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ROSE INSECTS & RELATED PESTS

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With their showy and often fragrant blooms, roses are easily one of the most popular flowering plants grown in South Carolina. Unfortunately, the numerous insects and related pests that attack them can make growing them "interesting", if not outright challenging. As with any plant, the first priority should be to provide the rose with the cultural conditions that it requires. A vigorously growing rose is much more likely to survive pest damage than a stressed plant. For more information on the cultural requirements of roses, see **HGIC 1172, *Growing Roses*** and **HGIC 1173, *Pruning Roses***. For information on diseases of roses, see **HGIC 2106, *Rose Diseases***.

When trying to control insects and related pests on roses, it is essential that the plants be thoroughly inspected on a regular basis. These inspections increase the likelihood that a pest infestation will be detected early, when pest numbers are low and control is easiest. In order to choose the best control method, it is necessary to correctly identify a pest first. Often, more than one control option is available for a pest. Whenever possible, physical control measures should be tried first. If a chemical control is necessary, the least toxic chemical should be used, being sure to apply it when a susceptible stage of the pest is present. When applying a pesticide, thorough coverage is important. Always be sure to read the pesticide label before purchasing. Apply all pesticides according to label instructions, following all precautions.

Aphids

Various species of aphids feed on roses, but the predominant species is the rose aphid (*Macrosiphum rosae*). Rose aphids are small (about ⅛ inch long). They are soft-bodied, pear-shaped, pink or green insects that are found in clusters on new growth of buds, leaves and stems.

Aphids feed on plant sap with their piercing-sucking mouthparts. A low population of aphids does little damage to a rose bush; however, aphids reproduce very rapidly and can quickly reach numbers that cause damage. Their feeding results in distorted growth. Heavy infestations can reduce the number and quality of blooms. As they feed, aphids excrete honeydew, a sugary substance that attracts ants and wasps. The honeydew supports the growth of unsightly, dark-colored sooty mold fungi on the leaves.

Rose aphid (*Macrosiphum rosae*) infestation on leaves of hybrid tea rose.
Anne W. Gideon, **www.insectimages.org**

Control: Aphids have several natural enemies, including parasitic wasps, ladybird beetles (ladybugs) and larvae, and green lacewing adults and larvae. Their natural enemies tend to keep

aphid populations under control except in cool weather. Ants are sometimes associated with aphid infestations and will protect them from their natural enemies. If ants are present, they should be controlled.

Aphids can be hosed off with a strong stream of water directed above and below the leaves. Spraying with water should be repeated frequently as needed, focusing in particular on new growth. Roses can also be sprayed with insecticidal soap to control aphids. Insecticidal soap must be sprayed onto the aphids to be effective. Repeat spray three times at 5 to 7 day intervals. Higher toxicity insecticides are available. However, it is important to note that aphids are very difficult to control because they multiply so rapidly. Leaving even one aphid alive can result in a large population very quickly. In addition, these insecticides kill the natural enemies of rose aphids.

If insecticides are deemed necessary, the following are available in homeowner size packaging. Sprays containing bifenthrin, cyfluthrin, horticultural oil, lambda cyhalothrin, malathion, neem oil, permethrin, or pyrethrin will control aphids. Soil drenches or granular applications of imidacloprid or dinotefuran will control aphids and last longer within the plant to prevent future infestations. See Table 1 for products containing these insecticides.

Beetles

A number of different beetle species feed on roses. Many of these beetles feed mainly on flower buds or open blossoms, but can feed on leaves. Since many beetles feed mainly at night, the gardener rarely sees them, only the damage that they cause.

Japanese beetles (*Popillia japonica*) feed during the day and are perhaps the most readily recognized of the beetle pests that feed on roses. An adult Japanese beetle is about ½ inch long and has a metallic green body and legs with coppery-brown wing covers. It can be distinguished from similar beetles by the tufts of white hair that are clearly visible at the end of its abdomen.

Japanese beetles (*Popillia japonica*) with characteristic damage of leaf skeletonization.
David Cappaert, Michigan State University, **www.insectimages.org**

The adults begin emerging from the soil in mid-May and are present through August. They can live from 30 to 45 days. They lay their eggs in the soil. Grubs hatch from the eggs and feed on grass roots. As the weather cools, the grubs move more deeply into the soil to overwinter (survive the winter). In the spring, the grubs migrate back up to the root zone and continue to feed. They pupate (change to adult form) in late April and May.

Japanese beetles have chewing mouthparts and feed on flowers, buds and leaves of roses (as well as numerous other plant species). Partial or entire flowers and buds may be eaten. Typically, flowers and buds that have been fed on have ragged edges and/or holes in the petals. Affected buds may fail to open. Rose leaves are typically skeletonized (only leaf veins remain) by the feeding. Leaves with tender veins may be eaten completely.

Control: Various non-chemical control options are available for Japanese beetles. They can be handpicked and destroyed by dropping into soapy water. When only a few plants are involved, fine netting, such as tulle fabric, can be placed over the bush or individual blossoms to exclude the beetles. Japanese beetle traps are available commercially, but should be used with caution. They can be effective at reducing adult populations, but they should be kept at least 50 feet from the plant(s) that you are trying

to protect. The traps have the potential to create more of a problem by attracting numerous beetles to the area. Also, traps must be emptied frequently as beetles are repelled by the smell of ammonia which is released by dead, rotting beetles.

Numbers of adults may also be reduced by using the product, Milky Spore, against the grubs in the lawn. This product contains a disease-causing bacterium (*Bacillus popilliae*) that specifically infects the grubs of Japanese beetles. It is applied to turf and once established, can be effective for 20 to 30 years. However, as the adults are strong fliers, they can fly in from nearby lawns and pastures.

It is important to keep in mind that rose blossoms openly quickly and are very attractive to Japanese beetles. These circumstances make it difficult to keep the blooms adequately covered with insecticide to protect them. Insecticides that are labeled for homeowner use include sprays containing bifenthrin, cyfluthrin, lambda cyhalothrin, neem oil, permethrin, or pyrethrin to control beetles. Soil drenches or granular applications of imidacloprid or dinotefuran, will control Japanese and other beetles and last longer within the plant to prevent future infestations. See Table 1 for specific products.

Mites

Mites are not insects but are more closely related to spiders with eight legs as adults instead of six. They are extremely small (about 1/50-inch long) and are somewhat difficult to see without a magnifying lens. One way to detect them is to hold a piece of white paper under a branch and then tap the branch sharply. Wipe your hand over the paper. If mites are present, red streaks will be seen.

Two-spotted spider mites (*Tetranychus urticae*) and southern red mites (*Oligonychus ilicis*) are pests on roses in South Carolina. Two-spotted spider mites are more of a problem during hot, dry weather and susceptibility increases when a rose is drought stressed. Southern red mites are more of a problem during cool weather in spring and fall, and their populations drop during summer.

Mites have piercing-sucking mouthparts. They suck plant sap, typically feeding on the lower surface of a leaf. Early damage is seen as yellow or white speckling on the leaf's upper surface. Fine webbing may be seen on the undersides of leaves. With severe infestations, leaves may develop a grayish green or bronze color, and webbing may cover both sides of leaves as well as branches. Severely infested leaves may drop prematurely. Webbing can collect dust, making the plant look dirty.

Spider mite (*Tetranychus urticae*) webbing and plant injury. Clemson University – USDA Cooperative Extension Slide Series

Control: Both beneficial insects, such as lacewings and lady beetles, and predatory mites prey on spider mites. Predatory mites are about the same size as spider mites but can be distinguished from spider mites by their long legs and the speed with which they move. Several species of predator mites are available commercially for use as biological control agents.

A strong spray of water is a non-chemical control option that removes eggs, larvae (six-legged immature stage), nymphs (eight-legged immature mites) and adult mites. Be sure to spray lower surfaces of leaves and repeat as needed. This method is most effective with light infestations as seen with early detection. An important advantage of this control method is that populations of natural enemies are not harmed.

Insecticidal soaps and horticultural oils are effective control options for spider mites, and are essentially nontoxic to humans, wildlife, and pets, and only minimally toxic to beneficial predators. When using

these products, good coverage is critical to ensure contact with the pest, and reapplication may be needed as determined by follow-up monitoring for the pest. Foliar injury from soaps and oils may occur on plants under drought stress. Water the plants well prior to spraying. Do not spray with soaps or oils if the temperature exceeds 85 degrees, and always spray in the evening to slow drying time of the soap or oil.

When growing roses, the use of broad-spectrum insecticides should be avoided as much as possible as these products can kill off natural enemies that help keep spider mite populations in check. Also, avoid pesticides that claim to "suppress" mites as they tend to be weak miticides. When stronger chemical control is needed, the following insecticides/miticides are available in homeowner size packaging: tau-fluvalinate or bifenthrin sprays. See Table 1 for examples of brands and products.

Thrips

Various thrips species feed on roses. Two of the most common are flower thrips (*Frankliniella tritici*) and western flower thrips (*F. occidentalis*).

Adult female thrips of both species are tiny, yellowish-brown insects with fringed or feathery wings. At less than $^{1}/_{16}$-inch long, they are barely visible without a magnifying glass. However, blowing lightly into the blooms and leaves causes thrips to move around, making them easier to see.

Both immature and adult thrips feed by scraping surface cells to suck plant sap. They feed on both leaves and flower petals with the majority of their damage to roses occurring from early to midsummer. Their feeding may result in distorted buds that open only partially or abort prematurely. Feeding on petals may result in petals streaked with silvery-white or brown as well as petals with browning edges. White and light-colored rose blossoms appear to be particularly attractive to thrips. Young leaves may be distorted and flecked with yellow as a result of thrips feeding.

Thrips (*Frankliniella sp.*) damage on roses.
Clemson University

Control: Control of thrips is difficult. Infested rose blossoms should be removed and destroyed. Grass and weeds in the area should be kept mowed or removed when possible. Insecticides are available but timing of sprays is very important. They must be applied before thrips enter unopened buds. In addition, because rose blooms expand rapidly, it is difficult to keep them adequately covered with insecticide. If it becomes absolutely essential to spray an insecticide, the following are available in homeowner size packaging: acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, permethrin, or spinosad. Insecticidal soaps will help control thrips, but thorough coverage is necessary. The soap spray must contact the pest to be effective, and may require three sprays at 5- to 7-day intervals. Soil drenches or granular applications of dinotefuran or imidacloprid will give thrips suppression. See Table 1 for examples of brands and products.

Rose Scale

Adult scale insects have an unusual appearance. They are generally small and immobile, with no visible legs. They secrete a waxy covering, making some appear white and cottony while others appear like white, yellow, brown or black crusty bumps. The waxy covering or "scale" protects adult scale insects from many insecticides. Their immature forms, called crawlers, are susceptible, however.

Adult rose scale (*Aulacaspis rosae*) on a rose cane.
U.S. National Collection of Scale Insects Photographs Archive, USDA ARS, **www.insectimages.org**

Several species of scale are pests of roses, but rose scale (*Aulacaspis rosae*) is one of the most serious. Female rose scales are round, gray to white and about $^{1}/_{16}$-inch long. Males are elongate, white and much smaller than females. These insects overwinter as eggs under the waxy covering of the mother.

Rose scales are usually found on rose canes where they feed on sap with their piercing-sucking mouthparts. With a heavy infestation, rose scale can cause cane decline or twig dieback.

Control: Various natural enemies, including ladybird beetles (ladybugs) and parasitic wasps, usually keep scale insects under control. With light infestations, scale can be scraped off by hand and destroyed. Pruning out and destroying heavily infested canes is helpful. Horticultural oil sprays (also called supreme, superior or summer oils) work well to control armored scales, such as the rose scale, by penetrating their waxy covers and smothering them. Horticultural oils applied at higher rates of 3% to 4% during the dormant season (i.e., to a rose bush that has lost its leaves) will penetrate the thick waxy covers of the overwintering adults. Applications at lower rates of 1% to 2% can be used during the spring to target the crawlers (immatures) and the newly settled scales with thin waxy covers. It is best to spray when temperatures are between 40 and 85 degrees.

Monitor the crawler emergence in the spring with sticky cards, double-faced tape wrapped around a branch, or by putting an infested shoot into a baggie and watching for crawler movement. The presence of crawlers can sometimes be determined by sharply tapping an infested twig on a piece of white paper. Crawlers are very small and will appear as moving specks of dust.

Avoid using insecticides as much as possible as they will often kill the naturally occurring enemies of scale. When insecticides are necessary, they should be applied only when the crawler stage is present. The following insecticidal sprays are effective against crawlers only: acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, malathion, or permethrin. Soil drenches of imidacloprid do not control these armored scales, but soil applications of dinotefuran will give good control.

Rose Leafhopper

Adult rose leafhoppers (*Edwardsiana rosae*) vary in color from white to gray to yellow to green. They are wedge-shaped and between ¼- to ½-inch long. When a plant is disturbed, they hop or fly away quickly.

The adult female deposits eggs within the bark of rose canes in the fall. Dark, purple, pimple-like spots on the bark indicate the presence of eggs. In the spring, the young nymphs (immature forms that resemble adults but are wingless) emerge from the cane. The wounds that remain in the bark as they emerge, as well as wounds made during egg-laying, can provide openings for stem canker-causing fungal pathogens to enter. Stem canker can result in plant death.

Nymphs and adult leafhoppers feed on the undersides of leaves, using their piercing-sucking mouthparts to suck plant sap. Their feeding causes white stippling (small dots) on the upper surface of the leaf. The stippling spots may merge, causing leaves to appear almost white. Damaged leaves may drop prematurely. Between feeding by the nymphs and adults, and egg laying by adult females, a severely infested rose bush may be killed.

Control: Natural enemies of rose leafhoppers include damsel bugs and assassin bugs. As such, broad spectrum insecticides that may kill these beneficial predators should be avoided. When an insecticide is necessary, be sure to spray lower leaf surfaces thoroughly. The following insecticidal sprays are effective against rose leafhoppers: acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, malathion, or permethrin. Soil drenches or granular applications of dinotefuran or imidacloprid will suppress leafhopper populations. See Table 1 for specific products.

Rose Slugs

Rose slugs are the larvae (immature forms) of sawflies, non-stinging members of the wasp family. Three species of sawflies, the roseslug (*Endelomyia aethiops*), bristly roseslug (*Cladius difformis*), and curled rose sawfly (*Allantus cinctus*), are pests of roses. The larvae of some sawfly species are hairy and often mistaken for caterpillars. Others appear wet and shiny, superficially resembling slugs. The larvae generally reach about ½-to ¾-inch in length.

Generally, rose slugs feed at night. Depending on the species, young rose slugs feed on the upper or lower surfaces of leaves between veins, leaving a 'window' of translucent tissue that turns brown. As some species of rose slugs get larger, they chew large holes or the entire leaf with only the midrib remaining. Regular inspection of roses is important because feeding typically progresses quickly and extensive leaf skeletonizing can occur if infestations are not noticed. In addition, with their coloring, they can be very difficult to spot on leaves.

Rose slug feeding on leaf surface.
John A. Weidhass, Virginia Tech, **www.insectimages.org**

Control: Rose slugs can be controlled by handpicking. They can also be removed by spraying with water. Once dislodged, they cannot climb back onto the plant. Insecticidal soap and horticultural oil are also effective against rose slugs. Other insecticidal sprays that are labeled for homeowner use include acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, permethrin, or spinosad. Sprays should thoroughly cover both upper and lower leaf surfaces. Soil drenches or granular applications of dinotefuran or imidacloprid will control sawfly larvae. *Bacillus thuringiensis* will only control true caterpillars and not the larvae of sawflies. See Table 1 for examples of brands and products.

Leafcutting Bees

Leafcutting bees (*Megachile* species) are similar in size to honeybees, but are a blackish or metallic purple or green color. The females cut out semi-circular sections of leaves, which they use to line their nests. The cut surface is very smooth as compared to the ragged edge that results with most leaf feeding insects.

Control: No control is recommended because the damage caused by leafcutting bees is minimal, and the bees are important as pollinators.

Caterpillars

Infrequently caterpillars (immature stage of moths and butterflies) will be found feeding on rose foliage. Damage will appear as holes or irregular-shaped areas of the leaf blade that have been eaten. Several caterpillars may feed upon rose foliage, including the corn earworm, eastern tent caterpillar, stinging rose caterpillar and puss caterpillar.

Control: Insecticidal sprays of *Bacillus thuringiensis*, acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, malathion, neem oil, permethrin, pyrethrin, or spinosad will control caterpillars. See Table 1 for examples of brands and products.

An unusually severe leaf cutting injury to wild rose by leafcutting bees (*Megachile sp*.).
Whitney Cranshaw, Colorado State University,
www.insectimages.org

Grasshoppers

Grasshoppers are general feeders that feed on the foliage of many kinds of plants.

Control: Keep weeds and grass near roses under control because these are the breeding sites for grasshoppers. Insecticidal sprays with acephate, bifenthrin, cyfluthrin, lambda cyhalothrin, malathion, permethrin or pyrethrin will control grasshoppers. See Table 1 for examples of brands and products.

Table 1. Insecticides for Rose Pest Control.

Pesticide Active Ingredient	Examples of Brands & Products
Acephate	Bonide Systemic Insect Control Concentrate
Bacillus thuringiensis (Bt)	Bonide Thuricide *Bt* Concentrate Garden Safe Bt Worm & Caterpillar Killer Concentrate Monterey *Bt* Natural Guard Caterpillar Killer Spray with *Bt* Conc. Safer Caterpillar Killer with *Bt* Concentrate Southern Ag Thuricide *Bt* Caterpillar Control Concentrate Tiger Brand Worm Killer Concentrate
Bifenthrin	Bifen I/T Concentrate Ferti-lome Broad Spectrum Insecticide Concentrate Hi-Yield Bug Blaster Bifenthrin 2.4 Concentrate Monterey Mite & Insect Control Concentrate Ortho Bug-B-Gon Insect Killer for Lawns & Gardens Conc.; & RTS[1] Talstar P Concentrate Up-Star Gold Insecticide Concentrate
Cyfluthrin	Bayer Advanced Vegetable & Garden Insect Spray Concentrate Bayer Advanced Rose & Flower Insect Killer RTU[2].
Dinotefuran	Gordon's Zylam Liquid Systemic Insecticide (drench) Gordon's Zylam 20 SG Systemic Insectcide (drench) Valent Brand Safari 2G Insecticide (2% granules) Valent Safari 20SG Insecticide (drench)
Horticultural Oil	Bonide All Seasons Spray Oil Concentrate Ferti-lome Horticultural Oil Spray Concentrate Monterey Horticultural Oil Concentrate Southern Ag ParaFine Horticultural Oil Summit Year Round Spray Oil Concentrate

Imidacloprid	Bayer Advanced Garden 12 Month Tree & Shrub Insect Control Conc. Bonide Annual Tree & Shrub Insect Control w/ Systemaxx Ferti-lome Tree & Shrub Systemic Insect Drench Hi-Yield Systemic Insect Spray Martin's Dominion Tree & Shrub Monterey Once A Year Insect Control II
Insecticidal Soap	Bonide Insecticidal Soap Concentrate Espoma Earth-tone Insecticidal Soap Concentrate Natural Guard Insecticidal Soap Concentrate Safer Brand Insect Killing Soap Concentrate Garden Safe Insecticidal Soap Insect Killer Concentrate
Lambda Cyhalothrin	Spectracide Triazicide Insect Killer – Lawns & Landscapes Conc.; &RTS[1] Martin's Cyonara Lawn & Garden Concentrate
Malathion	Spectracide Malathion Insect Spray Concentrate Southern Ag Malathion 50% EC Hi-Yield 55% Malathion Insect Spray Concentrate Ortho Max Malathion Insect Spray Concentrate Tiger Brand 50% Malathion Concentrate Gordon's Malathion 50% Spray Concentrate Bonide Malathion Insect Control 50% Concentrate Martin's Malathion 50% Concentrate
Neem Oil	Bonide Neem Oil Fungicide, Miticide, Insecticide Concentrate Ferti-lome Rose, Flower & Vegetable Spray Concentrate Garden Safe Fungicide 3 Concentrate Monterey 70% Neem Oil Concentrate Natural Guard Neem Concentrate Southern Ag Triple Action Neem Oil Concentrate
Permethrin	Bonide Eight Insect Control Vegetable, Fruit & Flower Concentrate Bonide Total Pest Control Outdoor Concentrate Hi-Yield Indoor/Outdoor Broad Use Insecticide Concentrate Bonide Eight Yard & Garden RTS[1] Tiger Brand Super 10 Concentrate Martin's Vegetable Plus Concentrate
Pyrethrin	Bonide Garden Insect Spray Concentrate Monterey Bug Buster-O Monterey Pyganic Gardening Southern Ag Natural Pyrethrin Concentrate
Spinosad	Southern Ag Conserve Naturalyte Insect Control Concentrate Bonide Colorado Potato Beetle Beater Concentrate Bonide Captain Jack's Dead Bug Brew Concentrate; & RTS[1] Dow Conserve SC Turf Ornamental Concentrate Ferti-lome Borer, Bagworm & Leafminer Spray Concentrate Monterey Garden Insect Spray Concentrate Natural Guard Landscape & Garden Insecticide RTS[1] Ortho Insect Killer Tree & Shrub Concentrate
Tau-Fluvalinate	Bayer Advanced 3-in-1 Insect, Disease & Mite Control Conc.; & RTU[2]

[1] RTS = Ready to Spray (hose-end applicator)

[2] RTU = Ready to Use (pre-mixed spray bottle)
Drench = Add to water and pour around base of plant

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