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'Callide' Rhodesgrass [1]

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'Callide' rhodesgrass (*Chloris gayana* Kunth.) is a robust, high quality, warm-season perennial grass. It has both erect stems and stolons that root at the nodes. Callide does not form a tight sod and at times looks like a bunch grass, especially after it has been heavily grazed. It can be established from seed which are produced year-round in Florida. At full seed, plant height can vary from about 2 feet in the cool season (short days) to about 6 feet in the summer (long days). Normally, seed harvesting occurs from fall through spring. Callide rhodesgrass is adapted to sites similar to where Pangola digitgrass is grown in central and south peninsular Florida. It is better adapted to flatwoods than to upland sands. Callide can tolerate periodic flooding but does not grow in standing water. It is a productive, good quality grass with better cool season growth than bahiagrass, which may make Callide especially useful in southern Florida for fall and winter grazing. Because of its tall, erect growth, Callide can also be used as a hay crop. As with most tropical grasses, frost will damage Callide foliage, but regrowth after a frost or freeze can be quite rapid.

Before planting this grass, a producer should be aware that although Callide has some advantages, it also has some disadvantages or weaknesses. Callide is susceptible to attack by several insects, particularly spittle bugs. Since it does not compete well with common bermudagrass, Callide should not be overgrazed when this weed is present. To maintain a stand, Callide requires a higher level of management than that required by the bahiagrasses.

ESTABLISHMENT

Callide should be planted on virgin sites or sites that are free of common bermudagrass. If an existing pasture is to be planted to Callide, it should be thoroughly cultivated in the fall and/or spring in order to kill all vegetation. A renovation program of fall plowing, planting of a cool season annual grass, then tillage again in April or May, before planting the rhodesgrass, has been successfully used to establish a new pasture. If planting on an old bahiagrass pasture, a producer may choose to kill the grass with 1 gal/A of Roundup in the fall, disc in the spring, and respray any grass that appears. Callide will not compete with common bermudagrass. In southern Florida, Callide

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can be planted from early spring to early fall whenever soil moisture is plentiful. The seedbed should be well-prepared. Try to plant 10 to 12 lb/A of seed. The seed can be broadcast on the surface after the last discing and then rolled to press seed into soil. The seed may be shallowly covered by dragging light chains or tree branches stripped of their leaves over the land ahead of the roller, but rolling alone usually gives sufficient coverage. Discing (harrowing) to cover the seed is not recommended since it can bury the seed too deeply. Rhodesgrass seed do not germinate below a depth of 1 inch. Since the seed is very light and fluffy, it is difficult to handle. The seed will tend to "bridge" and not flow through most mechanical seeders. In order to plant the seed, the usual practice has been to mix the seed with fertilizer and use the fertilizer spreader to broadcast the seed. Use a 0-8-8 or similar fertilizer, and do not let the seed-fertilizer mix stand for more than one day or the seed may be damaged by fertilizer salts. The person in charge of planting should always check behind the spreader to determine the width of seed spread, which should be about 10 to 15 feet. Fertilizer will be thrown much farther than the rhodesgrass seed, and therefore considerable overlapping of fertilizer may occur. The mixing of fertilizer and seed and adjustment of the spreader should be done in such a way as to allow for a low rate of fertilizer application with the main purpose being to broadcast the rhodesgrass seed. The seed has also been broadcast with fan-type spreaders that have a special auger or agitator in the hopper that keeps the seed from "bridging," i.e., keeps the seed flowing. Other seeding tools, such as grassland drills and drop spreaders, might be useful but have not been tried. Conventional grain drills or pasture-sod drills have not worked.

The seeds are fluffy, very small and light, and seedlings are also small and weak immediately after germination; thus, the need for a well-prepared, firm seedbed. Once the seedlings get started, growth is usually very rapid and some producers have had grass ready to graze or harvest for hay in 6 to 12 weeks. Be ready to apply nitrogen (50 to 60 lb/A of N) before seedlings reach a height of 4 to 8".

Producers have experienced variable results with some plantings germinating rapidly and establishing an excellent stand of grass, while in an adjacent planting the seed are slow to germinate and stands are less than desirable. This may be due to variation in seed quality, insect damage, or poor seedbed preparation and planting technique. With poor initial establishment, the stand may improve (if weeds are not a serious problem) due to spreading of stolons and germination of seed produced from the original plants. Callide is a good seed producer and new plants can result from seed that fall to the ground and germinate.

MANAGEMENT OF ESTABLISHED STANDS

Grazing

A new planting should not be grazed until the plants are 1 1/2 to 3 feet tall. Rotational grazing of an established stand with periodic rest periods that allow the grass to recover from grazing is the safest plan to follow. In the spring, fertilize and start grazing when new growth is 1 1/2 to 2 feet tall. Graze to a stubble height of 8 to 10 inches. Remove cattle and permit Callide to reach a height of no more than 2 feet before regrazing. Continue to rotationally graze through the summer, not allowing the grass to accumulate more than 2 feet of growth. This will help prevent spittle bug damage. Refertilize pastures in the fall (October). Grass can exceed 2 feet in height from November to April because spittle bugs are not active at this time.

Hay

Callide is easy to cut, even when regrowth is several months old. Under ideal conditions, and with adequate N fertilization, two hay crops could be made prior to June and possibly two in the fall prior to the first frost. Whenever a hay crop is removed, phosphorus and potassium should be applied according to soil test recommendations. Producers utilizing Callide as a hay crop should be aware that armyworms and grass loopers can be a problem as they are on other highly fertilized improved grasses.

Fertilization

Maintaining a soil pH of 5.5 should be sufficient for good growth. Annual P and K fertilization rates should be the same as those recommended for

Pangola or stargrass. Callide pastures should be fertilized in the fall or early spring with a minimum annual application of 60 lb/A N; and for maximum production, it may be best to apply 60 to 80 lb/A N in the fall and again in the spring. Yields and crude protein content of Callide increase with increasing N application rates, so the producer has the flexibility to fertilize based on how much grass is needed or the class of cattle to be grazed. Grass fertilized in the early fall may be especially susceptible to attack by foliage feeding worms (caterpillars). Therefore, if fertilizing for grazing or a hay crop, producers may want to delay fall fertilizer application until after mid-October as a strategy to avoid this potential problem.

In order to fully utilize Callide during the summer, it should be grazed in a rotational system to prevent overgrazing. One of two management plans could be used in the fall in south Florida: 1) If a hay crop is desired and one is willing to contend with armyworms, fertilize in September, and after hay is harvested in late October, refertilize immediately to stimulate regrowth that will be ready for grazing by mid to late November; 2) For deferred grazing only, fertilize in October for grazing in November or December. Additional N should be applied as needed in late February or early March for additional high quality grass.

Production and Quality

Limited growth data has been obtained with Callide. The results of a N fertilization experiment at Ft. Pierce is shown in Table 1 . In this test, the crude protein content of the grass increased as rate of N increased, while yields and digestibility tended to also increase, but not consistently. Grass that had been fertilized in October but not harvested was refertilized with 50, 100, and 150 lb of N on November 27 and produced an average yield of 3600 lb/A of dry matter on December 17 (42 + 20 day = 62 day regrowth), with crude protein of 9-14% and digestibility of about 52%. Regrowth from the December 17 harvested plots was reharvested on January 22 (36 days without additional fertilizer). Yields ranged from 1300 to 1700 lb/A of dry matter and crude protein ranged from 14.6 to 18.5%, depending on the November fertilization rate. Digestibility averaged 64%. No direct comparisons have been made of yield and quality between Callide and other perennial grasses grown in southern Florida. It is expected, but not confirmed, that the cool season growth of Callide will be equal to or better than that of Floralta limpograss (*Hemarthria*), with protein being higher and digestibility slightly lower.

Cattle acceptance of Callide is equal to that of Pangola; but because of its erect growth habit, when deferred grazing is practiced in the fall, larger basal stems will not be grazed below a height of about 8 to 12". This stubble protects tender regrowth from being overgrazed by cattle.

PESTS

Weed Competition

Seedling vigor is greater, and thus stand establishment faster than that of bahiagrass and some of the vegetatively planted grasses. With a high population of grass seedlings, Callide can compete with water sedges and annual weed species. If mismanaged, however, Callide cannot compete as well over the long term as can Stargrass or bahiagrass. Therefore, on renovated pastures to be planted to Callide, it is critical that common bermudagrass and bahiagrass plants be killed prior to seeding.

Herbicides normally used to control broadleaf weeds or water sedge can be used without damage to established Callide. At this time it is not known if the herbicide used for smutgrass control can be used on Callide pastures.

Insects and Diseases

Armyworms and grass loopers will feed on Callide; thus fertilization in the June to September period is not recommended unless the grass is being harvested for green chop or silage. If insects become a problem, the affected area should be grazed or mechanically harvested. If there is not enough growth to be harvested, an insecticide could be used. There has been no sign of rhodesgrass scale attacking Callide. Damage to Callide can occur during the seedling stages from the lesser corn-stalk borer. Damage from this insect can be particularly

devastating during dry weather. This insect's larvae feed on the stems at ground level and can kill seedlings in a week or so. With established plants, there is little permanent damage. Chinch bugs can kill plants during a dry summer. To prevent or reduce infestations, tall (18 to 36 inches) Callide should be moderately grazed and maintained at a height of 14 to 18 inches through the summer to prevent trampling and thatching. Heavy thatching from trampled Callide stems plus N fertilization with accompanying unusually dry weather provide an ideal environment for chinchbug to cause heavy plant damage. Also, these conditions combined with high rainfall provide an ideal environment for development of the two-lined spittle bug which can damage or kill grass. Although there are a few diseases that attack Callide, they are not of economic importance in southern Florida.

Renovation/Regeneration

If the stand is damaged by insects during the summer it may be possible to regenerate the stand by letting the remaining plants make seed in the fall. Then in the early spring, disc or rototill the pasture as if preparing a seedbed. Some producers have done this and have regenerated a new, healthy stand of grass. Susceptibility to insect damage and lack of persistence have reduced the acreage planted to Callide rhodesgrass considerably in south-central Florida in recent years.

SUMMARY

Callide rhodesgrass is a tropical or subtropical perennial grass with rapid seedling growth and development and with rapid, mature plant regrowth during the cool season. It can be used for either grazing or hay. This grass requires intensive management. Without annual fertilization and controlled (rotational) grazing, stands will likely thin and be lost. It does offer the advantages that it can be established from seed and has excellent fall growth.

Table 1. Response of Callide to fall fertilization at the Indian River REC--Ft. Pierce, FL.

Pounds of N/A [1]	Dry Matter Yield Pounds per Acre	Percent Crude Protein	% IVOMD [2](digestibility)
50	3200	9.1	52
100	3000	12.0	52
150	3700	13.3	53

[1] Fertilized Oct. 16; Harvested at 6 weeks regrowth.
[2] In vitro organic matter digestibility (IVOMD).