CGIAR Challenge Program on WATER & FOOD Nile

Brief 12

Rainwater management for resilient livelihoods | August 2013

Chomo grass (*Brachiaria humidicola*) to rehabilitate degraded land and manage termites

Description

- A strongly stoloniferous and rhizomatous perennial grass, forming a dense ground cover.
- The vegetative culms prostrate or arched in the lower part where they root from the lower nodes.

Source: EECMY-DASSC.
Chomo grass grown on degraded land.

Distribution and ecology

- Native to Africa, from southern Sudan and Ethiopia in the north to South Africa and Namibia in the south.
- In Ethiopia, this grass does well on degraded and termite infested fields in Mandi or Manasibu *woreda*.
- **Soil requirements:** Grows on a very wide range of soil types from very acid-infertile (pH 3.5), to heavy cracking clays, to high pH coralline sands.
- **Moisture:** In the native range, annual rainfall varies from 600–2800 mm, but less vigorous in environments with <1600 mm annual rainfall and more than 6 months dry season.
- **Altitude and temperature:** In its native range in equatorial Africa, grows at altitudes of up to 2400 masl. But can extend to 1000 m altitude.
- **Light:** Grows best in full sunlight but has moderate shade-tolerance.

Uses/applications

- Sown for permanent pasture for grazing and as ground cover for control of erosion and weeds.
- Used for hay and good nematode control.
- Rehabilitation of degraded land in humid, acidic soil and termite infested fields.

Establishment

- It establishes reliably and spreads rapidly from stem cuttings planted at 1 m × 1 m spacing.
- Seed may be dormant for 6 months after harvest and so should be stored or acid-scarified before planting.
- Seed is broadcasted at 2–8 kg/ha (depending on germination percentage) onto a well-prepared and lightly tilled seedbed.
- Well adapted to infertile soils but responds well to N and P fertilizer.
- Not compatible with most forage legumes, but can combine well with creeping legumes under moderate to high grazing pressures.
- Highly tolerant to termite infestation.

Weed potential

- Can invade and dominate multi-species pastures.
- As it creeps on the surface (because of its invasive features), it is not suitable to stabilize soil bunds in the crop field.

Nutritive value

Although the leaf appears hard and fibrous, nutritional value is good (5–17% CP)

Palatability: Readily eaten by cattle when kept short and leafy. Palatability can be low if grown on acid-infertile soils.

Production potential

Dry matter: DM production is strongly influenced by soil fertility and ranges from 7–34 t/ha per year.

Seed production: Yields of 80–500 kg/ha has been recorded in hand harvested experimental plots.

Strengths

- Adapted to low fertility soils.
- Easy establishment and rapid spread from cuttings.
- Excellent ability to suppress weeds.
- Maintains good ground cover under heavy grazing.
- High live weight gains per ha because of supporting high stocking rates.

Limitations

- Can be unpalatable to stock, particularly sheep.
- Difficult to maintain companion legumes.
- Needs frequent grazing/cutting to maintain quality.
- Susceptible to rust.
- Poor frost tolerant.

References

Chippendall, L.K.A. 1955. A guide to the identification of grasses in South Africa. In: Meredith, D. (ed). *The grasses and pastures of South Africa*.

Chippendall, L.K.A. and Crook, A.O. 1976. *Grasses of South Africa*. Vol. 1 Part 126 *Brachiaria humidicola* (Rendle) Schweick.

CIAT. 1992. *Pastures for the tropical lowlands*. Cali, Colombia: CIAT.

CSIRO; CIAT; ILRI. 2005. Brachiaria humidicola. *Tropical forage fact sheet*. http://www.tropicalforages.info/key/Forages/Media/Html/Brachiaria_humidicola.htm.

Diriba, G., Mekonnen, H., Ashenafi, M. and Dugna, T. 2012. Herbage yield, species diversity and quality of native grazing land vegetation under subhumid climatic conditions of western Ethiopia. *E3 Journal of Agricultural Research and Development* 2(4):96–100.

Lenne, J.M. and Trutmann, P. (eds). 1994. *Diseases of tropical pasture plants*. Wallingford, UK: CABI.

Miles, J.W., Maass, B.L. and do Valle, C.B. (eds). 1996. Brachiaria: *Biology, agronomy and improvement*. Cali, Colombia: CIAT.

Schultze-Kraft, R. and Teitzel, J.K. 1992. Brachiaria humidicola (Rendle) Schweick. In: Mannetje, L.'t. and Jones, R.M. (eds), *Plant resources of South-East Asia No. 4. Forages*. Wageningen, the Netherlands: Pudoc Scientific Publishers. pp. 62–64.

Thomas, D. and Grof, B. 1986. Some pasture species for the tropical savannas of South America. III. *Andropogon gayanus, Brachiaria species* and *Panicum maximum*. *Herbage Abstracts* 56:557–565.

RESEARCH PROGRAM ON Water, Land and Ecosystems

CGIAR

Led by: IWMI International Water Management Institute

The Nile Basin Development Challenge (NBDC) is funded by the CGIAR Challenge Program on Water and Food (CPWF). It aims to improve the resilience of rural livelihoods in the Ethiopian highlands through a landscape approach to rainwater management. It comprises five linked projects examining: 1) learning from the past; 2) developing integrated rainwater management strategies; 3) targeting and scaling out of rainwater management innovations; 4) assessing and anticipating the consequences of innovation in rainwater management systems; and 5) catalysing platforms for learning, communication and coordination across the projects.

The NBDC is implemented by a consortium comprising the International Livestock Research Institute, International Water Management Institute, World Agroforestry Centre, Overseas Development Institute, Nile Basin Initiative, Stockholm Environment Institute, Ethiopian Economic Policy Research Institute, Catholic Relief Services–Ethiopia, Oromia Regional Agricultural Research Institute, Amhara Regional Agricultural Research Institute, Bahir Dar University, Ambo University, Wollega University, the Ministry of Agriculture and the Ministry of Water and Energy.

Prepared by: Aberra Adie and Alan Duncan.
http://www.nilebdc.org