

## An Introduction to Pastures of the Katherine Region

### Part 2. Common uses for introduced species

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#### **INTRODUCTION**

Introduced pasture species have an important role in the Katherine region as special purpose pastures within a predominantly native pasture grazing system. They are unlikely to replace native pastures as the primary source of feed for extensive cattle herds in this region due to climatic and financial constraints.

Part 1 (Agnote 421) describes the various introduced pasture species suitable for the Katherine Region. This Agnote outlines some of the more common uses of these species.

#### **PASTURE AUGMENTATION**

Pasture augmentation is the process of adding a legume species to an existing native pasture to enhance its grazing value. Its purpose is to improve the nutritional value of the pasture. This improved nutrition is primarily protein in the early to mid-dry season.

Stylos and Wynn cassia have been the most widely used legumes for pasture augmentation. They can be successfully established into native pasture without cultivation.

The recommended method of establishment is to broadcast seed and fertiliser onto burnt ground at the early in the wet season. Grazing of augmented pastures in the first wet season should be limited to the period up until flowering. This regime reduces competition from perennial native grasses during establishment but allows the legume to flower and set seed. Light grazing is only recommended during the first dry season if the legume is well established and has seeded.

Augmented pastures may be used to extended period of available nutritious feed for specific groups of cattle such as weaners, heifers, steers and/or replacement breeders.

Pasture augmentation is a low input and low annual maintenance method of providing improved grazing conditions. Fertiliser application in the second wet season greatly improves productivity.

Resources should be concentrated on properly establishing small areas rather than spreading the effort too thinly over a large area. Over time cattle will consume the legumes and distribute viable seed throughout the paddock. Increases in carrying capacity may be possible once the legume is well established.

## PASTURE REPLACEMENT

Full pasture replacement involves clearing of land, cultivation, and the substitution of native pastures with introduced species. Clearing of pastoral land requires approval from the Pastoral Land Board.

Intensive grazing and farming have been established in the Katherine-Daly Basin on freehold land, with clearing of parts of individual properties. Full pasture replacement is best suited to the most productive soil types because of the high capital cost of development.

Introduced pastures often have a specific role in the grazing system. This role determines the most suitable species and management regime. Control of woody weeds and sucker regrowth is an ongoing issue. All pastures will benefit from the application of fertiliser because of the inherent low fertility of soils in the area.

This type of pasture requires high initial inputs to develop and generally some annual maintenance for soil fertility and weed control.

### Pure Grass Pastures

Pure Grass pastures based on buffel or sabi grass are usually developed in smaller holding paddocks close to cattle yards. They are able to withstand periods of heavy grazing and are generally used at mustering and for a short time after. They are usually spelled over the Wet season, but may be used on a year-round basis.

Pure grass pastures of Jarra or Strickland can also be developed to produce clean hay on property (Figure 1). Forage sorghum can also be grown as a hay crop.



Figure 1: Jarra Ironwood Station

Fertiliser applications improve pasture productivity. High fertiliser applications are needed in the first year at establishment to raise soil nutrient to adequate levels. In grazed grass pastures, maintenance fertilisers should be applied at a minimum of 3 years after the first year. In hay paddocks, high fertiliser inputs are required every year to replace the nutrients removed in the hay.

Some Broadleaf weeds such as Sida (*Sida acuta*), Hyptis (*Hyptis suaveolens*) and Sicklepod senna (*Senna obtusifolia*) build up as a consequence of high grazing pressure in regularly used paddocks. Control of these weeds with herbicides is easier in pure grass pastures.

Indian bluegrass is particularly suited to colonising degraded and eroded areas. It is moderately palatable to cattle, and can stabilise the soil and provide competition to less desirable species such as weeds.

### **Mixed Pastures**

Mixed pastures are based on the previously discussed perennial grasses and legumes such as the Stylos, Blue pea, Cavalcade centro and Wynn cassia (Figure 2). They are often established in larger paddocks close to the main station infrastructure.



*Figure 2: Weaners on a mixed pasture at Bunda Station*

Management of weeds is more complex than with grass-only pastures as most of the commonly used broadleaf herbicides will kill the pasture legumes. Regular fertiliser application are be necessary to maintain productivity.

These pastures can support high stocking rates and extend weight gains well into the Dry season. They are mainly used for high value animals. Some examples are:

- extending the steer turnoff period;
- ensuring replacement breeders reach their target mating ;
- grazing for weaners.

Mixed pastures are often used for longer periods of continuous grazing than grass-only pastures. They require spelling or light stocking over the Wet season.

They may also be used for hay production in good seasons. They require high initial input and higher annual maintenance fertilisers than pure grass pastures.

Some legumes do not tolerate heavy grazing pressure and are more easily depleted than perennial grasses. As a result careful grazing management is required to maintain legumes in the sward.

### **Pure legume pastures**

Pure legume pastures are developed to produce high quality hay and pasture seed. Cavalcade is the main legume grown for hay and seed production in the Katherine Region. Cavalcade pastures require high initial input and higher annual maintenance fertilisers than pure grass pastures (Figure 3).



*Figure 3: A Cavalcade seed crop at Larrizona Station*

Cavalcade pastures need to be grown in a rotation with a grass pasture. Cavalcade fixes nitrogen which builds up in the soil over time. This can lead to problems with Rhizoctinia (a soil fungus) after 3 or 4 years of Cavalcade pastures. Growing a grass hay crop for 2 or more years removes the excess nitrogen from the soil.

## **THE MANAGEMENT OF INTRODUCED PASTURE SPECIES**

In the evaluation process for selecting pasture species for commercial applications, some of the desirable characteristics considered are:

- Ability to establish and colonise areas, particularly native pasture areas.
- Persistence under various grazing and fire management regimes.
- Palatability and feed value for grazing livestock.
- Suitability for various rainfall and soil conditions.

Many of these features are also found in the more successful weed species and some introduced pasture species are now considered weeds in the natural environment. In establishing introduced pastures in an area, the accidental introduction into other areas must be considered. Buffer areas should be considered between sites of introductions and other areas where those same species may be considered undesirable. In this way the movement of the species can be monitored and controlled if necessary

Introduced pasture species are susceptible to common herbicides. All species are susceptible to broad-spectrum herbicides such as Glyphosate. Introduced legumes are susceptible to many of the common herbicides used for controlling broadleaf weeds. Introduced grasses are susceptible to the common grass specific herbicides.

The same principles that are used to prevent the spread of noxious weeds can also be applied to introduced pasture species. One of the most important is to maintain healthy stands of native pastures. Species such as buffel grass, will not readily spread beyond their original planting areas in the Katherine Region.

## KEY POINTS

- Incorporating introduced pasture species into a native pasture grazing system requires careful consideration.
- The intended use of the pasture determines selection of species and methods of establishment.
- In pastoral areas, introduced species are likely to remain a minor proportion of the total grazing area.
- A pastoralist's main emphasis should be on managing the native pasture resource, and utilising introduced pastures on relatively small areas for special purposes.
- Agnotes containing general information on introduced pastures and more detailed information on individual species are available from the website below.

## WARNING

Pasture plants have the potential to become weeds in certain situations. To prevent that, ensure that pasture seeds and vegetative materials are not inadvertently transferred to adjacent properties or roadsides.

Please visit us at our website:

[Pastures and fodder crops - NT.GOV.AU](http://NT.GOV.AU)

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