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## Babala – *Pennisetum glaucum*

Babala is a fast growing annual summer forage crop. The erect and robust grass has an extensive root system aiding with the adaptation to wide variety of growing conditions. This grass is mostly used for grazing, but can be utilized as green chop, silage and foggage. It is also used as a grain crop in areas where maize and sorghum fail. This grass is best adapted to areas where the annual rainfall is between 400 mm and 1500 mm.



### Strengths

- 1 - 5 t DM/ha/season in dry conditions
  - 8 - 12 t DM/ha/season under irrigation
- Depending on environmental conditions and management**
- Adapted to low fertility soils
  - Dryland cropping and under irrigation
  - Absence of prussic acid poisoning makes it safe for livestock
  - Excellent drought tolerance

### Limitations

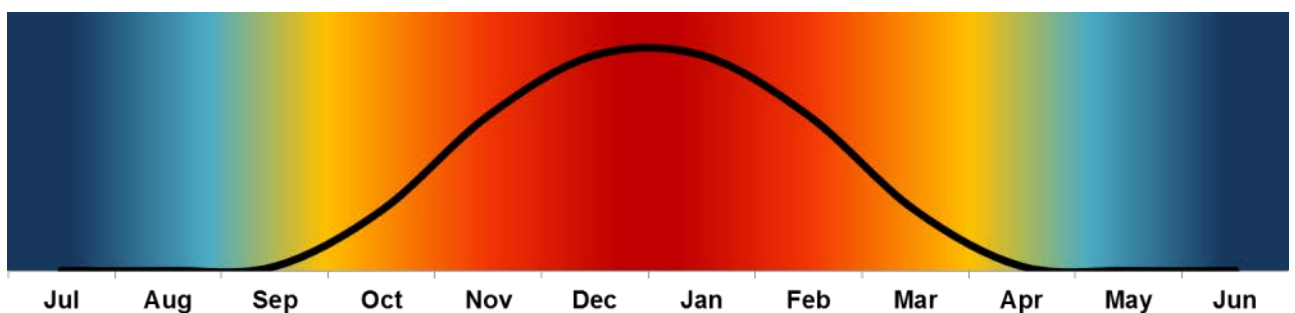
- Intolerant to poor drainage
- May cause nitrate poisoning with high N application
- Hay difficult to cure



## What can it be used for?

- Grazing:** Multiple grazing cycles can be achieved. This is the most cost effective way of harvesting, but waste does occur.
- Green Chop:** Excellent quality fodder can be delivered to livestock, but additional equipment is required.
- Cover Crop:** Babala is tolerant to saline conditions in the soil. The growth rate and height put pressure on the establishment of weeds. It builds the stability of soil aggregates and organic material. While it can be used as forage for both livestock and game, it also acts as a habitat for beneficial insects.
- Grain:** Babala, or Pearl Millet, flour is used to make porridge and other traditional dishes. It is also fermented to make a traditional beer.

**Production potential:** Production is highly influenced by soil fertility, environmental conditions and frequency of utilisation. Under dryland conditions in semi-arid areas, yields range between 1 – 5 t DM/ha/season, while subtropical areas can achieve 8 – 12 t DM/ha/season <sup>(1, 2)</sup>. Grain production is influenced by soil fertility, environmental conditions, the chosen cultivar, plant density and management.



Relative growth curve of a Babala stand - one year cycle

### **Metabolic disturbances in animals on cultivated pastures:**

**Nitrate poisoning:** Nitrate build up in plants under periods of poor growth, especially after high N fertilisation <sup>(2)</sup>.



SEED



SEED TREATMENT



FORAGE

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LAND REHABILITATION



COVER CROPS



Advance Seed

## Establishment

- Climate:** Performs best in warm areas. Babala is best established when minimum soil temperatures reach 18 °C.
- Moisture:** Babala is very drought tolerant and can grow in areas where rainfall is as low as 400 mm per annum. For optimum forage production, a minimum annual rainfall of 500 mm is required. Under severe drought conditions, Babala becomes unpalatable.
- Soil:** Babala is best suited to sandy or light loam soils, but will grow in well-drained clay soils. A soil pH (KCl) of 5.5 – 7 is recommended for production, but will grow in a range of pH 4.5 – 8.3. This grass has a moderate tolerance to aluminium.
- Fertilization:** Babala does not have a high fertility requirement to survive, but reacts well to fertilizer application if water is not limiting. A soil analysis before establishment is essential <sup>(1, 2, 3)</sup>.

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment***	20-40*	15-20	80-120
Seasonal application (kg/ha)	40-100**	Use removal rates	
<b>Production - Removal rates (kg/ton):</b>			
Good quality fodder	27	4.5	32.9
Average quality fodder	20	2.8	21.5
Poor quality fodder	11	0.4	11

\*Fertilizer just after establishment (kg/ha)

\*\*Selected rate should maximise profit

\*\*\*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 <sup>(5)</sup>. It is however necessary to do annual soil analysis to determine the level to which recycling occurred. The difference should be fertilized.





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

**Our prescribed seeding rate:**      **Rows (35cm) / Dryland** <sup>(1, 2)</sup>      **Broadcast / Irrigation** <sup>(1, 2)</sup>

10 - 15 kg/ha	20 - 30 kg/ha
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**Grain Production:**      277 500 Plants per hectare

**Planting time:** Earlier sowing in spring increases the likelihood of multiple cuts or grazing opportunities.

## Management

**Utilisation:** The first utilisation is usually at 60 – 65 days after planting and follow-up utilisations after 30 – 35 days of regrowth. Grazing should commence at a height between 400 and 600 mm and grazed no lower than 150 mm.

## Cultivars

### **Okashana**

Okashana is an open pollinated Babala variety suited to grazing. The fact that it is not a hybrid makes the seed more affordable.

## Resources

1. Pasture Handbook, Kejafa Knowledge Works, ISBN 0-620-31994-1
2. Tropical Forages - [http://www.tropicalforages.info/key/Forages/Media/Html/Pennisetum\\_glaucum.htm](http://www.tropicalforages.info/key/Forages/Media/Html/Pennisetum_glaucum.htm)
3. Feedipedia - Animal feed resources information system – Pearl millet (*Pennisetum glaucum*) - <http://www.feedipedia.org/node/399>
4. University of Florida, IFAS Extension – Pearl Millet (*Pennisetum glaucum*): Overview and Management - <http://edis.ifas.ufl.edu/ag347>
5. Dannhauser CS. 1991. Die bestuur van aangeplante weiding in die somerreënval-dele, vol. 1. Warmbad
6. SANSOR - <http://sansor.org/sub-tropical-grasses/>
7. Truter, WF. Dannhauser, CS, Smith, H. and Trytsman, G. 2014. *Pennisetum glaucum* (Babala). Integrated Crop and Pasture-based livestock production systems. Conservation Agriculture – Part 10. SA Grain. ISSN 1814-1676. Page 27-29.



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