lime sulfur or Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
Pre-bloom when flower buds show white	Liquid copper or Sulfur <sup>†</sup>	<sup>†</sup> Use caution when weather is hot.
Cover sprays every 10 to 14 days, as necessary, during growing season	Liquid copper or Neem oil <sup>§</sup>	<sup>§</sup> Apply in early morning or evening.
<b>Strawberries</b>		
When new growth starts	Bordeaux mixture or Captan or Liquid copper	
Pre-bloom when flower buds show white	Bordeaux mixture or Liquid copper or Captan	
Cover sprays every 10 to 14 days, as necessary, through growing season	Bordeaux mixture or Liquid copper or Neem oil <sup>§</sup> or Sulfur <sup>†</sup> or Captan	<sup>§</sup> Apply in early morning or evening.  <sup>†</sup> Use caution when weather is hot.
Post-harvest treatment immediately after harvest	Captan	

<sup>1</sup>The time limit between treatments will vary among the different fungicide products. Read the label before applying and observe the pre-harvest time interval between the last application and harvest. Always wash fruits before eating or processing.

<sup>2</sup>Fungicides listed are intended for information purposes. No criticism is intended of products not listed, nor is endorsement by the University of Nebraska given to those listed. Read and follow all product label directions for mixing and application.

**File under: PLANT DISEASES**

**D-2, Fruits**

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