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Factsheet

A GUIDE TO PASTURE GRASSES IN THE EASTERN CARIBBEAN

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Improve YOUR pastures

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BARCLAYS

A GUIDE TO PASTURE GRASSES

The green revolution started in temperature countries in now well under way in the tropics. Unlike the pastures cultivated in temperate areas the plants used in the tropics have been domesticated only recently. In fact most of these have been developed in the past 45 years.

Productivity and therefore yield and vigour of most tropical (*Panicoid* and *Chlorcoid*) grasses is MUCH higher than for temperate (*Festucoid*) grasses.

It has been said that the dry matter digestibility (DMD) of tropical grasses is 10-13% lower than for temperate species when compared at similar stages of growth. Most temperate species used for improved pastures exceed 65% but few tropical grasses are in this category. However, the reference of tropical grasses has variably included species which should not be used for pasture improvement including many of the grasses already growing naturally in the Caribbean. If selected, or improved species of tropical grasses are studied then their DMD values are comparable to those of similarly managed temperate species.

However, the rate of decline of DMD in "improved" tropical grasses tends to be higher than for temperate species. Therefore, without good management, animals in tropical areas can be presented with a large amount of stemmy grass of low digestibility.

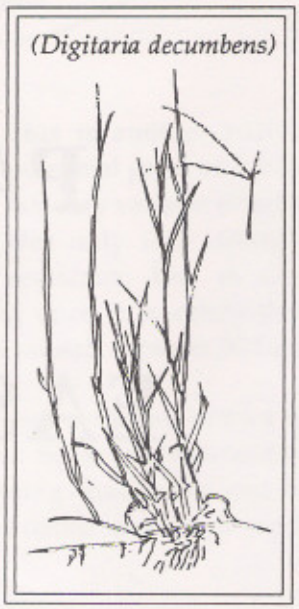
Grasses vary in resistance to pests and they react differently to changing weather patterns. Best results will be obtained by having individual fields planted to a range of different grasses.

Consequently Caribbean livestock farmers should aim at using leafy grasses and managing their pastures to enhance their leafiness. They should aim at presenting their animals with as much ACCESSIBLE leaf as possible since voluntary intake of leaves is much higher than stems. Many selected grasses rapidly become stemmy; their yield might be quite substantial but the intake of feed by the animals is insufficient to give good production.

The first step in improving your pasture for milk or meat production is to know which grasses and legumes will thrive and persist under local conditions and which will be readily eaten by the animals. Consequently, this Factsheet has been printed to help you identify and select grasses for your pastures.

GIANT AFRICAN STAR GRASS

This is a perennial grass with creeping stems that root well. The grass as the name implies is native to East Africa. It is fairly drought tolerant growing in areas receiving 650 – 1200mm (26 – 48 in) annual rainfall. Giant African Star is planted by stem cuttings. It makes excellent hay which is highly palatable. Several legumes can form relatively successful associations with this grass including Mexican Macro or Siratro (*Macroptilium atropurpureum*). Glycine (*Neonotonia wightii*), and Rabbit Vine (*Teramnus labialis*).



PANGOLA GRASS

This low creeping perennial found throughout the Caribbean originated in South Africa. Pangola is essentially a wet region grass flourishing in areas receiving more than 1000mm (40 in) of rain annually. To be productive and resistant, it requires heavy applications of fertilizers.

Pangola has both high digestibility and intake at early, leafy stages of growth but shows a marked drop-off as plants become mature and stemmy. It has a high carrying capacity UNDER GOOD CONDITIONS. It is difficult to keep a strong component of selected legumes with Pangola.

Pangola pastures can only be established through vegetative cuttings.

BERMUDA GRASS

These are relatives of "Devil's Grass," but they are more productive and have higher nutritive value. When well fertilized they have high protein contents and are highly digestible. They

show fair to moderate drought tolerance and are well adapted to areas receiving 700 – 2000mm (28 – 80 in) of rainfall. They do not produce seed and so must be established from stem cuttings.

One of the early varieties was called Coastal Bermuda, but this has been largely replaced by Coast Cross 1. A recent release, Tifton 68, is giving extremely good results in Barbados where it carries heavy stocking rates and makes excellent hay.

(Cynodon spp.)

ELEPHANT GRASS

This tall, bunch type perennial is also a native of Africa. It should be cultivated in areas receiving more than 1000mm (40 in) of rain per annum. Its widest use has been in dairying in high rainfall regions. This grass resembles cane and has very thick, strong stems. Every effort should be made to keep the plants in a dense leafy state through effective grazing and cutting. Aim to cut this grass when it reaches 1·2m (4ft) high.

For grazing, it should be planted in small fields which can be fed quickly (2 – 3 days), and then rested until it regrows to the recommended grazing height. **It is not adapted to continuous grazing.**

Elephant grass spreads by short, stout underground stems to give stools up to 1m (3 ft) across.

The cuttings are best selected from hard stems about six months old, each piece possessing four or five nodes (stem joints).

Several planting methods can be used

1. 3-5 node cuttings can be laid horizontally or,
2. the farmer can lay complete stems horizontally or,
3. rooted tillers can be planted upright or,
4. 3-5 node cuttings can be planted basal end down, on an angle with 2-3 nodes below and 1-2 above the ground.

Height of cutting is related to cutting frequency; the more frequent the grass is cut, the higher the cutting height should be.

Elephant grass can be grown on its own with fertilizer nitrogen (N) or organic manure or with climbing legumes e.g. Siratro and Glycine. Highest dry matter yields are with pure stands and high levels of fertilizer N but when there is a strong legume component there will be a higher crude protein content in the herbage (grass plus legume) and lower long-term cost.

To help maintain a strong legume component elephant grass rows should usually be about twice as far apart (2 m or 6ft) as for pure stands i.e. reduce competition.

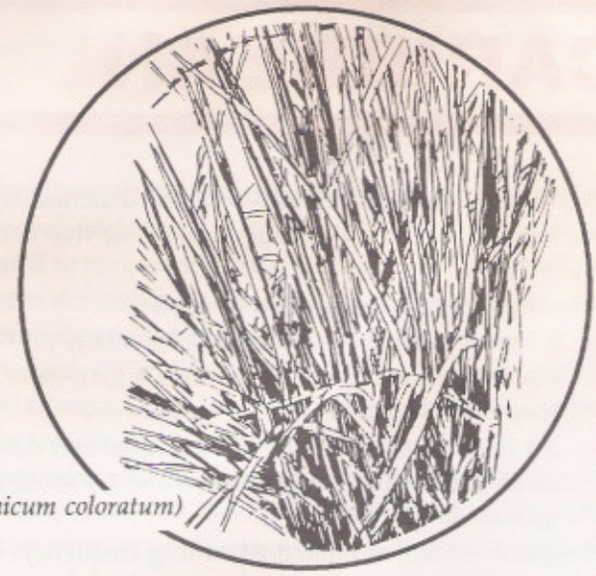
Mott Elephant Grass is a dwarf variety which gives similar yields of leaf, but less stem than the normal, tall types, and thus has higher feeding quality.

It is best grown in areas with over 1,250mm (50 in) of rain. In the Caribbean, it appears to be poorly adapted to grazing and so should be cut when it reaches a height of about 90cm (3 ft).

KLEIN GRASS

This is a highly drought resistant grass. It will produce well in areas receiving as little as 400mm (16 in) annual rainfall. It is planted by seed or root cuttings. The seeding rate for Klein grass is 2 – 4 kg per ha (2 – 4 lb per ac). It withstands heavy grazing.

Klein grass is one of several varieties of *P. coloratum*. It is very well adapted to heavy clay soils, and it withstands considerable waterlogging as well as severe droughts. Klein grass is very palatable; good quality herbage and forms excellent associations with climbing legumes such as Siratro and Glycine. It also makes excellent hay when planted in a 1:1 ratio with Green Panic grass. This mixture is planted at the rate of 7 kg per ha (6 lb per ac).



(Panicum coloratum)

GUINEA GRASS

This is an erect bunch grass, native of Africa and widely cultivated in South America, South-East Asia and the West Indies.

It prefers areas receiving more than 900mm (36 in) rainfall annually.

Seed can be successfully produced locally and local, medium height forms are worth planting in improved grass/legume pastures. Avoid using any "Giant" forms which are very stemmy. Seeding rate for Guinea grass in mixed pastures is 7 kg per ha (6 lb per ac). The seed is normally broadcast when sowing, however if the land is cultivated after broadcasting care should be taken not to cover the seed deeply - 6mm (0·25 in) is quite adequate.

Guinea grass is highly palatable and therefore is selectively grazed. Consequently, new stands should be dominated by Guinea grass or else less palatable grass species will begin to take over. e.g. In a Seymour grass or Sour grass mix with Guinea.

Don't sow fresh seed; germination improves following good storage (cool and air-tight) for at least six months.

One advantage of Guinea grass is its shade tolerance. It can be grown under legume trees .e.g. Leucaena and Calliandra.

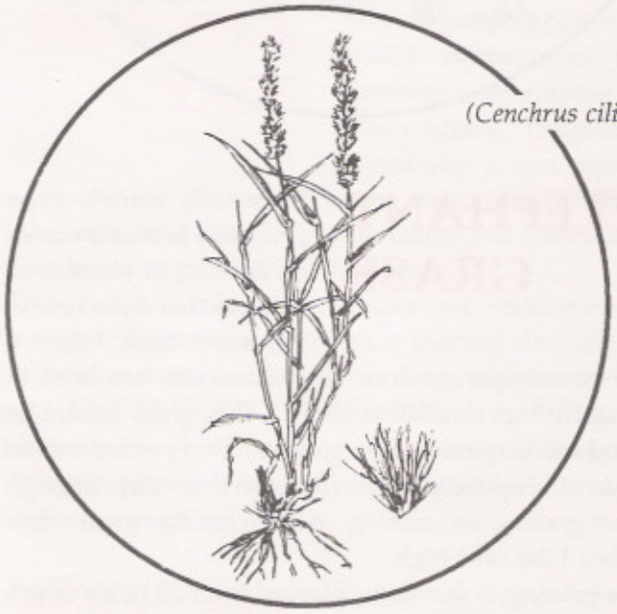
CARDI research has shown that the best local varieties are almost as good as the commercially available ones in terms of yield and quality. Tall and medium height forms can be hard to manage, however, as they can quickly become stemmy if under grazed. The variety Green Panic is a shorter type which is easier to manage under normal grazing conditions.

(Panicum maximum)

BUFFEL GRASS

This is another native, perennial grass of Africa. It is very variable in habit. Not only is it drought resistant, but it also withstands very heavy grazing once it is established in the drier regions with annual rainfall between 300 and 1000mm (12 – 40 in).

Buffel grass is planted from seed at the rate of 1 – 4 kg per ha (1 – 4 lb per ac) in mixtures. Seeds establish readily, and the flow of seed in planting machinery can be improved by mixing with seived damp sawdust or sand.



(Cenchrus ciliaris)