

Zoysia Lawns

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Zoysiagrasses (*Zoysia spp.*) are well adapted to the tropical climate. Two species are present on Guam – very popular *Zoysia tenuifolia* locally known as Japanese grass and *Zoysia japonica* known as common zoysia.

Japanese grass is fine textured. It does not produce viable seeds, must be propagated vegetatively (plugs or sprigs) and its establishment is extremely slow. Japanese grass is often used for residential lawns because of its pleasant appearance and outstanding resistance to weeds. When mowed, it forms a pleasant surface that is remarkably resistant to traffic. The most obvious characteristic of this species is the stiffness of leaf blades, which is caused by their high silica content. This morphological characteristic, easily recognizable to the touch, makes Japanese grass resistant to physical injury like that originating from foot or vehicular traffic. Its resistance to injury would make it a primary choice for sport fields that receive lots of concentrated traffic but its slow growth makes it too slow to recover once it has been injured. Because

of its stiffness, it is not easy to mow and mowing it with dull blades rips the turf surface or at best yields an uneven cut. Some people mastered the skill of mowing it with a bush-cutter and achieve astonishing results. Fortunately Japanese grass requires mowing only several times a year so its injury is relatively short lasting.

The other zoysia species has much broader leaves and grows somewhat faster but still much more slowly than other grasses such as bermuda grass or centipede grass. Zoysia is often chosen for golf-courses, parks, and playgrounds but home-owners do not consider it the best choice for residential lawns. In the humid tropics it often suffers from insect damage. Sod web-worm is its worst pest and may infest this species several times a year. If overlooked during the time of massive invasion and not treated with chemicals, the sod web-worm can turn an entire lawn brown within a few days. Zoysia produces seeds, but its germination rate is quite low. Zoysia lawns are usually established vegetatively with sod, sprigs, or plugs



Figure 1. A lawn with zoysia grass.



Figure 2. Zoysia grass.

rather than by seeding. Unfortunately there are no sod producers on Guam so planting material is difficult to acquire. Another drawbacks are that zoysia grows poor on compacted soil and needs high fertilization and frequent irrigation during dry season. Zoysia also forms heavy thatch that requires periodic removal.

Establishment

Japanese lawn grass and common zoysia can be established by sprigs (runners), plugs or sod. It can be planted any time when water is available to keep soil moist

Soil Preparation

Proper soil preparation is essential for successful establishment of a lawn. Grasses and other weeds that are hard to control should be treated with herbicide such as Roundup (glyphosate) before planting. Especially on larger areas, cultivation by plowing or rototilling to six inches would be helpful to establishing and maintaining a healthy turf. After leveling the area and collecting rocks bigger than golf balls, soil test can be performed to determine fertilizer recommendation. If you wish to use a general rule of thumb (without testing soil), mix 4-5 lbs of 15-15-15 fertilizer per 1000 sq. ft. into the top 4-6 inches while raking or harrowing the area to smooth the surface before planting.

Sprigging & Plugging

Runners (stolons) with at least two nodes (joints) can be planted every 4 to 6 inches in rows dug 8 to 12 inches apart (closer spacing will provide quicker cover). After planting sprigs 1 to 2 inches deep, leaving

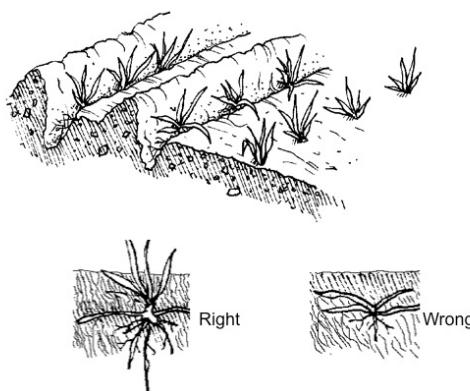
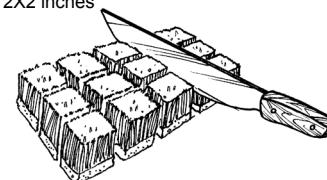


Figure 3. Sprigging.

a portion exposed to light, firm the soil to insure a good soil-plant contact. Sprigs can also be broadcast over the soil and top dressed with $\frac{1}{2}$ inch of soil. To plug zoysia, cut sod in 2 x 2 inch squares and plant on 6 to 12 inch centers (closer spacing will provide quicker cover). Keep the soil moist, but not soggy, until new growth appears. Begin mowing when plugs are well anchored in the soil. Over the period of several months mowing is performed to control weeds rather than cutting the grass but mowing is essential for proper establishment.

Ideally, sod should be cut into squares 2X2 inches



Distance between plugs 6 to 12 inches

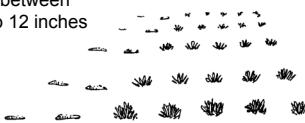


Figure 4. Plugging.

Improving Coverage

In tropical climates such as Guam, weeds may invade newly established turf massively. To someone inexperienced, a great number of weeds and few visible turf-grass seedlings may cause fear that turf establishment is failing. Fortunately, appearance of the newly established turf greatly improves after the first mowing and keeps improving with time.

The rate of initial coverage can be increased by fertilization. After new growth is seen, apply a fertilizer that is high in nitrogen at a rate of 1 lb nitrogen per 1000 sq. ft. This fertilizer application can be repeated every four weeks.

Fertilization

After full establishment Japanese grass is usually not fertilized. One pound of nitrogen per 1000 sq. ft. twice year would improve its color although in most situations it will grow well without any fertilizer. Common zoysia would require two pounds of nitrogen

per 1000 sq. ft. at the beginning of rainy season and one pound of nitrogen per 1000 sq. ft. toward the end of rainy season. The fertilizer should be applied evenly over the area when the grass leaves are dry.

Mowing

Proper mowing is essential to maintaining healthy, attractive turf. Zoysia should be mowed at 1-1.5 inches. Reel mower should be used but rotary mower with sharp blades is usually acceptable. Mow often enough so that no more than one-third of the plant height is removed. High and infrequent mowing tends to encourage thatch development, which can lead to yellowing and susceptibility to drought stress, and diseases. Japanese lawn grass is usually mowed only twice (sometimes once) a year. Reel mower should be used but as already mentioned, some people mastered the skill of mowing it with a bush-cutter and achieve decent results. When mowing injuries are widespread one pound of nitrogen per 1000sq. ft. may be applied to speed up its recovery.

Irrigation

Irrigation during periods of moisture stress will keep your lawn pretty. Water zoysia when it shows signs of moisture stress such as rolling of leaves, grayish color or wilting. Apply enough water to thoroughly wet the soil to a depth of 6 to 8 inches. Early morning is the best time to water since evening watering can encourages disease development. You may water Japanese grass or let it go dormant or semi-dormant during dry season. It will fully recover when monsoon rains are back.

Thatch

Thatch is a layer of dead plant material, which accumulates on the soil surface. Zoysias are susceptible to thatch buildup because its stolons (runners) are resistant to decomposition, abundant and often grow on the top of each other. When turf is fertilized extensively its growth leads to the development of a soft and spongy layer that makes mowing difficult and also leads to diseases and insect problems. Some people incorporate Japanese grass into the landscape and use it as ground cover rather than a lawn.

Pest Problems

A dense, healthy turf obtained through proper fertilization, mowing and watering is the best defense against pest problems. However, when problems arise from unwanted insects, diseases, or weeds, good control is dependent upon proper pest identification and treatment.

For Support

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