

Savanna Stylo Production Guide ¹

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Savanna stylo, *Stylosanthes guianensis* (Aubl.) SW, is a warm-season forage legume. It was selected from a large pool of *Stylosanthes* germplasm in Florida's environment by the University of Florida's forage plant-breeding program. It is widely adapted in Florida, but because plants are more likely to live over winter in southern Florida, it is better suited there.

Savanna is an erect to semi-erect, 3- to 5-foot tall, herbaceous legume with a strong branching habit. Most summer legumes grown in Florida flower, make seed, stop growing, and often drop their leaves in September and October. In contrast, Savanna continues growing through September and October. Savanna plants remain green and retain their leaves until frost. In the frost-free areas of Florida or in mild winters in south-central Florida, Savanna can act as a short-lived perennial. That is, it will live through the winter and continue growing in the next year. In most of south and south-central Florida, those areas where the first frost occurs after the middle of December, it can be managed as a reseeding annual. Savanna matures seed before the onset of winter

(mid-December) in south Florida, which enables it to regenerate from seed if the mother plants are killed by a freeze in January or February. In those areas of Florida where the first frost occurs before the middle of December, Savanna can be managed as a non-reseeding annual.

YIELD AND QUALITY

Trials throughout the state have shown that early season forage availability of Savanna is less than that of alyceclover or hairy indigo, but accumulated yield can be greater. Research at the Subtropical Agricultural Research Station in Brooksville showed that June-planted Savanna produced the least amount of accumulated dry matter compared to June-planted alyceclover or hairy indigo in August (Table 1). By October, Savanna had yielded over a ton more forage dry matter/acre than alyceclover or hairy indigo (Table 1). Forage crude protein and digestibility of Savanna were equal to or better than either alyceclover or hairy indigo from August until November (Table 1).

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1. This document is SS-AGR-53, one of a series of the Agronomy Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Revised September 2006. This publication is also a part of the Florida Forage Handbook, an electronic publication of the Agronomy Department. For more information you may contact J. M. Bennett (jmbt@ufl.edu). Please visit the EDIS Website at <http://edis.ifas.ufl.edu>.
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ESTABLISHMENT

Site Selection

Savanna is adapted to sites that have good surface drainage. Old vegetable fields and flatwood pastures that still have their irrigation ditches, which also serve for drainage during the summer, should make excellent sites for planting Savanna. Although able to tolerate short periods of high water table, such as occur in the better-drained flatwood soils, long-term flooding can damage the plants and especially the seedlings. Plants stop growing when flooded and they turn yellow where water collects for long periods. Savanna is also adapted to well-drained upland soils of the sand ridge.

Planting

Savanna can be planted any time in the spring after the last killing frost if soil moisture is adequate. At drier locations that frequently suffer April-May droughts, waiting to plant Savanna until the summer rains start (June) is a better option. Savanna can be planted in a firmed, clean-tilled seedbed similar to what would be used for alyceclover hay production. Or it can be overseeded into a closely grazed and disked grass sod, particularly in those areas where it can be grown as a perennial. When over-seeding on bahiagrass sod, it is especially important to remove excess grass by grazing close and then disking or chopping to obtain about 50% destruction of the sod. Use 10 to 20 lb seed per acre that has been inoculated with cowpea inoculant just prior to planting. The higher rate should be used when unfavorable conditions, such as dry soils and potential weed problems, are expected or when overseeding into a sod. Whether broadcast or planted with a small seed box of a grain drill, Savanna should be planted in a manner similar to alyceclover; no more than 0.5 inch deep and the soil should be firmed with a cultipacker or roller after planting.

Seedling Management

When planted in a sod, the grass, as well as the summer annual legumes that might volunteer, and broadleaf weeds that emerge, should be grazed or mowed low enough to keep sunlight on the stylo seedlings. Stylo seedlings grow slower than many

other plants, and if the new planting is not carefully managed, the stylo plants may be shaded out. When the stylo plants are 3 to 4 inches tall, they will usually survive most competition. If the new planting is grazed to control competition, animals should be kept on the new sod planting until the stylo plants are 3 to 4 inches tall, or until cattle start grazing the stylo seedlings. At this point, the animals should be removed to allow the Savanna stylo plants to develop.

Natural Reseeding

In areas of the state where Savanna can make seed, a new stand can develop from volunteer plants (natural reseeding) the following spring if the plants were allowed to make seed in the late fall. Grazing the plants no lower than 10 to 12 inches in the fall should allow for adequate seed production for natural reseeding. Since Savanna is only a short-lived perennial, allowing for some seed production each year will help sustain the stand. Burning the pasture in February can enhance seed germination and seedling establishment, but it will also likely kill any live-over plants. The pasture should be examined before burning to determine if there are enough live-over plants (about one live plant per square foot) to develop a satisfactory stand in the coming year.

Lime and Fertilization

Studies suggest that Savanna stylo is more tolerant of low phosphorus levels than alyceclover, but until the full fertility requirements for production of Savanna are worked out, producers should follow the soil test recommendations for general legume production as provided for in EDIS document SL-129 *UF/IFAS Standardized Fertilization Recommendations for Agronomic Crops* (<http://edis.ifas.ufl.edu/SS163>). This usually means ensuring that the pH is no lower than 5.5 and that adequate levels of phosphorus and potassium are provided based on soil test results.

MANAGEMENT AND UTILIZATION

Stockpiling

Since Savanna remains vegetative and holds its leaves through the fall, it might be useful to cattle producers as a fall stockpiled forage, even in those areas of the state where it can only be grown as an annual. If Savanna is planted in June on a clean-tilled seedbed, it could be allowed to accumulate growth throughout the summer. The earlier Savanna is planted (or volunteers, or if it lives through the winter), the higher the seasonal forage yield potential. The growth of early plantings that are not grazed may become excessive. Savanna stems can grow to lengths of 4 to 5 feet, at which height lodging is a problem. Additionally, large numbers of leaves may be lost when the plants lodge resulting in a decline in forage quality. If plant height exceeds 2 feet by mid-summer, a once-overgrazing to bring the plants down to about 10 to 12 inches in height should minimize lodging problems with stockpiled Savanna, but this height will still ensure that adequate amounts of forage are available in the fall. In most areas, late-planted (June) Savanna does not get tall enough to have lodging problems.

If stockpiling of stylo growth is desired, animals should be completely removed no later than the first day of August to permit the stylo growth to accumulate for 2 months. Stockpiled Savanna will be most economically utilized if it is rationed out over the September-through-November grazing period. This can be done by strip fencing with temporary electric fencing. Alternatively, a group of animals, such as replacement heifers, that need the higher forage quality provided by the upper stems and leaves of Savanna, might be allowed access to the field first and then be followed by a group of mature brood cows. Regardless of the grazing management practiced, all standing Savanna forage should be grazed-off or down to a stubble height of 6 to 8 inches before frost. Leaving 6 to 8 inches of stubble seems to help the plants act as perennials. Large mature plants, if cut off at ground level, usually will not grow back.

Summer Grazing

Where it can be grown as a perennial or as a reseeding annual, Savanna will develop growth early enough so that it can be grazed throughout the summer. Although tolerant of very close grazing, forage production of Savanna will be higher if rotationally grazed whenever the plants have reached about 18 to 24 inches in height. Whatever the starting height, Savanna should be grazed down to approximately one-half of its height to ensure vigorous regrowth. Grazing can continue through the fall.

Seed Production

Regardless of planting date, Savanna starts flowering in mid-October and continues flowering for several weeks. The maximum amount of mature seed usually occurs about mid-December. Grazing should be timed so that the plants are of adequate height (greater than 1 foot) at the start of the flowering period and grazing should be deferred or reduced until mature seed are present. This practice also will ensure that some seed are available for stand regeneration in case the original or mother plants do not survive. If desired, seed can be harvested with a commercial combine. For commercial seed production, excessively tall (4-5 ft) plants are often difficult to combine and much seed is lost. Moderately tall (2-3 ft) plants usually produce higher seed yields. Some fields have produced 200 pounds of seed per acre.

Weed Control

Herbicides for control of weeds in forage legumes are not generally available. In some situations, a herbicide in a wick application may be useful. Mowing may be needed if tall broadleaf weeds are present.

Insects and Diseases

Insects have not been a problem, but instances of damage by certain insects may occur as acreage increases. Recently, some plantings of stylo have been damaged by the Anthracnose disease. At this time, it is unclear if this disease will become widespread or if it is only an isolated weather-related problem.

SUMMARY

Savanna Advantages

1. A legume
 - accumulates nitrogen (N)
 - does not need nitrogen fertilizer
2. Acts as a perennial in more southern Florida
3. Good seed producer
4. Remains green until frost - may be useful as a fall stockpiled forage
5. Generally provides higher level of nutrition than bahiagrass, especially in late summer and fall

Savanna Disadvantages

1. Slow seedling growth
2. Not adapted to prolonged flooding
3. Susceptible to the Anthracnose disease

Producers should be aware there is always a certain amount of risk involved in the establishment of any crop. Forage legumes always seem to have more risks than our more commonly used forage grasses. Nevertheless, both researchers and producers associated with their establishment and production continue working with legumes because of their special qualities, such as higher levels of protein and digestibility.

Table 1. Dry matter (DM) yield, crude protein (CP), and digestibility (IVOMD) of June-planted alyceclover, hairy indigo, and Savanna stylo (2-year average).

| | Harvest date | | | | Total |
|---------------|---------------------|-----------|---------|----------|--------|
| | August | September | October | November | |
| Legume | DM (lb/acre) | | | | |
| Alyceclover | 4420 a ¹ | 5040 a | 4740 b | 2980 b | 12,760 |
| Hairy indigo | 3200 b | 4420 b | 5180 b | 3990 b | 16,790 |
| Savanna stylo | 1670 c | 4420 b | 7060 a | 6950 a | 20,100 |
| | Mean | | | | |
| | Mean CP (%) | | | | |
| Alyceclover | 15.4 b | 10.5 b | 8.3 b | 6.2 c | 10.1 |
| Hairy indigo | 15.0 b | 10.5 b | 8.4 b | 7.1 b | 10.3 |
| Savanna stylo | 16.8 a | 12.3 a | 11.8 a | 10.3 a | 12.8 |
| | Mean | | | | |
| | Mean IVOMD (%) | | | | |
| Alyceclover | 60.5 b | 47.0 b | 41.3 b | 32.2 b | 45.3 |
| Hairy indigo | 52.6 c | 47.4 b | 37.5 b | 37.2 b | 43.7 |
| Savanna stylo | 68.9 a | 56.6 a | 52.5 a | 51.5 a | 57.4 |

¹ Means for forage attributes within columns followed by the same letter do not differ.