

## Digitgrasses <sup>1</sup>

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Central and south Florida ranchers have been well served by 'Pangola' and other cultivars of digitgrass for many years. Digitgrasses are not as popular as they once were, having been replaced by newer grasses that start growing earlier in the spring and are more productive. Many old Pangola digitgrass fields have been invaded by bahiagrass and common bermudagrass. In the Okeechobee area, fields of Pangola that are relatively free of other grasses and weedy plants can be found. Also, some ranchers are planting Pangola, especially on new land where there has not been a buildup of weedy plants. Pangola is a very palatable grass that is readily consumed by cattle as grazing or hay. There is still a market for Pangola hay.

The digitgrasses are warm-season perennial grasses and look very much like the common annual crabgrass. They form an abundance of decumbent stems that root at nodes which touch the ground, similar to those of stargrasses. However, digitgrasses can be differentiated from stargrasses by having a transparent, paper-like sheet (called a *ligule*) at the junction between the leaf blade and the leaf sheath that wraps around the stem. Stargrasses and bermudagrasses have hairs (ligule) at that joint.

These grasses form seed heads but produce few, if any, viable seed and thus must be propagated vegetatively.

The digitgrasses are adapted to areas south of a line running from St. Augustine to Gainesville to Chiefland. Winter damage to the digitgrasses often is severe in the northern region of adaptation. Injury is less common in the south, and the zone of transition from frequent winter losses to the area having virtually no damage on sandy land passes through Hillsborough, Hardee, and Osceola counties.

Soil moisture requirements of the digitgrasses are similar. None are as drought tolerant as the bahiagrasses, nor as tolerant of high water tables as limpgrass (*Hemarthria altissima*).

### CULTIVARS

Over the years there have been five different digitgrass cultivars available for use in central and south Florida. These include Pangola, Slenderstem, Transvala, Taiwan, and Survenola. Of these, Pangola has been the most widely used and continues to be the most important today. **Slenderstem** has finer stems and more leaves than Pangola. Its total annual

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1. This document is SS-AGR-51, one of a series of the Agronomy Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. This publication is also part of the Florida Forage Handbook, an electronic publication of the Agronomy Department. For more information you may contact M.B. Adjei (mbadjei@ifas.ufl.edu). Revised February 2006. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>.
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production is less than Pangola, but its production in the cool season is greater. **Transvala** has narrow but very abundant upright leaves with a bluish tinge. A key method of identification of Transvala is the presence of 3 to 20 tubercle-based hairs on the upper surface of the leaf blade adjacent to the collar. Its yield is equal to that of Pangola and will be greater if sting nematodes are present. It 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. It has larger leaves and stems than Pangola, and the plants are much larger than Transvala. Its production is equal to Transvala and greater than Pangola during the cool season. It also has some tolerance to the Pangola Stunt Virus and is more resistant to the yellow sugarcane aphid than Pangola. **Survenola** is adapted to well fertilized, sandy upland soils south of Gainesville to Brooksville. It has broader leaves and larger stems than other digitgrasses.

## PASTURE ESTABLISHMENT

Lime and fertilizer requirements for establishment of the digitgrasses will vary depending on soil type and previous treatment of the area. The digitgrasses can be established and will make vigorous growth on sandy soils having a moderately low pH (5.0); but low pH, calcium, and magnesium levels reduce production and persistence. The target 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. This should be applied 2 to 6 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<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O at the rate of 30-40-40 lb/A. Apply an additional 70 lb of N and 40 lb of K<sub>2</sub>O 30 to 50 days later.

Digitgrasses are sensitive to copper deficiency and should have an initial treatment of 3 lb/A of elemental copper on newly cleared sandy land. Manganese and zinc may also be needed on new plantings, applied at the rate of 3.0 and 3.5 lb/A, respectively.

It is very difficult to establish digitgrasses on land where common bermudagrass is growing and keep them from being reinvaded by the bermudagrass or bahiagrass after 3 or 4 years. In this situation, it may be desirable to use a herbicide to kill the bermudagrass and bahiagrass plants prior to tillage and planting. A more practical solution may be to simply plant some other improved grass that is more competitive with the weedy grasses and plant digitgrass only on "new" or clean land.

Planting can be done during the warm season whenever ambient temperature > 60°F, soil moisture is adequate, and live plant material is available. Freshly mowed stems and stolons of 2- to 3-month-old grass are spread over a well prepared seedbed and covered with a disk harrow. Broadcast a minimum of 500 lb/A of planting material on newly prepared native land. Increase the planting rate to 1,500-2,000 lb/A on old fields infested with other grasses and broadleaf weeds. Cover the planting material 2 to 4 inches with a disk harrow. Set the disk blades at a slight angle. The ends of some stems should be protruding above the soil surface. A cultipacker or similar implement should follow the disk harrow in order 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. (See the latest Extension Weed Control Guide for herbicide recommendations.) Grazing of new plantings should be delayed until the ground is covered with runners; this usually requires 60 to 90 days during favorable weather and longer in cool or dry periods. If possible, take the first harvest as a hay crop. This will allow for better establishment.

## PASTURE MAINTENANCE

### Fertilization

Annual fertilization is required to maintain the 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 6 to 12" high when fertilized. 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 because such a practice increases the susceptibility of the digitgrasses to winterkilling and is also an inefficient use of the fertilizer.

### **Grazing**

The digitgrasses should be grazed rotationally whenever possible by allowing a minimum of 1 week between grazings in midsummer and 2 to 3 weeks during the rest of the growing season. When grass has been grazed to a height of 4 to 6", cattle should be moved to a different pasture. Digitgrasses are highly palatable, thus cattle tend to overgraze them which allows weeds to increase in the pasture. Letting 18" of grass accumulate at one date during the growing season will permit the digitgrass to compete with weeds.

White clover can be grown in combination with the digitgrasses. These pastures need to be grazed short by September to reduce grass competition, and then fertilized with phosphorus and potassium. Cattle should be removed to permit the clover to grow. Rotational and deferred grazing along with complete water control 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 significantly higher animal gains in comparison with Pensacola bahiagrass at the Range Cattle Research and Education Center, Ona, FL. At Gainesville, FL, Pangola, Pensacola bahia and coastal bermudagrass produced similar beef daily gains and gains/A. Pangola has produced less beef gains on muck soil than St. Augustinegrass at the Everglades Research and Education Center, Belle Glade, FL.

## **HAY PRODUCTION**

To produce high quality 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/A unless soil is very fertile. Do not graze after February 1. Harvest when the grass reaches the early heading stage or by June 1. A hay harvest made by June 1 is usually early enough to avoid rainy weather in central and south Florida. 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 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 80 plus lb of nitrogen, along with the needed P and K by September 1. Hay made from mature grass in the fall usually has a low protein content, thus a protein supplement will be needed to provide nutritional balance when the hay is fed.

The 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 grass silage to prevent surface and internal spoilage when stored in a bunker silo. This includes having a water content of 65-70%, 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.

## WINTERKILLING

All of the digitgrass cultivars are susceptible to winterkilling in Florida. Winterkilling is the process whereby vigorous plants are weakened and/or killed during the November to March period. This problem can result from application of high rates of nitrogen fertilizer in the late fall, numerous heavy frosts during the winter with regrowth initiated between frosts, and a large accumulation of mature or dead grass on the surface that has a "smothering effect." If rained on, cut hay must not be allowed to stay in the field through the winter since this will smother the grass even further. Also, much of what might be considered winterkill may actually be due to spittlebug damage that occurred the previous late summer and fall.

When rapid growth begins in May and June, severely winterkilled pasture should be fertilized and remain ungrazed for 30 to 60 days or until a stand has been reestablished.