

About this factsheet

Agricultural production can be improved on the coastal clay soils of Guyana by improving the pastures sufficiently to support cattle and sheep production. This factsheet gives details of eight tested grasses which can be used by farmers in ruminant production.

Grasses for improved pasture on coastal clay soils of Guyana

Ruminant production in the tropics is primarily forage based. Production levels are usually low because mainly unimproved natural pastures, which have low dry matter yields and nutritive value, are used.

Improved grasses can have a tremendous impact on livestock production. This potential, however, is not fully exploited on the coastal clay soils of Guyana where animals graze mainly native grasses which are low yielding and only abundant during the wet season.

The coastlands comprise both saline and acid clay soils. The saline clays are particularly problematic for crop production because of high levels of salt and other ions. Salinity causes a reduction in water availability in plant tissue, leading to a reduction of tillering and plant damage particularly during dry periods.

The clay soils have a high moisture holding capacity and being flat land, they tend to become waterlogged easily. During the dry period they become hard with massive cracks on the soil surface. However, this increases the difficulty of establishing and maintaining pastures. The performance of a number of grasses, have shown that with suitable management they can become established and yield adequately in the coastal environment.

RECOMMENDED GRASSES

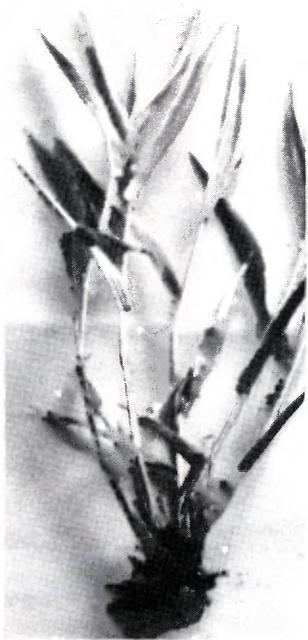
Grasses have traditionally been selected for their superior growth, nutritive value and persistence, viable seed producing capabilities diminished, and grasses are usually grown by either stem or sod cuttings. This makes propagation costly and time consuming. Seed is available for some of the grasses but the quantity is relatively limited and the quality of the grass poor.

Grasses generally respond favourably to moisture. However, because of prolonged flooding on the coastlands, production can become affected. Semi-aquatic type grasses are adapted to these conditions. Those grasses that cannot withstand waterlogging can be planted on high, well-drained elevations. Based on experiences from various forage agronomic trials, eight grasses are recommended for pasture production on coastal clay soils.

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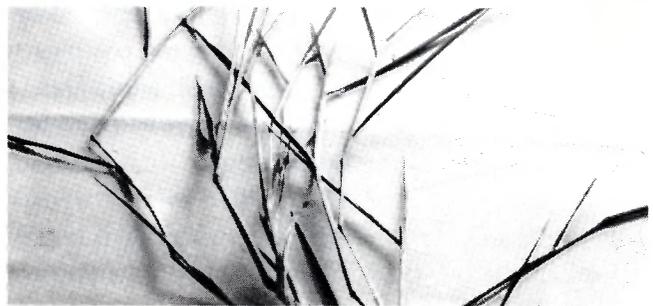




1) Palisade grass



(2) Tanner grass



(3) UF 717



(4) Star grass

(1) PALISADE GRASS OR SIGNAL GRASS

Scientific name: *Brachiaria brizantha*

Planting method: Sod or stem cuttings and seed.

Growth habit: Stoloniferous.

Production characteristics: Will not tolerate saline conditions, however, it is well adapted to the acid clay soils. Tolerance to drought is good but, tolerance to flooding is poor. It cannot withstand fire, the grass disappears after burning.

(2) TANNER GRASS

Scientific name: *Brachiaria arrecta*

Planting method: Stem cuttings.

Growth habit: Stoloniferous grass which roots readily at the nodes.

Production characteristics: Prefers swampy and flooded areas, and performs excellently on the acid soils but does not tolerate saline environments. Resistance to drought is poor and its tolerance to fire is excellent.

(3) UF 717

Scientific name: *Brachiaria humidicola*

Planting method: Sod cuttings or seed; seed viability is usually very poor.

Growth habit: Stoloniferous, giving a complete ground cover and has a creeping habit.

Production characteristics: Performs poorly on saline clay soils, but it is well adapted to the acid clay soils. Tolerance to drought is good and it performs excellently under flooded conditions. It can survive occasional burning.

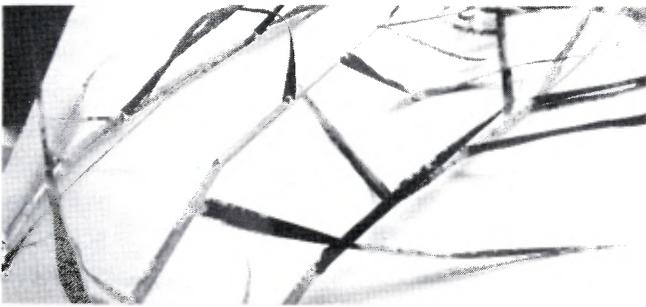
(4) STAR GRASS

Scientific name: *Cynodon plectostachyus*

Planting method: Sod cuttings or stem cuttings.

Growth habit: Creeping perennials with stolons.

Production characteristics: This grass is better adapted to the saline clay soils, and it can be considered as an excellent grass for the saline environment. However, it is moderately adapted to the acid clay soils. Tolerance to drought is good, and it can withstand flooding for a short period. It has exhibited good resistance to fire.



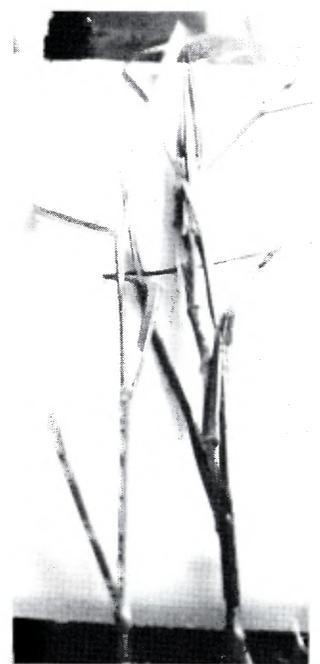
(5) Antelope grass



(6) Elephant grass



(7) Limpo grass



(8) Monkey tail grass

(5) ANTELOPE GRASS

Scientific name: *Echinochloa pyramidalis*

Planting method: This grass is usually planted by stem cuttings.

Growth habit: Stoloniferous grass that roots at branches and at nodes.

Production characteristics: This grass is adapted to a wide range of soil types although it generally prefers the swampy acid clay soils. Tolerance to drought is poor particularly if the grass has been defoliated. Its tolerance to fire is excellent.

(6) ELEPHANT GRASS

Scientific name: *Pennisetum purpureum*

Planting method: Stem cuttings.

Growth habit: An erect perennial, which becomes stoloniferous with a creeping rhizome.

Production characteristics: This grass is adapted to higher elevations, such as the dams etc. on acid clay soils. However, it does not tolerate saline conditions. Resistance to drought is excellent once it has been established. It cannot withstand waterlogged conditions and its tolerance to fire is excellent.

(7) LIMPO GRASS

Scientific name: *Hemarthria altissima*

Planting Method: It can be propagated by either stem or sod cuttings. However, both methods result in slow establishment.

Growth habit: Creeping branched rhizomatic, usually decumbent, rooting at the lower nodes.

Production characteristics: This grass is well adapted to the acid clay soils and does not tolerate saline conditions. Tolerance to drought is fair and it has a good tolerance to fire.

(8) SETARIA OR MONKEY TAIL GRASS

Scientific name: *Setaria anceps*

Planting methods: Sod cuttings.

Growth habit: Tussock forming perennial.

Production characteristics: This grass grows well on acid clay soils. Tolerance to drought is good and tolerance to flooded conditions is excellent. The grass can also withstand the occasional fire.

The grasses described have been recommended primarily on their adaptability to the coastal environment, herbage production potential, and nutritive value characteristics. These grasses were superior to the other improved and native grasses tested, mainly for their production potential.

There is a wide variation in what would be considered the ideal harvesting regimes to ensure the optimum yield and nutritive value while maintaining persistence for the recommended grasses. Defoliation management is characterized by intensity (based on amount allowed to remain in the pasture), frequency (the interval between harvests), and time of defoliation (age of forage and season). Of the grasses recommended, defoliation management has been studied in detail locally for antelope grass. Because of the differing nature of the grasses, recommendations for harvest management based on the findings with antelope grass cannot always be used for the other grasses. Similar studies

are being carried out with the other recommended species.

However, many pasture scientists feel that, for the third world environment, any forage species which demonstrates better growth characteristics than native species will increase outputs from forage-based livestock production systems. These scientists recommend that utilization of any such species can begin even before further testing is carried out.

Given this, the authors feel justified in recommending the eight grasses described here and are confident that establishment of these grasses in coastal pastures can lead to improved ruminant production.

Planting materials for these grasses are available from the National Agricultural Research Institute's forage germplasm collections at Mon Repos and at the Guyana Rice Development Board compound at Burma, Mahaicony, Guyana.

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