



AGT Foods Africa Pty Ltd.
 8 Jacobs St., Chamdor, Krugersdorp 1739
 P.O. Box 414, Krugersdorp, South Africa 1740
 Reg. No. 1994/001269/07
 VAT Reg. No. 484 014 1495

Tel: +27 11 762 5261
 Fax: +27 11 762 4111
 0861 AgriCote (247426)
 sales@advanceseed.com
 www.agtfoods.com/za

Smuts finger grass – *Digitaria eriantha*

Smuts finger grass is a summer growing perennial forage crop. Smuts finger grass plants can be highly variable with regards to their manner of growth; mostly being tufted, some cultivars have stolons, while others have rhizomes. Stolons and rhizomes enable plants to be highly adaptable while also providing good soil cover for erosion control. This grass is best adapted to areas where the annual rainfall exceeds 500 mm, but will grow where rainfall is as low as 300 mm per annum.



Strengths

- 10 to 20 t DM/ha/season
Depending on environmental conditions and management
- Perennial species
- High quality grass
- Widely adapted
- Strong perennial
- Tolerant to fire
- Drought tolerant
- Valuable in erosion control

Limitations

- Slow to establish due to secondary seed dormancy
- Not adapted to waterlogged conditions
- Poor grazing management will drastically deteriorate stands

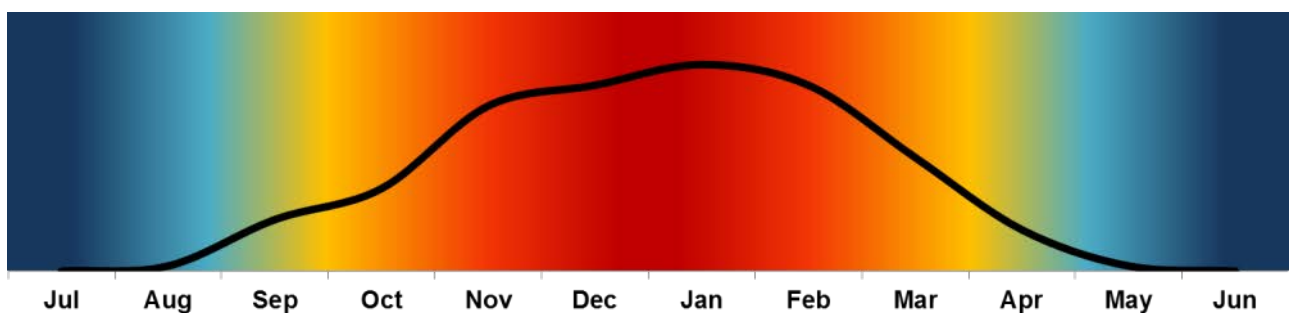


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What can it be used for?

- Grazing:** Smuts finger grass provides good quality grazing. Quality is best before flowering.
- Hay:** Good quality hay can be produced and should be cut before or at initiation of the flowering stage.
- Foggage:** Smuts finger retains its quality during winter (while dormant). Strip-grazing during this time is recommended for optimised usage.
- Silage:** The production of silage can be highly successful with additional inoculation of the material.
- Cover Crop:** Smuts Finger Grass is used in cover crop blends for long term erosion control. It stabilizes the soil aggregate stability and builds organic material in the soil.

Production potential: The average production range is between 10 – 20 t DM/ha/season. This depends on soil fertility, environmental conditions and frequency of utilisation. Yields tend to increase from the second season onwards. This is due to initial slow establishment. Even though well-established stands tolerate high stocking rates, overgrazing is detrimental to the stand recovery ^(1,2).



Relative growth curve of an established Smuts finger grass stand - one year cycle

Metabolic disturbances in animals on cultivated pastures:

No toxicities has been recorded



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Establishment

Climate: Smuts finger grass grows well in the temperature range of 18 – 30 °C. It is a summer growing grass. It is also frost tolerant, however, if severe frost (-10 to -15 °C) is experienced regularly or before plants become dormant, the longevity of the stands may be compromised.

Moisture: Under dryland conditions it requires at least 500 mm per annum, but it can survive in areas with rainfall as low as 300 mm per annum.

Soil: Smuts finger grass is well adapted to sandy and sandy loam type soils. The ideal soil pH (KCl) is above 5, but it will grow in soils with a pH as low as 4.5.

Fertilization: Smuts finger grass is tolerant of low fertility soils, but productivity may be greatly compromised. A soil analysis before establishment is essential ^(1, 2, 3).

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment***	20-40*	15-20	100-120
Seasonal application (kg/ha)	60-220**	Use removal rates	
Production - Removal rates (kg/ton):			
Good quality fodder	26	4.9	34.4
Average quality fodder	16	2.6	18.3
Poor quality fodder	9	1.1	8.6

*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 ⁽⁵⁾. 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/planting will ensure good seed-soil contact and subsequently better germination and establishment.



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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.

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

Management

Utilisation: Cutting or grazing during the late vegetative stage provides for a good balance between quantity and quality. Cutting before the reproductive stage promotes healthy regrowth during the growing season. When Smuts finger is to be used as foggage, a final cut in January and a good supply of N should provide ideal results. Utilisation as foggage can be optimised by strip grazing.

Cultivars

Irene

This is the most commonly cultivated variety in South Africa and is widely adapted.

Tip Top

Selected from Irene for better seed quality, homogenous of growth, a better leaf:stem ratio as well as rust resistance.

Resources

1. Pasture Handbook, Kejafa Knowledge Works, ISBN 0-620-31994-1
2. Tropical Forages - http://www.tropicalforages.info/key/Forages/Media/Html/Digitaria_eriantha.htm
3. Feedipedia - Animal feed resources information system – Smuts finger grass (*Digitaria eriantha*) - <http://www.feedipedia.org/node/461>
4. FAO - <http://www.fao.org/ag/agp/AGPC/doc/Gbase/data/Pf000477.htm>
5. Dannhauser CS. 1991. Die bestuur van aangeplante weiding in die somerreëval-dele, vol. 1. Warmbad
6. SANSOR - <http://sansor.org/sub-tropical-grasses/>
7. Truter, WF. Dannhauser, CS, Smith, H. and Trytsman, G. 2014. *Digitaria eriantha* (Smutsfinger grass). Integrated Crop and Pasture-based livestock production systems. Conservation Agriculture – Part 3. SA Grain. ISSN 1814-1676. Page 53-55.



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