

Blue Buffalo grass – *Cenchrus ciliaris*

Blue Buffalo grass is a summer growing perennial forage crop. The plants are tufted and can have short rhizomes. This grass is very drought resistant. The growth form makes this species ideal for soil cover and erosion control. This grass is best adapted to areas where the annual rainfall is between 350 mm and 750 mm.



Strengths

- 2 to 9 t DM/ha/season dryland
Depending on environmental conditions and management
- Strongly perennial species
- Highly palatable when managed correctly
- Very drought tolerant
- Can be used with dryland cropping
- Doing exceptionally well under irrigation
- Persistent
- Quick to respond after rain
- Widely adapted

Limitations

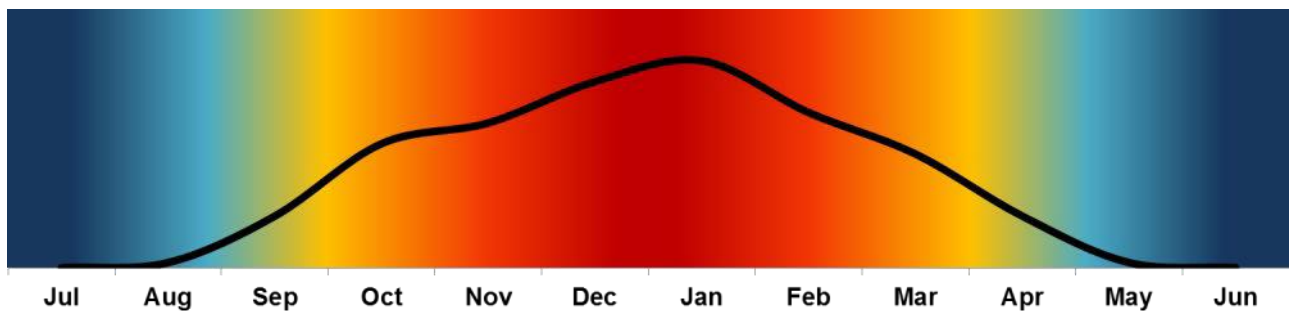
- Fluffy seed can be difficult to sow
- Needs medium fertility for production
- Soil P-content should be high during establishment for seedling survival
- Difficult to establish on clay soils
- Will not survive prolonged flooding or waterlogging



What can it be used for?

- Hay:** Good quality hay can be produced.
- Grazing:** Grazing intervals can be managed to optimize quality.
- Foggage:** Can be used as Foggage. Quality however may vary

Production potential: Yields of between 2 – 9 t DM/ha/season can be achieved. This depends on soil fertility, environmental conditions and frequency of utilisation. Under ideal conditions, yields of 12 - 15 t DM/ha/season can be achieved. Slow establishment may delay the first utilisation (4 – 6 months after sowing), but up to 12 months depending on establishment conditions ^(1,2).



Relative growth curve of an established Blue Buffalo grass stand- one year cycle

Metabolic disturbances in animals on cultivated pastures:

Oxalate poisoning: High oxalate levels can cause “big head” in horses and oxalate poisoning in young/ hungry ruminants. This is rarely a problem in mature ruminants and associated with poor management.

Establishment

- Climate:** Blue Buffalo grass is widely adapted, including dry to hot conditions. Growth rate increases sharply with temperatures ranging from 15 - 30 °C. The optimal growth temperature is however 35 °C. It can survive temperatures as low as -7 °C.





Moisture: This is one of the most drought tolerant grasses commonly planted and established stands can survive at rainfall levels as low as 100 mm annual, but with low production. For commercial production, it is most commonly grown in areas with rainfall above 350 mm per annum.

Soil: It grows best on deep well drained, clay-loamy soils. A soil pH (KCl) of 5.5 - 7.5 is recommended for optimal production, but it will grow at a pH (KCl) as low as 5. This species is very sensitive to soils containing high levels of aluminium.

Fertilization: It requires good soil fertility, especially with regards to N, P and Ca. A soil analysis before establishment is essential ^(1, 2, 3).

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment***	10-30*	15-25	100-120
Seasonal application (kg/ha)	40-150**	Use removal rates	
Production - Removal rates (kg/ton):			
Good quality fodder	19	3.9	36
Average quality fodder	11	1.7	19.5
Poor quality fodder	6	1	6.6

*Fertilizer just after establishment (kg/ha)

**Selected rate should maximise profit (150 kg/ha preferably under irrigation)

***Determined by production potential

Phosphorus (P) and Potassium (K) can be recycled back to pastures when grazed by animals. This is dependent on the grazing system and the type of animals used. Up to 40% of P and 90% of K can be recycled ⁽⁵⁾. It is however necessary to do annual soil analysis to determine the level to which recycling occurred. The difference should be fertilized. Stands become unproductive with time, as nitrogen is tied up in the root system. Light cultivation with a tined implement every 3-5 years will release mineral N from the soil organic material.





Methods: Establish on a firm, fine, weed free seed bed. Consolidating (rolling) the seedbed after sowing/planting will ensure good seed-soil contact and subsequently better germination and establishment.

Planting time: Optimal establishment periods are between October and February (or as soon as average minimum soil temperatures exceed 16°C), whenever rainfall is the most reliable.

Our prescribed seeding rate:

Rows (1,2)		Broadcast (1,2)	
Uncoated	AgriCOTE®	Uncoated	AgriCOTE®
7-10 kg/ha	10 kg/ha	7-10 kg/ha	10-15 kg/ha

Under ideal environmental conditions, combined with excellent seedbed preparation and equipment, the seeding rate of uncoated seed can be lowered.





Management

Utilisation: Cutting or grazing during the vegetative stage will ensure good quality fodder. Studies show that harvesting should be no longer than 8 weeks apart and low cutting (7 cm) maintains leafiness of the stand. Since quality can decline rapidly with age, it is important to manage this crop for quality.

Cultivar

Molopo

This cultivar has good frost tolerance which results in a longer growing season. This cultivar also grows higher (up to 1.6m high) and is more rhizomatous.

Gayndah

This cultivar was selected for sheep grazing, resulting in a shorter, more prostrate plant, growing only 1m high. The finer and more abundant leaves make the plant more acceptable to livestock and less quality decreases occur as plants age. This cultivar is tufted without rhizomes, but very tolerant to heavy grazing.

Resources

1. Pasture Handbook, Kejafa Knowledge Works, ISBN 0-620-31994-1
2. Tropical Forages - http://www.tropicalforages.info/key/Forages/Media/Html/Cenchrus_ciliaris.htm
3. Feedipedia - Animal feed resources information system - Foxtail Buffalo grass – (Cenchrus ciliaris) - <http://www.feedipedia.org/node/482>
4. FAO - <http://www.fao.org/ag/agp/AGPC/doc/Gbase/data/pf000196.htm>
5. Dannhauser CS. 1991. Die bestuur van aangeplante weiding in die somerreënvaldele, vol. 1. Warmbad
6. SANSOR - <http://sansom.org/sub-tropical-grasses/>
7. Truter, WF. Dannhauser, CS, Smith, H. and Trytsman, G. 2014. Cenchrus ciliaris (Foxtail / Blue buffalo grass). Integrated Crop and Pasture-based livestock production systems. Conservation Agriculture – Part 6 . SA Grain. ISSN 1814-1676. Page 80-82.

