

## Liriope, the “Other” Mondo Grass

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Several varieties of *Liriope* species, a grass-like groundcover very similar in use and appearance to its close cousins the mondo grasses (*Ophiopogon* sp.), were introduced into the southeastern USA from Japan and other Asian areas about 150 years ago. Many new varieties of liriope have since been developed and are now widely used in landscapes of temperate and tropical regions. Several varieties of liriope are just beginning to make an impact in landscapes in Hawaii.

Liriope, and to a lesser degree the mondo grasses, are fertile and hybridize freely. Therefore it is not surprising to find variability within what is accepted as a single species. It is also very likely that some cultivars of liriope are present in the trade under incorrect names. The nomenclature is constantly changing, and the buyer should be aware of possible confusion in the identification of some liriope.

Liriope, commonly called “lily turf,” is not a grass but, like the mondo grasses, a member of the lily family. Compared to mondo grass, liriope has thicker, more tuberous roots and are more cold-hardy. Like mondo grass, liriope is very drought tolerant but grows best when the soil is kept moist and well drained. The individual plants grow in clumps that consist of many long, slender basal leaves. Liriope tends to form taller and fuller clumps than mondo grass, with average heights of 16–20 inches.

Liriope is a desirable landscape plant because they survive in a wide range of environmental conditions. Most varieties of liriope will tolerate hot, dry conditions better than most shrubs, groundcovers, and grasses. Some of the variegated types are good substitutes for grasses in the dense shade beneath large trees. Liriope can be established on steep slopes where

it is impractical to establish and maintain grasses.

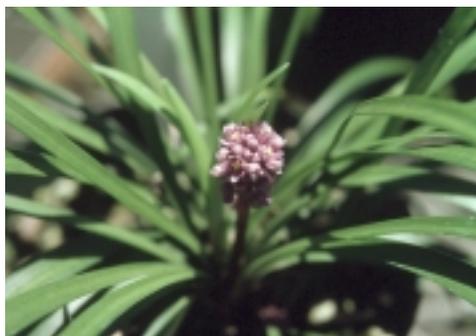
The growth habit of the various types of liriope is determined by the growth pattern of their root systems. Both rhizomatous (spreading) types and caespitose (clump-forming) types exist in each species.

Two species of liriope are in common use. *Liriope muscari*, whose species name has recently been changed to *platyphylla*, has many popular varieties consisting mostly of clumping types and several spreading types. (At present, the *muscari* species designation is still the most commonly used name in the trade.) *Liriope spicata* has fewer varieties in common use, most of which are the spreading type. Unlike mondo grass, both species of *Liriope* produce colorful, showy flowers.

The aggressive, spreading types of liriope are used to rapidly fill large sunny areas in much the same manner as mondo grass is used in large shady areas. Clumping types of liriope are used as borders or in plantings where different varieties are meant to be permanently separated from each other or from other species of plantings in the area. Clumping types of liriope can be used to add texture to perennial and shrub borders where minimal maintenance is required, such as around swimming pools.

### Preparation of planting area

Liriope grows best under slightly acidic soil conditions (pH around 6). New beds or borders for liriope should be properly prepared to ensure rapid establishment. To minimize weed problems, use the “stale seedbed” technique. Force weed growth by applying a complete fertilizer at a rate of ½ pound nitrogen per 1000 square feet and watering the area well for one or two weeks to encourage weed germination and growth. Kill the weeds with a contact, systemic



*Liriope muscari* ‘Majestic’, a shade-loving, clumping type.

herbicide such as RoundUp® or Finale®. Within 7–10 days after spraying, the weeds will die. Then, prepare the seedbed by adding well composted organic soil amendments and another application of the complete fertilizer. Till them into the soil to a depth of 5–6 inches. Level the area and water again to encourage any remaining weeds to germinate, and kill the new weeds with herbicide. The area should now be relatively free of most weeds, and the soil is ready for transplanting the liriope. Avoid further cultivation that might bring new weed seeds up to the soil surface.

### Transplanting the liriope

Liriope is normally established vegetatively in Hawaii and is usually purchased in gallon- or quart-sized containers. Gardeners often divide established plantings by digging up and separating the clumps with a knife, a process that can be laborious. An easier method is to rinse the soil from the roots with a stream of water. Individual plants can then be separated from the clump, and they should be planted immediately. Transplant in staggered rows at intervals of 12–16 inches if establishing a spreading type over a large area. The slower-growing, clump-forming varieties are planted at intervals of 6–10 inches, depending on the mature clump size. Closer spacing results in more rapid cover, and some cultivars spread more aggressively than others. In all cases, do not plant the crowns too deeply but make sure all of the roots and rhizomes are well covered by gently pressing the soil in around them.

The rhizomatous or spreading-type plants can be reproduced by dividing and planting pieces of rhizome. In old plants of all varieties, the crown grows downward and resembles a corn cob. These "cobs" can be cut off and planted. Sections of this crown tissue smaller than a pencil eraser may be successfully used as propagules. The new growth will be slow from such small seedpieces, but this is a very efficient propagation method.

After the entire area has been transplanted, apply a preemergence herbicide and water the soil as specified on the herbicide label. This will keep any surviving weed seeds from germinating during the establishment period. Under certain conditions, some granular preemergence herbicides, notably Ronstar®, have a phytotoxic effect on liriope foliage. This is a cosmetic injury that may be minimized by immediately washing the granules from the foliage with a spray of water. The preemergence her-

bicide Goal® (oxyfluorfen) causes more severe damage to liriope and should be avoided. Any root suppression caused by the application of a preemergence herbicide is not as severe if the roots and rhizomes of the new plantings are well covered by the soil and do not come in direct contact with the herbicide applied after planting. It is, therefore, important not to disturb the newly planted area for several weeks. Once the planting thickens and closes, it shades the open ground surface where weeds sprout, thus eliminating many problem annual weeds. It usually takes several years to completely fill in an average liriope planting.

In Hawaii, *Liriope spicata* grows throughout the year but is more prolific during the summer months. *Liriope muscari* and its cultivars make most of their growth in spring and early summer. It is therefore best to transplant in late winter to early spring so that the developing root system has a better chance to become established.

### Cultural practices

The fleshy, tuberous root system of liriope gives it a very good tolerance of full sun and drought conditions. However, water management is critical for optimum growth. Best results are produced when the soil is well drained and kept consistently moist but not soggy.

In landscape plantings, most established liropes will live indefinitely without supplemental fertilization. However, best growth is obtained with regular, light fertilizer applications from February through September, calculated to maintain color and appearance but not to promote excessive growth. Fertilizers should be high in nitrogen and either slow-release or organic formulations; well decomposed ("finished") compost is also suitable. Liriope crowns can be injured by readily soluble fertilizers.

An annual topdressing of ½ inch of compost spread lightly throughout the entire bed helps promote lateral spread of the rhizomes and provides beneficial micro-nutrients and slowly released amounts of nitrogen. This is particularly beneficial during the first several growing seasons and will shorten the time required to reach full coverage for spreading varieties.

The incidence of both disease and insect problems can be reduced by mowing or pruning the old foliage in late winter, especially if the cut leaves are removed. The only restriction on pruning or trimming is to accomplish it before new growth buds begin to develop. This can be observed by looking down into the clump after separating the foliage. Although the cut ends of the leaves may

## Commonly used types of lirioppe

### Spreading liriopes

<i>Liriope muscari</i> (common type)	Solid green leaves 15 inches long; flowers not very showy.
<i>L. muscari</i> 'Tidwell's Big Blue'	Solid green leaves 15 inches long; vigorous; lilac blooms; full sun to deep shade (not to be confused with the clumping type 'Big Blue').
<i>L. muscari</i> 'Samantha'	Dark green foliage 15 inches long; vigorous; outstanding, pink flowers; early-spring bloomer.
<i>L. muscari</i> 'Evergreen Giant'	Dark green, thick, leathery foliage; over 2 feet high; flowers hidden in foliage; outstanding foliage/habit.
<i>Liriope spicata</i> (common type)	Narrow, pointed green leaves 6–18 inches long; flower display is poor with pale lavender blooms, scapes no taller than the foliage; aggressive spreader, makes thick, even turf; good ground cover for soil retention; full sun to deep shade.
<i>L. spicata</i> 'Silver Dragon'	Narrow, white and green, variegated foliage 12 inches long; variegation tends to revert to solid green in deep shade; not as aggressive as the common type; flowers above foliage are like other liriopes; slightly smaller and slower growing than the common type; full sun to deep shade.

### Clump-forming liriopes

(All cultivars of *Liriope muscari*.)

'Big Blue'	Improved type; solid green leaves 15 inches long; outstanding blue tapering inflorescence; full sun to deep shade.
'Majestic'	Solid green leaves 15 inches long; outstanding heavy lilac blooms; needs deep shade.
'Monroe's White'	Solid green leaves 15 inches long; only white bloomer; outstanding flower display; needs deep shade.
'Royal Purple'	Solid green leaves 15 inches long; showy, dark purple blooms; partial to full shade.
'Variegata'	Cream and green striped leaves 12–18 inches long; outstanding lavender blooms; sun-tolerant; full sun to deep shade; a rare white-flowering form also exists.
'Green Midget'	Outstanding foliage/habit; smallest grower; good border for foreground plants.
'Silvery Midget'	Small, randomly variegated leaves; slow grower; showy flowers and foliage/habit.
'Lilac Beauty'	Latest to flower; outstanding, bouquet-type inflorescence.
'John Burch'	Variegated foliage; largest flowers of any lirioppe.

Note: Some of these liriopes may not be available in Hawaii, or may be available in a slightly different form. This list is meant to inform the reader of the wide variety that is available in the general marketplace. Several U.S. mainland nurseries specialize in lirioppe and have Web sites.

look unattractive until new leaves grow in, this procedure actually helps to rejuvenate older plants. It also provides an opportunity to thoroughly weed the area. If you choose to do this, make sure that the mower is set high enough to avoid severe scalping. In smaller plantings, hand pruning may be more advisable. *Liriope spicata* and older plantings of mondo grass can also ben-

efit from periodic cutting, but they are much more susceptible to injury from scalping and should not be as severely trimmed or pruned. Periodic hand raking with a stiff rake to remove dead leaves also helps both lirioppe and mondo grass. The main keys to maximum growth and health of lirioppe and mondo grass are good soil preparation and adequate fertilizer and water.

*Liriope spicata* 'Silver Dragon' is a sun-loving, variegated, spreading type often used to provide contrast in a landscape.



### Disease control

The most serious disease of liriope is root rot caused by *Pythium splendens*. Symptoms begin as a tip burn followed by a gradual yellowing and browning. Eventually the crown will easily separate from the base when gently pulled. Heavy soils and poor drainage promote outbreaks of the disease. The soil-borne *Pythium* is difficult to control, but the fungicides Subdue® and Truban® provide effective control when applied as drenches. Top-dressing with compost also seems to help combat this disease.

Another disease problem, which can be cosmetically serious, is an anthracnose fungus that causes reddish or necrotic streaks in the leaves, beginning at the tips. This occurs only on the older foliage, usually beginning in late summer. The problem is often more severe where there is overhead irrigation. Spray applications of Manzate® fungicide are effective if begun in midsummer before the fungus gets started.

### Insect pest control

The main insect problem with liriope is scale. Although this insect does not cause serious damage, it does cause unsightly spots on the leaves and is more likely to become a problem in late summer. Scale infestation can be controlled by spraying any of the oil-based insecticides that are labeled for ornamentals. The only other occasional pest problems may be slugs and snails. Spreading one of the granular baits that are available effectively controls them.

### Weed control in established plantings

Established liriope beds can become infested with a variety of broadleaf and grassy weeds. Fortunately, most of these weeds can be easily controlled by the use of various herbicides. Preemergence herbicides are very successful in controlling most annual grasses and many broadleaf weeds. Once the liriope has spread to cover the entire soil surface area, the growth of most annual weeds is minimal. Preemergence herbicides should be considered for regular applications to slow-spreading or clumping liriope varieties that may not completely cover an area sufficiently enough to choke out all annual weeds. Surflan® is a good choice because it stays active for up to four months if applied at the high range of dose specified on the label. Snapshot® and Treflan® are also very effective preemergence herbicides but are not as long-lasting.

Many perennial and annual grasses, as well as broadleaf weeds, that become established in a liriope (or mondo grass) planting can be controlled by the application of postemergence herbicides. Most grasses (including lawn grasses) are effectively controlled by Fusilade II®, Ornamec®, GrassB-Gone®, or Vantage®. These herbicides do not control broadleaf weeds or nutsedge. They will severely injure most turfgrasses if accidentally oversprayed onto them.

Nutsedge, crabgrass, kyllinga, and some broadleaf weeds such as chickweed and dandelion are controlled by Image®, which does not affect most of the lawn grasses and is safe on all types of liriope.

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