

A SOWING GUIDE FOR GRASS AND LEGUME PASTURES

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The first and major aim of pasture establishment is to achieve the development and production of pastures which are both high yielding in terms of forage dry matter, and of relatively high nutritive value to animals. It is important to decide on the forage species to be used and the system of utilisation that will be practised. Some consideration must also be given to the species of animal that will be utilizing these pastures.

If establishing pastures from seed, it is absolutely necessary to obtain a source of high quality seed; that is, seed of high purity and with a high potential to germinate.

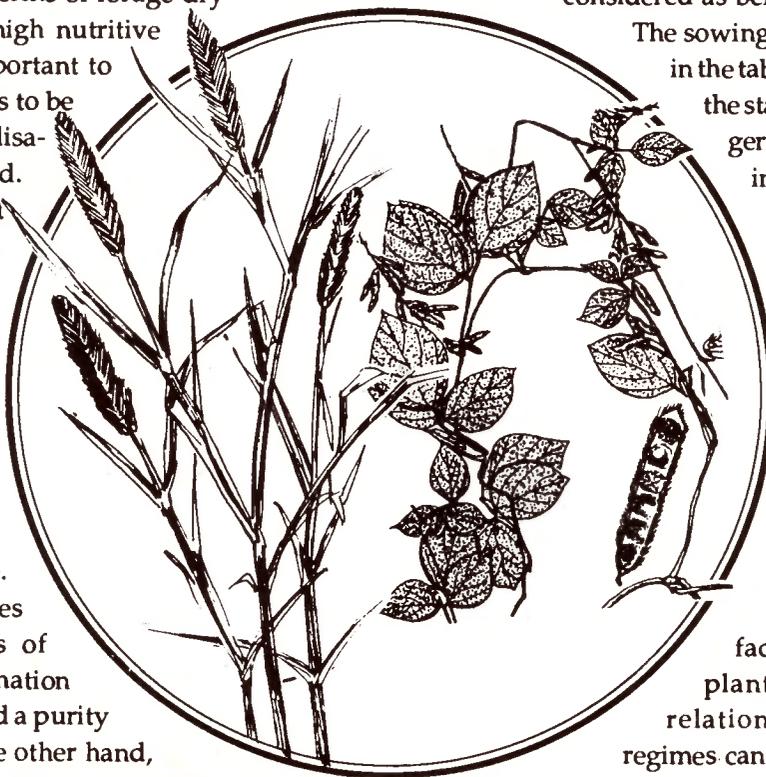
Many pasture legumes produce large quantities of viable seed, with a germination rating of 40–60 per cent and a purity of 98 per cent, while, on the other hand, most tropical grasses have a comparatively low germination rating, e.g. Guinea grass (*Panicum maximum*) 20–25 per cent, and a purity of between 40 and 60 per cent. This significant differences exists

because grass seeds tend to be contaminated with other undesirable grass seeds (i.e. weeds) and therefore cannot be considered as being pure.

The sowing rates for each species listed in the table have been calculated with the standard parameter of per cent germination (rating) being taken into account. If establishing from seed, this may be done either by broadcasting or by drilling. Usually more seed is used in broadcasting than in drilling, in which the rate of seeding is more precisely metered and therefore better controlled. This bears obvious implications for seed costs.

The most important factor affecting the time of planting is the soil-moisture relationship. Three rainfall regimes can be differentiated:

- | | | |
|----------|---|----------------------------------|
| Dry | – | 500 mm (20 in) or less per year. |
| Semi-dry | – | 500–1500 mm (20–60 in) per year. |
| Wet | – | Over 1500 mm (60 in) per year. |



It is usually best to time planting with the onset of the wet season, especially where irrigation is unavailable.

Another important factor to be considered in pasture establishment is that of soil. Not only in respect of the soil type (e.g. sandy vs. clay) but especially with regard to the level of soil fertility. In intensively managed pastures great demands are made on fertility as a result of the heavy removal of soil nutrients in the forage itself.

The level of soil fertility is mainly determined by:

- i) the amount of available nutrients in the soil
- ii) the rate at which these become available, and
- iii) the extent of losses, particularly of applied nutrients (inorganic fertilizers and manure).

These three important factors are inter-related and are influenced by several soil-chemical properties, one of the most important being soil pH. The table shows the tolerance of the most common tropical grasses and legumes to such soil conditions (pH > 6.3).

In choosing the best pasture species some consideration must be given to the plants' ability to withstand both drought and periodic waterlogging. This is especially true of dry tropical climates, characterized by distinct wet and dry seasons. In most tropical situations avoidance of prolonged drought stress may prove difficult, while periodic waterlogging, on the other hand, is common in the rainy season and may be somewhat alleviated or avoided through some improvement to soil drainage.

NAME	ANNUAL RAINFALL RANGE		TOLERANCE TO			AVERAGE SEED COUNT		SOWING RATE	
	mm	in	DROUGHT	PERIODIC WATERLOGGING	Low Fertility Soils	'000/kg	'000/lb	kg/ha	lb/ac
GRASS									
✓ Bermuda-Coastcross 1 (<i>Cynodon dactylon</i>)	500-1200	20-50	Very good	Fair	Good	Vegetative Propagation only		Vegetative Propagation only	
Elephant (<i>Pennisetum purpureum</i>)	1000+	40+	Good	Good	Fair	Vegetative Propagation only		Vegetative Propagation only	
Guinea (<i>Panicum maximum</i>)	1000+	40+	Good	Fair	Poor	2400	1100	2.5-7	2.5-7
Bambatsi (<i>Panicum coloratum</i>)	500-875	20-35	Very good	Good	Fair	1600	725	2.5-4.5	2.5-4.5
Giant African Star (<i>Cynodon plectostachyus</i>)	500-1250	20-50	Good	Good	Good	Vegetative Propagation only		Vegetative Propagation only	
Pangola (<i>Digitaria decumbens</i>)	1000+	40+	Fair to poor	Good	Fair	Vegetative Propagation only		Vegetative Propagation only	
Para (<i>Brachiaria mutica</i>)	1000+	40+	Fair to poor	Very good	Poor	935	425	1-2.5	1-2.5
LEGUME									
Centro (<i>Centrosema pubescens</i>)	1500+	60+	Fair	Good	Fair	40	18	1-2.5	1-2.5
Desmanthus (<i>Desmanthus virgatus</i>)	1000-1500	40-60	Fair	Fair to good	Good	243	111	2-3	2-3
✓ Glycine (<i>Neonotonia wightii</i>)	750-1500	30-60	Good	Poor	Poor	154	70	3.5-4.5	3.5-4.5
Leucaena (<i>Leucaena leucocephala</i>) "Cunningham"	750+	30+	Good	Poor	Good	24	11	2.5-4.5	2.5-4.5
✓ Rabbit vine (<i>Teramnus labialis</i>)	750-1750	30-70	Fair to good	Good	Good	145	66	2-5	2-5
✓ Siratro/Mexican Macro (<i>Macroptilium atropurpureum</i>)	750-1750	30-70	Very good	Fair	Good	75	34	2.5-3.5	2.5-3.5

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