COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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Simplified Backyard Apple Spray Guides

Beth Wilson, *Extension Horticulture Agent*
John Strang, *Extension Horticulturist*
Nicole Ward Gauthier, *Extension Plant Pathologist*
Ric Bessin, *Extension Entomologist*

Introduction

Apple production requires pest and disease management programs for quality fruit. Home orchards are no different. Homeowners, however, are generally more tolerant of aesthetic maladies or minor crop losses than commercial orchardists. Thus, homeowners may choose to limit numbers of insecticide and fungicide sprays.

Included in Table 1 is a sample low-input spray schedule for backyard apple production. Low-input spray regimes should be combined with cultural practices (such as proper site selection, pruning, and sanitation) for best results.

Disease resistant cultivars are the preferred method for reducing fungicide inputs. Homeowners who grow cultivars that are resistant to one or more common diseases (such as apple scab, cedar-apple rust, fire blight, and powdery mildew) may choose to follow the spray schedule for disease-resistant apples in Table 2. Resistant cultivars that are recommended for Kentucky hobbyists are listed in Table 3. Additional cultivar choices, as well as additional pest management information, can be found in the *Midwest Home Fruit Production Guide.*

A more detailed spray guide including options for organic growers, as well as pictures of apple growth stages, may be found in *Disease and Insect Control Programs for Homegrown Fruit in Kentucky (*ID-21).


cv. Priscilla

Additional Resources

- Disease and Insect Control Programs for Homegrown Fruit in Kentucky, Including Organic Alternatives, ID-21 (University of Kentucky)
http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf
- Entomology Insect and Pest ENTFacts (University of Kentucky)
http://www2.ca.uky.edu/entomology/dept/entfacts.asp
- Midwest Home Fruit Production Guide, B591 (Ohio State University) *5.7 MB file*
http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/HomeFruitB591.pdf
- Plant Pathology Extension Publications (University of Kentucky)
http://www2.ca.uky.edu/agcollege/plantpathology/extension/pubs.html

Table 1. Simplified low-spray schedule for backyard apple plantings.

Growth Stage[1]	Target Organism(s)	Pesticide(s)[2]	Comments
Dormant (before buds swell)	Fire blight	fixed copper	Label recommendations may vary; refer to individual label for specific application timing.
	Scale	dormant oil	Spray only if you have scale insect problems. If fixed copper is used, these two sprays may be combined.
Green tip to half-inch green	Fire blight	fixed copper	Use now if you did not use it as a dormant spray.
	Scale	dormant oil	Apply now if not used as a dormant spray.
	Scab	captan	Captan and oil cannot be combined. Captan should be applied at least 7 days after the copper and oil mixture.
		no insecticides	No insecticides needed at this point.
Pink (just before blooms open)	Cedar apple rust, Scab	captan	Apply every 10 to 14 days.
	Aphids, Tarnished plant bug, Stink bug	malathion	Spray only if insects are present.
Bloom	Cedar apple rust, Scab	captan + Immunox	Immunox is systemic and will not wash off.
	Fire blight	streptomycin	Optional for fire blight control (every 4 days for a total of no more than four sprays for maximum control). Recommended for large backyard orchards.
		no insecticides	Do not use insecticides during bloom.
After petals fall	Cedar apple rust, Scab, Fruit rots	captan + Immunox	
	Codling moth, Plum curculio	malathion	
Every 2 weeks after petal fall (cover sprays)[3]	Fruit rots	captan	
	Codling moth, Plum curculio cover sprays	malathion or Spinosad	For improved codling moth control; alternate malathion and spinosad every other spray.
	Mites	insecticidal soap	Spray only if mites are present.
	Sooty blotch, Fly speck	Topsin M	Thiophanate-methyl (Topsin M) may be added to tank mix for improved sooty blotch and fly speck control.
	Japanese beetles	Sevin	Spray only if insects are present.
	San Jose scale crawlers	horticultural oil	Avoid using Sevin or Captan within 14 days of an oil application.

[1] Refer to *Disease and Insect Control Programs for Homegrown Fruit in Kentucky,* ID-21, for pictures of apple growth stages.
[2] Insecticides and fungicides can be mixed in the same tank and sprayed together.
[3] Check pesticide labels for the Pre-Harvest Interval (PHI).

Table 2. Sample home orchard spray schedule for disease-resistant apples.

Growth Stage[1]	Target Organism(s)	Pesticide(s)[2]	Comments
Dormant (before buds swell)	Fire blight	fixed copper	Label recommendations may vary; refer to individual label for specific application timing.
	Scale	dormant oil	Spray only if you have scale insect problems. If fixed copper is used, these two sprays may be combined.
Green tip to half-inch green	Fire blight	fixed copper	Use now if not used as a dormant spray.
	Scale	dormant oil	Apply now if not used earlier. Fixed copper and dormant oil can be combined in one spray.
		no insecticides	No insecticides needed at this point.
Pink (just before blooms open)	Aphids, Tarnished plant bug, Stink bug	malathion	Spray only if insects are present.
Bloom	Cedar-apple rust	lime sulfur or Immunox	For varieties not resistant to cedar apple rust. Lime sulfur is the only option for organic growers; however, its efficacy is low.
	Fire blight	streptomycin	If varieties are not resistant to fire blight; apply ever 4 days for a total of no more than four sprays for maximum control.
		no insecticides	Do not use insecticides during bloom.
After petals fall	Codling moth, Plum curculio	malathion	
Every 2 weeks after petal fall (cover sprays)[3]	Fruit rots	captan	Captan has a 0 day PHI[3]; mix with insecticides.
	Sooty blotch, Fly speck	Topsin M	Add thiophanate-methyl (Topsin M) for improved sooty blotch and fly speck control.
	Codling moth, Plum curculio	malathion or Spinosad	Rotate these two insecticides.
	Mites	insecticidal soap	Only if mites are present (symptoms: leaves are silvering)
	Japanese beetles	Sevin	Apply only if insects are present.
	San Jose scale crawlers	horticultural oil	Avoid using Sevin or captan within 14 days of an oil application.

[1] Refer to *Disease and Insect Control Programs for Homegrown Fruit in Kentucky,* ID-21, for pictures of apple growth stages.
[2] Insecticides and fungicides can be mixed in the same tank and sprayed together.
[3] Check pesticide labels for the Pre-Harvest Interval (PHI).

Table 3. Disease-resistant apple cultivars.[1]

Variety	Resistance to:				Harvest
	Apple scab	Cedar-apple rust	Fire blight	Powdery mildew	
Pristine	VR	S	S	R	mid-July
Williams Pride	VR	S	MR	R	mid-July
Redfree[2]	VR	VR	S	S	early Aug
Dayton[2]	VR	R	MR	R	mid-Aug
Liberty[2]	VR	R[3]	R	R	late Aug
Jonafree[2]	VR	S	S	R	early Sept
Nova Easygro	VR	VR	R	S	early Sept
Pixie Crunch[2]	VR	—	—	—	early Sept
Spartan[2]	MR	R	MR	R	early Sept
CrimsonCrisp[2]	VR	MR	S	S	mid-Sept
Macfree	VR	VR[3]	MR	S	mid-Sept
Priscilla[2]	VR	VR[3]	VR	R	mid-Sept
Enterprise[2]	VR	VR[3]	MR	R	mid-Oct
GoldRush[2]	VR	S	MR	S	mid-Oct
Sundance[2]	VR	VR	VR	VR	mid-Oct
WineCrisp[2]	VR	MR	VR	MR	mid-Oct

Ratings
VR = very resistant, **R** = resistant, **MR** = moderately resistant, **S** = susceptible, **—** = insufficient information

[1] This information has been reprinted from the table of disease-resistant apples in the publication *Disease and Insect Control Programs for Homegrown Fruit in Kentucky,* ID-21. Additional resistant cultivars are listed in the *Midwest Home Fruit Production Guide*.
[2] Produces high-quality apples in Kentucky.
[3] Although these cultivars are resistant to cedar-apple rust, they are susceptible to cedar-quince rust.

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Photo by John Strang, University of Kentucky