

Digitgrasses ¹

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Introduction

Digitgrasses (*Digitaria* sp.) are warm-season perennial grasses native to Africa. Digitgrasses form an abundance of decumbent stems (stolons), which root at nodes that touch the ground, similar to those of stargrasses (*Cynodon nlemfuensis*). However, digitgrasses can be differentiated from stargrasses by a transparent, paper-like membrane (called a *ligule*) at the junction of the digitgrass leaf blade and the leaf sheath (collar region). Stargrasses and bermudagrasses (*Cynodon dactylon*) have only hairs at the collar. Digitgrasses form seed heads, but produce few, if any viable seed and thus must be propagated vegetatively.

Digitgrasses are adapted to areas of Florida located south of a line extending west from St. Augustine, on the Atlantic Coast, to Gainesville and then to Chiefland, which is about 24 miles west of the Gulf Coast of Florida.

In the northern region of digitgrass adaptation, winter damage to digitgrasses often is severe. The zone of transition from frequent winter losses to the area with virtually no damage passes through Hillsborough County, an area that includes Tampa on the Gulf Coast, and through Hardee County, immediately southeast of Hillsborough County, and Osceola County, which is located in central Florida, south of Orlando.

Soil-moisture requirements of digitgrasses are similar to stargrass. No digitgrasses are as drought-tolerant as the



Figure 1. Pangola digitgrass, growing in south Florida.
Credits: Buddy Pitman

bahiagrasses, nor as tolerant of high water tables as limpo-grass (*Hemarthria altissima*).

Ranchers in central and south Florida have been well served for many years by 'Pangola' and other cultivars of digitgrass. 'Pangola' is a very palatable grass that is readily consumed by livestock (beef and dairy cattle and horses) as grazed pasture or hay. Despite being one of the higher-quality, perennial warm-season grasses, digitgrass has limited cool-season growth and is not as popular as it once was. Digitgrass has been replaced by newer grass species that start growing earlier in the spring, are more productive, or are more tolerant of grazing. Many old 'Pangola'

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digitgrass fields have been invaded by bahiagrass (*Paspalum notatum*) and common bermudagrass.

Cultivars

Five different digitgrass cultivars have been available for use in central and south Florida, including 'Pangola,' 'Slenderstem,' 'Transvala,' 'Taiwan,' and 'Survenola.' 'Pangola' has been the most widely used of these digitgrass cultivars and continues to be the most important.

'Slenderstem' has finer stems and more leaves than 'Pangola.' Total annual production for 'Slenderstem' is less than 'Pangola,' but production is greater in the cool season than 'Pangola.'

'Transvala' has narrow but abundant upright leaves with a bluish tinge. A key method of identification of 'Transvala' is the presence of 3–20 tubercle-based hairs on the upper surface of the leaf blade adjacent to the collar. Yield from 'Transvala' is equal to that of 'Pangola,' and 'Transvala' yields will be greater than 'Pangola' if sting nematodes are present in the soil. 'Transvala' is tolerant of sting nematodes and the disease 'Pangola' Stunt Virus, which occurs in South America, but has not yet been found in Florida.

'Taiwan' is adapted only to south Florida, south of Lake County. 'Taiwan' has larger leaves and stems than 'Pangola,' and 'Taiwan' plants are much larger than 'Transvala' plants. 'Taiwan' production is similar to 'Transvala' and greater than 'Pangola' during the cool season. 'Taiwan' also has some tolerance to the 'Pangola' Stunt Virus and is more resistant to the yellow sugarcane aphid than is 'Pangola.'

'Survenola' is adapted to well fertilized, sandy, upland soils, which predominate from Gainesville south, about 95 miles, to Brooksville. 'Survenola' has broader leaves and larger stems than other digitgrasses.

Pasture Establishment

Lime and fertilizer requirements for establishment of digitgrasses vary, depending on soil type and previous treatment of the area. Digitgrasses can be established and will grow vigorously on sandy soils that have a moderately low pH (5.0). However, low pH, calcium, and magnesium levels reduce production and persistence. The target soil pH for digitgrasses is 5.5. Lime and fertilizer applications should be based on a soil test.

Most newly cleared land will require at least 1 ton/A of lime, which should be applied two to six months before sprigging. Establishment N, P, and K should be applied after

the grass has sprouted and started to grow. If soil test P and K are low, apply $N-P_2O_5-K_2O$ at the rate of 40-40-40 lb/acre. Apply an additional 70 lb of N and 40 lb of K_2O 30 to 50 days later.

Digitgrasses are sensitive to copper deficiency. To avoid copper deficiency, an initial treatment of 3 lb/acre of elemental copper should be made on newly cleared sandy land. Manganese and zinc may also be needed on new plantings and should be applied at the rates of 3.0 and 3.5 lb/acre, respectively. Soil testing for these nutrients is useful to determine their status in your soil.

It is very difficult to establish and maintain digitgrass stands on land where common bermudagrass is growing. In this situation, it may be desirable to use herbicide to kill the bermudagrass and bahiagrass plants prior to tillage and planting of digitgrass. A more practical solution may be to plant some other grass that is more competitive with the weedy grasses and plant digitgrass only on "new" or clean land.

Digitgrass planting can be done during the warm season, whenever ambient temperature is greater than 60°F, when soil moisture is adequate, and live plant material is available. Freshly mowed stems and stolons of 2-month-old to 3-month-old grass are spread over a well prepared seedbed and covered with a disk harrow. Broadcast a minimum of 500 lb/acre of planting material on newly prepared native land. Increase the planting rate to 1,500–2,000 lb/acre on old fields infested with other grasses and broadleaf weeds. Cover the planting material 2–4 inches deep with a disk harrow. Set the disk blades at a slight angle. The ends of some stems should protrude above the soil surface. A cultipacker or similar implement should follow the disk harrow to produce a smoother field and help insure rooting by providing good soil contact.

Annual weeds can be controlled by thorough cultivation prior to planting. Herbicide treatment is recommended on land infested with broadleaf weeds. Most seedling broadleaf weeds are controlled with 1–2 lb ai of 2,4-D amine or in combination with Banvel when applied after sprigging. For herbicide recommendations, see the latest Extension Weed Control Guide, *Weed Management in Pastures and Rangeland*, <http://edis.ifas.ufl.edu/wg006>.

Grazing of new plantings should be delayed until the ground is covered with runners. To reach this stage, digitgrass plantings usually require 60–90 days during favorable weather and longer in cool or dry periods. If

possible, take the first harvest as a hay crop to allow for better establishment.

Pasture Maintenance

Fertilization

Annual fertilization is required to maintain digitgrasses in a productive condition. Fertilization should be scheduled to obtain efficient use of forage, with time and rate of application being based on cattle needs and weather conditions. A growth period of at least 30 days between fertilization and grazing should be provided unless the grass is relatively tall (6–12 inches) when fertilized. In that case, the growth period can be shorter.

At least 60 days of growing time or a non-grazing period is needed in the fall of the year to provide reserved forage for mid-winter grazing. High rates of nitrogen fertilizer should not be applied in the late fall since such applications increase the susceptibility of digitgrasses to winterkilling and are also an inefficient use of the fertilizer.

Grazing

Digitgrasses should be grazed rotationally with resting periods of two to three weeks between grazings. When grass has been grazed to a height of 4–6 inches, cattle should be moved to a different pasture.

Digitgrasses are highly palatable; thus, if grazing is not carefully controlled, cattle tend to overgraze digitgrasses. Such overgrazing can allow weeds to increase in the pasture. Letting 18 inches of grass accumulate at one date during the growing season increases the ability of digitgrass to compete with weeds.

White clover can be grown in combination with digitgrasses. Digitgrass-clover pastures need to be grazed short by September to reduce grass competition and should then be fertilized with phosphorus and potassium. Cattle should be removed to permit the clover to grow. Rotational and deferred grazing, as well as favorable weather conditions, are needed for successful production of digitgrass-clover pastures.

Growth of digitgrass pastures can be accumulated (stockpiled) in the pasture for winter grazing. Although the energy and protein value may have decreased, mature or frosted forage is readily consumed by grazing cattle.

‘Pangola’ has produced 0.2 lb/day higher animal gains in comparison with Pensacola bahiagrass at the Range Cattle Research and Education Center, Ona, FL. At Gainesville,

FL, Pangola, Pensacola bahiagrass, and Coastal bermudagrass produced similar beef daily gains and gains/acre.

Hay Production

To produce high-quality digitgrass hay, apply fertilizer in the spring after frost danger has passed. The total amount of nitrogen applied before the first hay crop should equal 80 lb/acre unless soil is very fertile. Harvest when the grass reaches the early heading stage or by June 1. In central and south Florida, a hay harvest made by June 1 is usually early enough to avoid rainy weather in those areas.

Hay harvest exhausts the plant nutrients, and regrowth will be disappointing unless additional fertilizer is supplied, especially nitrogen. If the grass will not be harvested again during the summer, either by grazing or for hay, it probably should not be refertilized until late summer. A large accumulation of unused grass from mid-June through August provides an ideal environment for the buildup of spittlebug, which, in turn, could cause severe stand loss.

Most hay in Florida is made from October 1 to November 15, when damage by rain is less likely than in the spring. Production of a large fall hay crop usually requires a fertilization of approximately 80 pounds of nitrogen per acre, along with the needed P and K by September 1. Hay made from mature digitgrass in the fall usually is low in protein, thus a protein supplement will be needed to meet the nutritional requirements of most classes of animals.

Digitgrasses can also be harvested for silage. Silage can be made during midsummer, when curing hay is difficult or impossible. Extra care must be taken with silage to prevent surface and internal spoilage when stored in a bunker silo. Such care includes making sure that digitgrass silage is harvested with water concentration of 65%–70%, as well as thorough packing and use of a cover to exclude air.

Insect Control

The digitgrasses may be attacked by aphids, several different foliage-feeding worms, and spittlebugs. Rapid removal of forage by intensive grazing, removal as hay, or certain insecticides may be of value in controlling these pests. If an insecticide is to be used, see current Cooperative Extension Service recommendations.