

**PROCEEDINGS OF THE CENTRAL QUEENSLAND SECTION OF THE  
TROPICAL GRASSLAND SOCIETY OF AUSTRALIA**

**FIELD MEETING — JUNE 9, 1972**

**FERTILIZERS—A MUST FOR TROPICAL PASTURES**

At the first field meeting of the Central Queensland Section, fertilizer requirements for two kinds of tropical pasture development were considered, legume-grass pastures and grass with fertilizer nitrogen. The following are descriptions of the two properties visited at this meeting. At Mr. A. Law's property main emphasis is on irrigated guinea grass with nitrogen fertilizers whereas at "Royston Park" only legume/grass pastures have been planted so far.

**PROPERTY OWNED BY MR. A LAW—CAMERON'S POCKET**

This 280 ha (700 ac) property is 58 km (36 miles) north of Mackay. It is comprised of creek flats subject to flooding and gently to steeply undulating land running back to the hills. Average annual rainfall is 1778 mm (70 in) and there is an average of five frosts a year.

Twelve hectares (30 ac) of alluvial creek flats are irrigated from a nearby creek. The pasture on this land is predominantly guinea grass with very few centro plants.

*Pasture Establishment*

The alluvial flats grew cane initially and by 1966 volunteer guinea grass was firmly established. The legumes centro, lotononis, siratro, glycine, stylo and desmodium were introduced to the pasture but flooding in January 1970 adversely affected these species and the area reverted back to a grass dominant sward.

*Pasture Management*

In 1967 the area was sub-divided into 4 paddocks of about 16 hectares each. Irrigation was commenced at that time to provide year-round production.

Following flooding in early 1970 the grass dominant pasture was maintained by applying nitrogenous fertilizer and irrigating as required. Since that time grazing has been carried out on a rotational basis with each paddock irrigated during the drier months immediately cattle are moved from one paddock to the next.

At the end of each wet season in March-April the guinea grass pasture is mowed to a height of 20 cm (5 in). Initially the mower was set much higher than this but from experience it was found that the lower cutting height produced best results. Mowing is considered better than slashing because it produces more even growth. Rank growth from dung and urine patches is not important as irrigation tends to even out growth. Stocking rate is varied throughout the year to maximise production during the drier months. The aim is to keep pastures short so that all new growth following spelling is readily eaten.

On average, four irrigations are given each year. About four inches of water is applied with each irrigation making a total of sixteen inches per annum.

In 1968 and 1969 superphosphate was applied at the rate of 125 kg/ha (1 cwt per ac) per annum. No more phosphate was applied until May 1972, as this is an old cane paddock of alluvial soil and good results have been obtained over the last two years using nitrogen only. From 1970 onwards, nitrogenous fertilizers have been applied to provide 123-140 kg N/ha (110-125 lb N/ac) per year. Nitrogen is introduced through the spray lines at each watering. 125 kg urea per hectare is applied by first dissolving in water and withdrawing the solution as

irrigation proceeds. This is done at the start of each irrigation. Perhaps better results might be obtained by applying the urea later in the watering so that the nitrogen is left closer to the surface. However, this would necessitate an additional trip to the pump.

### *Cattle Enterprise*

Older, forward conditioned steers are favoured but, because of the current heavy demand for the older store steers two year old steers have been purchased.

The undulating portion of the property is used to grow out stores purchased at a younger age and to supply an even flow of steers to the fattening paddocks. This country carries native pasture plus one hundred acres of guinea grass, centro and siratro.

Thirty to forty head of fattening steers are run together and rotationally grazed for seven days at a time.

Steers are fattened in two to four months. The fats are sold in small lots to provide a continuity of supply for local butchers. Numbers are maintained by adding steers from the balance of the property as required.

### *Costs*

Table 1 summarises number of cattle fattened, irrigation and fertilizer costs over the years. The figures shown for irrigation cover fuel and oil costs for pumping only. Fertilizer cost has been calculated on Mackay prices with no allowance for cartage or application.

TABLE 1  
*Cost of 12 hectares (30 ac) of guinea grass*

1968	Grass-legume	90 head fattened		
	Costs—Irrigation	\$192	Fertilizer	\$55
				\$247
1969	Grass-legume	90 head fattened		
	Costs—Irrigation	\$192	Fertilizer	\$55
				\$247
1970	Grass + N	130 head fattened		
	Costs—Irrigation	\$192	Fertilizer	\$315
				\$507
1971	Grass + N	130 head fattened		
	Costs—Irrigation	\$192	Fertilizer	\$344
				\$536

### “ROYSTON PARK”—PROPERTY OF FORDYCE AND SONS, KUTTABUL

The property of 1820 ha (4500 ac) is 48 km (30 miles) north of Mackay. Annual rainfall is 1650 mm (65 in) with most of the rain falling in the period December to March. There are occasional showers in the winter months and an average of six frosts a year.

The country is gently rolling, mostly at altitudes of between 60 and 120 metres (200 and 400 feet). The main soil type is a brown earth with a pH of around 5.7 and available phosphorus of 5 to 10 p.p.m.

### *Development*

The property was purchased in 1968, and since then 530 ha (1300 ac) have been planted to tropical pastures. It is estimated that eventually about 1600 ha (4000 ac) can be cleared and planted to tropical pastures.

At present only legume/grass pastures have been planted, but in future it is intended to have both *Pangola* and *Brachiaria decumbens* pastures to use with nitrogen fertilizer.

### Pasture Establishment

After clearing the timber two ploughings are usually done, although sometimes we have done only one ploughing and had successful establishment. The soil is then harrowed before sowing in December. At planting 500 kg/ha (4 cwt/ac) of molybdenised single superphosphate are applied and the area is then rolled. This has been shown to improve initial establishment.

Main species used on the property are *Kazungula setaria*, *Paspalum plicatulum*, Siratro, Stylo and Tinaroo glycine. Small areas of Coloniao Guinea, Hamil grass and *Brachiaria decumbens* have been planted recently and all appear promising. Centro has been tried but does not grow well. The most common seed rates used are:

<i>Kazungula setaria</i>	0.56-0.84 kg/ha ( $\frac{1}{2}$ - $\frac{3}{4}$ lb/ac)
<i>Paspalum plicatulum</i>	1.12-1.68 kg/ha (1-1 $\frac{1}{2}$ lb/ac)
Siratro	0.56-0.84 kg/ha ( $\frac{1}{2}$ - $\frac{3}{4}$ lb/ac)
Stylo (Schofield)	0.56-0.84 kg/ha ( $\frac{1}{2}$ - $\frac{3}{4}$ lb/ac)
Glycine (Tinaroo)	1.68-2.24 kg/ha (1 $\frac{1}{2}$ -2 lb/ac)

Approximate costs of development and planting per hectare and acre are as follows:—

	per hectare	per acre
	\$	\$
Clearing	49	20
Cleaning up and cultivations	30	12
Planting costs and seed	30	12
Fertilizers	25	10
	134	54

### Pasture Management

After the pastures are fully established they are set stocked, the number of cattle in any one paddock being determined by the feed available. The object of the grazing management is to maintain a good legume component, which is achieved with set stocking. There is very little bush regrowth and none of the pastures are slashed. The small amount of regrowth can be controlled cheaply by hand slashing and treating with Tordon. Fertilizer maintenance dressing is one cwt of superphosphate every year.

### Cattle Enterprises

There are at present a total of 1600 cattle (25 bulls, 700 breeders, 350 steers, 400 young heifers, and 150 calves) on the property, mostly Brahman crosses, but there is also a herd of 200 registered Brangus. Stocking rates are about 0.6 ha (1 $\frac{1}{2}$  ac)/beast on a yearlong basis. There is only limited information on liveweight gains, but some of the better cattle have achieved a mean daily liveweight gain from weaning to slaughter of 0.57-0.68 kg/day (1.25 to 1.5 lb a day). Recently, steers were bought in from the Brigalow country and these have done very well on the improved pastures.