

## NAPIER (Elephant) GRASS (*Pennisetum purpureum*)



Napier grass is also called elephant grass due to its tallness and vigorous vegetative growth.

The plants tiller freely and a single clump may produce 50 tillers under favourable climatic and soil conditions. Unfortunately, the grass is coarse-textured, the leaf blade and sheaths hairy, leaf margins sharply toothed and stems less juicy and fibrous.

The grass grows throughout the year in the tropics. The optimum temperature is about 31°C.

Light showers alternated with bright sunshine are very congenial to the crop. Total water requirement of the grass is about 800-1000 mm. It can grow on a variety of soils. Light loams and sandy soils are preferred to heavy soils. The grass does not thrive well on waterlogged and flood prone lands. Phenomenal yields are obtained from very deep fertile soil rich in organic matter. It tolerates pH ranging from 5 to 8. Crude Protein has been measured at 8.5%.

Napier requires a deep, thorough weed free and compact seedbed. Three or four ploughings is ideal. Usually propagated vegetatively; if grown from seed, it is started in a nursery and transplanted. To control weeds at the first stages of establishment, inter-row cultivation and herbicides can be used. A spacing of 60 x 60 cm is recommended. The planting rate depends upon the spacing and the weight of the cuttings or rooted slips used. It is modified in crop mixtures or intercropping with other forage crops.

The field should be provided with good drainage during the rainy season, as the crop cannot withstand water stagnation. Frequency of irrigation depends upon the rainfall and weather conditions.

The grass can be intercropped with legumes. Such intercropping with legumes improves the quality of fodder.

Seiler et al. (1979) report fatal nitrate poisonings in cattle whose diet consisted solely of Napier grass.

## AFRICAN STAR GRASS (*Cynodon sp.*)



Star grass is a perennial with creeping stems (stolons aka 'runners') which root well. It can grow up to 60cm long. It is grown in areas of 50-120cm/annum rainfall on a wide range of soils, from sands to black clays, provided they have reasonable fertility. Although African star grass flowers, it does not

set viable seed and so has to be planted from cuttings. Star grass is used mainly for soil conservation works as it will quickly give a good ground cover from rapid stolon growth. Star grass can die out through a lack of nitrogen. Star Grass prefers soil that has a pH range from 5.0-8.0 and it can spread rapidly (can be evasive). It does not tolerate shade well but is very drought tolerant. It can grow from sea level to 3000 ft. The stolons (runners) should be planted a maximum of 3 x 3 ft spacing to get optimum coverage. It can be planted at any time of the year.

There are a number of types of star grass with leaves ranging from fine to coarse. Crude protein content of Star grass herbage can reach over 20% of the dry matter and is seldom below 8%. Star grass contains high levels of prussic acid (Hydrogen Cyanide). Harmful effects (goitrous and skeletal abnormalities, reduced birth rate) on animals grazed on *C. nlemfuensis* has been reported.

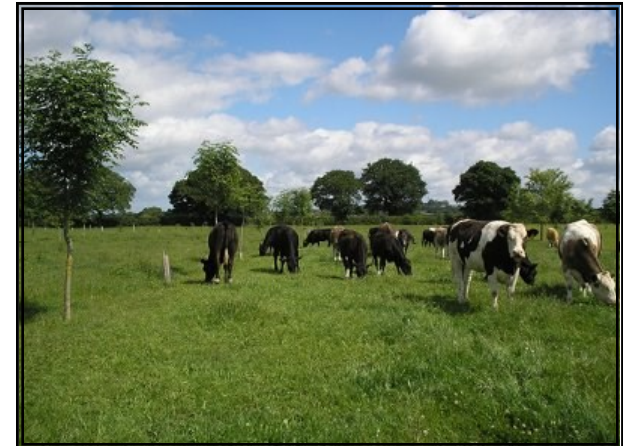
It is not particularly palatable, and as it ages and can have a high cyanide content.



For more information and advice on growing forage grass please contact:



P.O. Box 459 KY1-1106  
#181 Lottery Road  
Lower Valley  
P: (345) 947-3090  
F: (345) 947-6501



CAYMAN ISLANDS  
DEPARTMENT OF AGRICULTURE  
working together, growing together

## FORAGE GRASSES

### Grasses for Livestock Grazing in the Cayman Islands



# INTRODUCTION

Along with the feeding of concentrated commercial livestock feeds, fresh fodder should play a key role in the overall nutrition of livestock. Essential bacteria, proteins, crude fibre, vitamins and minerals are found in grasses that livestock feed on. However, grasses should not necessarily be the only fodder fed to livestock, a healthy balance of hay, concentrated commercial feeds and legumes should also be incorporated into the animals' diets.

## BRACHIARIA Cv. Mulato II (*B. ruziziensis* x *B. decumbens* x *B. brizantha*)



This grass prefers hot and humid climate of the tropics and subtropics with high annual rainfall ranging between 1000 and 1500 mm. It can withstand short term flooding and water logging but cannot be grown in dry land in arid and semi-arid

regions. It is sensitive to cold. The grass grows in moist, but not in highly wet soils. It thrives best on highly fertile clay loam to clayey textured soils with high moisture retention capacity. It can even be grown on sandy soils with good irrigation facility. It tolerates slightly acid to alkaline soils. It is highly tolerant to saline or sodic soil conditions. It grows well near canals, lowlands and soils too wet for normal farm crops.

Prepare the land thoroughly by three or four ploughing cycles and remove weeds.

Planting can be done at any time, but the best time for planting is with the first showers of the rainy season (May-November).

Seeds can be used for direct sowing or sowing in nursery for transplantation. But poor seed setting usually discourages seed propagation.

Slips can be planted 50 to 60 cm apart both ways between plants and rows. The growing runners quickly root at the joints, tiller (a plant shoot that springs from the root or bottom of the original stalk) profusely and cover the field.

The requirement of slips for planting ranges from 27000 to 40000 per hectare. The seed rate recommended is 2.5 to 3.5 kg per hectare.

The land should be kept weed free for the first two months. Since it is a sturdy and aggressive grass, once it gets established, the weeds that appear later are suppressed.

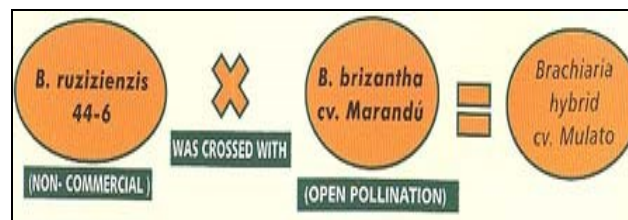
The competitive vigour of Brachiaria grass interferes with the co-existence of legumes.

The Brachiaria herbage dries slowly when cut. So it is not suitable for hay-making. It is a nutritious high-yielding and palatable forage grass. Crude protein values of 17.5% -19.4% were observed in Mulato grass in Florida. These values are quite high and above those observed in the other grass analyzed. Crude fibre values ranged from 28% - 34% .

Seed yields are generally low. It is observed that shorter or longer day lengths hasten flowering. The correct stage of harvest is soon after the end of anthesis (the state of full bloom in a flower). Germination is affected if the seed is harvested late. There is no post-harvest dormancy for seed.

Mulato grass is not a genetically modified organism.

The grass appears to be free of any toxic effect.



## GUINEA GRASS (*Panicum maximum*)



Guinea Grass is a hardy grass that can be grown in almost any climate. This 2-3.5m tall grass of the Poaceae family is native to Africa. Its adaptability to tropical climate, drought-like conditions and a variety of soil types makes it

suitable fodder for farm animals locally. It can be grown from sea level up to 6,000 feet. Guinea grass leaves are fine, soft and contain good levels of protein (13-21%). The root system of Guinea grass allows it to survive fires. Additionally, it is shade-tolerant and can be intercropped with taller plants. It produces high yields of palatable fodder and responds well to 'manuring', but rapidly declines in nutritive value with age. It dies if continually grazed close to the ground and needs rest late in the growing season. (FAO, 2003).

Guinea grass is "Moderately Salt Tolerant" i.e. can withstand soil that has a reading of >1,500/PPM (parts per million) salinity reading. Propagation is the preferred method of planting for most varieties as growth from seeds is not highly successful.

A well prepared, weed-free seedbed is required for good establishment. For best results, the seed should be sown by a combine or a drum seeder, by dropping seed onto the soil surface and rolling. A seeding rate of 2-6 kg/hectare is common. Use the higher rate if weed competition is likely to be strong. Use the lower rate if it is in mixtures with other grasses or legumes.

Guinea grass should not be stocked during the wet season of establishment, except in mixtures where the grass is severely out-competing legumes. In such cases, heavy grazing for a short period is recommended.

Try not to graze until well into the first dry season, to allow the plants to establish and set seed. Normal grazing can be started in the mid-wet season of the second year.

The plant is said to cause fatal colic if eaten too wet or in excess. Traces of HCN (hydrogen cyanide) occur in stems and leaves, more in the roots.