

Azalea*Rhododendron spp.*

Propagation

Azaleas are usually propagated by stem tip cuttings taken in spring when the wood is soft or semi-hard. Rooting hormone, IBA TALC 8000 PPM, is used, and an intermittent mist with soil temperatures of 70-75 degrees F should yield rooted cuttings in 8-12 weeks.

Azalea indica cuttings should not be wounded, all others are wounded before using rooting hormone. Air or tip layering may also be preformed in the spring.

Some growers prefer to soak the cuttings in water, or water with 1.7-2.5% ascorbic acid, for ½ to 12 hours to neutralize endogenous rooting inhibitors.

Azaleas can be propagated by seed, but may vary from the mother plant. Seed is collected in the autumn and sown in late autumn. Germination should occur in 2-4 weeks with temperatures of 65-70 degrees F.

Pests and Diseases

The current Insect Management Guide for Commercial Foliage and Woody Ornamentals can be found at <http://edis.ifas.ufl.edu/IG012>. The current Professional Disease Management Guide for Ornamental Plants can be found at <http://edis.ifas.ufl.edu/PP123>.

Azalea caterpillar

Recognition: When azaleas are missing significant amounts of foliage, azalea caterpillars



may be the cause. The caterpillars are easily found, since they live in groups on the plant, and are recognized by their red heads, red posterior segments, and yellow stripes. When disturbed, the individual caterpillars react by forming a "U" shape. They grow to 2 1/2 inches long before dropping to the soil to pupate. The adult moth is about 1 inch long and brown.

Contributing factors: Primarily a late summer pest in Central Florida, there are two generations per year, with the second being more prolific.

Management recommendations: Remove and destroy infested branches. Use *Bacillus thuringiensis* on small caterpillars, or other approved insecticides.

Azalea lacebug



Recognition: Lacebug damage is recognized as a stippled, silvery appearance of the leaves. The symptoms are caused by the insects' piercing-sucking type of feeding on the undersides of leaves. Adults are 1/8 to 1/4 inch long and have brown/black bodies with transparent, lacy wings held flat on the back. The immatures lack wings but are covered with spines.



Eggs are inserted into the undersides of leaves. Shiny black eggs or fecal spots are often observed.

Contributing factors: The azalea lacebug is host specific and will not feed on other plants. There are three to five generations each year. Full-sun locations are often the most severely damaged.

Management Recommendations: Monitor lacebug populations and apply an approved insecticide when needed.

Azalea leafminer - a caterpillar leaf miner

Recognition: Azalea leafminers are caterpillars which mine between the upper and lower leaf surfaces until they are about half-grown, then emerge and fold the leaf tips or margins over themselves while they continue to feed on the leaves. Damage appears as dry, brown spots on the leaves. Mature larvae are about 1/2 inch long and yellowish brown. They pupate inside the mines. The adult is a small yellow-brown moth about 1/4 inch long.



Contributing factors: Azalea leafminers are most prevalent in the spring and summer months.

Management recommendations: Leafminers can be difficult to control since they are protected by leaf tissue. For a heavy infestation, a systemic insecticide may be used.



Rhododendron gall midge (*Clinodiplosis rhododendri*)



Recognition: The gall midge attacks new buds and leaves causing leaf curling and distortion. Terminal leaves become small and malformed and may form a "witches broom". Midges are very small dipterous insects, difficult to see, even with magnification. Sublethal doses of glyphosate may cause similar symptoms.

Contributing factors: Damage caused by *azalea* midges is usually first noticed in spring when new vegetative growth is initiated. The damage is done by the larval stages. There can be several generations of insects per year. Unless overhead irrigated, lack of rainfall can slow down the development of

the insects.

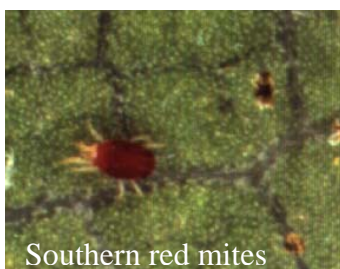
Management recommendations: Approved insecticides timed to coincide with bud break can be used to control midges, but the symptoms will remain even after the midges are gone. Soil drenches or applications of labeled insecticides are effective. Prune out symptomatic terminals or branches.

Spider mites

Recognition: Tiny (less than 1/50 inch) eight-legged mites are found most commonly on the undersides of leaves. Eggs, cast skins and silken webs are also signs of mites. Mites feed with piercing-sucking mouthparts, causing the upper sides of leaves to exhibit a stippled or bronzed appearance. Common mite pests of azaleas include both southern red mites and two-spotted spider mites. Two-spotted spider mites have dark spots on both sides of the abdomen. Southern red mites are named for their bright red color.

Contributing factors: Southern red mites are most prevalent in cool, moist, conditions, whereas two-spotted spider mites prefer hot, dry weather.

Management: Use a white piece of paper to monitor for mites. Check for predaceous mites as well, which are larger and move more quickly. Insecticidal soaps, horticultural oils, or approved miticides may be used to control mites when necessary.



Azalea Gall (*Exobasidium vaccinii*)

Recognition: Leaf and flower buds are affected by this fungus. Infected leaves develop pale green to white, thickened or fleshy galls that brown with age. Flower parts can



become so thickened that the whole bloom is turned into a hard, fleshy or waxy, irregularly-shaped gall.

Contributing factors: Infection occurs early in the spring on actively growing plant parts. The seriousness of this disease can vary due to environmental conditions, with cool, wet spring weather causing more incidence of the disease.

Management recommendations: Remove obvious galls. The mulch layer below the plants can harbor the over-wintering

fungus and may be removed in mid-fall to minimize reinfection in the spring, if severity of the problem warrants.

Cercospora leaf spot (*Pseudocercospora handelii*)

Recognition: Circular to angular dark brown leaf spots occur on both sides of leaves. The



spots may coalesce, especially along the margins. Under moist conditions, the fungus sporulates on both leaf surfaces and greenish brown fruiting stalks can be seen. When severe, chlorosis and defoliation can occur.

Contributing factors: Cercospora leaf spot is most troublesome in late summer and fall, or whenever periods of warm temperatures and high humidity or leaf wetness occur.

Management recommendations: Avoid frequent overhead irrigation. When applying approved fungicides, cover the undersides of leaves.

Mushroom root rot (*Armillaria tabescens*)



Recognition: Mushroom root rot causes a slow decline that can take a year or more to kill

the plant. Symptoms begin with chlorosis of foliage on the lower branches, and progressive thinning of the canopy.

Usually, during the high temperatures of summer, plants will desiccate quickly, and hold onto their grey-green leaves.

Single stemmed plants can be killed outright while multi-stemmed plants may

partially survive. An examination below the bark at the soil line will reveal the

creamy white mycelium of the fungus. After the plant has died, the honey colored mushrooms may appear in the area of the dead trunk.

Contributing factors: A soil-borne fungus, mushroom root rot has a wide host range. It can attack apparently healthy plants. It may spread to adjacent plants through root grafts.

Management recommendations: There is no control. Remove diseased plants and roots. Avoid replanting with other susceptible species, and/or fumigate before replanting.

Ovulinia petal blight (*Ovulinia azaleae*)

Recognition: Symptoms begin as small, water-soaked spots on the flower petals. The brown lesions rapidly enlarge and become slimy, and entire petals become blighted. Infected flowers turn prematurely brown but usually remain on the plant longer than non-infected flowers.



Contributing factors: The pathogen over-seasons as sclerotia in diseased flowers on the plants or lying on the soil surface. About the same time as azaleas flower, the sclerotia germinate and produce spores which are the primary source of new infections. Spore germination is

optimum at 64 degrees F with periods of heavy mist or dew.

Management recommendations: Remove plant litter and use mulch to inhibit germination of sclerotia. Use of fungicides is not usually justified economically, but reduction in disease severity can be achieved with weekly sprays starting at bud break.

Wet root rots (*Pythium* and *Phytophthora* spp.)

Recognition: Plants exhibit poor growth, thinning of the foliage canopy, yellowing and loss of older leaves, and eventual branch or plant death. The roots are dark and



rotted. Wet rots cause a soft decay of the outer layers of roots, which can be easily stripped off between two fingers, leaving the firm, white stele intact.

Contributing factors: The disease is triggered by periods of excessive soil moisture.

Conditions that favor disease development include planting too deep, poor drainage, shallow rooting, and poor water management.

Management recommendations: Correct cultural problems. Apply an approved fungicide

if the problem is diagnosed early and cultural problems corrected.

Iron chlorosis



Recognition: New growth becomes yellow but veins remain green. In severe cases, leaves turn entirely white and can develop marginal leaf burn or tip burn.

Contributing factors: High soil pH is a common cause of iron deficiency, since iron is less available at high pH. Poor

aeration and subsequent poor root function may also cause the plant to be deficient in iron.

Management recommendations: Check the soil pH before choosing an acid-loving plant like azalea. In some cases, pH may be effectively lowered with applications of elemental sulfur; however, it is not practical to continuously battle the high pH of calcareous soils. For existing plantings, use acid-forming fertilizers with iron. Additional soil and/or foliar applications of iron may help.

Planting depth

Recognition: Roots are deprived of oxygen when planted too deeply. Above-ground



symptoms are similar to root rot—chlorotic foliage, lack of growth, thinning of the canopy, and a general slow decline. **Contributing factors:** Improper planting is the cause; no soil should be placed on top of the root ball. Excessive mulch may also be a factor.

Management recommendations: Replanting at the correct depth may allow the plant to recover if the problem is caught early. Pull back and/or remove excess mulch from the base of the plant.

Sources

1. Neal, C., Celeste White and Eleanor Foerste. Key Plant and Key Pests in Central Florida Landscapes. University of Florida Extension slide set.

2. University of Florida Landscape Plant Propagation Information.

<http://hort.ufl.edu/lppi/>

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WEEKLY IPM REPORTING FORM FOR AZALEA

Scouting procedure for azalea: Look at 5-10 randomly chosen plants per location until the first lacebugs are found. Once found, choose and flag three plants to scout weekly. Count the number of adults and nymphs on each of 10 leaves per plant. Look for azalea caterpillars by looking first at whole plants, quickly checking out lots of plants for damaged leaves and caterpillars present. Once found, flag three plants and count the number of caterpillars on three branches per plant. Note the number >1/2" long and the number <1/2" long.

Date:

County:

Site Code:

Scout:

| Azalea lacebugs | | | | | | | | | |
|---|-----------------------------------|--|---------------------------------------|-----------------------------------|--|---------------------------------------|-----------------------------------|--|--|
| Plant #1 -: (cultivar: _____) | | | Plant #2: (cultivar: _____) | | | Plant #3: (cultivar: _____) | | | |
| Leaf No. | Lacebug count nymphs adults | | Leaf No. | Lacebug count nymphs adults | | Leaf No. | Lacebug count nymphs adults | | |
| 1 | | | 1 | | | 1 | | | |
| 2 | | | 2 | | | 2 | | | |
| 3 | | | 3 | | | 3 | | | |
| 4 | | | 4 | | | 4 | | | |
| 5 | | | 5 | | | 5 | | | |
| 6 | | | 6 | | | 6 | | | |
| 7 | | | 7 | | | 7 | | | |
| 8 | | | 8 | | | 8 | | | |
| 9 | | | 9 | | | 9 | | | |
| 10 | | | 10 | | | 10 | | | |
| Total | | | Total | | | Total | | | |
| % parasitized: | | | % parasitized: | | | % parasitized: | | | |
| Damage: | | | Damage: | | | Damage: | | | |
| slight | | | moderate | | | severe | | | |

Beneficials present (check):

- Friendly fungus _____
- PFR fungus _____
- parasitic wasp _____
- lady beetle adult _____
- lady beetle larvae _____
- praying mantid _____
- syriphid fly larva _____
- predatory mites _____
- spiders _____
- lacewing adult _____
- lacewing larvae _____
- wasps _____
- tachinid fly _____

other:

Insecticides applied:
product:

date:

Other pests/problems:

| Azalea caterpillars | | | | | | | | | |
|----------------------------|------------------------------------|--|-----------------|------------------------------------|--|-----------------|------------------------------------|--|--|
| Plant #1 | | | Plant #2 | | | Plant #3 | | | |
| Ter- minal | No. caterpillars <1/2" >1/2" | | Ter- minal | No. caterpillars <1/2" >1/2" | | Ter- minal | No. caterpillars <1/2" >1/2" | | |
| 1 | • | | 1 | | | 1 | | | |
| 2 | | | 2 | | | 2 | | | |
| 3 | | | 3 | | | 3 | | | |
| Total | | | Total | | | Total | | | |

Environmental Conditions:

Temperature range (days):

60-70° 70-80° 80-90° 90-100°

Temperature range (nights):

40-50° 50-60° 60-70° 70-80°

Irrigated Unirrigated

Rainfall since last sampling date:

_____ inches

Note any extreme weather:

