

## An Introduction to Pastures of the Katherine Region Part 1. Native and Introduced Species

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### INTRODUCTION

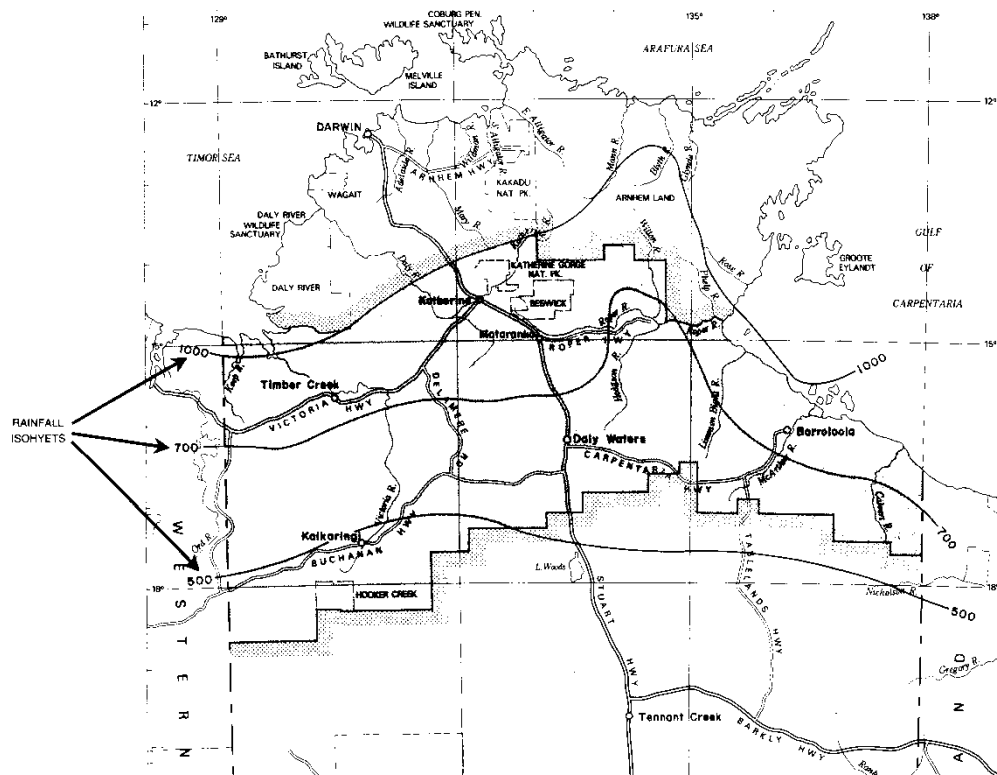
Native pastures are the primary source of feed for cattle production in the Katherine region. Introduced species have an important role as special purpose pastures. Part 1 (this Agnote) briefly describes the major pasture species and Part 2 (Agnote E69) outlines the common uses of introduced pastures.

### THE KATHERINE REGION

The Katherine region covers approximately one quarter of the Northern Territory. It includes the cattle producing districts of the Victoria River and Roper-McArthur basins, the southern part of Katherine-Daly basin and the Sturt Plateau (Mataranka-Daly Waters area) (see map below).

### Climate

The northern boundary of the region is close to the 1000 mm rainfall isohyet, while rainfall on the southern boundary varies between 450 mm and 600 mm annually. Throughout the region, almost all of the annual rainfall is received between October and March. Humidity is generally low through the Dry season, but is high during the build-up (September-November) and the Wet (December-March). More detailed information on climate can be obtained from a number of sources including internet web sites and climate software packages.



## Soils

The soils are variable, but are generally massive or weakly structured. They are infertile due to the parent material from which they were derived and because of leaching of nutrients during the Wet season.

Red earth soils are generally better drained and include the desert soils in the south. Gentle low slopes, flood plains and poorly drained sites usually have cracking clay soils. The red earths are the most suitable soils for growing the introduced pasture species currently available.

## NATIVE PASTURES

The majority of cattle in the region graze native pastures. These pastures consist of a variety of perennial and annual species depending on soil type, topography and rainfall. Pastures usually contain grass and broadleaf species.

For all native pasture communities, grazing value improves along a gradient from the northern to the southern parts of the region.

Widespread perennials include black spear grass (*Heteropogon contortus*), kangaroo grass (*Themeda triandra*) and bluegrasses (*Dichanthium* spp.) in the north changing to mitchell grasses (*Astrebla* spp.) and limestone grasses (*Enneapogon* spp.) in the south. Spinifex (*Triodia* spp. and *Plectrachne* spp.), white grass (*Sehima nervosum*), ribbon grass (*Chrysopogon fallax*) and feathertop (*Aristida latifolia*) can be found throughout the region.

Perennial native pastures are desirable for soil stability, provide feed later in the Dry season when palatable annual species are gone, and their productivity is more reliable in low rainfall seasons.

Annual grasses include the sorghums (*Sorghum* spp.) in the north changing to native couch (*Brachyachne convergens*) and flinders grasses (*Iseilema* spp.) in the south.

There are many native legumes but generally they are only a minor component of the pasture.

Cattle preferentially graze many annual grasses and legumes; however, their major limitation is low annual production. They are often completely grazed out early in the Dry season. Most native pasture communities consist of a high proportion of perennial grasses. These are generally of low to moderate grazing value.

## INTRODUCED PASTURES

A range of introduced tropical grasses and legumes have been evaluated over a number of years. Research has focussed on improving the nutritional value of feed available during the Dry season.

### Introduced Legumes

Legumes provide improved nutrition (particularly of protein) to stock allowing them to make better use of the dry standing native pastures. The improved nutrition provided by legumes can allow stock to maintain weight further into the Dry season and contribute to improved reproductive rates. On native pastures, large liveweight losses can occur during the latter half of the Dry season.

#### i. Legumes for Extensive Use

The main legumes available for extensive pastoral use are Verano and Amiga stylo (*Stylosanthes hamata*), Seca and Siran stylo (*S. scabra*) and Wynn cassia (*Chamaecrista rotundifolia*). These are often used together in a mixture.

### *Verano and Amiga Stylo*

Verano has been grown in the region for over 40 years and is well adapted to this environment. It is a many branched semi-erect herb to 75 cm tall and behaves as an annual or short lived perennial. Amiga is a more recently released variety, very similar in appearance to Verano but produces more perennial plants and seed.

Verano has been shown to markedly increase carrying capacity. In an experiment at Kidman Springs (Victoria River Research Station) stocking rates were increased from 1 beast/12 ha to 1 beast/1.2 ha. At this stocking rate liveweight gains were higher than for stock on native pasture, enabling turnoff one year earlier.

### *Seca and Siran Stylo*

Seca is also well adapted to this environment. It is an erect perennial shrub up to 2 m tall. Siran is similar in appearance but has better Anthracnose (a fungal disease) resistance.

In parts of Queensland, stylo dominance has been observed where the native grass has been totally replaced in the pasture. Areas most at risk are on light textured, low fertility soils with heavy grazing pressure. This is not a problem in the short term where animal performance is maintained. In the long term soil physical and chemical characteristics are altered leading to a decline in productivity. Grazing and fire management are the keys to maintaining a good balance of native grass in the pasture.

Queensland has a series of Notes on this subject.

### *Wynn Cassia*

Wynn Cassia is a semi-erect short-lived perennial which can grow to 60 cm tall. It is a prolific seeder and can flower as early as seven weeks after germination. It seems to be unpalatable when fresh and green and is generally not well grazed until the Dry season. Wynn has been used in intensive situations where it has become the dominant plant in the pasture sward.

## ii. Legumes for Intensive Use

For intensive use the main legumes are Cavalcade and Bunday (*Centrosema pascuorum*), Milgarra Blue Pea (*Clitoria ternatea*) and Maldonado (*Macroptilium gracile*). These have all been used for hay production in the region.

### *Cavalcade and Bunday*

Cavalcade is a vigorous annual legume with trailing stems up to 2 m long. It has a crimson flower and will start flowering in mid-March and can produce large quantities of seed. Bunday flowers later, has hairy stems and smaller seed. It tolerates wet conditions and considerable periods of inundation.

Cavalcade is the main species currently used for hay production in the region.

### *Milgarra Blue Pea*

Milgarra is a perennial herb which grows to 1.0-1.2 m high with an erect base and fine twisting stems. It is well adapted to the Katherine Region and will grow well on waterlogged soils. It has distinctive large blue or occasionally white flowers. It will continue growing well into the Dry season while moisture is available.

Milgarra is probably more suited to an intensive grazing situation than hay production.

### *Maldonado*

Maldonado is a short-lived perennial with long trailing stems. It flowers in mid to late April and can produce large quantities of seed. It can withstand short periods of flooding but is not well adapted to cracking clay soils.

## Introduced Grasses

Introduced grasses will generally not establish successfully without some form of cultivation. The most successful introduced grasses are palatable and digestible, drought tolerant, and can withstand heavy grazing. Most are intolerant of waterlogging and are more suitable for the better drained red earths.

The most common species are buffel grass (*Cenchrus ciliaris*), sabi grass (*Urochloa mosambicensis*) and Indian bluegrass (*Bothriochloa pertusa*). More recently Jarra and Strickland finger grasses (*Digitaria milaniana*) are showing promise

### *Buffel grass*

Buffel grasses are deep-rooted perennials. The recommended varieties for the Top End are American and Gayndah both of which are tussocky and grow to 90 cm tall. Once established they can withstand heavy grazing; however in the Katherine region they do not spread readily.

### *Sabi grass*

Nixon is the local cultivar of this hardy low growing perennial grass. It responds quickly to early rains, will commence flowering in three to four weeks and will continue to produce seed heads (while moisture lasts) into the Dry season. It is well adapted to the Katherine region, is relatively easy to establish, will spread and fill in thin stands and can withstand heavy grazing. It is drought tolerant although feed value declines quickly as the plant hays off early in the Dry season.

### *Indian bluegrass*

Indian bluegrass is a low-growing perennial grass that produces numerous runners which root readily at the nodes. It is drought tolerant and has the ability to colonise areas where native grass has been weakened by heavy grazing. The two recommended cultivars for sowing in the NT are Bowen and Yeppoon.

### *Jarra and Strickland grasses*

Jarra grass is a vigorous perennial grass. It produces numerous long runners that root readily at the nodes. Strickland looks similar but is less hairy and is considered more drought tolerant. These cultivars are recent introductions to the Katherine region but show considerable potential. Experience to date has indicated they are palatable and once established are able to tolerate heavy grazing.

## CONCLUSION

Introduced pasture species are useful alongside native pastures within a grazing system. The selection of species will be determined by the intended use and they may be grown in pure stands or mixed species swards.

Detailed descriptions of all grasses and legumes mentioned are available in Agnotes produced by Technical Publications at Berrimah Farm.

## WARNING

Pasture plants have the potential to become weeds in certain situations. To prevent that, ensure that seeds and/or vegetative materials are not inadvertently transferred to adjacent properties or road sides. Contact your Departmental Extension Officer for information on appropriate management.

Please visit us at our website:

**[www.nt.gov.au/d](http://www.nt.gov.au/d)**

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