

Introduction

Roses have been unfairly tainted with the stigma of being difficult to grow, in part because of their perceived susceptibility to certain pests. Roses deserve their title "Queen of Flowers", as no other flower has as long a blooming period with such a panoply of colors. Yes, there are a number of pests that try to deny that lofty title, but with a modest amount of care those pests can be kept at bay.

Pests can be divided into three categories: **fungi**, **insects** and **mites**. The Table lists some pesticides containing active ingredients recommended for control of certain pests. *Organic products are listed in italics*, and are preferred if they work in your garden, as they often do less damage to the environment.

Most of these products permit mixing a fungicide, insecticide and miticide together in the same spray solution if called for (read the label for exceptions, e.g. Aliette). Always follow label instructions for mixing amounts and wear protective covering when spraying. Always use fresh spray mixtures. Also be sure plants are well hydrated before spraying.

Fungal Diseases

The use of fungicides is normally required in the mid-Atlantic region for many rose varieties, particularly hybrid teas. This is not a serious drawback as fungicides as a class are less

damaging to the environment than insecticides. For those who prefer not to spray, there is an ever increasing number of disease resistant varieties being introduced each year (see brochure on Disease Resistant Roses).

Blackspot, is arguably the most prevalent fungus attacking roses in the mid-Atlantic region. It thrives in wet conditions causing lesions on leaves that appear as black sooty spots enlarging with feathery edges & eventually with yellow margins. Highly susceptible varieties can become defoliated quickly if not treated. Always remove and discard (throw in trash) infected leaves. Organic gardeners may find spraying with *sulfur* (*Lime Sulfur*, etc) bi-weekly, prevents occurrence (do not spray when temperature is >85° or on sunny days). Others find spraying with the contact fungicide mancozeb plus the systemic fungicide propiconazole (Infuse or Honor Guard) every 2 weeks more satisfactory.



Powdery Mildew has white thread-like tentacles that feed on the plant, twisting and distorting the leaf, eventually coating the surface white. It occurs mostly in spring and fall with warm dry days and cool humid nights, especially when there is a 25° to 30° variation between the daytime highs and nighttime lows.

Remove and discard infected leaves. Organic gardeners use *sulfur* bi-weekly. Others use propiconazole every 14 days, or for some varieties as often as every 7 days. In extreme cases spray with myclobutanil (Hoist) every 7 days.



Botrytis often occurs during excessively cool and damp weather. It causes balling and rotting of blooms which fail to fully open. In mild cases small reddish spots appear on the outer petals, while in severe cases blossoms fail to open and turn brown. Adequate air circulation and frequent sanitation are required to reduce the colonization of spores. Remove and discard infected blossoms. Spraying with thiophanate-methyl (Cleary's 3336) and mancozeb every 7 days is effective.



Downy mildew occurs in high moisture conditions. Often confused with black spot, but has purple to red or brown irregular spots with possible appearance of mycelium on under side; lesions often tend to have at least one side bounded by a leaf vein; can also infect canes; leaves drop readily. It can quickly defoliate a plant if left unchecked. Remove all infected leaves.



Organic gardeners may find spraying with *copper* (*Bonide Copper Fungicide*) prevents re-occurrence. Others prefer fosetyl-aluminum. Mancozeb offers some preventive control, so include this in your regular spray routine to prevent occurrence.

Insects

The decision to spray with insecticides should be made carefully, as some are indiscriminate killers of beneficial insects as well. Insecticides as a class are more damaging to good bugs than fungicides, and should be used sparingly. Many gardens have a good balance between good and bad bugs, requiring little use of insecticides. If insect damage becomes intolerable, first identify the insect, then carefully select an insecticide that is least harmful to the environment. Also, products containing imidacloprid (Merit) should be avoided where honey bees are present as it has been linked to the destruction of honey bee colonies. For each of the following insects, where several remedies are recommended, the first is the least harmful to the good bugs, and the last most harmful.

Aphids are small (1/8 inch) green soft-bodied insects that colonize in great numbers on new growth, primarily in the spring. Control by washing away with water is effective and preferred, next is *insecticidal soap* or *pyrethrin*.



Pesticide	Dos/Gal	Active Ingredient	Type	Pest
Honor Guard	1/2 tsp	propiconazole	systemic	blackspot, powdery mildew
Infuse	1 tbsp	propiconazole	systemic	blackspot, powdery mildew
Cleary's 3336	3/4 tsp	thiophanate-methyl	systemic	blackspot, botrytus, powdery mildew
Hoist (formerly Eagle)	1/2 tsp	myclobutanil	systemic	blackspot, powdery mildew
Aliette	1 tsp	fosetyl-aluminum	systemic	downy mildew
Dithane, Pentathlon, Mancozeb	1 tbsp	mancozeb	contact	blackspot, downy mildew, botrytis
Bonide Copper Fungicide, RTU	n/a	<i>copper</i>	contact	black spot, powdery mildew, downy mildew
Lime Sulfur Spray	1 tbsp	<i>sulfur</i>	contact	black spot, powdery mildew
Bonide Orchard Spray or Earthtone 3 in 1 Disease Control	10 tbsp	<i>sulfur, pyrethrin</i>	contact	blackspot, powdery mildew, aphids, cucumber beetle, rose slugs, mites
Immunox Plus	2 tbsp	myclobutanil, permethrin	systemic	blackspot, powdery mildew, aphids, rose slugs, thrips, spider mites
Neem Oil 70%	2 tbsp	<i>azadirachtin</i>	contact	aphids, rose slugs, curculios, (not black spot)
Safer Insecticidal Soap	5 tbsp	<i>potassium salts</i>	contact	aphids, scale, mites
Earthtone Insect Control	16 tbsp	<i>pyrethrin, canola oil</i>	contact	aphids, rose slugs, cucumber beetle, curculios
Bonide Pyrethrin	4 tbsp	<i>pyrethrin</i>	contact	aphids, cucumber beetle, rose slugs, mites
Monterey Garden Insect Spray	4 tbsp	<i>spinosad</i>	contact	thrips, rose slugs, whiteflies
Conserve	1/3 tsp	<i>spinosad</i>	contact	thrips, rose slugs, whiteflies
Bonide Eight Veg, Fruit & Flow	2 tbsp	permethrin	contact	aphids, rose slugs, thrips, spider mites
Merit	1/8 tsp	imidacloprid	systemic	aphids, rose slugs, thrips, curculios
Bayer Veg & Garden Insect Spray	1 tsp	cyfluthrin	contact	rose slugs, curculios, whiteflies, thrips
Orthene 97% WP	3/4 tsp	acephate	systemic	aphids, rose slugs, thrips
Bayer Complete Insect Killer	**	cyfluthrin, imidacloprid	contact	midge
Avid	1/4 tsp	abamectin	translaminar	spider mites (adults only)
TetraSan	1/3 tsp	etoxazole	translaminar	spider mites (eggs & nymphs)
Bayer 3 in 1 Insect, Disease & Mite Control	5 ¼ tsp	tebuconazole, tau-fluvalinate, imidacloprid	systemic	blackspot, powdery mildew, aphids, rose slugs, thrips, spider mites
** granular: 3 lbs/1000 sq ft (≈ 1 tbsp per rose) broadcast on ground around each rose				

PESTS & PESTICIDES

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Rose slugs are small (1/2 inch) green caterpillar-like insects. They are the larvae of the sawfly wasp, and feed on the undersides of leaves, creating a skeletonized leaf. Pick off by hand or water spray them off to the ground (once on the ground they are unable to crawl back to the plant). Spraying with *insecticidal soaps*, *spinosad* or *pyrethrin* is effective, as are permethrin or cyfluthrin. Soil drenches with imidacloprid will control sawfly larvae.



Midges are small (1/8 inch) flying insects whose larvae extract sap from emerging buds, causing them to wither and die without blooming. In severe cases the rose bush will appear healthy but with few or no flowers. To control, spread Bayer Complete Insect Killer granules over the ground around the rose bush early in the season. In severe cases also spray any new growth with imidacloprid, as aggressive treatment may be required to prevent spreading to other bushes.



Thrips (singular and plural) are very active tiny (2 mm) winged insects that hide inside blooms, sucking sap from petals, leaving brown spots and/or brown petal edges, and in severe cases unopened blooms. Spray the tender new growth with *spinosad* (*Conserve* or *Monterey Garden Insect Spray*) or *pyrethrin* as often as necessary to control, typically every 2 or 3 days.



Leaf cutting bees are important pollinators about the size of a honey bee. They carve neat circles from leaves to use as nesting materials. The damage is usually slight and tolerated by most rosarians.



Curculios, or Rose Weevils, are small (1/4 inch) red & black insects that feed on buds by drilling holes into the bud (hence sometimes called Rose Bud Borers) and sucking the juices. They lay their eggs in these holes and the larvae also feed on the bud. If any buds open there will be noticeable holes in the petals. Pick off by hand and drop in a soapy solution or spray with *pyola oil* (*pyrethrin* plus *canola oil*), *insecticidal soap*, *spinosad* or *neem oil*, taking care to spray upper and lower leaf surfaces. Next in toxicity are permethrin, acephate or cyfluthrin. Soil drenches of cyfluthrin or imidacloprid are very effective if applied early in the season before the adults emerge from pupa in the soil.



Cane borers are the larvae of Sawfly Wasp, Carpenter Bees and certain wasps. They bore holes into the pith of newly pruned stems where they lay their eggs. Applying carpenters glue to pruning cuts prevent entry.



Japanese Beetles emerge from the soil for about 6 weeks in the summer. They eat almost everything. They are best controlled by hand picking and drowning in a bowl of soapy water. Warning; effective insecticides (e.g., acephate) will also kill all your beneficial bugs.



Cucumber Beetles are small (1/4 inch) brown & yellow disease carrying bugs. They attack primarily blossoms but also leaves. Can introduce bacterial wilt and mosaic viruses, diseases which are fatal to roses. Control with a spray containing permethrin or, stepping up the ladder in toxicity, imidacloprid plus cyfluthrin.



Mites

Spider mites are members of the spider (arachnids) family. They are too small to be easily detected and colonize on the underside of leaves, often turning the foliage dull green or yellow before detection. They can be detected by gently tapping the lower leaves over a sheet of white paper, where they appear as black specks. A mite's life cycle is very short. Eggs can hatch in as little as 3 days at temperatures in the mid 80's and become sexually mature in 5 days.. They are easily controlled by a forced water spray to the undersides of leaves every 3 days for 9 days (3 times), to wash them off to the ground where they will die. Alternatively, spray with a miticide, e.g., Avid (kills adult mites but not eggs) and/or an ovicide, e.g., Tetra San (kills mite's eggs and sterilizes females). Spraying either of these, once or twice (spaced 21 days) in the spring as the temperatures rise into the 80's, should be sufficient, especially if preceded with water spraying. This should be sufficient to control the problem for the year.



Rose Rosette Disease is a serious virus carried by windborne mites infected primarily by *R. multiflora*. There is no cure! Dig up the entire bush and destroy immediately as this can be a host to infect other windborne mites to further spread the disease. Watch for branches that have a reddish witch's broom look with badly deformed leaves and blossoms, and numerous but soft thorns.

