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SOWN PASTURES FOR THE DARLING DOWNS FIELD MEETING—NOVEMBER 28, 1980

A field day, organised in conjunction with the Society's Annual General Meeting, on the subject of sown pastures for the Darling Downs area of south-eastern Queensland was held on November 28, 1980. The introduction and maintenance of suitable pasture species on the heavy cracking-clay soils of this region is a recognized problem. Increasing numbers of horses and the continuing requirement for dairy and beef cattle herds have intensified the demand for suitable pastures. Members were invited to inspect several pastures sown to introduced and native grasses and to visit preliminary observation plots of tropical grasses and legumes likely to be of value in the region.

PASTURES FOR HORSES ON THE DARLING DOWNS

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Horses are kept on the Darling Downs in four main situations: on stud properties; in spelling stables; for pleasure and in training for racing or trotting. The Australian Bureau of Statistics estimates there are 24,379 horses on 3703 holdings but this does not include trotters, race horses, and animals kept for pleasure by pony clubs and individuals. In addition a large number of mares is brought to the Downs in October-November for breeding. A horse population of 30,000 to 35,000 head would be realistic.

Pasture specifications

Pastures for horses need to withstand close and selective grazing. Horses prefer a short sweet pick and avoid adjacent knee-high feed and any rank growth. Pastures are frequently overgrazed. We have observed that horses will select some native grasses in preference to most introduced grasses.

It is important to remember that pastures high in oxalate content may cause big head in horses (see Tropical Grasslands, Volume 12, Number 3, page 212).

The environment, pasture types and supplementary crops

The average annual rainfall in the region varies from 625 mm at Dalby in the west to 950 mm at Toowoomba on the eastern boundary. There are three situations in which pastures are grown: on the eastern edge of the range (better rainfall, friable red soils); on the basaltic uplands and plains country; and irrigated pastures and grazing crops.

Establishment of pastures on the heavy Darling Downs soils is difficult because rainfall is unreliable and suitable species are not readily available.

Edge of range country

The area in and around Toowoomba is ideally suited to kikuyu-based pastures. With adequate phosphorus applications and careful management, it is possible to maintain a white clover component. Veterinary officers recommend that horses on kikuyu be treated regularly for internal parasites, especially younger horses. The oxalate content of kikuyu may become toxic, but is readily treated. Paspalum, combined with white clover, is adapted to the range country. Lucerne can be grown in this area.

Basaltic uplands and plains

Pasture species available for this country are limited. Green and Gatton panic, while not ideal, have two advantages: they may be established on the higher clay soils; and lucerne and annual medics can be grown with them.

Rhodes grass—preferably Callide—can be used also. The advantage of Rhodes over green panic is that it will give a better ground cover and has low oxalate content. Also, Rhodes grass will persist longer than green panic in poorer country.

Unfertilized green panic pastures do not persist well on the basaltic ridges but can be maintained by applying sulphur and nitrogen. Young stands of green panic are particularly susceptible to cold, dry winters. It will not persist on the heavy black, cracking soils. Makarikari grass does very well indeed in these situations but is very slow to establish (up to 3 years) and is not attractive to horses unless kept short.

Creeping blue and Angleton grasses are the bright hopes for both the plains and upland country. They are easy to establish and give good ground cover on these black soils, as well as being palatable to horses. Seed is not readily available but supplies are increasing to meet the growing demand.

If lucerne is used, the varieties CUF 101 or Matador are recommended. Lucerne aphids are a lesser problem in lucerne growing with other pasture species. Woolly burr medic in basaltic upland areas provides good feed when hayed-off. It responds well to an annual dressing of sulphur in these soils. Snail medic appears to be quite acceptable to horses and should be included in all mixtures.

Irrigated pastures and grazing crops

Irrigated mixed pastures of temperate species or pure ryegrass are recommended. Lucerne for both grazing and hay making should be grown on every property.

Gaps in the feed supply in winter and summer can be filled by various cereal crops. In winter many horse owners grow black barley. Wheat and canary are preferred to oats and triticale as grazing crops.

The millets are favoured for summer grazing but may be difficult to establish on the coarser structured black soils. Rollers should be used at sowing. Sorghums should be avoided because of toxicity problems.

SOWN PASTURES OF NATIVE AND INTRODUCED SPECIES

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Native Queensland bluegrass (*Dichanthium sericeum*) seed collected from the Dalby to Jandowae roadside provided the basis for a 24 ha horse pasture. Half the area was also sown with Rhodes grass (*Chloris gayana* cv. Pioneer and cv. Katambora) and half with a low seeding rate of a mixture of creeping bluegrass (*Bothriochloa insculpta* cv. Hatch) and Angleton grass (*Dichanthium aristatum*). Lucerne and annual medics were included in the seed mixture which was broadcast into a growing barley crop (not a recommended practice) in September 1978.

A satisfactory pasture developed which provides grazing for 70 to 80 mares during winter and spring. An ungrazed recovery period of a month or more during summer is provided to assist pasture persistence.

GRASSES FOR CLAY SOILS IN SOUTH-EAST QUEENSLAND

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Grasses are being evaluated with emphasis on the characteristics, establishment reliability, persistence under heavy grazing and tolerance of low soil nitrogen availability. Yield, capacity to respond to improved soil fertility conditions, quality and palatability, have been the major selection criteria for tropical grasses in the past and satisfactory levels of these variables also must be achieved.

Emphasis has been placed on screening introduced species of *Bothriochloa* and *Dichanthium* but including native members of these genera for comparison. *Cymbopogon*, *Iseilema* and *Sehima* also appear to possess species with desirable characteristics.

LEGUMES FOR CLAY SOILS IN SOUTH-EAST QUEENSLAND

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Evaluation of legumes for this area during the past 20 years has been confined to experiments during the early 1960s. Generally the approach was to screen a few genera with emphasis on lines of *Neonotonia*. No tropical legume survived for any length of time, but temperate species of medic and lucerne were relatively successful.

It is felt, however, that an adapted tropical legume could make a significant contribution to the nitrogen economy of the pasture and to the grazing animal during summer. Evaluation trials have therefore been initiated near Millmerran, Wandoan and Toowoomba. A very wide range of genera and species has been included. Results to date indicate good morphologic-agronomic characteristics in some members of the genera *Clitoria*, *Lablab*, *Macroptilium*, *Neonotonia*, *Rhynchosia* and *Vigna*. Others such as *Acacia*, *Alysicarpus*, *Desmanthus*, *Macrotyloma* and *Teramnus* also have a few promising types.