

# TGS news & views

about pasture development in the tropics and subtropics

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## Who cares?

At the Annual General Meeting on 23rd November, a motion was passed to wind up the Society at the AGM of 2009. The AGM was attended by 11 people—most of them on the Executive Committee.

### Natural life-cycles

Most products and organisations have a natural life cycle and TGS seems to be no exception.

When the society was formed in 1964, tropical pastures were a new science with a great future. Pasturescience groups were evaluating, selecting and releasing new grasses and especially new legumes each year; fertility and grazing management regimes were being established. The grazing industry, especially dairy and beef, wanted this information and the Society was a wonderful network bringing together pasture people from CSIRO, state departments, seed producers and graziers and dairy farmers. Enthusiasm for the new technology abounded. Overseas the tropical and subtropical world looked to Australia for ideas and technology.

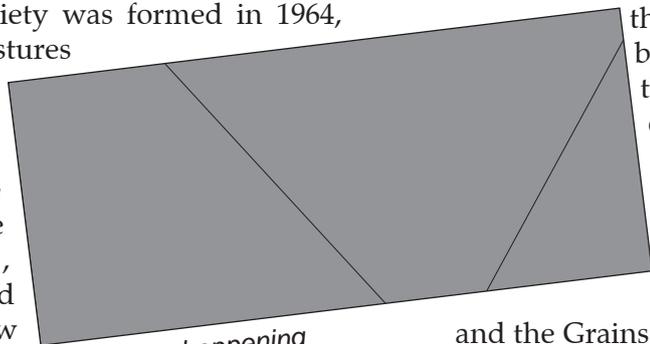
### Many changes in the last 50 years

The grazing industry itself has developed and matured. Whereas TGS was the voluntary organiser for extension, backed by salaried scientists who felt it their duty to contribute, we now have numerous other funded organisations, very few scientists, and extension seems a dirty word in state department circles.

We have levy-funded organisations with their own massive bureaucracies and their teams of communications specialists who do not want to share their limelight. There's Meat & Livestock Australia and the Grains R & D Corporation, there are large catchment management organisations with federal funding, and of course there are commercial seed companies each anxious naturally to increase their share in what is not an enormous market. What we have lost is that reservoir of pasture experience.

### Irrelevant now?

So isn't the Tropical Grassland Society largely irrelevant now as a society? All the executive members (except the President) are closer to 65 years old than to 55. Some have recycled themselves coming back into executive committees that they were in 20 years ago.



*Now it's happening*

There's Meat & Livestock Australia

and the Grains R & D Corporation, there are large catchment management organisations with federal funding, and of course there are commercial seed companies each anxious naturally to increase their share in what is not an enormous market. What we have lost is that reservoir of pasture experience.

*continued on page 3 ...*

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# Society News

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Our Society e-mail address is [tgs@csiro.au](mailto:tgs@csiro.au)

The Tropical Grassland Society Balance Sheet as at 30/09/07 2007

2005		ACCUMULATED FUNDS	
\$			\$
63,526.35		Opening Balance 1 <sup>st</sup> October 2006	69,008.89
5,482.54		<b>Plus:</b> Excess Income over Expenditure	18,267.18
69,008.89		Closing Balance 30 <sup>th</sup> September 2007	87,276.07
<b>Represented by: CURRENT ASSETS</b>			
35,989.73		Commonwealth Cheque Account	51,848.82
25,621.02		Commonwealth Term Deposit	26,829.56
617.30		Petty Cash	1108.85
5,884.00		Books Stock	6592.00
68,112.05			86,379.23
<b>FIXED ASSETS - AT COST</b>			
896.84		Computer	896.84
69,008.89		<b>TOTAL ASSETS</b>	87,276.07
<b>LIABILITIES</b>			
Nil			Nil
69,008.89		<b>NET ASSETS</b>	87,276.07

No mortgages or charges exist over the assets

Our finances received a considerable boost of \$18267.18 in 2007 thanks to the conference and the most generous offer of the Journal Editor to forego his normal per issue editing charges.

## Your Executive for 2008

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Your membership subs will be due in March. It's \$50 for the newsletter and \$75 for newsletter plus the journal. Last year the notices that went out had not been updated and asked for only \$25. Although members were advised of the mistake, no-one who had paid the \$25 sent us the balance!

The journal editor has been doing his great work for 15 years and I've been newsletter editor for 18! Our membership is gradually declining from 176 in 2004/05, to 175 in 2005/06 to 150 in 2006/07. Maybe it's our fault; new blood and go were needed—but none volunteered.

We have had a good number of think-tank and SWOT analyses, but the answers were always the same. Finally we had to bite the bullet.

### What do we offer?

What do we offer as a Society? A good journal but one that has more than half the papers from overseas. Most of the expansion in animal production has been to meet the burgeoning demand for meat and dairy products in the new affluent Asian societies. And while most of the pasture development work is now being carried out in Asian and South American countries, many Asian pasture workers claim that they cannot afford to join the Society even with our low subscription rates. As in Australia, the new affluence does not seem to seep through to public servants in the unglamorous, though essential, field of agriculture. Australian-based members say that overseas research work is not relevant to them. The newsletter sometimes

gets good comments but where is the content coming from with so little new work in Australia, and an editor mostly deskbound in subtropical Toowoomba in non-pasture fields. Then again, MLA produce their own newsletters as do GRDC and the catchment groups and the DPI&F, while even the more popular media like Queensland Country Life now carry topical stories about pasture development such a leucaena.

So what do we have to offer that is not coming from elsewhere? At the Easter conference, participants say that we should run more conferences and field days, but where are the teams of volunteers to help with organisation?

The Conference was a major effort mostly by four members of the Executive. We hardly feel strong enough to repeat it every year, and anyway our employers would balk at the time required.

The few bright newcomers feel no loyalty to TGS; they respect our expertise and experience but seem to regard us a out-moded

### Two more years and we are gone

So we will be winding up in two years. If no-one squeals, it just confirms that our regrettable decision is apt. If you do squeal, come and help us with events.

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## TGS Book Shop liquidation sale

The Tropical Grassland Society of Australia is closing down its book sales facility to both members and non-members. This partly because of the impending winding down of the Society but also because of the impending loss of storage space for the books.

When CSIRO was in the Cunningham Lab, the book store was in the basement and sales were constant to the array of overseas visitors to the Lab to see how tropical pasture research was done. When the Queensland Biosciences Precinct was being built at Carmody Road, CSIRO Tropical Agriculture and the books went out to Indooroopilly. The books have had to stay out there because there is no room

in the new QBP. But CSIRO Long Pocket is very valuable real estate so that facility will soon be lost to science. So there's a sale.

Except for books published by TGS (No. 4 "Grasses of Southern Queensland" and No. 66 "Forage Tree Legumes in Tropical Agriculture"), books are being cleared at heavily reduced prices.

Check our web site for the heavily discounted list. Get in quick, they are already going out fast.

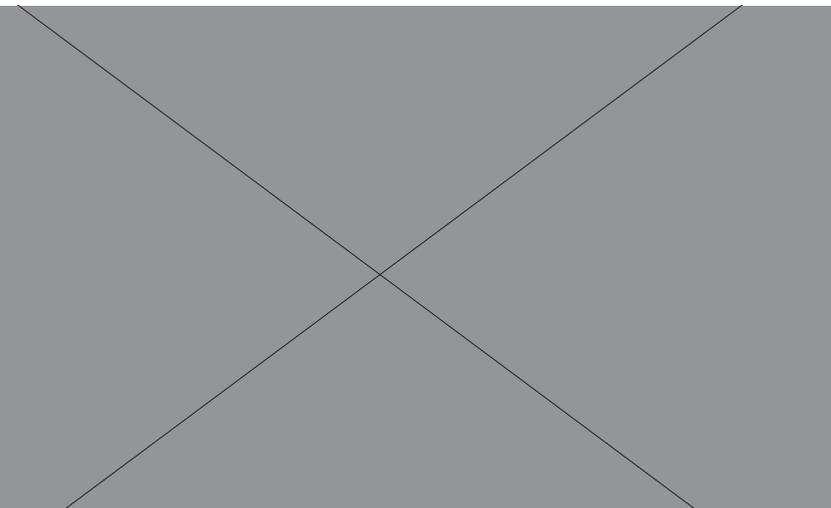
Orders will be accepted by phone. Contact Cam McDonald by phone (07-3214 2289) or fax (07-3214 2308) for those paying by credit card, or by mail.

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# Leucaena in West Timor

## The 'Amarasi' system

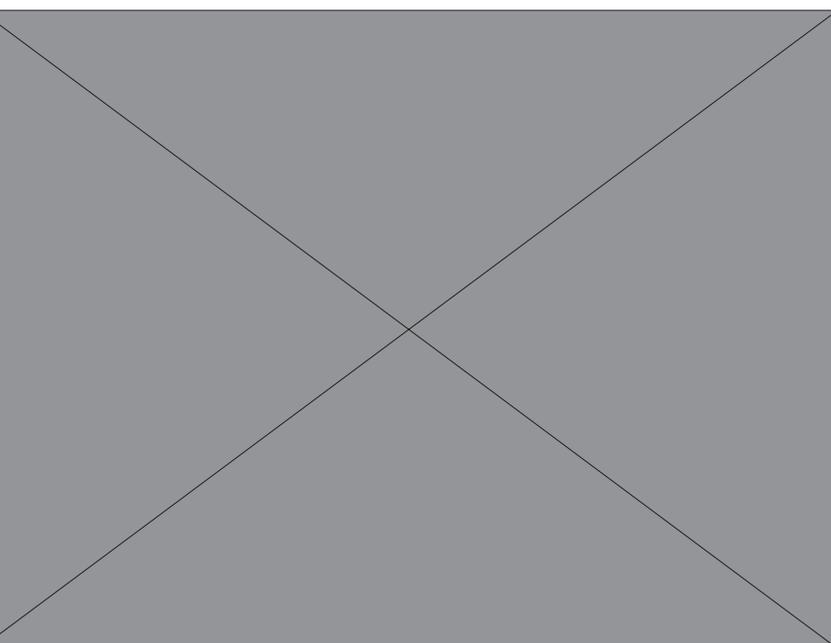
The eastern islands of Indonesia (Nusa Tenggara Timur) carry around 1 million head of cattle, and supply about 25% of the slaughter cattle (75,000 head per year) in Jakarta.



*Bali cattle on native pasture during the dry season in West Timor*

Most of these cattle come from West Timor where livestock production provides up to 80% of smallholder farmer cash income. In the Amarasi District on the south coast of West Timor, cattle have been fattened on leucaena for the last 35 years.

In the 1930s, land degradation there was a serious problem with extensive annual burning of forests and grasslands, invasion of lantana and Siam weed (*Chromolaena odorata*) and erosion of annual cropping lands.



*Feeding leucaena in the 'Amarasi' system*

The climate is harsh with heavy downpours during the monsoonal wet season and a severe dry season (similar to that of the northern Northern Territory).

However, leucaena grows very well on the red and black rocky coral soils, and now provides the main feed for livestock during the dry season.

### The 'Amarasi' system

A system of cattle production has evolved in the district—the 'Amarasi system'—in which cattle are tethered within areas of leucaena regrowth and are fed leucaena-based diets. Cattle strip the leaves leaving a platform of stems that grows progressively higher. Productivity is comparatively high and sustainable.

In 1971, the local provincial government introduced the 'Paron' cattle fattening scheme whereby it bought store cattle from central Timor and distributed them to farmers for fattening with cut-and-carry legume fodder—mostly leucaena, but also *Sesbania* spp., *Acacia leucophloea* and *Tamarindus indica*.

Leucaena provides the best feed; it is highly drought tolerance, and it responds after cutting with new regrowth even at the end of the dry period.

### Cattle trading

A Timorese cattle trader, Mr Jeminus Reo, buys cattle locally, fattens them for a short period, and then sells on to larger traders from Kupang for export to Java. He assembles 16–20 cattle each week, feeding them on leucaena, banana stem and elephant grass. He buys a truck load of 60 bundles of leucaena every two days; each load costs 100,000 Rp (\$14.50) plus 50,000 Rp for hire of truck.

Although the market specifications for sale are a minimum weight of 200 kg, the cattle average 250 kg with some much heavier. The trader receives 12,400 Rp/kg (approx A\$1.80/kg) for 200 kg animals, and then extra payments for each additional 25 kg.

### Tarramba seed production

We introduced the Tarramba cultivar into Timor during an earlier project, and it is now appreciated as superior to local varieties for

both growth and psyllid tolerance. To satisfy demand for Tarramba seed, seed producer Mr Kuller has planted 1 hectare at 1 m x 2 m spacings. It has shown outstanding dry season growth. However, he is making such good money from fattening his cattle on the leaf that he sacrifices seed production for feed production.

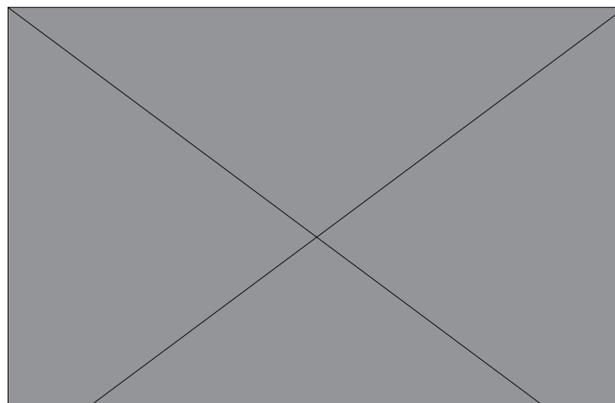
Mr Keller feeds crossbred cattle. He says that a young crossbred calf (mixture of Bali, Brahman, Angus, Simmental) now 3 months old will be worth \$1000 when 6 months old. He recently sold three cattle for 8 million Rp each whereas he sold only 110 kg of seed for 55,000 Rp/kg over a 12-month period. The Department of Livestock Services (Dinas Peternakan) also support Tarramba seed production, and have set up two groups of farmers to produce it. One group has 40 members with 0.25 ha each, making a total of 10 ha. So far, only about 60 kg of seed has been sold per year—purchased by the Department, other farmers and NGOs for 50,000 Rp/kg.

My observation was that Tarramba showed excellent vegetation growth but seeded poorly—perhaps because of the low latitude. There was also some bruchid beetle damage.

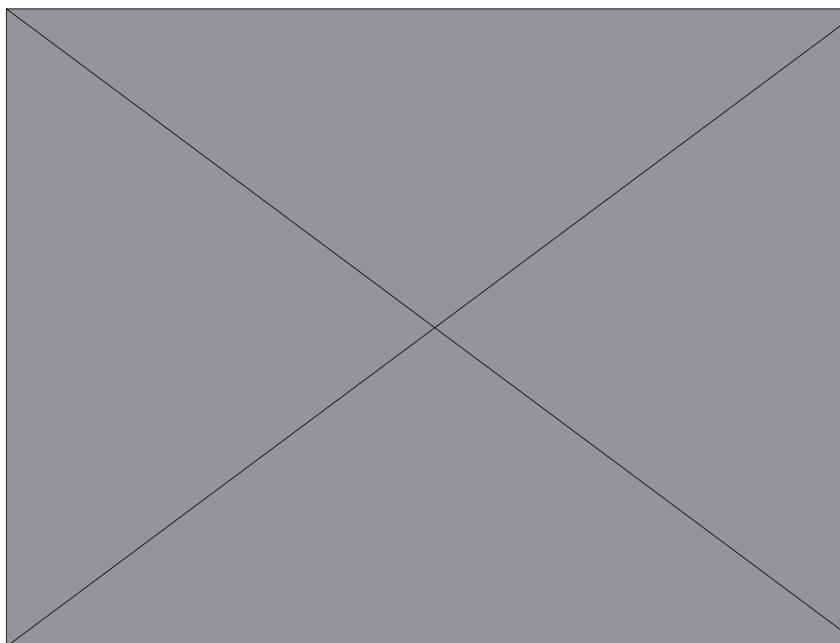
### Leucaena toxicity

No farmer seems to know about leucaena toxicity, and they say that they have not heard of the symptoms. As there is no local 'rumen inoculum' service, we sampled urine from 20 cattle in the region to check for DHP. Most samples showed no signs of toxicity and so the animals must be protected by a locally acquired 'bug'. However, some did show signs of 2,3-DHP in their urine.

And in an earlier feeding trial on the local research station, calves 6-9 months of age that were fed 100% leucaena for 10 weeks,



*Strong pink colouration of urine samples indicates 3,4-DHP toxicity in calves fed high levels of leucaena.*



*Spaced Tarramba leucaena for seed production. But the farmer gets better money by using the leaf to fatten cattle. The photograph shows dry season growth of Tarramba at the end of October after being cut in August.*

gained only 0.4 kg/day and showed toxicity symptoms of salivation in the first 2 weeks. Although they recovered and did quite well, their urine samples all showed a strong pink colour indicating 3,4-DHP toxicity (see photo).

### Hidden explanation?

The toxicity situation in Timor is not clear.

In nearby Sumba Island where cattle are the major enterprise and wild leucaena is abundant, the farmers do not use it for feed. Could it be that it is unrecognised toxicity that has been making farmers wary of feeding leucaena? Some sort of myth that arose for the right reason but that our science can dispel.

**Max Shelton**  
November 2007

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# Controlling GRTs — or WGS

Tall, tough and inedible *Sporobolus* grasses now infest about 450,000 ha of grazing land along the east coast of Australia. Heavy infestations can dramatically reduce animal production and hence grazing land values.

Steve Bray (DPI&F) and David Officer (NSWDPI) have put together an informative and attractive publication about controlling these weed grasses. Although once commonly bunched together as GRT, this name is insufficiently specific because a number of the nasty exotic rat's tails have now been classified. The taxonomy has only recently been sorted so now we have Giant rat's tail - species 1 (*Sporobolus pyramidalis*), Giant rat's tail - species 2 (*S. natalensis*), Parramatta grass (*S. africanus*), Giant Parramatta grass (*S. fertilis*) and American rat's tail grass (*S. jaquemontii*). Thus the overall title of Weedy Sporobolus grasses: best practice manual.

These WSGs are categorised as a declared Class 2 pest, which means that landholders have a legal obligation to take reasonable steps to keep their land free of the pests. Landholders need good information on how to go about it.

The book is very much a useful 'best practice' manual. It describes the plants, how seed comes onto a property, how it spreads and what you can do about it.

The chapters are:

- 1. Introduction**  
What are they?; Where do they grow?; Why control them? What's the legal position.
- 2. How to identify WSG**  
Characteristics and photo guide
- 3. The WSG infestation cycle**  
Introduction of seed; germinations and establishment; build-up of a seed bank; role of slashing and fire.
- 4. Preventing the establishment of WSG**  
Managing ground cover; spelling; matching stocking rates; keeping your eyes open
- 5. Preventing the spread of WSG to 'clean' country**  
Do's and Don'ts, cleaning vehicles and machinery; preventing spread.
- 6. Managing WSG: a 3-step planning process**  
Identify infested areas; prevent spread to clean country; management strategies
- 7. Controlling WSG infestations**  
For scattered plants to dense infestations
- 8. Control options: a 'how-to' guide**  
From chipping to cropping and repasturing.
- 9. Case study: using the 3-step planning process**

Well-illustrated with full colour, this 44-page book is available from the Rockhampton DPI&F Business Information Centre. Call in at the Rocky office for a free copy or it's \$9.90 per 10 copies to cover postage and distribution. Phone free-call 13 25 23 or email [beef@dpi.qld.gov.au](mailto:beef@dpi.qld.gov.au)

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## New cover for journal

The cover of the Tropical Grasslands journal has stayed the same since the journal's inception in 1967. It has been recognisable as our 'brand'—with the really useful feature of the change in colour each year. This allows the reader to sort through each volume and, most importantly, to see what issues are missing or have been misplaced. Maybe having hard copies on your bookshelf is no longer so important because it is much easier now to use our searchable archive on the web site, but many of like our old friends.

Over the years, there have been several comments from members about the datedness of the cover. I can remember trying to get a new design in the early 1990s but no-one felt that it was any improvement.

### Gift from Germany

Then out of the blue last year, we were presented with a new design. This has an interesting story. It came from Immanuel Gloeser, a young graphic designer in Germany. Immanuel is a nephew of Dr Albretch Glatzle, who works in Paraguay (and who was awarded a TGS Fellowship in 2006).

Immanuel's first submission attracted all on the Executive Committee as a graphic design but then the pasture agronomists' sides stepped in.

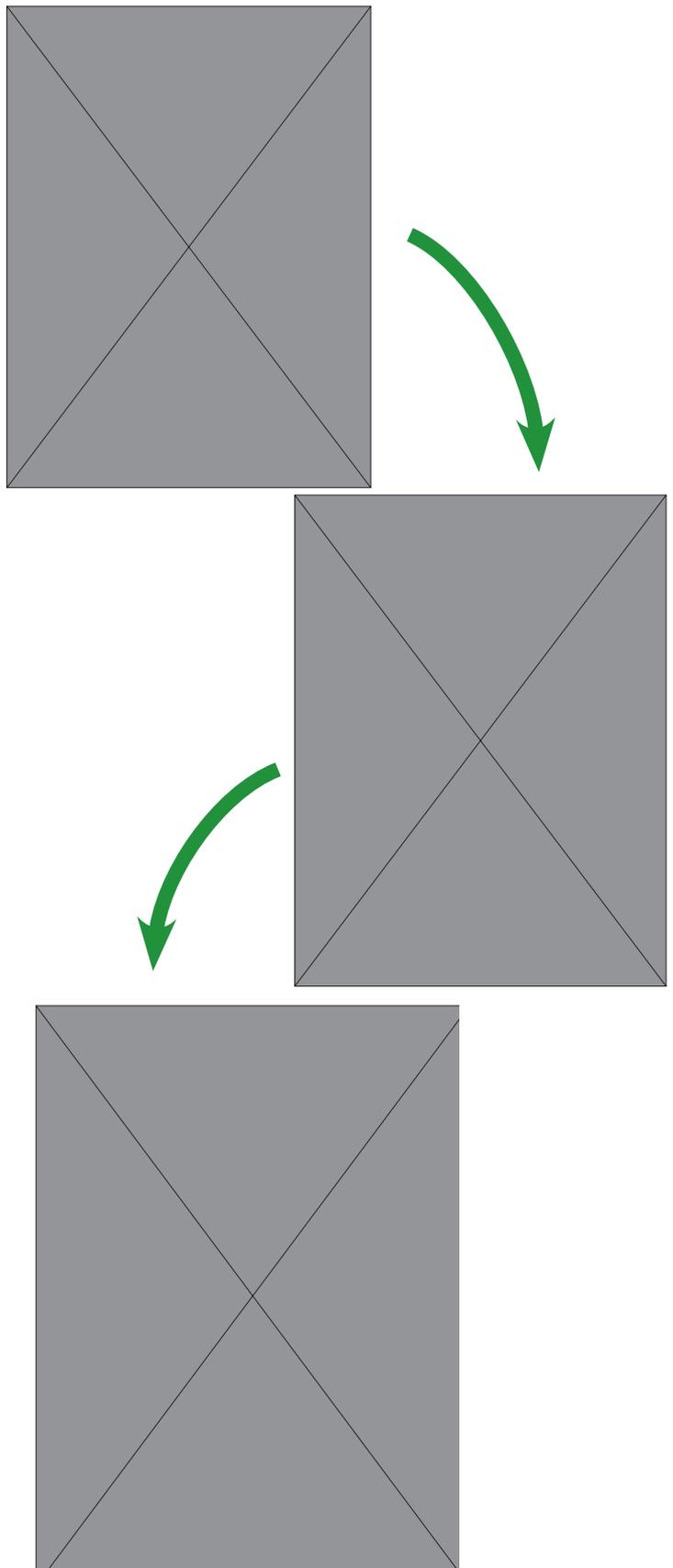
### Siratro out, stylo in

The original had a Siratro plant twining round a tall stemmy grass. Siratro is no longer flavour of the decade in Australia (although it is doing well in Paraguay.) So the Siratro leaves were made less distinct and more generic. Still not popular—most wanted a stylo instead and the grass leaves to be broadened.

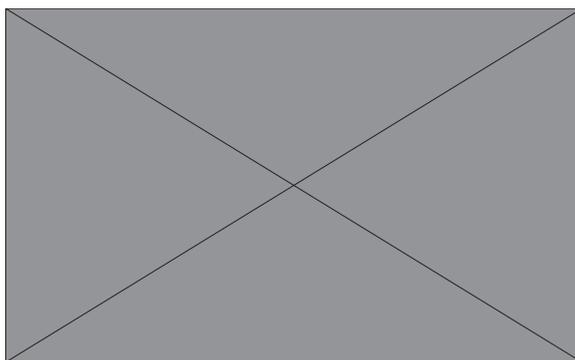
### Zebu-cross humps

Then Immanuel added some cattle but these were too much *Bos taurus*, so more humps and dewlaps. Eventually the 'grass mechanics' and 'cowboys' were happy. And Immanuel said that he was learning a lot (whether about us or about tropical agriculture, I'm not sure).

So here's a preview of the new cover, and many thanks to Immanuel for this service and his continuing enthusiasm.



## David Lloyd – Fellow of TGS



Nomination of David Llewellyn Lloyd for Fellowship of the Tropical Grassland Society of Australia

David Lloyd has been in the forefront of research and development in subtropical pastures for more than four decades, and has contributed greatly to the improvement of productivity in both sown and native pastures over that time. He has evaluated new species and released new cultivars for systems on the fertile cropping lands of the Darling and Western Downs and Maranoa/Balonne, and the poorer granite, traprock and sandstone country, in southern Queensland.

After completing his secondary education, David was awarded a Queensland Department of Agriculture and Stock Fellowship, funded by the Queensland Dairyman's Organisation, to study Agriculture at The University of Queensland. He gained his Bachelor's degree (B.Agr.Sc.) in 1963, spent a year doing post-graduate Honours under Dr Jack Griffiths-Davies, Chief of the Division of Tropical Pastures, CSIRO and was awarded First Class Honours and a University Medal in 1964.

His Fellowship bonded him to the Department and he expected to be appointed to work on dairy pastures at Kairi Research Station. Instead, in 1964, he was appointed Agrostologist (now called Pasture Agronomist) at the Queensland Wheat Research Institute in Toowoomba to work specifically on the development of Bambatsi panic and lucerne as pastures for the grain belt. He is not sure that the QDO ever forgave the Department for using him in that way! However, Bambatsi and the new generation of lucernes with disease and aphid resistance are now widely used and are successful components of pastures on heavy clay soils in southern inland Queensland.

In 1979, he was transferred one street west from the QWRI laboratories in Holberton Street to the Tor Street offices of the Department of Primary Industries —his 'western transfer'. Here, according to some, he 'dug himself in', a scientist who has been extremely happy to have remained a scientist, having what he describes as a good working life—flexibility, a happy environment, working with great scientists and technicians, and with many wonderful farmers. He has led the Plant Science pastures team in the Department of Primary Industries and Fisheries, and has managed projects with National, Interstate and Interagency linkages.

David has always been a great team man and credits much of his success to his enthusiastic research team; together they have provided an excellent suite of sown pastures for the zone. The release of these new cultivars has been accompanied by research into their adaptation, agronomy and management with an understanding of their role and implementation in mixed farming systems. In total, his team has released 20 temperate legume cultivars and has released or developed a number of grasses, providing sown pasture options especially for the:

- poorer pastoral soils – forest bluegrass (*Bothriochloa bladhii*), digit grass (*Digitaria smutsii*) and subclover (*Trifolium subterraneum*) for the hard-setting Traprock soils; Brunswick grass (*Paspalum nicorae*), digit grass, subclover and serradella (*Ornithopus compressus*) for the Granite Belt soils; and digit grass and serradella for the sandy soils to the west of the Condamine River.
- cropping soils – Bambatsi panic (*Panicum coloratum*), lucerne, medics and sulla (*Hedysarum coronarium*).

The new serradella and subclover cultivars with high levels of hard seed now guarantee the longevity of those components in pastoral systems; sulla is a highly productive winter forage legume option for cropping systems; new lucernes with increased levels of disease and aphid resistance have been developed for dryland farming in the grain belt; and productive, drought-resistant grasses are providing new well adapted sown pasture options.

To enhance the adoption of pastures to restore soil fertility in the cropping zone, David and his team have developed an action-learning pastures extension package, LeyGrain™, and have delivered LeyGrain workshops throughout the grain belt. These have gained strong acceptance by farmers, particularly those in Landcare and Catchment Management groups. LeyGrain has gained national credibility and packages have also been developed for two regions in southern Australia.

David was a very capable cricketer, being a deft hand with bat and ball, and carried these all-round skills into his career. During his working life, he claims that he has found no one area of specialist expertise; he says his personality directs him to be curious about many bio-physical and agri-social systems, a good 'starter' but a poor 'finisher'— a jack of all trades and a master of many.

David was an inaugural member of the Tropical Grassland Society of Australia and was an Management Committee Member (Field Day Organiser) between 1987 and 1991. Over this period, he coordinated and ran 23 Tropical Grassland Society field days and published the Proceedings of those field days. He was responsible for the conceptualisation and inception of the Tropical Grassland Society ANZ Bank Award (later the MLA Award).

He is Secretary of the Queensland Division of the Australian Institute of Agricultural Science and Technology (AIAST).

David is the author or co-author of 8 books and 3 book chapters, and has written 35 scientific papers in recognised journals, 35 conference papers, 45 extension papers and the LeyGrain action-learning program. He was a part of a CRC for Tropical Plant Protection team that was awarded the CRC Association's Award for Excellence in 2006, for using molecular plant breeding research to develop new high-yielding, disease-resistant lucernes ..

From a community perspective, he has been a member of the National Council of the Medical Benefits Fund of Australia since 2005, and has had a long history of voluntary service with parent groups in schools and regional and State organisations associated with education, resulting in life memberships of school and regional parent bodies. He was awarded an Order of Australia Medal (OAM) in 2001 for 'Service to education, particularly through advocacy, the promotion and implementation of community involvement in schools, and in the area of school-based management'.

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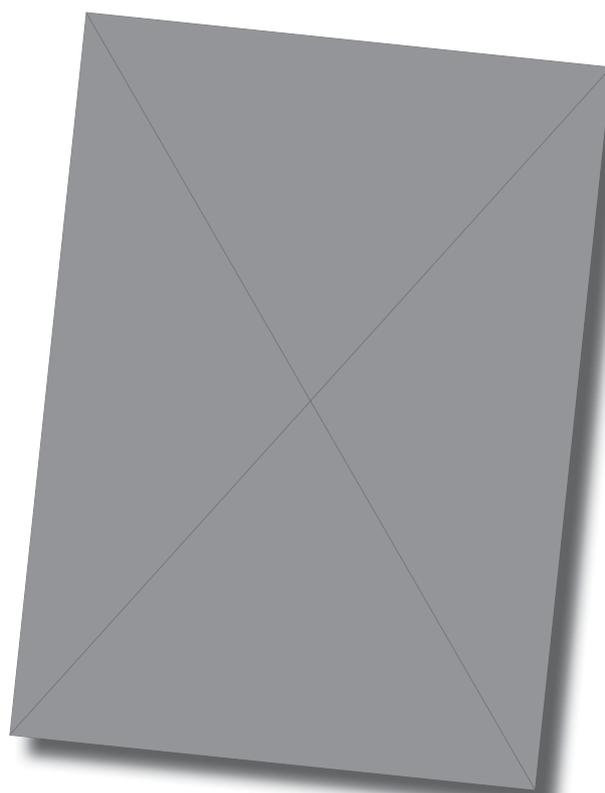
## Way out west

Jenny Milson's best-selling 1995 book *Plant Identification in the Arid Zone* has been out of print for a couple of years, but with a high demand from both scientists and the public. Southern 'grey nomads' passing through the 'outback' really like to know more about the strange plants.

The old book has been scanned and reassembled, with an addendum of the latest name changes from the herbarium. Did you know that buffel grass is now *Pennisetum ciliare*, *Psoralea* is now *Cullen* and *Indigofera* is *Indigastrum* (well this month anyway)?

The book is available over the counter and by mail from the Longreach DPI&F office and through the Whole of Government book shop in Brisbane (internet purchase only).

Full colour, 112 pages for only \$30.05.



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# Gambling with gamba?

There was another article by environmentalists in the Courier Mail recently castigating politicians for not reacting quickly enough to their demands for gamba grass to be banned. The Chief Executive of the CRC for Australian Weed Management told the newspaper that DPI staff were embarrassed because they had promoted gamba grass, only to find it a major environmental pest. Unfortunately for her, this is untrue—DPI staff in the north are well aware of the benefits of gamba—and some of her more outrageous demands—such as charging graziers a bond on each hectare of gamba grass planted to remedy the ‘damage’—do little to present the CRC in a credibly scientific light.

## Why environmentalists are so anti

*Savanna Links*, the newsletter for the CRC for Tropical Savanna Management, Issue 34, 2007, carried an article titled ‘*Evidence is in on the impact of gamba grass*’. It described research being done to prove gamba is ‘a bad thing’.

The researchers’ conclusions were that:

**Gamba grass can establish and survive regardless of canopy cover** — but establishment is much more successful with soil disturbance.

## Gamba changes the fire regimes

Fuel loads of gamba support fires that are about eight times as intense as those from native pastures in the early dry season, and more than 20 times late in the dry season —when the gamba is not grazed.

## Gamba reduces tree cover -

In the Darwin rural area, a gamba area showed a reduction of 50% in tree canopy cover over 12 years.

— stretched to ‘So gamba is a serious risk to savannas across northern Australia.’

## Gamba alters hydrology

Gamba roots are deeper than those of native grasses so it uses more water and to a greater depth; thus dense gamba increases competition with evergreen trees, and so stresses the trees in the savanna ecosystem. —so it stays green, palatable and productive for longer into the dry season.

## Gamba grass alters nitrogen cycling

Grass-nitrogen pools under gamba are seven times higher than under native grasses, soil

nitrate availability was three times lower, and soil ammonium availability three times higher. Gamba inhibits nitrification and since it prefers ammonium, can outcompete native grasses. This may be why gamba is so productive in a low-nitrogen system. If the dry matter is burnt, more nitrogen is lost through volatilisation. —but the extensive root system of gamba increases the soil organic matter and sequesters more carbon than native grasses (see last issue). Higher organic matter means higher total nitrogen in the soil.

## Easier research funding

Nine research papers are referenced—all environmental and anti-gamba. Does not this demonstrate that it is much easier to obtain funding for environmental research than for agricultural production research these days?

## What the graziers think of it

Since there is so little current agricultural research being promoted into the benefits of gamba grass, as a balance we have to present the observations of pasture agronomists and land managers who have been growing and using gamba pastures for 15 to 20 years.

Gamba grass has been sown in parts of northern Queensland for over 25 years. It needs more than 700 mm of rainfall so will not grow in the semi-arid regions. Grazing land on the infertile soils in the top end of Australia has to be stocked at very low stocking rates (about a beast on 16-20 ha) because the pasture quality is so low and cattle have to be able to select the few nutritious leaves available over a wide area. Also the better perennial native grasses cannot tolerate heavy grazing pressure and so can be grazed out. Having a small proportion of the property sown with an improved grass like gamba offers the manager new strategies in animal management and in satisfying the market demands. An economic assessment of using gamba in this way shows a positive return to the grazier, on top of the flexibility in cattle management.

## Green grass when all around is dead

Palatability of all grasses declines after flowering and into the dry season, and especially in the native species that need to seed quickly for survival under the unreliable end of the wet

season. But gamba stays green for longer than these native grasses because of its deep root system. Cattle concentrate on gamba in preference to fibrous native grasses because it is highly palatable—which might be helped by gamba's ability to use different sources of nitrogen in the soil (see earlier comment). As a result, gamba has not spread to any great extent in areas where cattle roam. It will tolerate heavy grazing when cattle are put into a gamba paddock at high stocking rates, and this is how it should be managed.

Gamba does grow tall if not grazed and can present a high fuel load under these circumstances such as along roadsides and on acreage blocks where the soil has been disturbed, but it does not establish readily into undisturbed native pastures.

In a similar fashion to the reaction of the leucaena growers when environmentalists sought to have leucaena black-banned, graziers in the north could well do to develop at Code of Practice for sowing and managing gamba grass. A strategy being discussed in the NT includes sowing only a small proportion of the property to allow stock numbers to be concentrated under intensive management during the wet season.

Some of the comments and observations of those with long-term experience of gamba grass are shown below:

The view of DPI&F officers up north is that a main role of gamba in Cape York is to hold large numbers of stock for short periods—after musters for example. In the top end of the NT, the original role was thought to be to hold large numbers on higher ground over the wet season when cattle needed to be removed from the flood plains. No pasture agronomist or beef producer is embarrassed by gamba; they can see the benefits.

### **The natural spread**

"I have had fair experience with oversown pastures and have not seen a successful result with sowing grass seed into existing native pastures without some sort of seedbed preparation, at least a rough cultivation is required. I do not believe that oversowing grass seed into untreated native pasture is a realistic scenario."

### **Special purpose for weak breeders**

Kalinga Station north of Laura has had significant areas of gamba on that station for around 15 to 20 years. They used a 40 ha paddock of gamba principally as a paddock for weak breeders (after the calves have been removed) after both first round (20-30 breeders) and second round (60-80 breeders)

musters. Breeders placed in the gamba paddock stayed there for the rest of the year until the paddock was emptied out at the break of the season around December. "There was always green pick on the gamba but the cattle would, at times, knock down and work over some pretty coarse stems. Even with that stocking pressure, there was still 4000 to 5000 kg/ha of dry matter present at the end of the dry season.

### **2-3 head per ha in wet season**

In the Northern Territory, one gamba paddock was stocked at 2-3 head per hectare (AEs/ha) and grew well over the wet season. But the stocking rate had to be reduced to 1AE/ha as soon as the wet season finished. (Compare to 1 AE on 16 ha). In another case, the gamba that had been fertilised with 200 kg N/ha was stocked at 4 AEs/ha over the wet season but still grew away from the cattle.

### **Spread along disturbed sites**

There was little gamba spread in grazed paddocks but it does spread easily along disturbed areas like along road edges and there has been some movement along creek lines. Vehicles are probably the main means of spread.

### **Good feed and control of regrowth**

Sudley Station near Weipa was cleared and developed for pasture from the late 1970s. The manager was a fan of gamba as a pasture grass capable of fattening cattle in the wet season and also as grass able to be burnt to control woody sucker regrowth—which is an ongoing problem after clearing in the Peninsula (and elsewhere).

### **Fattening in the Peninsula**

On Sudley, 100 ha of an 800 ha paddock was cleared and planted to gamba grass. Typical native pasture on woodland can carry about a beast on 16 ha with an annual liveweight gain of 80-100 kg/head. The manager put 200 steers into the paddock to fatten them; at the end of the wet season, the steers were sold for slaughter at around 500 kg liveweight.

The movement of gamba out of the grazed paddocks was very slow but it did spread along the disturbed road sides, particularly in Weipa township.

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