ENH1108

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IFAS Extension

Pests of Roses in Florida[1]

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Roses are one of the most popular flowering shrubs in Florida and in the United States. Valued for their beautiful and often fragrant blooms, roses have been cultivated in gardens for centuries, including as vines, shrubs, specimen plants, groundcovers and container plants. Roses can grow and flower nine months of the year in northern Florida and year-round in the rest of Florida.

Roses have become especially popular in recent years with the introduction of Knock Out® and other shrub roses. Unfortunately, however, more reports of pest problems have occurred as a result of increased use, as well as misuse of roses. Some examples of misuse include roses planted in the shade and roses planted too close to each other or too close to other landscape plants.

To minimize rose pests, follow these basic guidelines for rose selection and care.

- **Select pest-resistant varieties**. Many "antique" roses and some new roses are noted for disease resistance. Check with the "Solutions for Your Life" Web site (http://www.solutionsforyourlife.com/), your county's Extension office or your local rose society for more information on selecting roses.
- **Buy healthy plants**. Avoid plants with
  - spotted, discolored or distorted leaves;
  - discolored canes (stems);
  - discolored roots; or
  - swollen areas on stems or roots.
- **Plant roses in well drained soil amended with organic matter**, such as compost, manure, peat or other organic materials. Roses grown in improved soils have vigorous root systems that improve growth and pest resistance. For best performance, roses require at least six hours of direct sunlight each day.
- **Keep leaves dry to reduce diseases**. Avoid overhead or sprinkler irrigation and use drip- or micro-irrigation when watering roses. Plant roses far enough apart to allow air circulation. If possible, plant roses in areas receiving morning sun so to help evaporate overnight moisture from dew or rain.
- **Maintain good sanitation**. Remove all old leaves on the ground, as well as any mulch that has been contaminated with infected leaves. Cut out any canes showing cankers, discolorations or

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sunken areas. Destroy all infected stems, leaves and faded blooms. Add fresh mulch regularly to create a barrier between the rose and disease organisms that may be on the ground.

Following these basic guidelines will result in healthy plants that are more resistant to pests and other problems. More detailed information on rose culture can be found in EDIS Publication CIR344, Growing Roses in Florida, http://edis.ifas.ufl.edu/EP339, and at the Web site of the American Rose Society, http://www.ars.org.

Major Pests

The most severe rose pests in Florida are blackspot, a leaf disease, and nematodes, wormlike creatures that damage roots. Chillithrips, which damages leaves and buds, is a new insect pest emerging as a major threat.

Blackspot, *Marssonina rosae* or *Diplocarpon rosae*, is the most serious problem with roses in Florida. Blackspot is a fungus that causes obvious black spots on leaves (Figure 1). The spots are usually 1/8 - 1/4 inch in diameter and are surrounded by yellow rings on both sides of the leaves. New leaves are most susceptible. The unsightly spots reduce leaf function and weaken the plant. Spots may coalesce into blotches and eventually leaves turn yellow and drop.

Leaf shed typically begins on the lower parts of stems and gradually moves higher. Severe infection may defoliate the entire plant, reducing plant vigor and flowering.

Fungal spores are spread by splashing rain or irrigation. Blackspot is promoted by warm, wet weather and is common in summer. Control of the disease with fungicides is difficult, but frequent removal of dropped leaves and regular mulching can reduce disease occurrence. Some rose varieties are resistant to blackspot and can withstand infection although diseased leaves still may drop.

Nematodes -- or roundworms -- are microscopic, wormlike creatures (Figure 2). Most soil-dwelling nematodes are harmless, but some are serious pests of rose. The most common and serious nematode pest of rose is root knot nematode, *Meloidogyne hapla*.

Figure 1. Blackspot, *Marssonina rosae* or *Diplocarpon rosae*, is the most serious disease affecting roses in Florida. Credits: Hank Dankers

This nematode damages small rose roots by penetrating and sucking juices. The rose roots respond to this feeding damage by forming knots or small galls that limit further development of the root system. Damaged roots cannot absorb water and nutrients, and severely affected plants become stunted or weak, resembling plants suffering from low fertility or poor soil conditions. Root knot nematodes also can result in fewer flowers and a shorter plant lifespan. Inspection of root systems may reveal galls about 1/4-inch in diameter. Larger populations of nematodes are often found in warm, moist sandy soils.

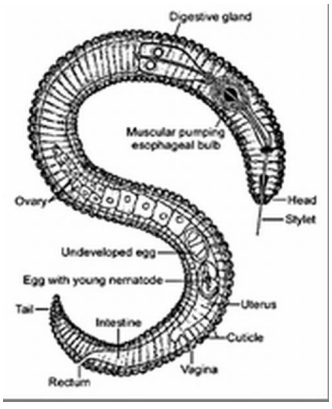

Figure 2. Some nematodes are major pests of rose. Credits: Crow, W.T. and R.A. Dunn.

Nematode problems can be diagnosed by submitting a soil sample to The Florida Nematode Assay Laboratory. (See EDIS Publication ENY027, http://edis.ifas.ufl.edu/SR011). Similarly, prior to planting, soil samples can be submitted to estimate the risk of nematode damage to roses or other plants.

If nematodes are expected to be a problem, purchase roses grafted onto the nematode-resistant rootstock, *Rosa* 'Fortuniana'.

Chillithrips, *Scirtothrips dorsalis*, is a newly introduced, invasive thrip whose feeding damage can destroy roses very rapidly (Figure 3). Chillithrips feed on leaves and small buds and cause the leaves to discolor and curl upward on new canes. This pest also feeds on many other species of plants. If untreated, symptoms will become more severe until plants are defoliated. Repeated defoliations may kill the plant. Controls and photos of damage can be found at the following Web page: http://www.mrec.ifas.ufl.edu/lso/thripslinks.htm.

Figure 3. Chillithrips, *Scirtothrips dorsalis*, is a newly introduced, invasive thrip whose feeding damage can destroy roses rapidly. Credits: Juanita Popenoe

Other Diseases

Powdery mildew on rose is caused by the fungus, *Sphacrotheca pannosa* var. *rosa*. It appears as small patches of white "powder" on leaves, shoots, buds and flowers. Infections on new growth cause leaves to curl up in addition to the white, powdery patches. Symptoms of powdery mildew can overtake an entire plant and defoliate it. However, leaf drop due to powdery mildew is not as severe as with blackspot.

Powdery mildew usually appears during fall and spring, when humid periods accompany cool nights and warm days. Powdery mildew can be suppressed by planting roses in open, sunny areas and spacing plants to allow air movement. Do not irrigate plants at night and do not over fertilize. Remove infected leaves and other plant parts.

Downy mildew, *Peronospora sparsa*, is a fungus that produces lesions on leaves, stems and flowers (Figure 4). Leaf lesions are often angular-shaped and are purple to brown, while surrounding leaf tissue may turn yellow. This disease usually occurs during cool, humid weather and begins on the upper parts of the plant, often causing leaf drop. Overhead irrigation and rain can spread the disease. All cultivated roses are susceptible, including Knock Out®. Downy mildew can be minimized by planting roses in open, sunny areas, spacing plants to allow air movement. In addition, avoid overhead irrigation, remove diseased or fallen leaves and prune to increase air circulation.

Figure 4. Downy mildew, *Peronospora sparsa*, is a fungus that produces lesions on rose leaves. Credits: Hank Dankers

Botrytis blight on rose buds and flowers is caused by the fungus, *Botrytis cinera*. Symptoms are light-colored spots on rose petals; these spots quickly turn to brown blotches. Infected buds fail to open, and discoloration may extend down the stem. Development of a slimy, gray-brown mold follows, concluding with rotting buds. Canes may develop dark brown, sunken cankers. This disease can occur throughout the year, but often develops on blooming plants during cool weather with high humidity levels. Planting conditions that allow air circulation help discourage this disease, as does removal of diseased plant parts.

Stem canker may also be caused by other fungi. Symptoms are yellow to purple spots (depending on the fungus) that eventually form dark brown, sunken cankers on stems. These cankers can enlarge and girdle stems, killing all growth above the canker. This disease is spread by rain or irrigation that splashes spores into wounds that have resulted from pruning or other stem damage. Stem canker can occur throughout the year, but prefers humid, wet weather. Weak or stressed plants often are more susceptible. Good cultural conditions, which promote healthy

plants and removal of diseased plant parts, will limit spread of stem canker.

Crown gall is caused by a bacterium *(Agrobacterium tumefaciens*) that enters the plant through wounds made during grafting, planting, pruning or insect feeding. Often plants are infected in the nursery, and the disease develops later, after planting in the garden. Symptoms are a gradual decline in plant health, often associated with the presence of spherical, woody growths at the crown or on stems. Galls have rough surfaces and may grow up to 6 inches in diameter. Diseased plants should be removed and destroyed. The disease organism can persist in soil, so roses and other susceptible plants should not be planted in the same area.

Rose mosaic is caused by a mixture of viruses that produce leaf discolorations, such as patterns of white to yellow spots or lines on leaves (Figure 5). These symptoms may appear only occasionally, depending on weather and plant growing conditions. Viruses will not kill a rose, but can reduce flower production and plant growth and shorten plant lifespan. Viruses are transmitted by grafting and cutting propagation. Most plants are infected at the nursery, and symptoms develop later, after planting. Virus-free plants (called "virus indexed plants") may be purchased although such plants may be difficult to find.

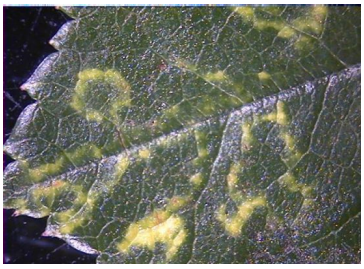

Figure 5. Rose mosaic is caused by viruses that produce leaf discolorations, such as patterns of white to yellow spots or lines on leaves. Credits: Hank Dankers

Other Insects, Mites and Arthropods

The yellow rose aphid, *Acythrosiphon rosae*, is a widespread pest of roses (Figure 6). It is more common during the cool weather of fall and spring, but may occur year round. Several other species of aphids also infest roses. Aphid feeding on leaves may cause leaf drop. Honeydew excreted by the aphids

Figure 6. Yellow rose aphid, *Acythrosiphon rosae*, is a widespread pest of roses. Credits: Jim Castner

serves as a foodsource for sooty mold, which turns the leaves black and unsightly. Aphids attract many natural enemies that feed on them or their sugar-rich honeydew. Common natural enemies of rose aphids and other rose pests are ladybeetles, lacewings, syrphid flies, predatory mites and thrips.

Figure 7. Fuller's rose beetle, *Pantomorus cervinus*, feeds on the edges of leaves and notches them in an irregular fashion. Credits: Clemson University

Fuller's rose beetle, *Pantomorus cervinus*, is an introduced weevil that feeds on the edges of leaves and notches them in an irregular fashion. (See Figure 7 and EDIS Publication EENY-375, Fuller Rose Beetle; http://edis.ifas.ufl.edu/IN678).

The whitefringed beetle complex, *Naupactus* spp., also feeds on leaves and notches them irregularly (Figure 8). Adults are most active at night and can be found hiding on secluded plant parts during the day. Larvae feed in the soil on plant roots.

Figure 8. Members of the whitefringed beetle complex, *Naupactus* spp., also feed on the edges of leaves and notch them in an irregular fashion. Credits: Jim Castner

A flower beetle, *Euphoria sepulcralis*, is another beetle pest. (See EDIS Publication EENY416, A Flower Beetle, http://edis.ifas.ufl.edu/IN750).

Nymphs and adults of the large leaf-footed bug, *Euthochtha galeator*, are commonly found feeding on rose buds and expanding blossoms. (See Figure 9 and EDIS Publication EENY293, Coreid Bug, Leaf-footed Bug, http://edis.ifas.ufl.edu/IN570). The shiny, golden eggs are also found in clumps on the underside of leaves. Although leaf-footed bugs are often found on roses during mid-late summer, damage from these bugs is probably limited to causing a few blooms not to open properly and some malformed flowers. When leaf-footed bugs are in large numbers, they can be removed by hand from roses.

Figure 9. The large leaf-footed bug, *Euthochtha galeator*, commonly feeds on rose buds and expanding blossoms. Credits: Lyle J. Buss

A number of bee species are known as leafcutter bees due to their habit of cutting circular sections of leaves to replenish the food cells for their larvae (Figure 10). Leafcutter bee damage on roses is obvious; circular pieces of leaves about 1/2-inch wide are removed from the edges of leaflets (Figure 11). Often more than one circle is cut from each leaflet.

Figure 10. A number of bee species are known as leafcutter bees due to their habit of cutting circular sections of leaves to replenish the food cells for their larvae. Credits: David Almquist and David Serrano.

Figure 11. Leafcutter bee damage on roses is apparent in circular pieces of leaves about 1/2-inch wide removed from the edges of leaflets. Credits: L.J. Buss

Leafhoppers are tiny insects with piercing-sucking mouthparts that suck plant juices, usually from the underside of leaves (Figure 12). The immature are often found in large numbers, are usually pale-white to yellow to green in color, and move very quickly from side to side when disturbed. Damage from feeding appears as "hopperburn," and the leaves appear splotched, bronzed or off-color. Note that damage from thrips, leafhoppers and mites is generally very similar in appearance.

Figure 12. Leafhoppers are tiny insects with piercing-sucking mouthparts that suck plant juices, usually from the underside of leaves. Credits: University of Georgia

Rose scale, *Aulacaspis rosae*, is common on roses, but is not considered of economic importance in Florida (Figure 13). The scale females can be found on the bark protected underneath the case or armor that the females build around their bodies. The armor is flat, oval or irregular and dirty-white in color. Eggs are placed under the armor, and the crawlers hatch and move to new places on the plant to settle. Only one batch of eggs is produced per female before she dies. Female scales are only capable of

moving in the crawler stage. The males can fly to find the females and resemble small flies.

Figure 13. Rose scale, *Aulacaspis rosae*, is common on roses. Credits: University of Georgia

Thrips are tiny, fast-moving, rasping-sucking insects. Several species of thrips feed on the leaves, buds and flowers of roses (Figure 14). Two common flower feeders are the Florida flower thrips, *Frankliniella tritici*, and the introduced Western flower thrips *F. occidentalis*. When feeding, these thrips often leave fecal matter, which appear as dark spots on the plant material. Flower thrips can also be a nuisance when cut roses are brought indoors.

Figure 14. Several species of thrips feed on the leaves, buds and flowers of roses. Credits: Jim Castner

Twospotted spider mite, *Tetranychus urticae*, is a very common, year-round rose pest that can build up to large numbers quickly (Figure 15). This pest feeds primarily on the underside of leaves and usually protects itself by spinning thick webbing. Mites suck chlorophyll and juices from the outer cells of leaves, causing leaves to appear bleached or stippled and to then drop. Hot, dry weather promotes mite reproduction and buildup. Many natural enemies -- including predatory mites -- feed on twospotted spider mites on roses, but predators are often inhibited by the leaf spines and don't effectively control two-spotted spider mites. For more on this pest, see EDIS Publication EENY150, Twospotted Spider Mite, *Tetranychus urticae* Koch, http://edis.ifas.ufl.edu/IN307.

Figure 15. Twospotted spider mite, *Tetranychus urticae*, is a common year-round rose pest that can build up to large numbers quickly. Credits: Jim Castner

Other Animals

Deer are general browsers of plants, but seem to prefer roses, despite the thorns. During drought conditions, when other food plants are not readily available, deer are of greater importance as pests of roses. Rabbits also may feed on tender plant parts. Dogs are not routinely considered plant pests. However, their territorial behavior of repeated scent marking with their urine may lead to dead leaves and brown, unsightly plants. Fencing is the best option for preventing damage from these animals as they are not easily controlled. Repellents may work for short periods of time, but products must be changed often and reapplied frequently.

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Photo Credit Details

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Figure 2: Illustration from Crow, W.T. and R.A. Dunn. 2005. Introduction to Plant Nematology, EDIS Publication ENY-016, http://edis.ifas.ufl.edu/NG006.

Figure 3: Juanita Popenoe, Ph.D., regional specialized Extension agent II, Commercial Horticulture - Woody Ornamentals, UF/IFAS Lake County Extension Service, Tavares, FL.

Figures 6, 8, 14 and 15: Jim Castner for the U.F. Department of Entomology and Nematology.

Figure 7: Clemson University, www.Insectimages.org.

Figures 9 and 11: Lyle J. Buss, senior biological scientist, University of Florida.

Figure 10: David Almquist and David Serrano, University of Florida.

Figures 12 and 13: Bugwood Network, University of Georgia, http://www.bugwood.org/index.cfm.