

Bermuda Lawns

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Bermuda grass (*Cynodon dactylon*) is the most widely distributed turf-grass around the world. It can be found in almost every region where ground does not freeze and climate is mild. It is well adapted to sunny conditions and has a medium-coarse texture with a grayish green color. When used for sport fields or other recreational facilities it is usually mowed at 1 inch, and for home lawns it is usually mowed at 2 inches. Common bermuda grass establishes a deep root system and produces long and lively rhizomes and stolons. The presence of vigorous rhizomes makes it a troublesome weed in flower-beds that are adjacent to the turf. Bermuda grass rhizomes can pass under cement curbs or other barriers and then emerge on the other side. In the tropical climate, common bermuda grass grows fast and continuously, usually staying dense and medium to dark green year-round. Bermuda grass is drought tolerant and has a good tolerance to wear that makes it the primary choice for sport and recreational fields. Bermuda is also resistant to numerous adverse environmental conditions and overall it is considered tough turf grass. The only

stress it does not tolerate well is low light intensity. In the humid tropics, especially during rainy periods lasting for several months, the light intensity is frequently reduced by heavy cloud coverage. Under these conditions bermuda grass thins out and to some extent loses its competitive advantage over weeds and other grasses. It also performs quite poorly under tree shade. Common bermuda grass can be seeded and is quite popular as residential turf. On golf courses and on other recreational and sport turfs dominates a hybrid. Bermuda grass hybrid does not produce seeds and can be reproduced only vegetatively.

Establishment

Bermudagrass can be established by seed, sprigs (runners), plugs or sod. It can be planted any time when water is available, however it is better to avoid the peak of the rainy season.

Soil Preparation

Proper soil preparation is essential for successful establishment of a lawn. Grasses and other weeds



Figure 1. A lawn with bermuda grass.



Figure 2. Bermuda grass.

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.

Seeding

Centipede seeds seem more expensive than other Bermuda seeds are sometimes sold as a mix of seeds with mulch (usually at 1:10 proportion) as “easy to seed” mixture at premium price. In case you go with less expensive option and purchase pure seeds, the primary goal is to calculate the amount of seeds per lawn area and distribute them uniformly. Seeding by hand could be done on small areas. Push-type spreaders can be used on larger areas. Bermuda grass seeds are small, often slippery, dark in color, so uniformity of distribution is not visible on the ground. The seeds should therefore be thoroughly mixed with dry, preferably white, sand. The percentage of sand is not important, but a proportion of 1-part seeds to 10 parts sand usually works well. If spreader is used, the desired amount of seed should be mixed with sand, divided in half and applied with calibrated spreader in two passes over the area at right angles to each other. This practice assures uniformity of coverage and prevents accidental skips. The visibility of white sand on the ground reveals any areas of non-uniformity. Small areas such as home lawns can be seeded from a jar with holes punched in the lid. The desired amount of seed can be mixed with white sand. All at once or in several portions, the seed-sand mix is placed in the jar, which acting like a large salt-shaker, allows for a uniform application of seeds. White sand guides the applicator very efficiently by revealing which spots received more seeds and which received less. Afterwards the area should be lightly raked so seeds are covered to the depth of $\frac{1}{4}$ – $\frac{1}{2}$ inch. The seeds must be kept moist, so daily watering is needed for the first three weeks. Germination should occur within

one week if seeds are kept moist. As the seedlings develop, decrease the watering frequency and increase the amount of water applied until normal practices can be followed. If it rains enough to moisten the soil, irrigation is not necessary. Begin mowing to the height of 2 inches when the seedlings reach a height of 2.5-3 inches. Do not mow wet grass. Be sure the mower blades are sharp, and the soil is not soft and wet.

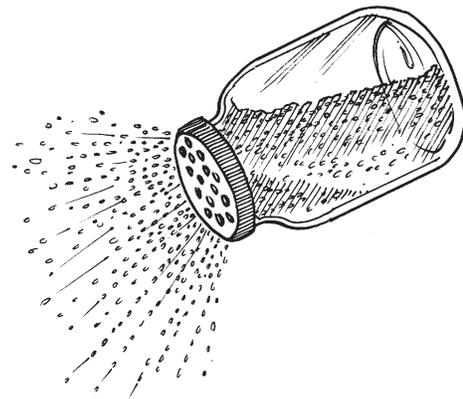


Figure 3. Mix seeds with sand to assure uniformity of coverage.

Sprigging & Plugging

Planting with sprigs and/or plugs is as good as seeding, but generally requires more time and labor. Runners (stolons and rhizomes) 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 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 but desiccation losses could be significant, so you would need 2 to 3 times more planting material.

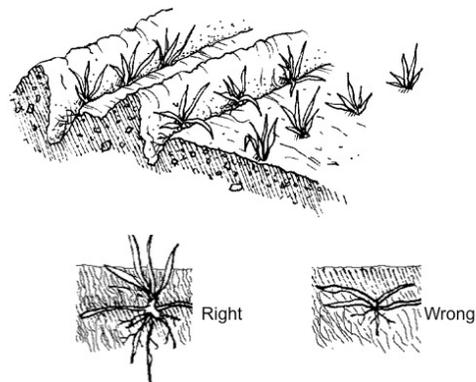
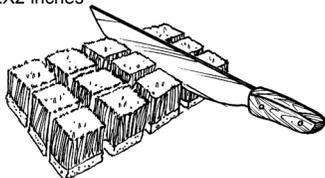


Figure 4. Sprigging.

To plug Bermuda grass, 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 to a height of 2 inches when plugs are well anchored. Be sure the mower blades are sharp and do not mow when the grass and/or soil is wet.

Ideally, sod should be cut into squares 2X2 inches



Distance between plugs 6 to 12 inches



Figure 5. 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 seeded turf greatly improves after the first mowing and keeps improving with time.

The rate of initial coverage from seeding, sprigging or plugging 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.

Maintenance

Fertilization

Unlike centipede grass, bermuda grass needs to be well fertilized. A fertilization program of larger areas should be based on soil test analyses. Home lawn on Guam needs to be fertilized 4-5 times a year using a turf fertilizer with a 3:1:2 nitrogen-phosphorus-potassium ratio. The fertilizer should be applied evenly over the area when the grass leaves are dry. Use a

spreader and use a two-direction application procedure as described for seeding.

Mowing

Proper mowing is essential to maintaining healthy, attractive turf. Bermuda grass on home lawns should be mowed at 2 inches or shorter. Use a rotary mower with sharp blades and 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.

Irrigation

Irrigation during periods of moisture stress will keep bermuda grass healthy. Water when the grass 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 encourage disease development.

Thatch

Thatch is a layer of dead plant material, which accumulates on the soil surface. Bermuda is susceptible to thatch buildup because its stolons (runners) are resistant to decomposition, abundant and often grow on the top of each other. When fertilized extensively, rapid stolon growth leads to the development of a soft and spongy layer that makes mowing difficult and promotes development of diseases and insects. Thatch control is not easy and often requires special machines.

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

Contact the College of Natural & Applied Sciences' Extension and Outreach at 735-2080 for help or more information. Additional publications can be found on our website at: www.cnas-re.uog.edu under the Publications tab.