



St. Augustinegrass

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St. Augustinegrass (*Stenotaphrum secundatum*), also called buffalograss, is traditionally thought of as a pasture and turf grass, but it has been grown successfully in the tropics and subtropics as a cover crop under the shade of macadamia, guava, and banana. It was probably introduced to Hawaii about 1816. This grass grows better in shaded conditions than in full sun, making it a good candidate for use in mature orchards under a heavy tree canopy. It has typically been used in lawns where heavy shade precludes the use of turf species such as bermudagrass. It is more shade tolerant than zoysiagrass. St. Augustinegrass requires weed control during establishment, as it fills in slowly. After about 5 months, it provides excellent weed suppression and erosion control. St. Augustinegrass is generally established vegetatively, making it initially labor-intensive. It is suitable for pasturing animals.

Characteristics

St. Augustinegrass is a stoloniferous perennial with upright, ascending stems, very branched, growing to 4–20 inches (10–50 cm) tall. Its extensively creeping runners root at the nodes. Its leaves are slightly bluish, flat, blunt, and smooth, 1¼–6 inches (3–15 cm) long and ⅙–⅔ inch (4–10 mm) wide. Its flower spikes are 1½–4 inches (4–10 cm) long and ⅛–¼ inch (3–7) mm wide. St. Augustinegrass flowers only occasionally in Hawaii, resulting in poor seed production. It is vegetatively propagated by planting stolons, which grow quickly but may need 5–6 months to establish a complete cover. Turf formation is faster under light to moderate shade. Once established, St. Augustinegrass outcompetes most weeds.

Benefits provided by St. Augustinegrass

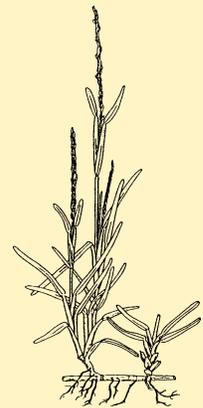
EXCELLENT for suppressing weeds when established

TOLERATES salt, shade

ESTABLISH vegetatively;
no seed available

FAIR forage production,
nutritional quality, and
palatability

USE IN plantation and orchard
cropping systems including
macadamia, coffee, banana,
guava, papaya, coconut;
shaded conditions; and as a
“living sod” intercropped with vegetables



Environmental requirements

St. Augustinegrass grows on a wide range of soils but is naturally adapted to sandy soils, sandy-organic soils, and alkaline soils. The optimum soil pH range for St. Augustinegrass is between 5.0 and 7.0. As a natural seashore plant, it tolerates short-term flooding and salt spray. It is intolerant both of prolonged dry seasons and waterlogging due to a shallow water table. St. Augustinegrass can grow on low fertility soils, but it responds well to N and P fertilization. It is shade tolerant and grows better

under 40 percent shade than under full sunlight. In Hawaii, St. Augustinegrass grows year round at elevations ranging from sea level to 3000 ft, according to the USDA Natural Resources Conservation Service (NRCS).

Establishment

St. Augustinegrass can be established by stolons, plugs, or sod. Plant sprigs or stolons at a rate of 40–80 bushels/acre with a maximum 3 x 3 ft spacing. Use 3–4-inch square sod plugs planted on a 12-inch spacing. Establishment is most successful in a well prepared seedbed. The areas to be planted must be moist from rainfall or irrigation, because the sprigs and newly established plants are susceptible to drought. St. Augustinegrass is rated as having a slow rate of establishment. It is best to plant it in a well prepared, weed-free field, where weeds have been reduced by preliminary cycles of germination and herbicide treatment, but usually significant weed control will initially be required.

Uses

Weed control

Although it may take St. Augustinegrass 5–6 months to establish a complete cover, once this grass is established it resists grassy weed invasion very well, making it a good tool as a complement or alternative to chemical weed control.

Living sod systems

In Hawaii, St. Augustinegrass is being evaluated in “living sod” systems where cover crops are grown between rows of cash crops. The living sod suppresses weeds by blocking light and by outcompeting weeds for water and nutrients. Because less soil is splashed onto the fruits in a living sod system, farmers may experience reduced disease outbreaks and improved crop quality. Added benefits from living sod include increased soil organic matter, provision of refuge for beneficial insects, erosion prevention, wind protection, and better surface traction for equipment. CTAHR Researchers have conducted trials with St. Augustinegrass as a cover crop in papaya.

Shaded conditions

St. Augustinegrass is a great choice for shaded orchards.

Erosion control and soil quality improvement

Grow St. Augustinegrass as a soil-conserving cover to protect valuable topsoil. It can also bring significant soil quality benefits, such as improved soil structure, better water infiltration rates, and increased water-holding capacity. The value of these benefits becomes most obvious during times of drought or plant stress.

Rotational grazing

St. Augustinegrass can be used as a pasture grass, although its herbage is considered to be of low quality, declining with age. In southern Florida on organic soils, livestock fed St. Augustinegrass had more gain per acre than with bahiagrass or pangolagrass (digitgrass). In another Florida study, a summary of 10 years of data showed average animal consumption of about 60,000 lb/acre of green foliage containing about 9000 lb of total digestible nutrients. Consider a grass-legume mixture to improve forage quality and to improve vegetational diversity in the farm. Crop diversification tends to reduce the farmer’s risks from soil, pest and weather problems. Annual liveweight gain of 275–400 kg/ha was reported in Vanuatu on a St. Augustinegrass-siratro (*Macroptilium atropurpureum*) pasture beneath a sparse coconut plantation.

Cover crop maintenance

St. Augustinegrass can grow on low fertility soil but it responds well to N and P fertilizer. Herbage yields are increased by adding N. Overfertilization with N can promote thatch buildup and insect problems.

Management cautions

Initial cost of establishing St. Augustinegrass is high due to the labor cost, because it must be sprigged. Weed control during its slow establishment (5–6 months to form a complete cover) should be considered.

Pest problems

In Hawaii, the major insect pest of St. Augustinegrass is the chinch bug (*Blissus leucopterus*). Two cultivars of St. Augustinegrass, ‘Floritam’ and ‘Floralawn’, are resistant to chinch bugs. Other insect pests include the grass webworm and lawn armyworm. High levels of N fertilizer may encourage insect attack.

St. Augustinegrass is susceptible to root-knot and reniform nematodes. In Florida it is also attacked by a cyst nematode, *Heterodera leuceilyma*. Brown patch, *Pellicularia filamentosa*, and gray leaf spot, *Piricularia grisea*, are diseases affecting St. Augustinegrass lawns. Brown patch can occur during warm, humid weather and is also promoted by excessive N applications. Gray leaf spot occurs during rainy periods and is promoted by overwatering.

For assistance:

Contact your nearest Cooperative Extension Service office for additional assistance in selecting appropriate cover crops and green manures for your farm and cropping situation. Help can also be obtained from the USDA Natural Resources Conservation Service field offices located on each island.

Visit CTAHR's Sustainable Agriculture for Hawaii Program Website at <<http://www.ctahr.hawaii.edu/sustainag>> to find additional information about green manure and cover crops. The site also includes references and links to other useful on-line resources.



Sustainable Agriculture in Hawaii . . .

. . . integrates three main goals—environmental health, economic profitability, and social and economic equity. Sustainable farms differ from conventional ones in that they rely more on management practices such as crop diversification and crop rotation, agroforestry, integrated pest management, rotational grazing, and innovative marketing strategies. For further information on Sustainable Agriculture in Hawaii, contact:

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