BRACHIARIA MULATO II HYBRID FACT SHEET



Management Practices Facts and Figures

Produced for dairy farmers, extension workers and researchers in Northern Uganda

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Introduction

Just like Napier grass, Brachiaria is originally from Africa and bred in Latin America, Brachiaria grass is gaining popularity among dairy farmers in Northern Uganda. The grass species is credited with helping revolutionalize the dairy enterprises in the zone thorough rehabilitation of the degraded pasturelands. Sustainable dairy farming in the zone is challenged by shortage of forage production and water especially during dry seasons. This has called for adoption of high yielding drought resilient pasture species to facilitate forage conservation. To this effect, CIAT developed a breeding program which combined two key desirable attributes among others (high yielding, drought and spittlebug resistance) and developed Brachiaria hybrid cv Mulatto II. The Studies on the pasture species have indicated high economic returns for pasture farming based dairy production using Brachiaria hybrid cv Mulatto II. Basing on that untapped potential, it was felt necessary to develop a factsheet to highlight the desirable attributes and identify opportunities for sustainable production of this forage.





Origin and breeding

Mulato II is a three-way hybrid, (Brachiaria ruziziensis x B. decumbens x B. brizantha). Mulato II is the result of three generations of crosses and screening carried out at CIAT's tropical forages project. It was developed at CIAT in Colombia from an original B. ruziziensis x B. decumbens cross, followed by 2 generations of hybridization by open exposure to B. brizantha pollen in the field and was commercially released by Grupo Papalotla in 2004. It is the second Brachiaria hybrid developed by CIAT, and being an apomictic hybrid it is genetically stable and does not segregate or divide from one generation to the next.

Main traits

More meat and more milk with improved quality

- Higher stocking rates
- Highly palatable
- Tillered, with semi-decumbent growth
- Resistant to diseases and pests (spittlebug)
- Greater tolerante to drought and summer stress

Scientific name: Brachiaria ruziziensis x B. decumbens x B. brizantha cv. Mulato II



Morphological description

Brachiaria Mulato II is a leafy, vigorous, semi-decumbent perennial grass of medium height, growing to between 80-100 cm without inflorescences. It is a leafy grass with 5-8, long (40-60 cm); broad (6-7mm) leaves per stem. The intense green leaves are strongly pubescent on both sides. 19.3% more milk during the wet season compared to production from cows grazing on Napier grass. However, for persistence, phosphate fertilizer must be applied to the Mulato II pastures to avoid aluminum toxicity

Productivity and Forage Quality

In Northern Uganda on low fertility, acid soils (pH 4.7), Mulato II produced between 12.3 and 14.6 t/dry matter/hectare/year. 70% was produced in the 7 month wet season and 30% in the 5 month dry season. Mulato II produces a very high leaf dry matter percentage. On-station on better soils (pH 6.3), Mulato II planted at the end of April, produced 21.3 t/dry matter/ha in seven months, with 13% crude protein, low fiber and a high leaf ratio (85%) and produced more dry-season forage and had better milk production over time than Napier grass and Panicum.



Crude protein levels

10-14% crude protein on poor soils and 13-15 % crude protein on better soils on-station at 150kg/ha urea fertilizer application.

Animal productivity

Research carried out at Ngetta ZARDI, indicated that Brachiaria mulato forage increased milk production by 9.3 and 19.3% more milk during the dry and wet seasons respectively compared to production from cows grazing on Napier grass forage basal diets.





Drought tolerance

Mulato II has an extensive root system which allows it to tolerate drought and enables it to have rapid regrowth at the onset of the wet season. It's pubescent leaves, allows Mulato II to efficiently use moisture deposited on the leaves by the evening dew until late the next morning. In on-station trials, Mulato II produced significantly more dry-season DM and significantly more dry-season leaf DM than Napier and Panicum, the ability of Mulato II to maintain green leafy DM during the dry season (69.2% leaf ratio) make it an outstanding as dry season forage.

Economic value of Brachiaria forage

A dairy cow weighing 450 kg fed at a rate of 3% of its body weight dry matter of forage per day consumes 4.93t/yr. Brachiaria mulato has dry matter yield potential of 20.1t/ha/yr. This implies that a farmer with 1 ha can sustain 4 heads of dairy cows producing 15 liters of milk per day for 300 days earning a gross total of 18,000,000 per year from milk alone sold at 1000/= per kg.

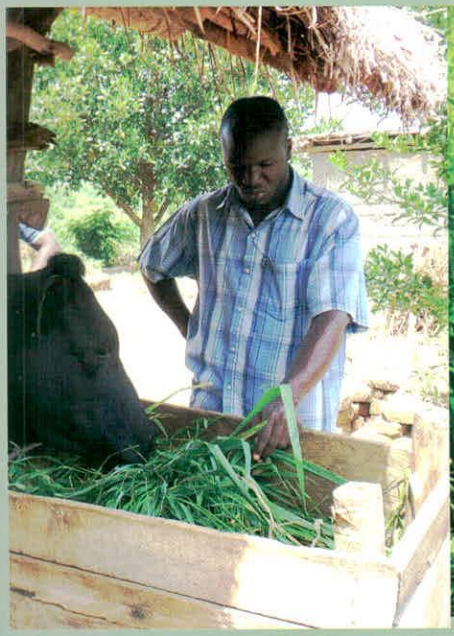
Grazing and cutting management

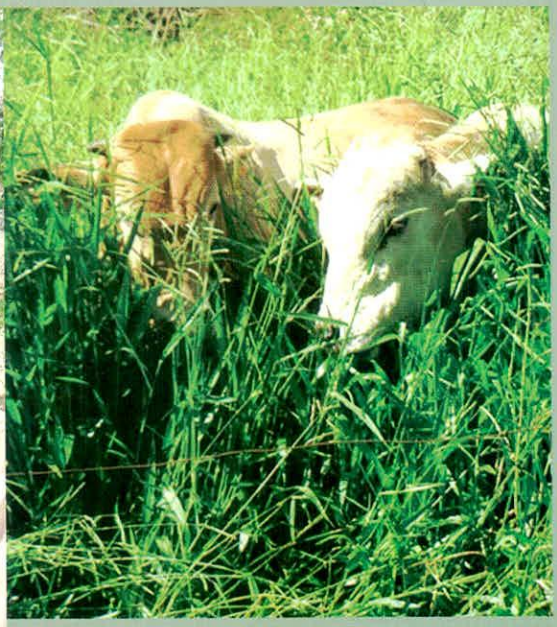
Can be either rotationally grazed or set stocked. Management depends on the farmer's experience. However, because of its superior forage quality and excellent forage production, Mulato II is very suitable for intensive rotational management. Mulato II is a sturdy and robust plant that tolerates trampling and has a rapid recovery rate following grazing.

During the wet season, 40-60-day rest periods between grazing are recommended depending on soils and fertilization. However, during the dry season, without irrigation, longer rest periods of 70-85 days are recommended.

Cutting to about 5 cm above ground level every 40-45 days in the wet season and 60-70 days in the dry season is recommended.

On good soils with fertilizer application, quicker recovery periods between grazings (25-30 days in the wet season) and more frequent cutting can be practiced. Mulato II is very suitable as high quality forage to make hay and silage.





Harvesting and feeding

The brachiaria forage has to be harvested at intervals of 4 weeks and conserved as hay. The hay has to be baled after thorough drying and stored in cool dry hay racks. The hay can then be used for dry season feeding while using fresh forages in the rainy seasons.

Establishment

Can be either planted in rows, 40-50 cm apart, or broadcast sown at 10-12 kg/ha. For drilling the seed through seed drills, be very careful not to bury the seed more than 2 cm in depth. Roller drills are preferred because they do not bury the seed too deeply, but instead press the seed just below the soil surface. For broadcast sowings, seed can be spread mechanically or hand sown. The seed must be covered after sowing by harrows. On small areas, tree branches or large brooms can be used to lightly cover the seeds with soil. Be careful not to bury the seed no more than 1-2 cm under the soil.

However, vegetative propagation through root split has proved more economically viable for small holder dairy farmers who cannot access the seed markets.



Sustainable production

Fertilization is necessary to maximize dry matter yield production; Mulato II grows better on medium to high fertility soils. Annual fertilizer applications of between 250-300 kg/ha of NPK fertilizer are recommended. Mulato II will also grow well on low fertility soils but with lower levels of production. Higher and more frequent fertilizer applications are necessary on low.

Seeds

Mulato II seed is acid scarified to give seed high viability (90 %+), high germination (80 %+) and high purity (98-99%). This good quality ensures rapid establishment of pastures.



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