Agnote

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Some Important Forage Plants of the Alice Springs District

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The Alice Springs district extends from the South Australian border north to Tennant Creek and east-west from the Queensland border to the Western Australian border. The area occupied by pastoral properties covers some 300,000 km^2.

This Agnote describes some of the important forage plants in this region. An associated Agnote "Rangeland Pastures of the Alice Springs District" (G4) describes the major plant communities of the region.

Plants growing in the Alice Springs district can be considered in three broad categories:

- Woody plants (trees and shrubs). These species browsed by cattle are called topfeed.
- Grasses (both annual and perennial species).
- Herbage (also called forbs).

TREES AND SHRUBS

Specific information on the description/recognition, nutritive value and grazing management of topfeeds can be found in the booklet "Fodder Trees and Shrubs of the Northern Territory" (copies available from Technical Publications, Department of Primary Industry, Fisheries and Mines).

Some of the important trees and shrubs are:

Mulga (*Acacia aneura*) - useful topfeed on better soil types. Easily killed by fire. Hot fires followed by wet years promote re-establishment. Also increases in wet years in the absence of fire.

Witchetty bush (*Acacia kempeana*) - useful topfeed. Re-sprouts after burning. Can increase in wet years on country north of Alice Springs. Rabbits have impacted on its regeneration on much of the calcareous country south of Alice Springs.

Ironwood (*Acacia estrophiolata*) (not to be confused with the poisonous type in the Top End) useful topfeed when accessible to cattle. Juvenile ironwood has formed very dense thickets on alluvial country fringing the major ranges and rivers around Alice Springs. Juvenile ironwood is not easily killed by fire.

Gidyea (*Acacia georginae*) - can be a useful topfeed. It is poisonous in the far eastern Alice Springs district. Dense regeneration can occur under established trees.

Whitewood (*Atalaya hemiglauca*) - valuable topfeed. Occurs on better alluvial and loamy soil types.

Supplejack (*Ventilago viminalis*) - valuable topfeed. Young trees are rarely seen because they are highly sought after. Grows on better sandy and alluvial soil types.

Broombush (*Senna artemisioides* subsp. *filifolia*) - an unpalatable shrub which can form thickets on sandy and calcareous country. Lives for about 10 years and often dies out in drought. However, it re-establishes readily from its soil seed bank and may remain a nuisance woody weed unless thinned by fire.

Oval-leaf Cassia (*Senna artemisioides* subsp. *oligophylla*) - a long-lived unpalatable shrub on stony ridges and hills. It may also increase on calcareous country.

GRASSES

Palatable grasses are the mainstay of the cattle industry. They grow through the summer months and provide a supply of dry standing feed for the remainder of the year.

A diverse array of grasses can be present after rains. Only some of the more common and nutritionally important species are presented here:

1. Perennial Grasses

Curly windmill grass (*Enteropogon acicularis*) - a valuable palatable perennial which responds to small falls of rain. Occurs on the more fertile sandy and alluvial soil types. It is commonly found under trees in open woodland and gidyea country.

Umbrella grass (*Digitaria coenicola*) - a highly palatable perennial in open woodland and calcareous country. It is a highly preferred species and tends to decrease under grazing.

Silky browntop (*Eulalia aurea*) - a large robust perennial in run-on and floodout areas. It is only moderately palatable but is an important drought forage plant. Cattle tend to selectively graze individual plants keeping them in a more palatable state.

Barley Mitchell grass (*Astrebla pectinata*) - common on the downs country of the Barkly Tableland and VRD but restricted to small areas of cracking clay and gilgai country in the Alice Springs area. It is moderately palatable and nutritious when green, but provides mainly gut-fill late in the season when dry.

Neverfail (*Eragrostis setifolia*) - occurs on heavier clay soils, often in association with Mitchell grass. Sparingly palatable when green and may be eaten during drought times.

Woollybutt (*Eragrostis eriopoda*) - a stalky perennial with little leaf. Grows on either sandy soils or with mulga on red earth soils. Generally only eaten when more palatable feed has disappeared.

2. Annual Grasses

Oat and woollyoat grasses (*Enneapogon avenaceus*/*E. polyphyllus*) - highly palatable and nutritious short leafy grasses growing on sandy and sandy loam soils. Oat grass is often the dominant grass on calcareous country. Both species tend to decrease under grazing and the better country should periodically be spelled to let these grasses grow out and seed.

Mulga grass (*Aristida contorta*) - a short grass with narrow rolled leaves and long reddish or white seed awns. Often growing in association with woollyoat grass on loamy open woodland and red earth mulga country. Moderately palatable when green, but not as valuable as the more nutritious woollyoat grass.

Kerosene grass (*Aristida holathera*) - taller, more spiky than mulga grass found growing on sandy soils. Cattle will eat it when green but has low palatability and nutritional value when dry.

HERBAGE

Herbage can be broadly classified as summer growing e.g. buckbush (*Salsola kali*), copperburrs (*Sclerolaena* sp.) purple vetch (*Swainsonia* sp.) and Birdsville indigo (*Indigofera linnaei*) or winter growing e.g. daisies (including *Polycalymma stuartii*), bogan flea (*Calotis hispidula*) and forb species.

Herbage varies widely in its palatability to cattle - e.g. parakeelya (*Calandrinia* sp.) is actively selected while wild tomatoes (*Solanum* sp.) are avoided. Individual herbage species also have differing acceptabilities to cattle through their life cycle - e.g. buckbush is good forage when succulent but becomes worthless as it dries off.

Generally, cattle fatten quickly on fresh herbage because it has a high nutritive value and cattle are able to find palatable feed amongst the wide selection of species on offer. However, it is opportunistic feed, determined by when the rain falls. Again, only a few of the more common plants are described.

1. Summer Herbage

Copperburrs (*Sclerolaena* sp.) - there are a number of plants within this group ranging from small annual species such as woolly copperburr and silky copperburr to large perennials such as goathead burr, tangled copperburr, cartwheel burr and galvanised burr. Most species are palatable and nutritious when young but become woody and thorny as they mature particularly the perennial species.

Buckbush (*Salsola kali*) - this plant is similar to the copperburrs in that it is attractive to stock when young but woody and inedible when mature. Cattle consuming large quantities of fleshy young plants may suffer oxalate poisoning. It often grows profusely as a coloniser plant on sandy and calcareous soils after a drought.

Birdsville indigo (*Indigofera linnaei*) - a leguminous plant preferring loamy alluvial and calcareous soils. It may be particularly abundant after late summer rains. Causes "Birdsville disease" in horses but cattle are not affected.

2. Winter Herbage

Much of the herbage present following winter rains is unpalatable. Cattle will eat plants such as yellowtop (*Rhodanthe charsleyae*) and young bogan flea (*Calotis hispidula*) in the absence of better feed. Native watercress (*Lepidium rotundum*) and spunkweed (*Stenopetalum nutans*) are two of the more palatable species.

Winter rains can grow a profusion of wildflowers with some of the most showy being poached egg daisy (*Polycalymma stuartii*), pink everlasting daisy (*Schoenia cassiniana*) and native stock (*Blennodia canescens*).

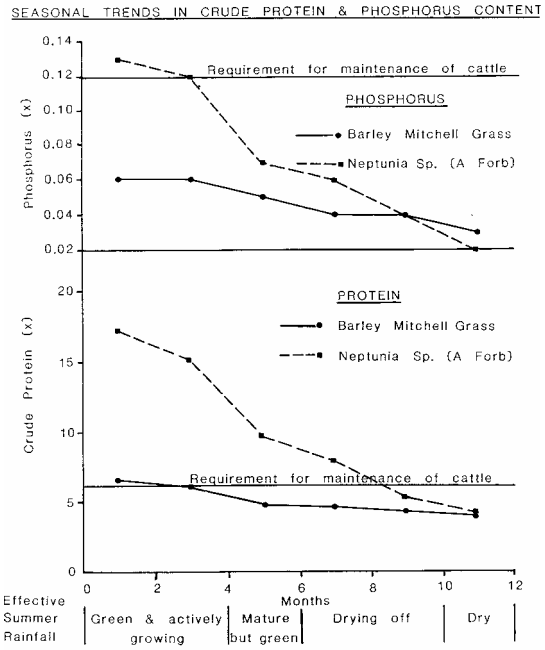
ROLE OF THE VARIOUS TYPES IN THE CATTLE DIET

Grasses

Grasses are the most important component in the diet. The nutritive value of green grass is generally good but becomes inadequate for cattle growth as grasses mature. The following example is from a Mitchell grassland.

Mitchell grass (and most other grasses) have inadequate protein and phosphorus levels for satisfactory cattle growth when they have dried off. Cattle compensate for these inadequacies by:

- Grazing the most nutritious parts of each plant, the green tips.
- Selectively grazing amongst the various plant species on offer e.g. annual grasses, herbage or topfeed.
- Selectively grazing amongst different plant communities e.g. floodplains, open woodlands, mulga country.



In this way, cattle are able to select a nutritionally adequate diet on the more fertile country in most years. Management can (and should) intervene on the poorer country by providing nitrogen and phosphorus supplements.

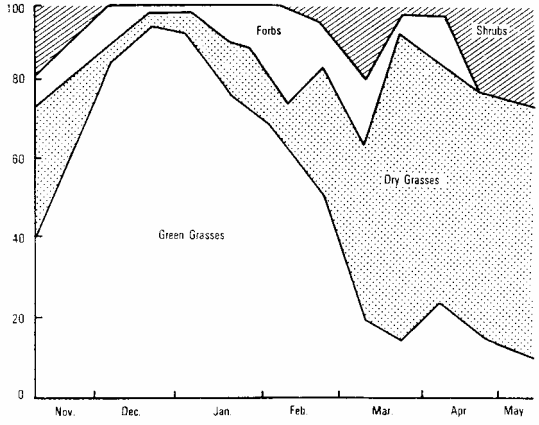
It is important to maintain a high proportion of palatable grasses in the pasture because these produce the bulk of Central Australia's beef.

Perennial grasses are very important in dry years. A small storm of 25-50 mm will grow much more feed if it falls on country retaining its perennial grasses than if it falls on bare ground.

Topfeed

Selective browsing of palatable trees and shrubs provides a seasonally valuable protein and mineral supplement to cattle. However, the importance of topfeed in the diet can be overrated. The following figure shows the measured proportion of topfeed (shrubs) in the diet of cattle grazing open woodland country north west of Alice Springs through a typical summer growth period followed by an autumn-winter dry season.

As the feed dried off (March to May), dry grasses were the dominant component with topfeed comprising up to 20% of the diet. Topfeed intake may have increased if the study had continued (without rain) until September or October of that year. However, diet studies during the 1958-65 drought showed that even at times of severe feed shortage, grasses were always the major component of the diet.



Thus the important message is - KEEP THOSE PALATABLE GRASSES (AND PARTICULARLY THE PERENNIALS) IN THE PASTURE.

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