

TGS news & views

about pasture development in the tropics and subtropics

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Tropical Pastures Conference 2007 11-12 April 2007 at Dalby

Concern about the state of the Murray-Darling River has been ramped up with the recent Commonwealth bid to take over control of Australia's rivers.

Water quality has been a concern of the Murray Darling Catchment Authority for more years, and one of their programs has been to encourage landowners in the catchment to convert their marginal cropping land to permanent pasture.

Much of the better quality sloping country in southern Queensland has been farmed for about a century, often for dairy production. Most farmers cropped this sloping land with forage crops; every year, the land was ploughed and planted to oats or forage sorghum. Now much of the fertility has declined—the topsoil has been lost, soil nutrients and organic matter exhausted and weeds abundant. Sediment can still be problem in the creeks—if it ever rains.

The number of dairy farms has decreased greatly in recent decades with beef the main production system now.

In regions more westerly, pasture land was converted to cropping country in the 1970s. Although some of this was always marginal for cropping, the economic returns from cropping were noticeably

higher. But that has changed too. Sodic subsoils and semi-permanent drought conditions have resulted in crop yields too low to be profitable. On the beef side, the system is for producing younger feeder steers for the feedlots, rather than finishing for slaughter. Feeding oats for finishing is less important, and farmers want to get away from using fuel for cultivation each year.

So the demand across the marginal cropping areas is for good permanent pastures to protect the soils and yet to be productive enough to give a good return.

The problem though is that most experienced pasture agronomists have gone, and the new generation of agronomists tend to be excellent facilitators but with little technical knowledge or experience of pastures.

Thus it is timely that the Tropical Grassland Society can put together a conference on *Pastures for Protection and Production in the marginal cropping lands* to provide background technical information and allow discussion of points of concern. The proceedings can provide a resource document for the future.

Please spread
the word about
the
conference

Pin the centre
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ask me for more
copies

Newsletter editor:
Ian Partridge
Tel: (07) 4688 1375
Fax: (07) 4688 1477
ian.partridge@dpi.qld.gov.au

Society News

**Our Internet address — www.tropicalgrasslands.asn.au
Our Society e-mail address is tgs@csiro.au**

Your Executive for 2007

President

George Lambert
Condamine Alliance
PO Box 3477
Toowoomba Village Fair Qld 4350
Phone: 07 4620 0112
Fax: 07 4613 1657
e-mail: george.lambert@condaminealliance.com.au

Past President

Kevin Lowe
DPI&F Mutdapilly Research Station
MS 825, Peak Crossing
Ipswich, Qld 4306
Phone: 07 5464 8713
Fax: 07 5467 2124
e-mail: Kevin.Lowe@dpi.qld.gov.au

Secretary

Richard Moss
DPI&F Mutdapilly Research Station
MS 825, Peak Crossing
Ipswich, Qld 4306
Phone: 07 5464 8737
Fax: 07 5467 2124
e-mail: Richard.Moss@dpi.qld.gov.au

Treasurer

Kevin Lowe
DPI&F Mutdapilly Research Station
MS 825, Peak Crossing
Ipswich, Qld 4306
Phone: 07 5464 8713
Fax: 07 5467 2124
e-mail: Kevin.Lowe@dpi.qld.gov.au

Journal Editor

Lyle Winks
44, McNeills Rd
MS 825, Peak Crossing
Qld 4306
Phone: 07 5467 2314
Fax: 07 5467 2314
e-mail: lwinks@gil.com.au

Newsletter Editor

Ian Partridge
DPI&F, PO Box 102
Toowoomba Qld 4350
Phone: 07 4688 1375
Fax: 07 4688 1199
e-mail: Ian.Partridge@dpi.qld.gov.au

7th Australian Tropical Pasture Conference

The 7th Australian Tropical Pasture Conference will be held at the Dalby Agricultural College campus in the week after Easter. The conference will cover two days (11th and 12th April).

Our programme and speakers are detailed on page 5. We hope to attract a whole range of those involved with the theme—landowners, consultants, catchment authorities, landcare groups, etc. but conference room capacity limited to about 120.

The cost of attending the 2-day conference will be \$200. Accommodation will be available in the hostels at the Dalby Ag College at very reasonable rates (see later for details).

Management has agreed to us having alcohol with dinner and the welcome BarBQ on the Tuesday evening, provided the Society purchases the beer and wine.

The college can provide only 30 sets of linen for the rooms from their own stocks; we need to give them early advice as to how many people will want linen. They suggest that people can bring their own bed linen and towels (and get the room at a reduced rate).

For those arriving on the Tuesday afternoon, we are organising a Welcome BBQ (at \$20 per head—including drinks).

There will be an optional 3-course dinner on the Wednesday night for \$43 including drinks.

Morning and afternoon teas will be provided on Wednesday and Thursday, with a packed lunch for the bus trip on Thursday.

Bed (in a campus hostel) and Breakfast (in the dining room) will be \$25.00 per person per day (without linen provided). Campus linen will be an extra \$10 per person but this is only charged once whether you stay one night, two or three nights.

The bus trip is on a 75 km circuit near Dalby and will cover grasses for the flood plains, and intensively managed leucaena stand and new planted pastures on marginal cropping land. These three aspects should encourage plenty of discussion, especially under the dry conditions prevailing so far this season.

All participants are encouraged to enrol as early as possible so that we can plan for the numbers.

Registration form

7th Australian Tropical Pastures Conference 2007

Title: Pastures for protection and production on marginal cropping lands

Location: Australian Agricultural Colleges Corporation Dalby Campus (previously Dalby Ag College)

You cannot register on-line. Please photocopy this registration form, fill the details, and send to TGS.

For payment by credit card, you can fax the completed form to: (07) 5464 8778 (Attn. K Lowe)

For payment by cheque, please post form and cheque to:

Kevin Lowe, Tropical Grassland Society, MS 825, Peak Crossing, Queensland 4306

Title	
First name	
Family name	
Preferred name	
Email	
Organisation	
Mail address	
Phone no.	
Fax no.	
Mobile no.	
Poster	I wish to present a poster Yes/No

I am happy for my details (Name, organisation and email address) to be listed in the Forum Proceedings. Yes / No

Posters

You are invited to present a poster (max size A1 –594X841) on any topic associated with the theme. There will be a viewing period on Thursday morning before the bus trip.

A 1-page abstract of your poster topic can be included in the Proceedings book delivered at the time of the conference if sent in by the end of February.

Costs

Registration costs cover the 2-day conference, morning and afternoon smoko, lunch on days 1 and 2, the bus tour and the printed proceedings.

Activity	Cost per person	Totals
Registration (2 days)	\$200	
Registration (1 day)	\$125	
Dinner (on 11 th)	\$42 includes drinks	
BBQ on 10 th	\$20 includes drinks	

Do you require accommodation (individual rooms, shared bathroom facilities) at the Dalby campus? Yes/No

Cost per night (includes breakfast): \$25 byo bed linen and towel

Bed linen/towel provided for extra \$10 (Once off only)

Accommodation should be available in Dalby under your own arrangement.

Night of -	Yes / No	Cost byo linen	Cost – linen provided)
10 th		\$25	\$10 - once only
11 th		\$25	
12 th		\$25	
	Total cost		

The Ag College has no licence to sell alcohol, but will allow delegates to consume. The hostel common rooms have small fridges. TGS will provide limited supplies of wine, beer and soft drink at the BBQ and Dinner.

Method of payment

1. Cheque – made out to Tropical Grassland Society of Australia
2. Credit card (Mastercard, Visa, Bankcard only)

Credit card details

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Keep checking the TGS Web site (www.tropicalgrasslands.asn.au) for the latest information.

'Pastures for protection and production on marginal cropping lands'**Provisional Programme**

April	Time	Topic	Speaker
10 th	4:30-6:00pm	Registration	
11 th	8:00-9:15m	Registration	
	9:30-10:00	Welcome	
		Key note speaker Catchment management and pastures	Philip McCulloch (Condamine Alliance)
	10:00-10:30	Soils What makes a soil marginal for cropping? The landscape and the marginal cropping lands – inherent and induced	Andrew Biggs (NRW)
	10:30-11:00	Smoko	
	11:00-1:00pm	Pastures	
	11.00 -11.30	Why restore marginal land to permanent pasture?	Mark Silburn and David Freebairn (NRW)
	11.30 -12.00	The original native pasture ecosystems, and should they be restored?	Richard Silcock (DPI&F) and Wal Scattini
	12:00-12:30pm	Which pasture species and should they be mixed?	David Lloyd and Brian Johnson (DPI&F)
	12.30-1.00	Is there a place for tree legumes?	Max Shelton and Scott Dalzell (UQ)
	1.00 – 2.00	Lunch	
	2:00-5:00	Management	
	2.00-2.30	Establishment – the principles and the reality.	Sid Cook, QMDC David Illing
	2.30-3.00	Can seasonal climate forecasting improve establishment and management?	Jeff Clewett (Agroclim)
3.00-3.30	Smoko		
3.30-4.00	Grazing management for protection and production	George Lambert (CA) Nevin Olm (Warra)	
4.00- 4.30	Grazing systems	Trevor Hall (QDPI&F)	
4.30-5.00	Matching soils and land use	George Lambert, CA	
7:00	Dinner		
12 th	8.30-9.00am	Economics Will permanent pastures pay?	Peter Wyllie Horizon Consulting
	9.00-10.00	Talks/Posters	
	10.00-10.30	Smoko	
	10.30-2:30pm	Field trips <ul style="list-style-type: none"> • Pastures for the flood plains • Pastures of marginal cropping land • Leucaena 	
	2:30-3:00	Smoko	
	3:00-4:00	Discussion <ul style="list-style-type: none"> • Pastures for production and protection - questions and discussion • Future of TGS 	Chair Charles Nason
	4:00	Thanks and close of Conference	

Dairy pastures on the Tablelands

– developments in managing tropical grass

from Tom Cowan, formerly DPI Dairy researcher

Three recent field days on dairy farms on the Atherton Tablelands, conducted as part of the local Grow Malanda project, have highlighted some recent developments in the management of tropical grasses. Public research into this issue was all but discontinued in the 1980s, and the days demonstrated how farmers have continued to modify management practices to improve efficiency of pasture use.

Tablelands competitive advantage

The subject has greater relevance to the area than ever. In a deregulated industry, dominated by export sales of product, the region must remain competitive with large-scale milk producers, most notably the New Zealand industry. The competitive advantages for north Queensland in milk production are with rain-grown tropical pastures and molasses. Irrigation water costs remain competitive, but supplies are limited in the traditional dairy areas. All other inputs are used at a cost disadvantage compared with New Zealand and southern Australia. Consequently the ability to convert tropical pastures to milk is fundamental to profitable milk production on the Tablelands.

Management practices

Fertilising to feed cows

A mixed fertiliser, such as CK66 (N:P:K,

12:13:18), is applied annually at 350–400 kg/ha, often during summer when the objective is to minimize nitrogen inputs. Lime is applied about every 5 years, often at 2.5 t/ha, to maintain soil pH above 5.5. Urea is used flexibly to manage the growth pattern of the grass to meet anticipated needs of cows. In the high rainfall areas (>2,500 mm), almost all urea is applied during the months of slowest pasture growth, winter and early spring. In the drier areas (<2,000 mm, with dry winters), urea is applied at the first rains of spring, and then during autumn. In the drier districts, farmers generally have an area of irrigated ryegrass which is well fertilised with urea. Additional urea is used during mid- to late autumn to produce stand-over grass for early winter.

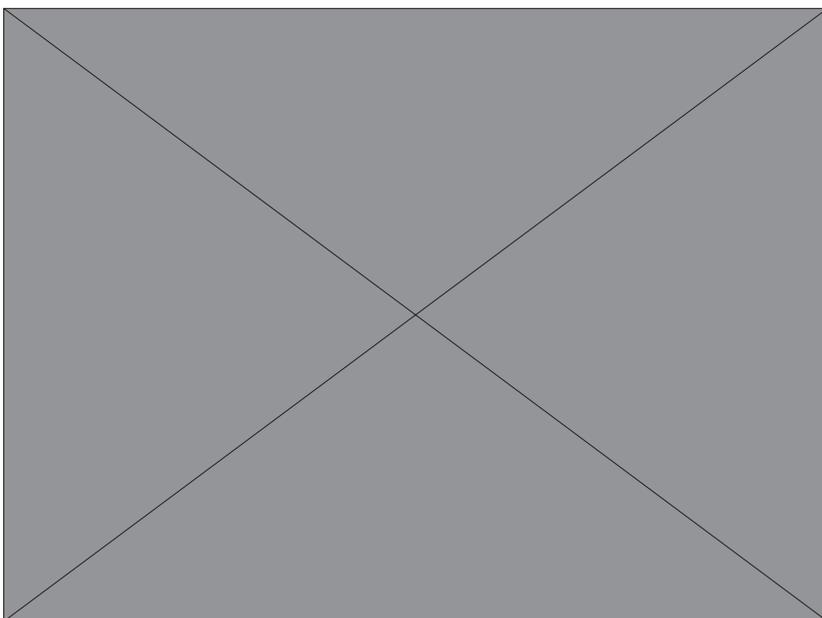
The amounts of urea used are in the range 300–400 kg N/ha/year, and the level is a consequence of what is needed to provide sufficient grass for cows. As herd numbers have increased the amounts of urea used have also increased.

No conservation

No hay or silage is made. The aim is to match grass supply to animal demand, and to avoid excesses of grass. A factor in this decision is that the quality of tropical grass silage is low and the resultant low milk response when it is fed back is unlikely to make the practice profitable. The removal of excess grass by practices such as slashing is also seen as wasteful of resources and uneconomic, though is sometimes practiced after periods of extreme pasture growth.

Simple rotations

A simple rotation is practiced, with the aims of keeping management simple and allowing cows to select leaf. The farm has in the order of 20 fixed paddocks of tropical grass, and cows are offered a new paddock each day, and in some cases after each milking. The rotation is not fixed, and cows enter the paddock deemed to be most ready for grazing. In this way cows are always offered the best opportunity to select leaf.



Followers are used to remove excess grass and stem

Dry cattle are used to remove residual stem or excess grass when needed. This is a very flexible management practice, with dry cattle being brought in from adjacent land as needed or rotated on the milking cow area. Dry cows and heifers are predominantly used, but heifers on agistment and beef cattle are also used in some systems. Where part of the farm is irrigated for ryegrass-based pastures from June to November, dry animals may remain within the milking cow area all year, but in reverse order, using the irrigation areas during summer and the tropical grass areas during winter.

Skills in management

Distinct skills are in evidence in implementing these practices. Probably the key skills are the abilities to predict grass needs by the herd and responses to nitrogen. There is a skill in the daily allocation of paddocks, and in the judgement of when to introduce or remove dry stock. These skills have not been translated into simple management rules, though that would be an objective if the practices are to be applied generally. There is also a management commitment to applying nitrogen and the associated skills of selecting the most appropriate fertiliser, looking at weather forecasts and scheduling the delivery of fertiliser.

Applying on other farms

To apply this knowledge on other farms, the practices have to be condensed to a few steps which can be followed and applied. This process is ongoing, but essentially is as follows.

1. Understand the requirements of the herd for grass in each season or month of the year. On the Atherton Tablelands, this is often relatively stable throughout the year, but may not be if calving is condensed into selected periods of the year.
2. Use a range of practical guides to predict grass growth in the 1–3 months ahead. These are primarily rainfall, irrigation if available, weather predictions, seasonal temperatures and experience with grass growth patterns.
3. Adjust urea applications to provide grass when needed, or to improve quality (leaf growth or nitrogen content) when needed.
4. Use a range of practical guides to assess cows' immediate needs for grass. These are primarily residual yields of grass in the pad-

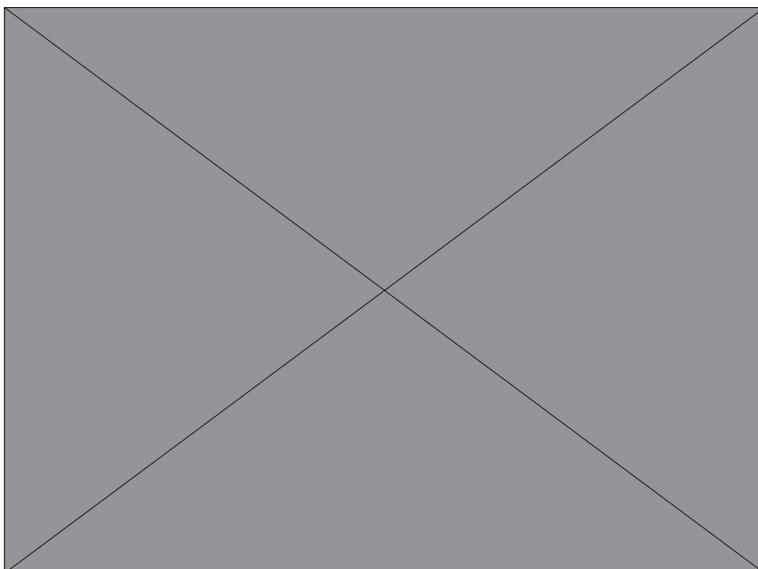
dock, seeding behaviour of the grass and cow behaviour. Cow behaviour largely relates to their willingness to graze or stay in a paddock.

The systems approach

These examples demonstrate the benefits of a systems approach, which research scientists are currently developing at Mutdapilly Research Station. The step-wise component approach used to the 1980s did not provide lasting solutions in practice. This approach first studied grass fertiliser requirements for optimum growth, and then looked at ways of utilizing this growth by animals. Often the animal trials were restrictive, with fixed stocking rates and exclusion of other stock. The approach assured high pasture yields, but introduced complicated solutions and much debate about items such as subdivision, rotation length, conservation and slashing, none of which are an important issue with the systems developed on these three farms. The grass on these farms may not be producing maximum dry matter, but animals are being fed to requirements and money is not being wasted on labour, fencing and slashing.

The bottom line

The final test is for profit and lifestyle. On each of these farms, the management system is simple and efficient. Milk production is high, at 8,000–10,000 L milk/ha/year from pasture, after deducting all milk ascribed to supplements. Each of these farms maintains a gross margin per hectare of \$1,500–2,000—a highly competitive figure in the modern business of milk production.



Waltzing Leucaena

There once was a farmer
Bought himself a property
Down by a river full of Coolibah trees . . .
And he sat and he thought and he
Wondered how to deal with drought
Then he did some research on Leucaena trees
**Researching Leucaena,
Researching Leucaena
Who'll come researching Leucaena with me?
And he read and he talked, and he
Went along to conferences
Who'll come researching Leucaena with me**

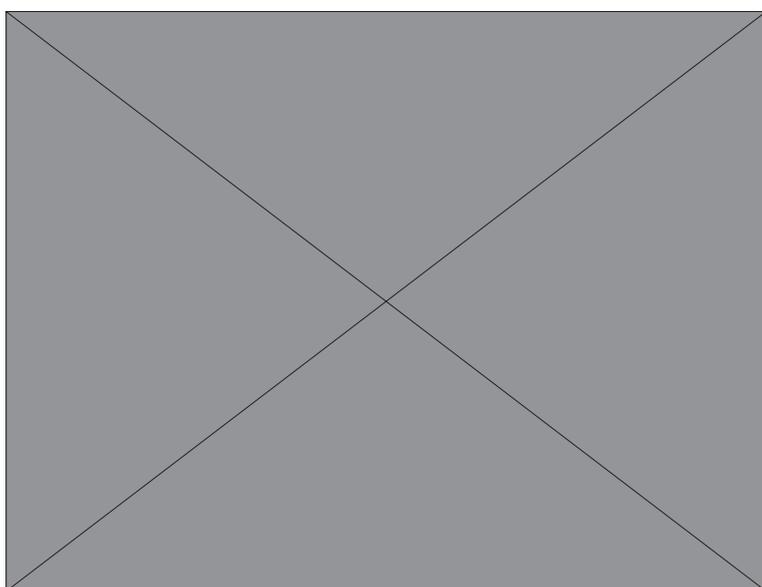
He bought himself some Brahmans
Some Shorthorns and some Herefords
And they gobbled up all the grass with glee . . .
And when that was all gone
The farmer saw it was now time
To open up the gate to the Leucaena trees
**Feeding Leucaena
Feeding Leucaena
Who'll come a feeding Leucaena with me?
And he sang and he smiled, as he
Watched the cattle gaining weight
Who'll come a feeding Leucaena with me?**

Out went the rumors
About this strong fast-growing plant
Up pricked the Greenie ears - one, two, three . . .
'What's this we hear about
Farming a non-native plant?
Survives and thrives so well, it must be a weed.'
**Must be a weed
Must be a weed
Survives and thrives so well, it must be a weed
And they sat and they talked, as they
Tried to ban all Leucaena
No matter how careful the farmers would be**

But Leucaena grows deep
And keeps the water-table low
It's green in the dry and prevents salinity. . .
And it's also a legume
Helping us enrich the soil
Don't know 'bout the Greenies,
but it looks good to me
**Planting Leucaena
Planting Leucaena
Who'll come a planting Leucaena with me?
And we'll sing and we'll smile, as we
Watch our cattle gaining weight
Who'll come a planting Leucaena with me?**

Words by Shisha and Leon Ashby, and sung by Shisha (18) and Christa (14)
at the Leucaena Network Conference, Carnarvon.

What legume is that?



A very attractive and well produced 'ute guide' illustrating pasture legumes has been put out by Australian Wool Innovation (with GRDC and PIRSA) and with input on the more tropical species from DPI&F.

Each species is illustrated with a photograph and carries a short description of the plant and its uses.

Produced to help croppers appreciate the role of legumes in a rotation to improve soil fertility, it will be of great interest and use to all graziers and advisers working in subtropical (and Mediterranean) climes.

Copies are available for \$25 from the Client Service Centre Toowoomba (thru DPI&F Call Centre 13 25 23) and should be available at the Pasture Conference.

If not delivered, please return to
Tropical Grassland Society Inc.
306 Carmody Road
ST LUCIA QLD 4067

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