Sugargraze

FOR ETHANOL

SWEET SORGHUM X SWEET SORGHUM HYBRID

Sowing time:
When soil temperature at planting depth at 9.00am is at least 15 - 16°C and rising.

Row spacing:
60 - 75 cm (depending on the wheel spacing of harvesting equipment).

Plant populations:
125,000 - 150,000 plants per hectare established.

Seed placement depth:
50 - 75mm into moist soil.

Crop nutrition:
a) Nitrogen:
High nitrogen fertility will be required to maximise forage and sugar production. You should expect to produce about 20MT dry matter per hectare. Fertiliser application of at least 200 kg N/ha may be required. This can be split between pre-plant and a side dressing application. This rate assumes good water supply to the crop and no residual N in the soil.
Soil N status should be tested to determine if the above rate can be adjusted down depending on available residual N.

b) Phosphorus:
This will depend on your soil analysis

Bicarb soil test mg/kg	P rate Kg/ha
<15	20
15 - 30	15
>30	7

c) Potassium:
The crop should remove 15 - 20kg/MT dry matter. Ensure that soil K is adequate or some is added in fertiliser.

Weed control:
Good weed control pre-crop and in-crop is essential to achieve maximum yields. Refer to local recommendations for forage or grain sorghum.

Water requirements and irrigation:
A good crop will use 6ML/ha total water. This includes soil moisture, rainfall and irrigation. Maximum juice and sugar yields will be achieved when the crop is grown without moisture stress. The crop will tolerate some moisture stress, however this may reduce or delay yield.

Harvesting:
Crop growth stage: From flowering to milky dough, during which time maximum juice and fermentables yield is achieved.
In Southern Queensland optimal harvest time from a:-
spring plant 100-110 days
mid summer plant 85-92 days
late summer plant - 85-90 days

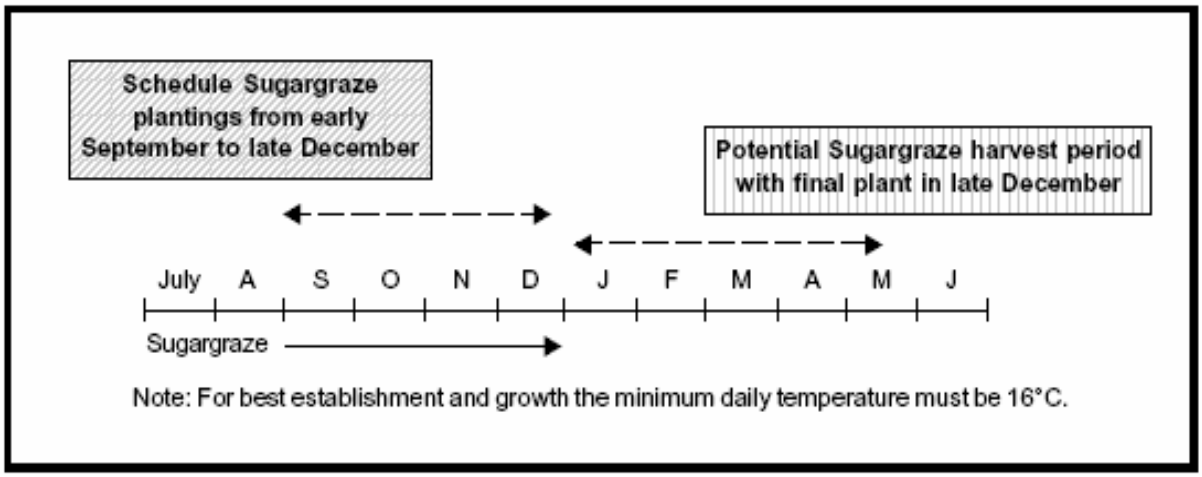
Ergot: If ergot is likely, harvest at flowering to avoid disease development. This should not reduce fermentables yield.

Machinery:
Forage harvester: Adjust the machine to achieve maximum chop lengths. Ideally 10 - 20 cm.
Cane harvester: Turn off blower fans during harvesting.

Yield Indications:
The yields quoted below have been achieved in southern Queensland (28 degrees south) on a plant crop.

Wet biomass (kg/ha):	80,000 - 100,000
Brix (%):	12 - 13
Total soluble solids (kg/ha):	7,000 - 8,000
Juice extracted (L/ha):	60,000 - 70,000
Juice extracted (%):	60 - 70

(Based on a single primary crush. In a cane mill there is a second hot water supplemented crush.)



Note: For best establishment and growth the minimum daily temperature must be 16°C.

1000kg of in crop TFS (Total Fermentable Sugars) will produce 350kg (or 444 litres) of ethanol .

Therefore an 80t/ha crop of Sugargraze @ 12.5% TFS = 10t TFS will yield 4440 litres of ethanol/ha.

A 100t/ha crop @14% TFS will yield 5772 litres of ethanol /ha.

Information in this technote regarding ethanol production from Sugargraze was taken from CSIRO research conducted by Dr Neal Dalgliesh and Tony Webster in 2003.

Dr Dalgliesh has given permission for the use of his research findings in this technote.