



# TECH-NOTE

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## FORAGE SORGHUM AND MILLET

There is a wide range of sorghum and millets to choose from. Selection will depend on several factors including how quickly the feed is required, type of livestock to be grazed and the need for fodder conservation. As with most forage crops, sowing costs are usually high and there is an element of risk associated with sowing them, results will depend on rainfall or irrigation received during the growing period along with other management factors.

### MILLETS

#### *Temperate millets (Echinochloa spp)*

The main advantage of the temperate millets is their ability to be sown early when the soil temperature is only 14 degrees Celsius, providing feed earlier in the season. High quality feed is produced but total yield over the season will be much lower than that of pearl millets and forage sorghum.

They can be used on poorer soils than forage sorghums but yields will also be lower on these soils. They are suited to a wider range of climatic conditions than pearl millets, being more suited to colder tableland environments.

Temperate millets have a tendency to run to head in hot, dry weather, however, this can be minimized through grazing management. Grazing can commence as soon as plants are well anchored but is generally left until they have reached 20-30cm in height. This can be as early as 5-6 weeks after sowing. Recovery from grazing will be slower than that of pearl millet and forage sorghum.

*There is no hydrocyanic acid (HCN) poisoning risk associated with temperate millets.*

**Shirohie** is the most commonly available variety, with improved vigour and recovery from grazing over the older Japanese variety (the term "Japanese" has also been used to generically describe the temperate millets).

#### *Forage Pennisetums (Pearl millets)*

The main advantages of pearl millets over temperate millets is better re-growth after heavy grazing, improved drought tolerance once secondary roots are established and they do not readily run to head in hot, dry weather in the way temperate millets do. Early growth, however, is slower than temperate millets and soil temperatures need to be 18 degrees Celsius and rising prior to sowing. They are suited to well drained, sandy soils. Do not sow on shallow, hard setting soils or soils prone to water-logging.

There are two types; open pollinated and hybrid pearl millets. Hybrid pearl millet is generally considered to have improved vigour, better re-growth and higher yield potential over open pollinated varieties. More tillers and finer stems make hybrid millets more suitable to sheep than the open pollinated pearl millets, which are more suited cattle.

Grazing can commence once plants are anchored by the secondary roots and when they have reached 30-80cm, this can be 5-7 weeks after sowing. They should be kept below 1mt for best results as quality declines quickly as plants mature. Do not graze below 15cm to ensure quicker re-growth.

*There is no risk of HCN poisoning with pearl millets.*

**Nutrifeed** from Pacific Seeds is a hybrid, while open pollinated varieties include **Tamworth** and **Katherine**.

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Millet and forage sorghum; continued,**

## FORAGE SORGHUM

Forage sorghums will germinate best when soil temperatures reach 16 degrees Celsius and are rising. Earlier sowings are possible but slow germination in cold soils can make seedlings susceptible to attack from disease and insects.

*All forage sorghums contain HCN and grazing management should take into account the risks associated with Prussic acid poisoning.* These include adhering to grazing height, avoiding grazing of severely stressed crops, not introducing hungry stock onto crops, avoiding paddocks with high levels of nitrogen. Always supply sulfur (10%) based salt blocks with the sorghum. *Seek advice on grazing forage sorghums to minimise animal health issues.*

### Sudan grass

Sudan grass includes both open pollinated and Sudan x Sudan hybrids. The hybrid types, such as **Superdan** from Pacific Seeds, are more now more commonly used. They contain HCN but levels are lower compared with other forage sorghums.

Sudan grass has fine stems making it suitable for grazing by sheep and cutting for hay. Grazing can commence when crop is 1m high.

(*Silk* is also a Sudan type, mainly suited to northern NSW. It has characteristics similar to Johnson grass and is considered a weed in some areas. It is higher in prussic acid than other Sudan types.)

### Sorghum x Sudan hybrids

Varieties in this category are high yielding and quick growing hybrids, with the ability to recover quickly after grazing or cutting. They are drought tolerant and once established they can go dormant during a drought but will recover rapidly after rain has fallen.

They can be divided into two groups, the traditional early flowering types and late flowering types. The later flowering types are easier to manage as quality will be maintained even if grazing management is less than ideal. Grazing should commence when sorghum is 0.8-1m high (around 6-7 weeks after sowing).

They are suitable for hay, silage and grazing with cattle.

Early flowering varieties include **Speedfeed** and **Betta Graze**, late flowering varieties include **Jumbo** and **Cow Pow**.

### Sweet sorghum hybrids

Sweet sorghum by sweet sorghum hybrids are selected for high sugar production, they are thicker stemmed than other sorghum. They are suitable for summer grazing, stand-over feed for late autumn and winter or for silage. Grazing can commence when plants are 1.5m high. Varieties include **Sugargraze** and **Mega Sweet**.

### Sorghum hybrids

These are a useful alternative for silage production in lower rainfall areas or where maize cannot be considered. They are generally suited to silage production only as they grow very tall and are not suited to grain harvesting. Varieties include **Chopper** from Pacific seeds. It is suited to pit or bunker silage only.

### BMR

BMR stands for "Brown Mid Rib". Sorghums with BMR tend to have less lignin and are more digestible than other sorghums.

This Tech-note has been compiled from information in Pacific Seeds "The Forage Book", NSW Ag "Agdex 127/20 "Forage Millets" 1982 and NSW agriculture Agfact P2.5.41, second addition 2002, Ian J Collett

... For more information regarding this Tech-Note contact Auswest Seeds on (02) 6852 1500 ...

THE TABLE BELOW SUMMARIZES SOME OF THE AVAILABLE FORAGE SORGHUMS AND MILLETS THAT ARE AVAILABLE.

Type	Variety	Sowing Rates			Soil Temp °C	Grazing Height	Time to graze	HCN	Comments and uses
		Marginal Dryland	Good Dryland	Irrig'n					
Temperate Millet	Shirohie Japanese	7-10	10-14	20-25	14° C	20-30cm	5-6 Weeks after sowing	No	Earliest possible sowing time. Runs to head under stress. Sheep, cattle & hay.
Forage Pennisetum Pearl millet - open pollinated	Tamworth Katherine	4-5	5-8	8-10	18° C	45cm	5-7 Weeks after sowing	No	Not suited to cooler tablelands. Better re-growth than Shirohie. Cattle and hay.
Forage Pennisetum Hybrid pearl millet	Nutrifeed	2-5	4-8	8-15	18° C	30-50cm	5-7 Weeks after sowing	No	Finer stems, quicker re-growth than other millets. Sheep, cattle and hay. Drought tolerant.
Sudan x Sudan hybrid	Superdan	2-4	5-8	10-20	16° C	1mt	-	Yes	Fine leaf and high leaf to stem ratio. Suited to sheep, cattle, hay and green-chop.
Sorghum x Sudan hybrid - Earlier flowering type	FeedEx Speedfeed Betta Graze Super Sudax	3-5	5-10	15-20	16° C	1mt	6-7 Weeks after sowing	Yes	Quick to flower and require good grazing management to maintain quality. and avoid feed wastage. Cattle, hay and silage
Sorghum x Sudan hybrid - later flowering type	Jumbo Sweet Jumbo Cow Pow Pacific BMR	3-5	5-10	15-20	16° C	1mt	6-7 weeks after sowing	Yes	Later flowering habit can allowing more flexible grazing management. Best quality will still be achieved with timely grazing. Cattle hay and silage.
Sweet Sorghum x Sudan hybrid	Nectar	2-4	4-8	10-20	16° C	1mt	-	Yes	Suited to grazing throughout summer and into late autumn. Yields slightly lower than Sudan x sorghum hybrids but has easy management of sweet sorghum. Cattle and silage.
Sweet Sorghum x Sweet Sorghum hybrid	Sugargraze Mega Sweet	3-5	5-10	15-20	16° C	1.5mt	-	Yes	High sugar content. Suited to summer grazing or stand over autumn winter feed. Slower to recover after grazing than other hybrids. Cattle and pit silage.
Sorghum x Sorghum hybrid	Chopper	2.5-4	4-6	6-8	16° C	-	Not for Grazing	Yes	Pit silage only. Can be used as a silage alternative in situations where maize is not suitable.

.... Check with seed suppliers for full details on suitability of individual varieties ....