

InfoTech

Growing elephant grass on soil bunds

Elephant grass *Pennisetum purpureum* goes by different names such as Napier grass or Uganda grass. It is an extremely useful crop to plant on soil bunds in arid lowland areas:

- It helps to stabilize the soil bunds. The elephant grass will trap soil and will enhance water infiltration. Due to its height it will serve as a wind break as well.
- It is drought resistant and thrives in hot climates
- Elephant grass grows quickly and can survive after 15-25 days of care. The critical period is the first three months, when weeding is particularly important.
- As a perennial grass with high yields, it can be a source of cut fodder throughout the year, especially if it receives water during the dry season. If the elephant grass is too old it loses its palatability.

What it looks like

Elephant grass grows up to 3.5 m high. It forms large, bamboo-like clumps with stems of 3 centimetres diameter near the base. The leaves are either smooth or hairy. They can be 30-120 cm long and 1-5 cm wide. Elephant grass has an extensive root system, that can penetrate up to 4.5 meters.

How it is used

Elephant grass is mainly planted for cut-and-carry system. It also serves as a bund stabilizer, windbreak or living fence. When the grass is young it is highly palatable fodder. It can be fed as hay or pellets. Elephant grass also makes good silage. When old, it becomes too coarse to serve as a source of fodder.

How does it grow

Soils

Elephant grass grows in wide range of soil types, provided that fertility is adequate. Elephant grass grows best in deep, well-drained loams. The soils that develop in the flood based system are very suitable for elephant grass.

Moisture

Although extremely drought tolerant by virtue of the deep root system, elephant grass needs good moisture to reach

high yields. Elephant grass does not tolerate prolonged flooding. For this reason it is best cultivated on bunds in the flood based systems of the Ethiopian lowlands.

Temperature

Elephant grass like heat. Its best growth is between 25 and 40°C. If temperature drops below 15°C its growth slows down.

Light

Elephant grass can stand sunlight. It is also moderately tolerant to shade.

How it is cultivated

Establishment

Though elephant grass can be established from seed (without post-harvest dormancy), this not common. Normally elephant grass is planted from cuttings (pieces of cane) or splits (rooted pieces of clump). Cutting are taken from the lower two-third of moderately mature stems and should contain at least three nodes. These are pushed into the soil at 45° angle with the lower end down and with 2 nodes buried. Cuttings can also be planted horizontally into a furrow, using a depth of 5-10 cm. Normally elephant grass s planted in rows 0.5-2.0 meter apart, and with 0.3-1.0 m distance within the rows. Close spacing is required for soil conservation. More open spacing is used in drier environments.

Fertilizer

Elephant grass should be planted into fertile soil. Once established, elephant grass requires 150-300 kg/ha/yr Nitrogen. Yields decline if fertility is not maintained. In the flood based system however the flood water carries new nutrients with every flooding and the application of artificial fertilizer might not be needed.

Weeding

Elephant grass competes vigorously with other species when there is adequate fertility moisture. In the early stages of growth in particular, it needs regular weeding for the first one month, so that it grows fast dominating other weeds and can start stabilizing the bund.

Intercropping

Elephant grass grows well when intercropped with legumes, such as pigeon pea. This may increase the yield with more than one third. Intercropping with pigeon pea also improves fodder quality with protein content increasing with 20% and digestibility also moderately improving.

Pests and diseases

Many fungal diseases reported, the most common being leaf spots. Some varieties are resistant. Other pests are bacterium and nematodes.

Propensity to spread

Elephant grass spreads by seed, usually into disturbed areas, and by short rhizomes and tall stems that fall and take root.

How it is harvested

Harvesting

Elephant grass is normally cut at 15 cm above ground. The cattle eat mostly leaf. With age and height, the proportion of leaf decreases and of stem increases. Elephant grass should not be allowed to grow above 1.5 m before cutting, to ensure cut material is mostly leaf and useful as fodder.

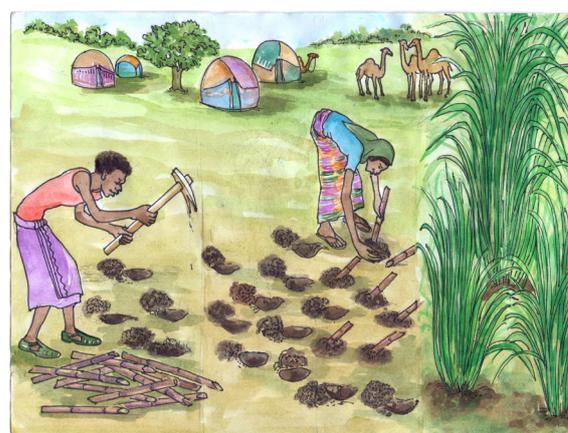
Dry matter

Farmers are able to harvest the grass 6-9 times per year. Yields depend on fertility, moisture, temperature and management. Dry matter yields of 10-30 t/ha/yr common, and up to 85 t/ha/yr if well fertilised; 2-10 t/ha/yr if unfertilised. More frequent cuts (up to 45 days) give less dry matter, but better leaf production than irregular cuts.

Animal Production

As with dry matter, animal production from elephant grass depends on growing conditions for the grass. Liveweight gains of 1 kg/head/day are possible during the growing season and 480 kg/ha/yr, and milk yields of >11 kg/day (4% fat) are possible.

Strengths	Limitations
High dry matter yields.	Requires fertile soil
Very palatable, high quality forage.	Matures rapidly, becoming stemmy
Drought tolerant.	
Serves to conserve soil and serves as windbreak	



Elephant grass. Source: GIZ/SDR-ASAL

Published by

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
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As at

December, 2021

Printed by

Design

MetaMeta, The Netherlands (www.metameta.nl)

Photo credits

GIZ/SDR-ASAL

Text

MetaMeta, The Netherlands (www.metameta.nl)

On behalf of

Federal Ministry for Economic Cooperation and Development (BMZ)

In cooperation with

Ethiopian Ministry of Agriculture (MoA)