

**Lily-turf**     *Liriope muscari***Propagation**

Liriope is usually propagated by division. The bolls are separated, and leaves and roots trimmed.

**Cultivars**

Cultivars are available with variegated foliage and blooms of white and various shades of purple. 'Grandiflora' has light lavender flowers; 'Majestic' has violet flowers; 'Munroe White', white flowers; and 'Variegata' has yellow-striped leaves, maturing to green with dark violet flowers. *Liriope spicata* is slightly shorter and spreads much quicker by means of rhizomes.

**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>.

**Leaf and Crown Rot (*Phytophthora palmivora*)**

**Recognition:** Diseased leaves are discolored (yellow) and appear water-soaked, discolored, and rotted at the base. Near the base, affected leaves become chocolate-brown. Closer to the crown, rotted leaf bases are light brown. Early in disease development, affected leaves develop a pale green or yellowish cast. Later, the bright yellow discoloration appears just above the rotted portion and extends slowly upward. Initially the upper-portion of the leaf remains green, but eventually, the entire leaf turns yellow and dies. Affected leaves, particularly those in advanced stages of disease development are easily pulled free from the rhizome or crown. Leaves that are brown or yellowed at the tip but remain green down to

the point of attachment are probably affected by other leaf diseases, nutritional problems, or physiological disorders.

**Contributing factors:** Initial disease damage and new infections are more evident in late spring and early summer. Sporangia and zoospores of *P. palmivora* can be easily spread between densely packed container-grown plants produced under overhead sprinkler irrigation or during rain storms. Both splashing water and surface run-off transports zoospores and sporangia from diseased to non-diseased plants and between plant containers. It is transmitted during propagation; diseased roots and infested soil are transferred to new pots and wounding involved in division may increase susceptibility. 'Evergreen Giant' is especially susceptible.

**Management recommendations:** Exclude or avoid the disease. Establish and maintain a source of disease-free propagation stock that remains isolated from production sites. Fungicides such as mefenoxam, fosetyl-aluminum, and certain phosphorous acid-based materials can temporarily prevent disease establishment by inducing or activating natural defense systems within the Liriope plant, but these fungicides have little effect on residual inoculum (sporangia) in the soil. When such fungicides decompose or are leached from the soil (often within 4 to 6 weeks), disease usually re-appears. Builder's sand was least conducive to infection and disease development, while disease development increased with increases in peat moss content of the media.

### **Anthracnose (*Colletotrichum sp.*)**

**Recognition:** Patches of reddish speckles on leaves.

**Contributing factors:** Colletotrichum requires wet leaves for the spores to germinate and penetrate the leaves directly. Wet leaf surfaces for 4-6 hours, overnight, or moisture from dew is enough to allow germination. The key is to reduce inoculum and protect new leaves. Generally this disease shows up if Liriope has been neglected, not sprayed, and overhead irrigated every day.



**Management recommendations:** Avoid overhead irrigation. Cultural practices to increase air circulation and rapid leaf drying will reduce potential

infections. Fungicide application recommendations can be found at <http://edis.ifas.ufl.edu/PP123>.

### **Root rots (*Fusarium, Phytophthora spp., Rhizoctonia solani*)**

**Recognition:** The first symptoms noticed will be a discoloration and then death of the lower leaves as the root system decays and the plant dies from the bottom up. These symptoms may be one-sided on the plant.



**Contributing factors:** The disease is triggered by periods of excessive soil moisture and warm to hot temperatures. Conditions that favor disease development include planting too deep, poor drainage, shallow rooting, and poor water management.

**Management recommendations:** Manage plants to keep them out of surface water by putting them on raised beds, ground cloth or in well drained soil. Reduce irrigation during rain periods.

Fungicides can be used preventatively at potting, but are not much use after symptoms are noticed, because the root system will be significantly rotted before leaf symptoms are seen. Check roots of nursery-grown plants before planting into the landscape. Provide adequate drainage, and reduce irrigation.

### Southern Blight (*Sclerotinium rolfsii*)

**Recognition:** Affected plants will first be noticed to wilt, and a soft brown rot at the soil line is visible. A white cottony mycelium embedded with tiny brown sclerotia (very small balls of spores) can be seen on close examination.



**Contributing factors:** The fungus is spread by running water, infested soil, on tools, in infected plants, and can survive in the soil indefinitely.

**Management recommendations:** Start with clean soil, remove and destroy diseased plants. Chemical treatments like Terraclor will help prevent the disease

but will not eliminate the fungus.

### Scale (six species, fern and proteus most common)

**Recognition:** Scales cause damage by sucking the juices from the plant. Feeding on the leaf undersides may cause yellow spots to appear on the upper leaf surfaces, which become larger as the scales continue to feed. Scale feeding may result in leaf drop and reduced growth. Mature scales are visible, although sometimes they are well hidden in crevices. Immatures, or crawlers, are tiny and require a hand lens to detect. The presence of sooty mold is also associated with soft scales. The fern scale has brown female scales and white males.



**Contributing factors:** Mature scales are present year round but crawlers hatch in spring and throughout the warm season, depending on species.

**Management recommendations:** Round holes in the scale bodies indicate parasitic wasps



have emerged and are helping control the pest population. Use oils or approved insecticides if parasitism is insufficient and the problem warrants. Dead scales, however, will remain on the plant. You need to pop the cover off the scale to determine if it is dry and dead underneath. Also, dead scales may still cover live eggs that will hatch and re-infest. Contact insecticides should be

timed to control crawlers, since matures are well-protected by a waxy covering. Control of adult scales is especially difficult as the shell-like covering protects these pests from exposure to the pesticide. In these cases, chemicals that are systemic (within the plant) and which the pest eats from the plant are more effective than chemicals that are toxic only when in actual contact with the pest.

## Root knot nematodes

**Recognition:** Poor growth, plant decline, yellowing leaves and thinning of the canopy may be symptoms of nematode infestation.



Infected roots have obvious galls and may be brown and stunted.

**Contributing factors:** The highest populations of nematodes occur in well-drained sandy soils where previous crops have supported high levels of nematodes.

**Management recommendations:** Keep plants as healthy as possible with adequate water and fertilizer to support new roots. No chemical controls are available for use on existing plants. When replacing

plants, remove all roots and replace soil. Avoid replanting with susceptible species, or fumigate before replanting.

## Sources:

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5. University of Georgia Extension web pages.

<http://www.plant.uga.edu/Extension/home.htm>

6. University of Florida Plant Information Database.

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