

GRASS FOR  
AREA

# IICA



THE ANTELOPE ...  
A WELL ADAPTED GRASS FOR  
GUYANA'S COASTAL AREA

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The history of IICA in the Caribbean is relatively recent. Haiti was the first member and the Institute opened office there in 1972, some thirty years after the Institute was first established. The Guyana Office was opened in 1975. The most recent member country is Dominica where activities began in 1984.

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THE ANTELOPE ...  
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WHAT IS ANTELOPE GRASS?

"Antelope" grass is the common name in Guyana for the *Echinochloa pyramidalis* or *E. polystachya* species. In Latin American countries it is known as German or Corzo grass.

This grass has its origin in Tropical Africa. In 1919, the species was observed growing in Guadeloupe and from there, it is believed to have been disseminated to the West Indies and Tropical America. In Guyana there is no documentation on the history of Antelope grass. It is thought that Antelope grass was introduced from Suriname to the Government Livestock Farm at Mon Repos. Good stands were present at LIDCO Ranch, Kabawer and Hamilton's Farm, Region #5. In 1983 planting material from Mon Repos was established at the St. Stanislaus College Farm<sup>4</sup>. From there the popularity of the grass has spread throughout the country.

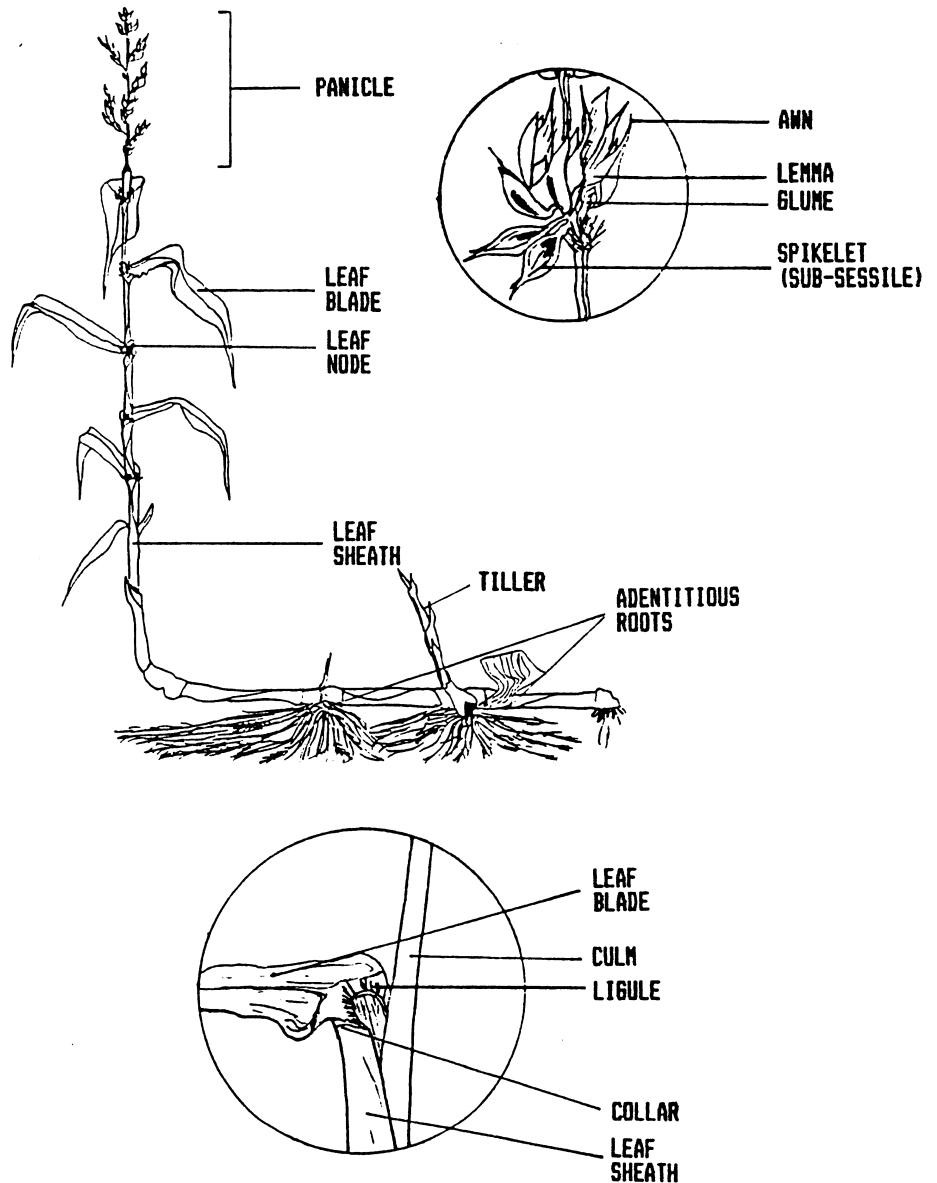


Fig. 1A: Drawing of Antelope Grass showing main Botanical Features  
 1B: Sketch showing Spikelets  
 1C: Sketch showing Ligule

## PLANT DESCRIPTION

The Antelope species is perennial having erect, smooth and fleshy flowering stalks (culms), 1.5-2.5 m tall. Leaf sheaths are smooth, appearing purple at the basal end. The ligule is a dense row of stiff yellowish hairs, 1-2 mm long, blades are 40-60 cm long, 5-10 mm wide; the flower head (or panicle) ranges from 20-40 cm in length. The long, creeping, rooting base forms a dense matted structure<sup>1</sup>. (See Figure 1)

## CLIMATIC AND SOIL CONDITIONS FOR ANTELOPE GRASS

### Rainfall

Antelope grass is best suited to low-lying tropical lands and is well adapted to water-logged conditions. It thrives best under heavy rainfall, 80-120 inches annually. Successful cultivation can be practiced in low rainfall areas providing irrigation is available. The Antelope also shows a high level of drought tolerance once established and persists during the dry period.

### Soils

The heavy clay soils are most suited for Antelope cultivation. In Guyana the grass grows best on the flat low-lying land of the Coastal Plain where soils are usually wet, ranging from heavy clay to pegasse. Sandy soils are not suitable for its cultivation. The grass has a preference for slightly acid soils (pH3.5 to 6.5). It is also tolerant to saline conditions.

## ESTABLISHMENT OF ANTELOPE GRASS

### Land Preparation

The level of land preparation will depend on previous land use and method of planting to be employed. In general it is possible to recommend that land needs to be ploughed and harrowed twice.



## Nursery

Due to the low viability of the Antelope seed (<2%), the use of vegetative material is the common practice for planting. In order to ensure that planting material is easily available, the establishment of a nursery is recommended. A nursery of one hectare with good plant population will yield enough vegetative material to establish 8-10 hectares depending on the method of planting. Planting material should be protected from direct sunlight to prevent drying-out. Wherever possible, the material can be soaked for 12-24 hours to enhance germination.

### METHODS OF PLANTING

#### Hand Planting

This method should be used for small cultivations (up to 4 acres). It is a relatively costly operation because it has a high demand for labour. However, with this system less planting material and more germination is obtained.



Fig. 2: Preparation of Planting Material

- Use planting material, 8-10 weeks old, and cut into pieces 12-15 inches long. (Requirements 1-1.5 tons/acre). (Figure #2)

- Stick the cuttings into the soil and ensure that at least one of the nodes goes into the ground.

- The plant spacing should be 12 x 18 inches square. (Figure #3)



Fig. 3: Planting Antelope Grass by Hand

- The complete plant can also be used but instead of preparing the pieces, the plant is folded two or three times and stuck into the ground.
- 8-10 man days are required to complete the operation for one acre.

#### Scatter and Harrow Planting

This is a quick method of establishment but it requires good judgement of the weather or irrigation must be available.

- The soil should be loose and fairly moist to permit the tractor to work.
- Cut the planting material into pieces, 18-24 inches in length.
- Scatter the planting material to make a good cover in the field (4-5 pieces/yard<sup>2</sup>).
- Pass the harrow over the planting material to make a light cover. (See Figure 4)
- In the absence of rainfall, the field should be irrigated for 18-24 hours.
- 2-2.5 tons of planting material/acre are needed using this method.
- 4-5 man days are required to plant one acre.



Fig. 4: Scatter and Harrow Planting

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Land Flooding Planting

This is the cheapest method of planting and it is best used where machinery and labour are scarce.

- Flood the field with 2"-3" of water.
- Cut the planting material into pieces of 18"-24" length and scatter in the field giving a good coverage (5-7 pieces/yd<sup>2</sup>). The complete plant also can be used. (See Figure 5)
- Drain the water off when germination has started.
- 4 man days are required to plant one acre.
- 2-2.5 tons planting material per acre are needed.

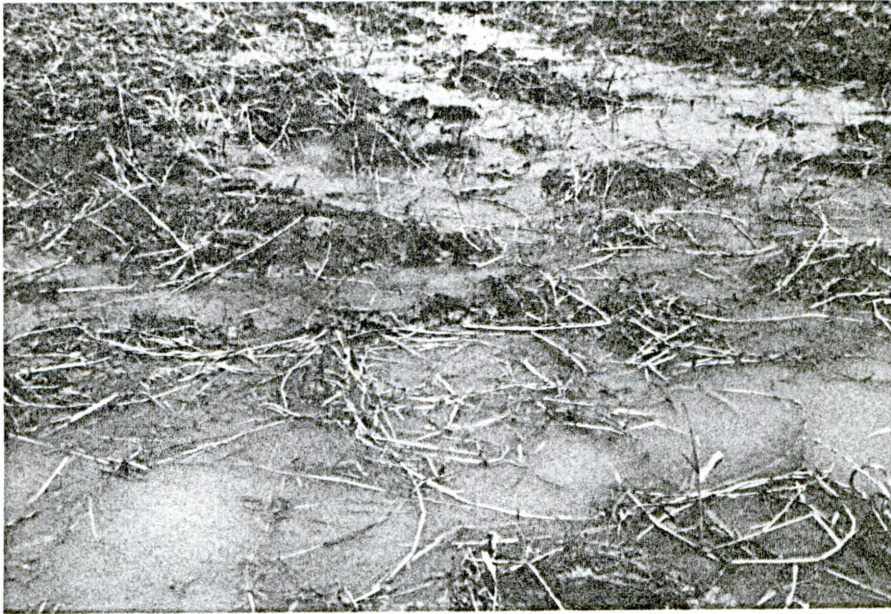


Fig. 5: Flood Planting of Antelope Grass

Ridge and Furrow Planting

This method of planting is most suited for use at the beginning of the rainy season.

- The field is prepared in the form of ridge and furrow with rows about 1.5' from the centre of each ridge. (See Figure 6)
- Spread the planting material (complete plant) and overlap in the furrow.

- Cross the ridge with a harrow to make a soil cover over the grass.

- 3-4 man days are required to spread the planting material per acre.

- 1.5-2 tons/acre of planting material are needed.

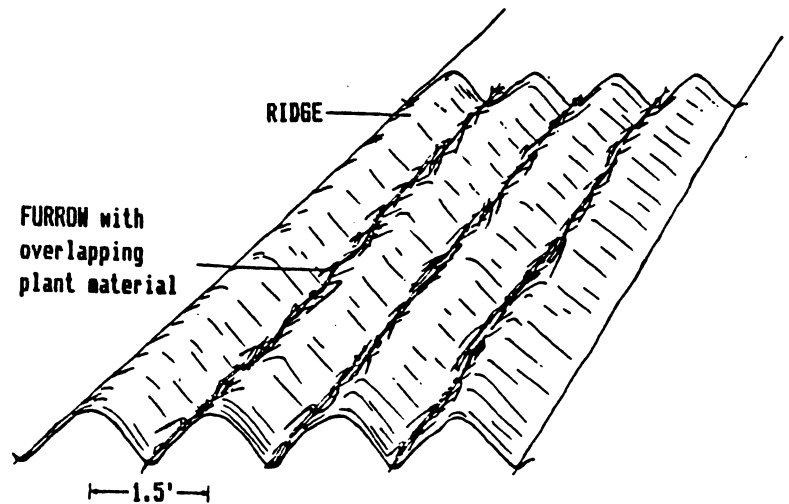


Fig. 6: Ridge and Furrow Planting

## PASTURE MANAGEMENT

### Fertilization

- The application of 50 lbs urea and 50 lbs Triple Super Phosphate/acre, two weeks after planting is recommended.
- Application of fertilizer after grazing will depend on the need for increased grass production.
- Whenever labour is available, pen manure may be dried and applied after grazing.

### Weed Control

- Weed control is not too critical in Antelope cultivation.

### Pasture Utilization

- The grass should be cut or grazed for the first time, 8-10 weeks after establishment.
- Under a grazing or cutting cycle, a rest period of 24-28 days is recommended. This period will allow the grass to recuperate fully.

- Overgrazing and undergrazing should be avoided. Overgrazing affects the life and production of the pasture and undergrazing affects the regrowth and quality of forage offered to the animals during the next grazing cycle.

#### ANTELOPE YIELDS AND NUTRITIVE VALUE

The information available (see Table 1) shows that Antelope grass is a highly productive species. At 4-5 weeks old, the Antelope produces enough grass to maintain 4-5 milking cows per hectare per year (40 kg consumption/cow/day). The green forage yield increases as the age of the plant increases. However, if we combine production, dry matter, crude protein and fibre content, the best age to use the Antelope is either by cutting or grazing between 4-5 weeks of age. At this time yield and nutritive value are at the optimum conditions

TABLE 1: Antelope Grass (*Echinochloa pyramidalis*) Green Yield and Nutritive Value at Different Age of the Plant.

AGE (WEEKS)	GREEN FORAGE YIELD TON/HA/YEAR	DRY MATTER %	CRUDE PROTEIN %	CRUDE FIBRE %
3*	67.8	15.6	13.6	24.3
4*	60.1	22.4	12.2	27.1
5**	83.7	22.3	9.5	26.9
6*	78.3	25.4	10.7	26.8
7**	116.2	30.3	7.1	29.7

#### Sources:

- \*<sup>2</sup> Grass land agronomy Central Experiment Station, Centeno, Trinidad & Tobago.
- \*\*<sup>3</sup> MARTINEZ, J. Efrain and VERGARA, G. German. 1976. Comportamiento del pasto alemán (*Echinochloa polystachya*) Universidad Nacional de Colombia, Palmira.

## ANTELOPE GRASS AND MILK PRODUCTION

At St. Stanislaus College Dairy Farm<sup>5&6</sup> located at Sophia, Greater Georgetown, eight acres of land were established with Antelope grass in 1983. This pasture has been managed with a dairy herd under a rotational grazing cycle. The results for 1984 and 1985 are:

-	Total milk production:		
	1984	-	37261 lb.
	1985	-	53444 lb.
-	Milk production/acre/year:		
	1984	-	4657 lb.
	1985	-	6680 lb.
-	Milk production/cow/day:		
	1984	-	18.6 lb.
	1985	-	16.4 lb.



Fig. 7: Dairy Cows grazing on Antelope Grass at St. Stanislaus College Farm

## TEN REASONS FOR USING ANTELOPE GRASS IN GUYANA

- It is the most suitable grass for low-lying, wet, heavy clay coastal lands.
- It is a grass that resists dry weather conditions because of its deep rooting system.
- Antelope is also tolerant to saline conditions.
- Bisi-bisi disappears when Antelope is planted.
- It is an easy species to plant and can be used after eight weeks of establishment.
- Antelope is a highly productive grass.
- Antelope can be used under grazing or cut and carry systems.
- Antelope can also be a good grass for making silage.
- Results in Guyana have shown that Antelope Grass produces a good yield of milk per acre.
- Cows and calves love to eat Antelope.

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