

TGS news & views

about pasture development in the tropics and subtropics

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What's your beef?

The popular jargon covering strategies for agricultural development is 'triple bottom line'—it must have economic, social and environmental value. Beef production for the new and existing markets must be 'clean and green', produced ethically.

But there are times when I wonder about the ethics of some of our beef production. The public demand reliably tender beef and, to get it, they are prepared to pay a premium for grain-fed beef. Our feed-lot beef is fed grain for between 90 and 360 days—originally just enough to finish the animals and to give a succulent reasonably tender steak with nice white fat, now for more premium export markets. In America, where steaks are allegedly even more tender and juicy, they also over-feed their cattle to get inter-muscle (marbled) fat. They then have to cut off centimetres of subcutaneous fat that no one wants, import our lean cull cows to blend with the surplus fat so they can sell it as hamburger mince.

When does feeding grain become 'unethical'?

Cattle are ruminants. Their value to the whole ecological system is that they can convert grass (poorly digested by most simple-stomached animals, be they humans, pigs or lions) into high-quality protein (for us or them). But we are feeding them grain which could be digested much more efficiently by the monogastrics. Ruminants are quite inefficient at converting this grain at any stage of life but especially when they are depositing fat.

Continued on page 2 ...

Pastures for production, protection and improvement.

Lot-fed beef may be more tender or juicier. But is it biologically efficient and hence 'ethical'?

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Society News

Note our
new Web
address

Our Internet address

Our old Web address of www.powerup.com.au/~tgsoaust was difficult to remember, our new web address has a shorter and friendlier address:

www.tropicalgrasslands.asn.au

See it for membership forms, an updated book list and pdf version of the newsletter.

Our Society e-mail address has changed again —shortened tgs@csiro.au

Newsletter on line

We put the newsletter on the Web site as .pdf files in two forms. There is a small sized file without pictures and (sometimes) a much larger file with the photographs included.

We were going to make the newsletter available only though a password, but haven't introduced that system yet.

Apologies

Many of you did not receive your newsletters until well into the new year.

This time I was not entirely to blame. I had sent the electronic copy to the printer before Christmas and actually put it on our Web page around the 20th December.

I received my copies from the printer on 9th January when they were sent to the mailing service. The mailing service took over a month to send them out.

We are investigating a new mailing service.

What's your beef?

Continued from page 1

I'm not suggesting that feed lots could be or should be banned; they are efficiently run and profitable because of consumer demand. But they are 'inefficient biologically'— and inefficient ecologically in that there is transfer of nutrients from cropping land to great mountains of dried manure that are uneconomic to transport back to the land growing the feed crops.

So we cultivate our limited cropping land that is running down in terms of physical and nutrient fertility, fertilise it with urea produced with coal-generated energy, harvest and transport the grain with imported headers and trucks using

non-renewable oil so as to feed animals with inefficient digestive systems.

Wow! Now I feel good when I see a paddock of improved pasture that is restoring the soil's condition, adding nitrogen through biological fixation, growing pasture species that have better digestibility for the ruminant, and generally producing good beef.

Don't tell me that all introduced forages are terrible environmental weeds while you chew your 'beautifully tender' grain-fed T-bone!

That's my beef. Or am I chewing my tongue in my cheek?

Ian Partridge

TGS 40 years old this year

In the mid-year, the Tropical Grassland Society of Australia will be 40 years old and we will be celebrating with a special event.

So make a date claimer for Friday 20th September.

We are planning an afternoon of talks at the University of Queensland St Lucia campus followed by a BBQ.

The tentative programme includes:

The past (40 years) by Professor Emeritus Ross Humphreys

The future (with biotech) by Ian Godwin of the CRC

The present (See below) by Dr Bill Burrows as the Harry Stobbs Memorial lecture.

Followed by drinks and a BBQ.

All members are more than welcome and at least have a roll-up of all living local Fellows too.

We will be inviting the rural and urban press, government ministers and industry bodies, so it should be a stimulating afternoon.



Date Claimer
– 20th September

The Harry Stobbs Memorial lecture

Seeing the Wood for the Trees – a retrospective analysis of woodland R&D for Queensland's grazing lands

This talk will review the research and development carried out on Queensland's grazed woodland communities since 1960. It will emphasise the woody component of the vegetation, targeting the main native species—their population dynamics, community interactions, management and the implications as a source of, or sink for, greenhouse gases.

The grazed woodlands in Queensland occupy about 60 million hectares—one-third of the State and about equal to the total land area devoted to all agricultural pursuits in NSW.

Few appreciate the extent of the woodlands or the problems and opportunities they present to the grazing industry.

Research focussing on these communities is comparatively recent but is already wide-ranging in its scope and application.

Meanwhile changing expectations of society, highlighting biodiversity and greenhouse gas emission concerns, have led to renewed interest in the woodland resource.

Can they be managed to meet these new demands while still making a significant contribution to sustainable production for the State's grazing industry?

Be there for a stimulating afternoon.

We know that we can rely on Bill for some forthright comments—with good science before emotion.

Tropical pastures in the west

We do not normally think of tropical-subtropical pastures growing in southern Western Australia in a region with winter-dominant rainfall. We tend to think of winter rainfall and sandy soils.

*Rainfall at
Gin Gin, WA*

The Evergreen Farming Group of WA are developing farming systems based on a mix of annual and perennial species of temperate and tropical origin. Their results so far show that the sub-tropical grasses are an important part of the system due to their persistence in their tough environment.

They have used Rhodes grass, green panic, Bambatsi panic and setaria in broadacre plantings and are now testing a range of other grasses and legumes—following a Queensland study tour in 2000.

This photo was taken at the end of January 2002 of a paddock sown with

*Rhodes grass
growing in the WA
summer*

Katambora and Callide Rhodes five months earlier.

Stored moisture

They do not use irrigation, but rely on subsoil moisture left over after the annual growing season with the odd bit of summer rain if it happens. Salt is a big problem in WA due to the low water use in their annual farming systems. Hence the interest in adding 'drought-tolerant' perennial species to use this excess soil moisture.

The soils in the district are very poor. But as they are fertilised annually with superphosphate and potash and grow annual legumes, low soil fertility may not be a problem. Green panic seems to grow even in the very poorest beach sands—which conflicts with Queensland observations.

Green feed year round

In the long term, the group hope that their 'Evergreen' system will contain subtropical perennial grasses (and legumes?) alongside the traditional annual legumes and grasses to provide 'green feed year round' as opposed to the current 6-month boom, 6-month bust.

For sources of information, they have used our Pasture Picker and other websites from Queensland, New South Wales and overseas.

They are keen to investigate a broad range of subtropical germplasm and to improve establishment. They sow in spring when the temperatures are rising but moisture declining. Is there a way to stimulate germination of subtropical species at low temperatures?

To give or receive extra information about the Evergreen Farming System, contact:

Philip Barrett-Lennard
'Beermullah'
PO Box 29
Gingin
WA 6503 Tel:(08) 9575 4013
pbl@iinet.net.au

Hybrid leucaena for Vietnam

Smallholder livestock farmers of southeast Asia have had a longstanding problem of getting a good supply of high-quality feed throughout the year.

Multipurpose legume trees

Multipurpose leguminous trees offer this potential. They can be used to feed livestock, improve soil fertility and provide firewood. Livestock provide income and manure for cash crop while fuel for cooking is needed by every family every day.

In Queensland, we have been breeding leucaenas for high production, good feed quality and psyllid resistance. The next stage has been to get this material into the local farming systems in north Vietnam.

This stage has been progressed through the Aus-AID CARD scheme—a program for Capacity Building in Agriculture and Rural Development that aims to give the people or institutions the capabilities to carry out new developments themselves. The old adage about ‘Teach a man to fish versus give him a fish’.

Our particularly vigorous *Leucaena* hybrid—KX2—is proving very popular with the smallholders of Vietnam. But as it cannot be propagated by seed, we have had to develop a robust technology to produce planting material from cuttings.

Rooted cuttings

Vegetative propagation techniques were developed and refined at the Research Centre for Forest Tree Improvement station at Da Chong, and a mass production process was started to furnish seedlings to farmers. The station has now produced over 25,000 rooted cuttings for distribution. An information package on appropriate management and utilisation is provided to the farmers at the same time as the KX2 seedlings. The CARD project has made it possible to run training courses and distribute hybrid leucaena seedlings to a network of demonstrations among smallholders.

Vietnamese extension workers getting lost in a sea of KX2.

In the dairy districts, the major forage source is fertilised tropical grasses but these lack the highly digestible protein necessary for high milk yields. Farmers have substantially reduced the amount of costly concentrate they have to give to their animals by feeding the forage of KX2 and the other multi-purpose trees. They have been so impressed that the demand for seedlings has rapidly outstripped supply.

Smallholder feeding his goats with hybrid leucaena.

Goat farmers often live in remote areas and have little experience with animal husbandry. KX2 and other multi-purpose trees fit well with existing agroforestry systems and can be grown as small plots, boundary lines or hedge rows and used when required.

Max Shelton
University of Queensland
St Lucia

Broaden your horizons!

Understand the ecology of burning on grassland plants, native fauna, woody weeds—the whole environment.

Our tropical savannas

Savannas are grassy landscapes—woodlands with a grassy ground layer, or grasslands—that occur in tropical areas with a seasonally dry climate. The natural grasslands of northern Australia can be described as savannas.

Multiple land use

The enormous area under grassland has a number of land uses. Much of it is

used by the pastoral industry, and turns off a good percentage of the livestock for local and export markets as meat and live animals. But other uses include conservation in national parks, Aboriginal lands. In the far north, the wildness of the savannas is attracting a rapidly increasing number of eco-tourists. Thus we more we know about the grasslands themselves and about their management the better it will be for all concerned. Not

only that, but each group of users needs to understand the reasoning and science behind the other's demands.

The Tropical Savanna CRC aims to bring together scientists from all fields—ecologists and entomologists, agrostologists and ornithologists, bush firers and bush tuckers.

Savanna Burning

The CRC has produced a book *Savanna Burning: understanding and using fire in northern Australia*.

The back cover of this 140-page full-colour publication says, '*Every year thousands of square kilometres of northern Australia goes up in smoke. Is this wanton destruction? What is the role of fire in tropical savanna ecosystems? What are the benefits and what is the damage?*'

The book describes how fire affects all aspects of the savanna landscape; it provides guidelines on how fire can be used to achieve the multiple aims of the different landuses.

The various chapters include:

- Savanna landscapes
- Savanna fire regimes
- Effects of fire in the landscape
- on plants and on native animals
- Using fire in savanna management
- Burning operations
- Monitoring fire regimes
- Global trends and fire management.

This book really is a worthwhile edition for any member of the Society who is connected with native pastures in any way. Not only is it excellent value at \$30 (thanks to funding from MLA, the Bush Fires Council of the NT, NHT and Bushcare), but the hundred or more illustrations makes for easy viewing and reading. Of equal importance is the view of the subject from so many angles. It is a lesson to all of us who endeavour to see a wider world.

Available from:

Melissa Tang, Tropical Savannas CRC,
Darwin NT 0909

email: savanna@ntu.edu.au

It will soon be available from various other agencies and government bookshops in north Australia.

Price \$30 including GST, postage and handling. \$45 for overseas customers.

Vegetation of the Tropical Savannas

The Queensland Herbarium and the CRC for Tropical Savannas published a 1:2 million scale map of the *Vegetation of the Australian Tropical Savannas* in 2001; they have now released the accompanying technical report on CD-Rom.

The map and report provide valuable information at a regional scale for researchers, students, land managers, planners or anyone with an interest in the vegetation of northern Australia.

The comprehensive report:

- describes each map unit, including a distribution map and images for most units
- presents a history of vegetation survey and mapping
- presents a history of the evolution of the northern Australian flora
- describes the northern Australian physical environment
- presents an analysis of land cover change in northern Australia
- details the methods used to produce the map.

Want it?

The package containing the CD-ROM and 2 map sheets and a legend sheet is now available for \$27.50 (including GST and postage). Credit cards preferred.

To obtain your copy:
Contact the Queensland Herbarium, EPA on (07) 3896 9326 or email:

[Queensland.Herbarium
@env.qld.gov.au](mailto:Queensland.Herbarium@env.qld.gov.au)

Digital data

A 1:1 million scale digital version of the map is available in ArcInfo export format and/or shapefile.

Enquiries should be directed to the Queensland Herbarium (07) 3896 9326 or Rosemary.Niehus@env.qld.gov.au

What's in a name?

A new Australian movie, with good local reviews, is called '*Lantana*'. I haven't seen any explanation of why the film was named after the weed shrub, but I noticed that Dr Tony Grice of CSIRO Tropical Ecosystems used the occasion of its release to bring the public's attention to the scientific work being done on combating this serious invasive weed in all its many types.

Strike while the iron is hot!

On the subject of names, I always thought that CSIRO Tropical Ag missed an opportunity when they called rust-resistant

siratro 'Aztec'. I reckoned 'Inox' would have been smarter. While I'm not clever enough for crossword puzzles, my thought processes said 'rust-free' equals 'rost-frei' (German for stainless steel) and 'rost-frei' equals 'inox' (French for stainless steel).

In the same vein, I remember seeing a science-fiction cartoon on TV where the leader of the baddies was called 'Phaseolus Mungo', and often thought that 'Arundo Donax' would have made a great name for the leader of the goodies.

Is anyone else batty enough to suggest botanical names that would be good for people (besides Rose and Violet)?

A letter to the Editor

Zimbabwe in strife

Australian graziers – don't grumble

I have received a very depressing letter from Keith Keogh, regular correspondent and long-time improved-pasture enthusiast in Zimbabwe.

He writes that the Tropical Grasslands journal and the newsletter are amongst the few bright spots in his life, but says that he is still receiving them although he has not paid his subscription.

Keith says

'I can offer so little and just can't face the subs at Zim \$250 to US\$1 on the black market. But I could send you a copy of an article I wrote on '30 years of short-duration grazing'.

Envious eyes have seen how good the grass is on our place and I've been a prime target now for two years. It's been a most wearing and distasteful period; my wife had a fatal stroke last November as a result of the harassment.

On 23rd January, I was apprehended outside the farm homestead by war veterans, and accused of deliberately putting some cattle into their maize crops and a string of other fabricated misdeeds. I was frogmarched to the now disused dairy area where extensive ploughing has been going on for several weeks and shown the damage. The maize plants were about 20 cm high, very low plant population and about 20% lightly grazed. The middle of the field was heavily tracked by cattle as if they had been deliberately driven up and down. I was harangued and browbeaten for two and a half hours to attempt to coerce a confession of guilt and some promise of compensation. Exodus 22 lays down one's culpability clearly and I flatly denied ordering the staff to put cattle

into that area. I reminded them that it was they who removed the valley fencing that confined the cattle.

They have ploughed about 90 hectares in the valley and have targeted areas of improved grass and the legume reinforced areas—8–10 years of work wrecked! The upshot was that my neighbour was called to come and remove me at once. We had 20 minutes to collect necessities and leave. The following day 4 staff members were similarly evicted. All efforts to get permission to return from the Provincial Administrator in Bulawayo have met with frustrating ambiguity and it looks as if I will be stuck in Bulawayo until April.

In the meantime, there has been virtually no rain since December 24th and the crops in the west and south of the country are just about a write-off, while the north and east are deteriorating fast. ...No El Niño, but a series of low pressures or cyclones off the Mozambique Channel. Hunger is already widespread and there is no money to import now, let alone for a further 14 months. Cooking oil is another nightmare to find and nothing is cheap. ... Beef prices have risen also which has alleviated the worst effects of runaway inflation. Beef is at times in short supply, though I perceive that exports to Libya to try to offset the fuel imports. I just hope and pray that we don't have our cattle stolen.'

In Queensland, we may have it dry but beef prices have been good. Let us be thankful for small mercies, not complain and wish Keith a happier future than he has experienced over the last few years.

Ian Partridge

THE LEUCAENA NETWORK

“Promoting the responsible development of Leucaena as a productive and sustainable ecosystem to build stronger rural communities.”

“The most highly sustainable and productive grazing system for Northern Australia.”

From the President

As our activities are becoming very complex, the Management Committee, with some selected advisers, will be looking at **restructuring** the Network in May.

MLA Grants

There have been some minor delays (due to wording) in the contract between MLA and the University of Queensland for funding of \$338,000 to develop the hybrid KX2. However, the team at UQ have proceeded with the required plantings and selection processes at Redland Bay.

The Central Queensland University has been granted \$30,000 a year for three years by MLA to carry out preliminary research in areas yet to be fully defined. Dr David Midmore, School of Biological and Plant Sciences, and newly appointed head of the Institute for Sustainable Regional Development will lead this research, in collaboration with Dr Max Shelton, School of Land and Food Sciences, UQ.

Salinity Application

Success for our application through NAPSAWQ will be a critical point for our organisation. The environmental story needs no emphasis here, and we have been moving pre-emptively in this area.

- The Leucaena Network is a stakeholder in the Fitzroy Basin Association
- Good communications have been established with the Neighbourhood Catchment scheme and we have every reason to anticipate a close working relationship with this team
- Max Shelton and I spent a day and a half consulting with departmental heads and representatives of DPI,

DNRM and MLA. We discussed our concern that leucaena may be mistakenly classified as a “weed”, the new Lands Act and the Rossmoya/Barmoya proposal. Also the need for us to produce a Handbook for Growers.

It's not a weed

We have arranged several new opportunities to present the “Leucaena Story”

- Livingstone Shire Council was addressed by our timber Project Officer and myself. We believe that the response from the committee was warm and cooperative.
- Jim Kernot, DPI Mareeba and I will address the Far North Queensland Local Government Association at Cooktown on May 9th or 10th.
- Max Shelton and John Chamberlain have been given a half day to address the Queensland Weeds Symposium at Emerald in late June.
- We have applied to address the Agforce Annual Meeting in Biloela in July, and to speak at the Local Government Association of Queensland Conference at Maryborough in August.

Note the AGM date

Our AGM and Conference will be at Biloela on 19th July with Dr Ray Jones as a key guest.

Keith McLaughlin
President
9, Palm Court
Yeppoon 4703

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E-mail: maxtrax @cyberinternet.com.au

Practical Abstracts

from Tropical Grasslands Journal, Volume 35, No. 4 (December 2001)

Sward structure and patterns of defoliation of signal grass (*Brachiaria decumbens*) pastures under different cattle grazing intensities—by J. Busque and M. Herrero, on pages 193–204.

Different grazing pressure created different tiller heights and canopy structures in the medium term but did not affect the pattern of defoliation relative to the height of the apical meristem. Apical meristem height was the main physical barrier to leaf defoliation upon a minimum leaf height of 2–4 cm, under which leaves were inaccessible to cattle.

Selecting buffel grass (*Cenchrus ciliaris*) with improved spring yield in subtropical Australia—by Bryan Hacker and Rollo Waite, on pages 205–210.

Two out of 9 accessions of buffel grass had better spring growth than the existing cultivars of Biloela, American, Gayndah and Molopo. Released as cv. Bella and Viva, both are intermediate in height between the robust Biloela and the low-growing Gayndah.

The breeding system of three *Paspalum* species with forage potential—by F. Espinoza, M.H. Urbani, E.J. Martínez and C.L. Quarín, on pages 211–217.

Most *Paspalum* species are apomictic and cannot be improved genetically. But *P. limbatum* has 20 chromosomes, reproduces sexually and could be genetically improved. *P. lenticulare* and *P. guenoiarum* have 40 chromosomes but are apomictic. Because the three species are closely related, doubling the chromosomes of *P. limbatum* might produce a sexual plant with 40 chromosomes that could be used as a female parent for crossing.

Patterns of seedling emergence over 5 years from seed of 38 species placed on the soil surface under shade and full sunlight in the seasonally dry tropics—by the late Chris Gardener, Lindsay Whiteman and Dick Jones, on pages 218–225.

Seed of 14 introduced legumes, 10 introduced grasses, 11 native or naturalised grasses and 3 weedy forbs were placed on the soil surface at Townsville under both full sunlight and artificial shade toward the end of the dry season. Seedling emergence was followed for 5 years. Most emerged in the first 3 months after sowing—the start of the first wet season. Emergence then decreased rapidly with none emerging in full sunlight in the fourth or fifth years although a very few seedlings of legumes and *Sida acuta* emerged under shade in the fifth year. *Sida acuta* and leucaena were the most persistent, grasses the least.

Growth and persistence of 17 medic (*Medicago* spp.) accessions on clay soils in central Queensland—by Maurie Conway, Neil Brandon, Bob Clem, Dick Jones, Brain Robertson and Jacqui Willcocks, on pages 226–234.

Medics are useful legumes clay soils in southern Queensland but become less persistent and productive further north than the Darling Downs. In an evaluation in marginal sites (Mundubbera, Biloela, Theodore and Emerald), some barrel medics (such as Caliph and Parabinga) persisted but a button medic (SA8460) produced plenty of seed which persisted longer than the others.

Relay seeding forage species in rice systems in Bhutan—by Walter Roder, P. Wangchuk, S. Thsering and T. Gyeltsen, on pages 235–240.

Soil fertility is a major constraint in rice production in the mountainous regions of the Himalayas. Integrating forage legumes could help sustain rice yields and diversify production.

Legume seed was broadcast 40 days before, 20 days before and after rice harvest. This relay seeding is possible with water management and planting date. It is not successful in fields with standing water or where water is drained immediately before harvest. *Chamaecrista rotundifolia* was best at lower elevations (300 m), with hairy vetch best above 1000 m.

The response of *Stylosanthes hamata* cv. Verano to applications of sodium and chloride—by K. Betteridge and Ray Jones, on pages 241–245.

Generally, the negative effect of combined sodium and chloride as salt (NaCl) was greater than the effects of either individually, although chloride has a greater effect than sodium.

Salt had little effect on plant height but reduced leaf and flower number. Root weight was reduced by 30% at the highest rate of NaCl.

Whereas Townsville stylo is sensitive even to the chloride in fertiliser potassium chloride, Verano appears more tolerant of moderate salinity.

Effect of pasture production systems on milk production in the central plains of Thailand—by S. Tudsri, S. Prasanpanich, S. Sawadipanich, P. Jaripakorn and S. Iswilanons, on pages 246–253.

Cows receiving leucaena or lablab with ruzi grass produced more milk and a higher fat percentage, but the systems did not affect composition in other ways. If the animals received concentrate at 4 kg/cow, pasture production systems had no effect on milk production.

Tree legumes with grass or pure herbaceous legume sward next to grass pastures can support satisfactory economic milk production, although perennial legumes are needed to reduce the costs of replanting.

Something lighter

A grazier from the far north was in court charged with cattle duffing. The jury consisted of other local graziers who had all done a bit of duffing in their time, and the accused was a drinking mate at the local pub.

So, when the judge sent the jury off to consider their verdict, their deliberations took about five minutes.

The clerk of the course asked, “Have you reached a verdict?”

‘Yeah,’ said the foreman of the jury.

‘Do you find the defendant guilty or not guilty?’

‘We reckon he’s not guilty, but he’s got to give the cattle back.’

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TGS news & views

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