Tropical Grassland Society of Australia Inc.

TGS news & views

about pasture development in the tropics and subtropics

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Whither or wither?

The future of our society is a question that has arisen many times in the past few years. We have had workshops and discussions of the subject in the Executive Meetings and it has come up in the newsletter and AGMs.

So whither do we go, or do we just wither away? Are we relevant any more? Is it worth $50 membership each year?

Dr Max Shelton is the Chair of our subcommittee on the future, and his report is given on page 4.

We have looked at amalgamation with other societies that are in similar positions but each of us is unique. The Tropical Grassland Society is concerned with all types of grazing, mainly improved but also native; it is concerned with animal production from tropical and subtropical areas in Australia and also across the world. It is this pan-tropical aspect that is so different from the other Australian societies for rangelands and for animal production.

The Rangeland Society of Australia is national but with a focus that is towards conservation and social aspects more than production. Our improved pastures species are probably an anathema to many of its members.

The Australian Society of Animal Production is now focussed on ruminants rather than pigs and poultry, and much of their work with feeding could well be relevant. That society is also having problems similar to ours and there could be opportunities for cooperation. But ASAP is a national society with state branches. While the Queensland Branch is close to us, their administration circulates from state to state.

ASAP runs a very good conference every two years but has no newsletter. TGS has a conference nominally every 5 years but has our newsletter. There's room for cooperation there.

Our biggest cost is our flagship journal with editing, type setting, printing and distribution. Putting the journal on the Web only would save the costs of printing and mailing but not editing or typesetting. And what about the submitted papers? There are fewer and fewer pastures researchers in Australia as they retire from CSIRO and DPI. Active researchers do not submitted their papers to TGS because we are too low on the 'citation index' for their progression. Most of the papers submitted now are from overseas. These may be relevant to those working overseas but rarely to Australian readers. But the overseas authors are rarely paying members of the society, so it is the local members who are subsidising the journal for overseas workers. That might be fine for a federal aid program but not really for the working farmer or scientist.

So please read the report on our future on page 4 and send us your comments. The topic will come up for a vote at the AGM and if you are unable to attend, we need your input.

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Society News

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The newer look—News & Views in colour. I received feedback from only two members; one thought that full colour was a great improvement, the other didn't. So the decision may best be made issue by issue. Full colour when the images are improved; 2-colour when greyscale photos are adequate.

The Journal archive

I've had a lot of trouble with the archive over the past months and you may have noticed that abstracts or papers were sometimes not available. We offer our apologies. For the more computer literate, the problem arose when our Internet Service Provider switched to a new server with a Linux OS whereas the previous server used a Windows OS. Linux is case-sensitive and a lot of our files from the typesetter had mixed case titles. The name in upper case with the suffix lowercase. The result was that all the links between the Volume number menu and the abstracts and full papers were broken.

In addition, I lost all access to the site and haven't been able to keep it up to date. I think some of it is working now.

Your Executive for 2006

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43rd Annual General Meeting

The 43rd Annual General Meeting will be held on Thursday 30 November **2006**

at

DPI&F Mutdapilly Research Station

9.00–9.45 am Mutdapilly Station inspection for anyone interested in looking over the Station and Ryegrass Cultivar Screening experiment.

9.45 a.m. Arrival and smoko

Tropical Grassland Society of Australia Inc.

10.00–12.00 a.m. Annual General Meeting

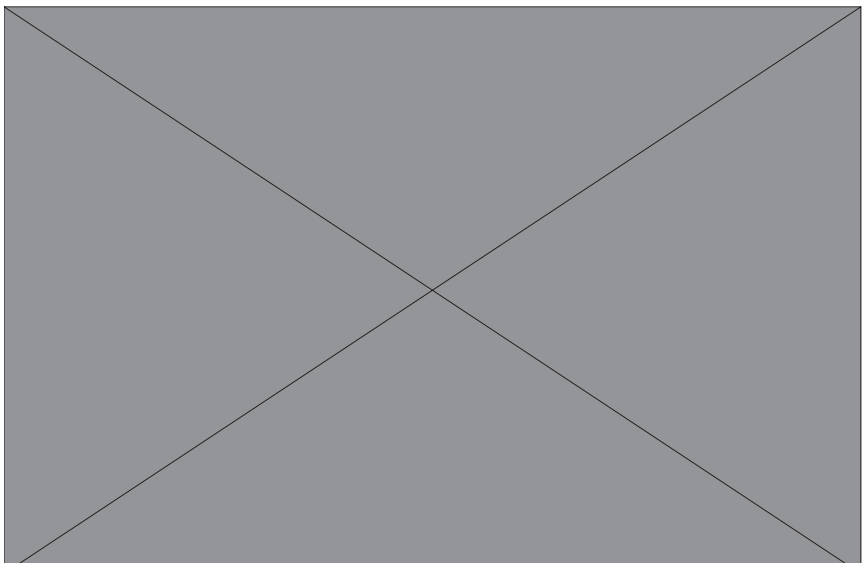
Agenda

1. Apologies
2. Minutes of the 42nd AGM held near Gympie
3. Executive Committee Report
4. Treasurer's Report
5. Journal Editor's Report
6. Newsletter Editor's Report
7. Harry Stobbs Memorial Fund report
8. General Business
9. Election of Office Bearers
10. Presidential Address

12.00–1.00 p.m. Snack lunch at Mutdapilly Research Station (morning smoko and lunch for $12.50)

1.00–3.00 p.m. Visit McInnes Brothers dairy farm at Harrisville. Ross or Duncan will discuss their forage program which has changed from being largely pasture based to have a greater emphasis on cropping/double cropping and silage.

RSVP for catering purposes to Julie or Sandy at Mutdapilly Research Station on 07 54 64 8777



Our future?

At the 2005 AGM, there was discussion of the future of the Society. Issues of concern were: declining membership, inability to balance our books leading to a slow 'bleeding' of the Society's reserves, declining interest in publishing in the Journal by Australian researchers (the majority of journal papers are from overseas authors), difficulty in recruiting young people interested in pastures into the Society. This latter problem is concerning given that the livestock industries are generally strong and there is resurgence in interest in the planting and management of improved pastures in Queensland.

A sub-committee was formed and charged with the duty of investigating the problem and then to make recommendations to members at the next AGM scheduled for the end of November 2006. The Committee asks that you carefully consider the following observations and suggestions and respond to the committee preferably before by the AGM on 30th November.

1. It was agreed that we cannot continue as we are as the Society lacks direction, focus and energy and if we remunerated key individuals appropriately e.g. the Editor of the Journal, funds will be gone in 3-5 years. A new direction is required. The problem is not isolated to the TGS. For instance, the Australian Society of Animal Production (ASAP) is facing the same issues. Your subcommittee has liaised closely with ASAP and some of the recommendations given below involve closer links with this organization.

2. It was agreed that TGS needs to 'reinvent' itself to survive. This will require a new focus with the hope that this will generate the new enthusiasm and energy needed. Key objectives of a successful refocus will be to:

a. Achieve greater relevance of the Society to the changed environment in which we are now working e.g. stronger industry, land care and catchment focus.

b. Attract younger practitioners and professionals into the Society

c. Ensure that TGS publications have greater relevance. This requires greater emphasis on information written in attractive more readable, interesting non-scientific format. This approach is in keeping with the original concept of the Society which was never intended (by the founders) to cater just for scientists.

d. Sponsor interesting and relevant events

3. Accordingly, it is recommended that the Journal be terminated (in an appropriate time frame) and the Newsletter be upgraded to become the 'flagship' publication of the Society.

a. Too few Australian scientists are contributing to the Journal, and declining interest makes it difficult for Journal to survive except with overseas contributions. This means that Australian members are subsidizing the publications of overseas scientists.

b. Under revised guidelines for publishing scientific papers, the principal research organizations (CSIRO and Universities) do not recognize the Journal as its citation index is too low. We are being asked to publish in Tier 1 journals where possible, and funding of groups is linked this to publication standard.

c. There are several alternative Journals for publishing material e.g. AJAR, Agroforestry Systems, Biennial ASAP Conference published in AJEA.

d. The subcommittee did agree that agencies such as ACIAR and AusAID would be contacted to see if they were willing to subsidize the costs of retaining the Journal as a vehicle for the publication of the research of OS scientists. We are not confident that they will agree but we will try.

4. It was also agreed that the Newsletter be upgraded to service TGS, ASAP, The Leucaena Network (LN), seed industry, Landcare and catchment groups while retaining identity of each organization.

a. There was general agreement that the current TGS Newsletter is widely respected and should be accessible for articles from ASAP, TGS, LN and industry groups. This would create more work for the editor Ian Partridge but he may be pleased if there is additional more interesting copy available. It will be necessary to recruit a number of

people to assist Ian with editing and obtaining relevant copy.

5. Increase our membership by improving our appeal to new groups

a. The current membership is static or declining. There is opportunity to seek industry involvement especially new members and the involvement of seed industry, catchment and land care groups, if we can be more relevant.

b. The administration of our membership records should be contracted to one person who could simultaneously look after membership databases for cognate organizations e.g. ASAP and LN to improve efficiency and reduce costs of membership administration.

c. We need an appropriate fee structure. The current structure of $50 for Newsletter and $75 for Newsletter plus Journal is not sensible as Newsletter members subsidize Journal members. We suggest a new subscription fee for all members to cover the cost of administration and 3 or 4 Newsletters per year.

d. Link with all of the various groups mentioned to run field days, mini conferences or short courses from time to time.

6. Your response to these suggestions is sought. Please email your suggestions and responses to m.shelton@uq.edu.au The recommendations will be put to the AGM in November.

Max Shelton
Chair, subcommittee on the future of TGS
October 2006

Tropical Pastures Conference 2007

Date claimer 11-12 April 2007 at Dalby

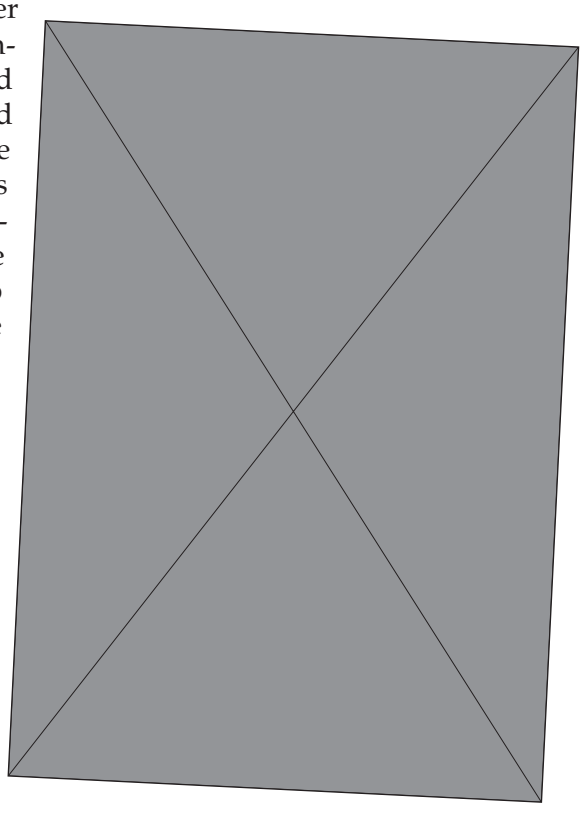
Over the years, the TG Society has organised the Australian Tropical Pasture Conference about every five years, rotating the venues around the state.

Thus the last conference was held in Emerald in central Queensland in 2000, the conferences before that were in Atherton in the north and before that in Toowoomba.

So it is the time for the south to host the next conference in April 2007.

The overall theme of this conference is somewhat similar to that in Emerald in that we will be describing and discussing ***Pastures for Protection and Production in the marginal cropping lands***.

There is a large effort in southern Queensland to restore productivity on the marginal lands. In some upland areas of the Darling Downs, land has been cropped for annual forages for decades. The topsoil has been lost along with fertility and organic matter; grass and broadleaf weeds are abundant. Farmers are now being encouraged to sow permanent pastures to restore the fertility and to improve water quality in the catchment. Elsewhere, land that was converted to cropping over the last few decades has shown marginal reliable potential; the climate may be too unreliable or there are sodicity sub-soil constraints.

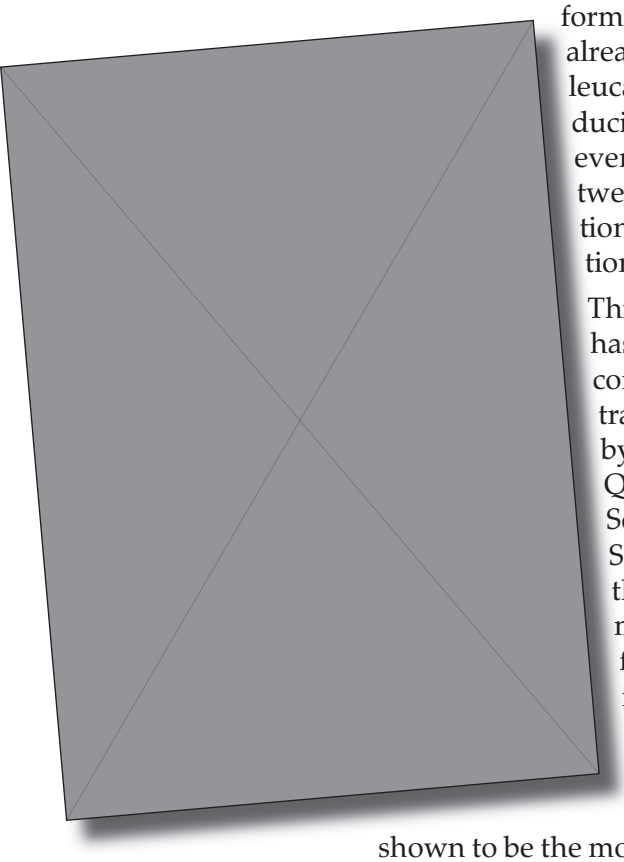


We will be trying to change the emphasis of this conference towards the practical side. What can producers do and how can catchment and Landcare groups help them with technical support.

Mark it in your diary.

Establishing and managing leucaena

A new book ***Leucaena: a guide to establishment and management,*** just launched by the Chairman of MLA, will be invaluable for anyone considering planting leucaena. It is also full of technical information for those who already have paddocks of leucaena which are producing well but could be even better with some tweaking to plant nutrition or rumen inoculation.



This MLA publication has been based on the content of the leucaena training course run by the University of Queensland under Scott Dalzell and Max Shelton. It combines the experiences of many producers with findings from research into recipes for success.

Leucaena/grass pastures have been shown to be the most productive sustainable grazing system for beef production in northern Australia. There are cases documented of steers gaining 357 kg live weight per year (almost 1 kg/day right through the year); other examples have shown production of more than 1000 kg/ha/year off irrigated leucaena.

Leucaena can be highly profitable for decades but it is expensive to establish. Do it right and leucaena paddocks will keep on producing for more than 30 years. Do it on the cheap and the results can be disappointing for the life of the stand.

The keys to long-term productivity and profitability lie in successful establishment and subsequent management. This book provides guidelines for establishing and managing this tropical forage tree legume.

The guide has chapters on

- the benefits of growing leucaena
- establishing the plant
- managing the plant
- grazing management
- costs and returns
- leucaena and the environment.

Appendices provide information about the Leucaena Network and its Code of Practice, and detail the current government policy to reduce the weed threat of leucaena.

The book could also help to change the attitudes of conservationists who regard leucaena only as an environmental weed without understanding the environmental benefits.

This 76-page full colour publication is easy to read and is illustrated with more than 100 photographs and diagrams.

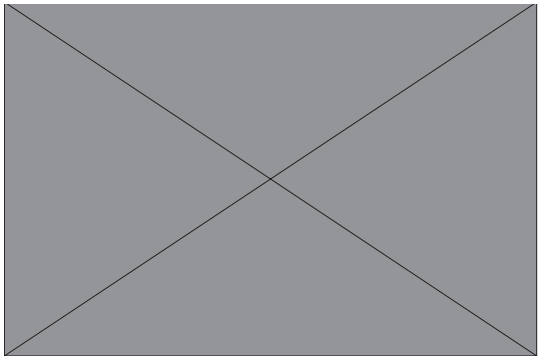
Copies are available for only $30 from TGS Book Sales or from MLA Brisbane (phone 1800 675 717; option 3).

For TGS sales, phone Cam McDonald on 07 3214 2289, or email to Cam.McDonald@csiro.au

Don Heatley, Chairman of MLA, receives a copy of the leucaena book from authors Scott Dalzell, Keith McLaughlin and Max Shelton, while Peter Emmery looks on.

Leucaena Network Conference

The Leucaena Network had its AGM and conference on 13th and 14th October just outside the Carnarvon Gorge at the Takarakka Resort. It certainly was an unusual spot for such a meeting and must have meant a lot of work for the local helpers because the normal resources are a long way away. But all went well and the 60-odd participants enjoyed the time and absorbed much new information. The on-going drought led to a large number of apologies from members too tied up with feeding and watering stock. The meeting was held in a large marquee and excellent meals provided by the local school Parents & Citizens group.



Members of the Leucaena Network discuss progress by Scott Dalzell in breeding psyllid-resistance.

Saturday morning and part of the afternoon was absorbed by the Network AGM (details will come from Keith McLaughlin), with technical talks from the university researchers, Max Shelton and Scott Dalzell.

Leucaena hits on Google

One of Max's comments concerned the world-wide interest in leucaena as seen through Google. The word 'leucaena' has received almost one-third of a million hits, with most of this from an environmental aspect. Typing the word Luecaena plus a modifier showed:

Leucaena + environment = 134,000 hits
Leucaena + invasive weed = 75,000 hits
Leucaena + drought = 51,000 hits
Leucaena (Spanish/Portuguese) = 68,000
Leucaena (Indonesian) = 12,000
Leucaena + Code of Practice = 221 hits
Leucaena + Network = 83 hits

Positive forces

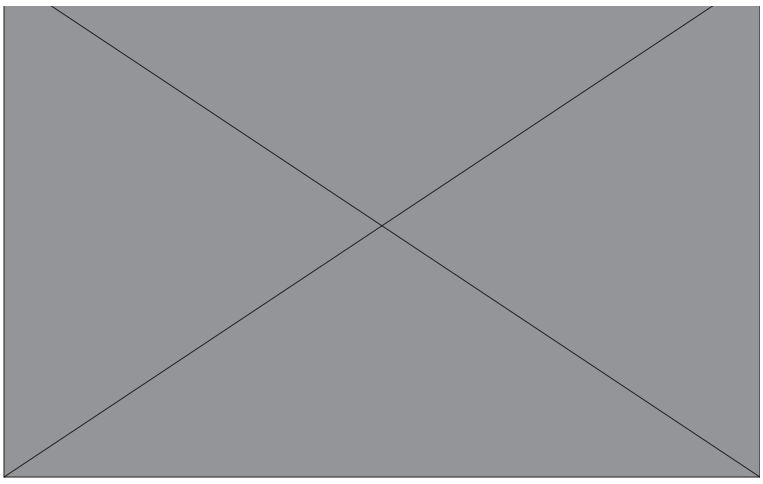
There are about 150,000 hectares under leucaena in northern Australia at present but this area could increase to half a million hectares over the next decade. This is aided by good returns from beef and unreliable returns with dryland cropping; also land is now so expensive that it is more profitable to improve production from existing paddocks rather than to buy new property.

Precautionary Principle out?

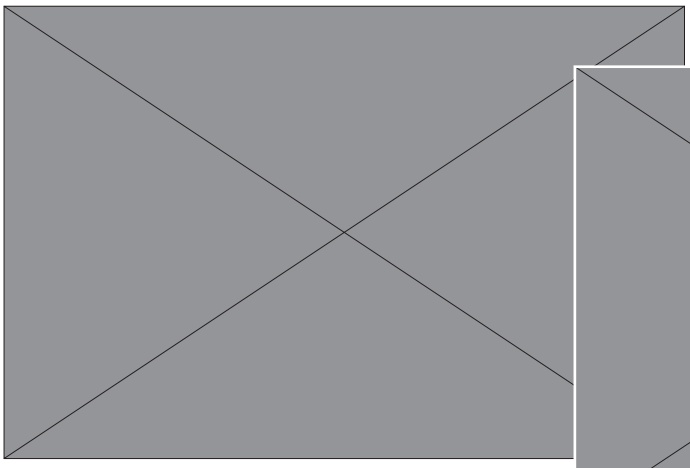
As regards the weed threat, much policy in Australia has been made on the 'Precautionary Principle'—if there is a remote possibility that something might go wrong any time in the future, development should not proceed. This has been a recipe for stifling any progress and the Weed CRC is now starting to assess development on a cost/benefit basis. Leucaena has many production benefits but also environmental benefits that are slowly being recognised; these include reduction of salinity, drought mitigation, water quality, carbon sequestration and methane reduction.

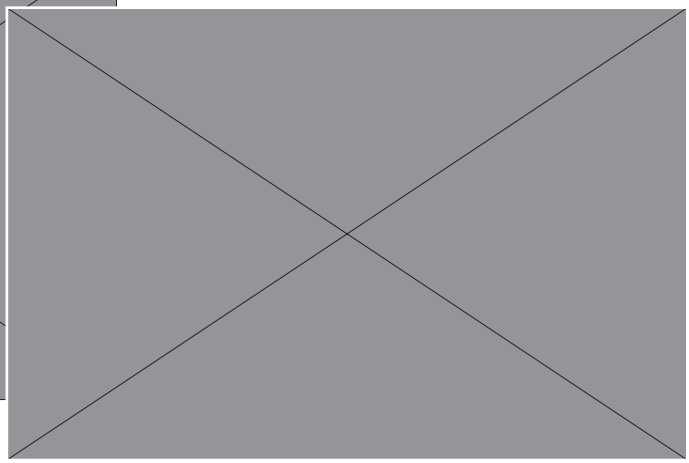
Scott described the program for breeding psyllid resistance and yield, and for sterile lines for reduced seed production and for wood.

Peter Emmery presented figures for carbon sequestration in stems and roots and for methane reduction from higher quality diets and higher growth rates of cattle.



Lactating cows are very effective at pulling down tall leucena stems.





Lack of rainfall over the last 6 months raises the dust but does not stop the steers growing on leucaena.

No infinite sustainability

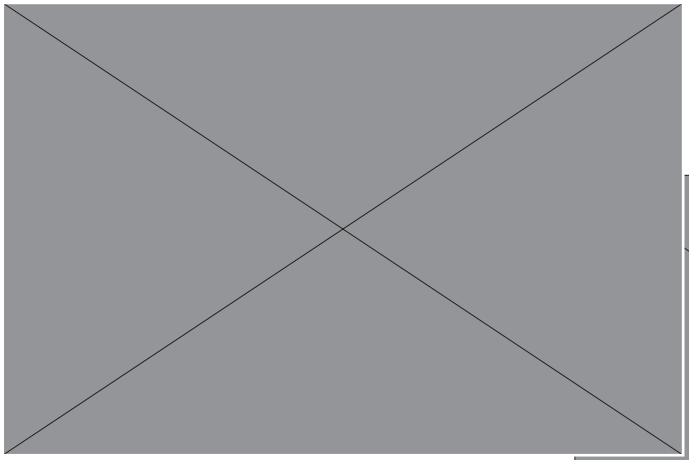
Alex Radrizzani, a PhD student at UQ, comes from the dry Chaco region of Argentina. His research here is looking into ways of sustaining protein production in aging leucaena. A decline in vigour over the decades is associated with lowered levels of phosphorus and sulphur in the leaf. Under leucaena's high productivity, considerable quantities of phosphorus and sulphur are removed each year and nutrient deficiencies can become important, especially on land that had been intensively cropped for many years. It might be necessary to apply a maintenance dressing to P and S periodically—no highly intensive form of production can be sustainable indefinitely without some inputs.

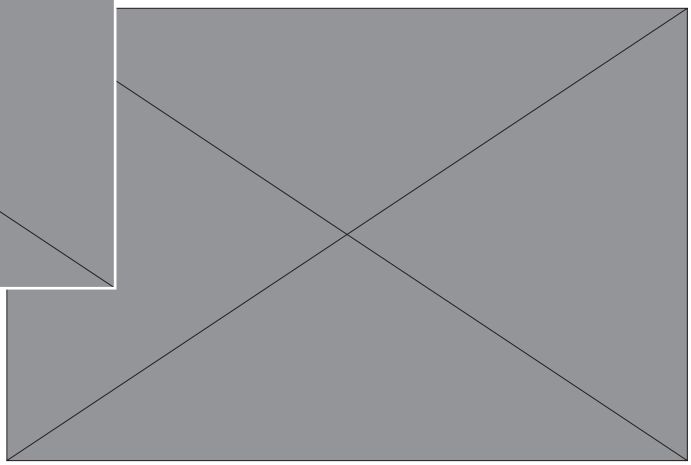
MLA relies on 'trust'

Don Heatley, Chairman of MLA and a grower of irrigated leucaena in the Burdekin, was the speaker at the dinner on Friday night. Don described the position of Australia as a beef supplier on the world market. Australia's position is unique because of the trust that the purchasing countries have in our industry both commercially and because of our livestock identification scheme (NLIS). Don then launched the new MLA book *Leucaena; a guide to establishment and management*.

Wasting protein

One story that is emerging in paddocks with vigorous leucaena is that cattle need about 35% leucaena in their diet for optimal growth. But the legume is so palatable that cattle eat more than this in summer. The result is that the excess protein is de-aminated to provide energy and is wasted. Not only is this biologically inefficient but excessive intake can result in the leucaena stand not having enough





The grass is brown but the leucaena is green.

Frosted leucaena is regrowing from the base, unfrosted has leaf up the stem but may be flowering.

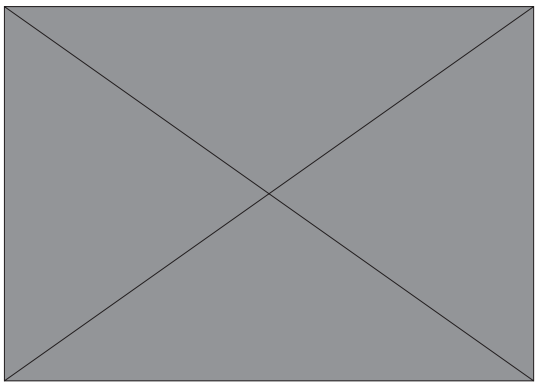
leaf later into autumn when the quality of the grass is declining quickly. This inbalance may be controlled by grazing management or by supplementing with high energy rations for maximum growth.

Add energy for XS protein

Dr Jim Wade, animal nutritionalist, described some of his findings and calculations in feeding high energy rations such as alkaline-treated grain, hay, silage and straw to stock on high leucaena diets. To many in the audience this information was new and it was well received.

Brown grass or soil, green leucaena

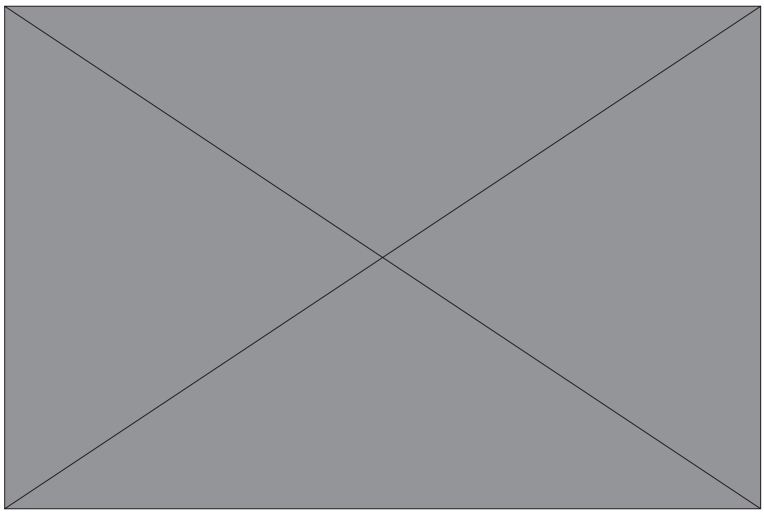
The rest of program was devoted to field visits. The district around Carnarvon has some of the oldest commercial plantings of leucaena in Queensland. These included paddocks of Grant Reivers at Rewan, Brian Burton, John O'Neill at Nyanda and Wally Peart at Sunnyholt in the Arcadia Valley.



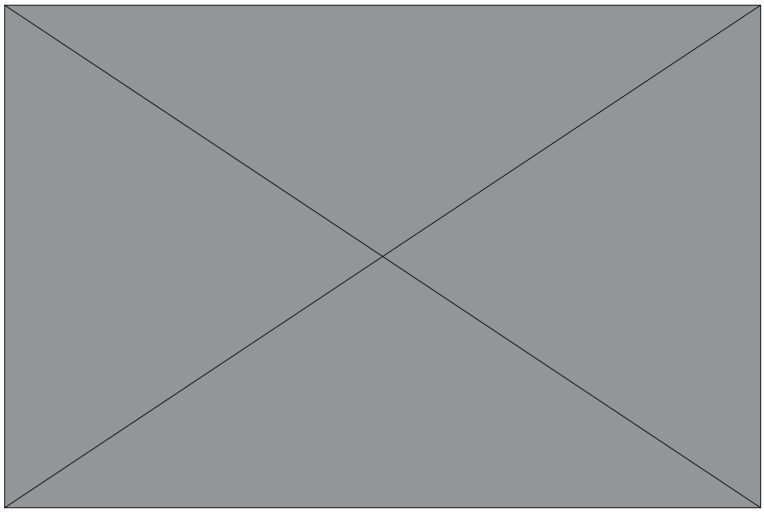
John O'Neill, one of the first commercial leucaena growers in Queensland, discusses a point with Don Heatley, Chairman of MLA.

The whole region has received minimal or zero rain since at least April and all grass has either been eaten or is totally frosted and hayed off. It was thus very impressive to see so much green leaf on the leucaena in paddocks of brown grass. Leucaena plants in frosted paddocks were sprouting from the base; unfrosted stands were up to three metres tall and covered with leaf—or less desirably by flowers on the older Cunningham and Peru plantings.

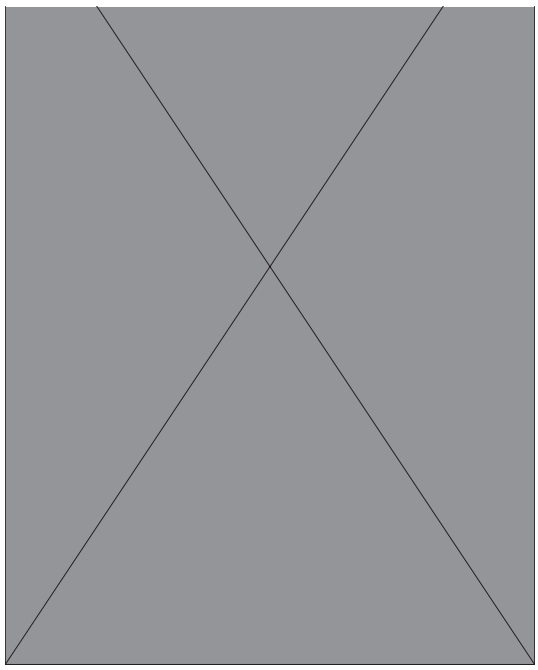
Brian Wehlburg described the cell-grazing management of Wally Peart's leucaena on Sunnyholt before the program finished with lunch in the Peart's prize garden.



Speargates onto water outside the leucaena paddock make mustering and moving steers easy.



The Leucaena Network presented a clock made from leucaena wood to Col Middleton, formerly with DPI&F, for his work during the establishment of the Network. From the left: Keith McLaughlin, Col Middleton, John O'Neill, Peter Emmery



Wally Peart's garden sculptures overlook cell-grazed leucaena paddocks and Castle Mountain above the Arcadia Valley.

Stylos fatten Laotian pigs

We need to appreciate that farming in South-east Asia can be very different to farming in Australia.

Over the last 10 years, CIAT has introduced a range of adapted forage grasses and legumes for feeding ruminants in Laos, but farmers tried feeding some to pigs, poultry and herbivore fish. And they found that pigs did well on stylo leaf thanks to improved protein (and amino acids) in the diet.

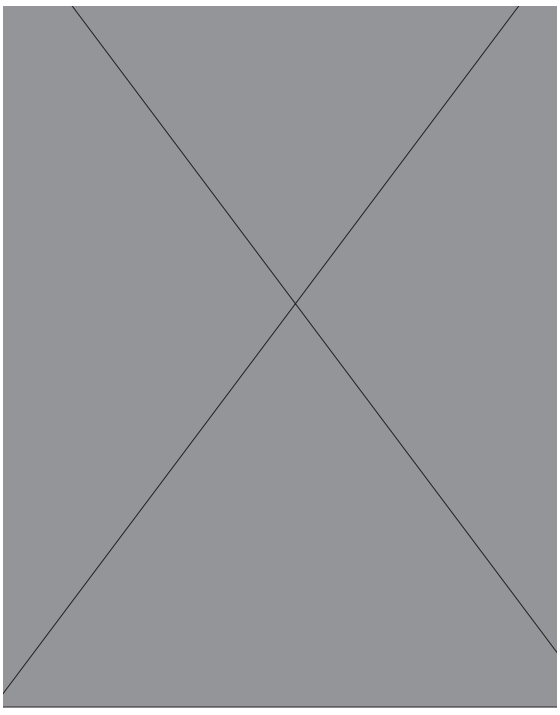
John Connell of CIAT looked at a case in Pik Noi village near Luang Phabang.

10 months to fatten

Mrs. Phao Kai saw an opportunity for fattening pigs for market. She started buying young pigs, weighing about 20 kg, from other farmers and fattening them on wild water yam, leafy plants collected from the hills and rice bran. But this took her 2 to 4 hours each day and it took 10 months to fatten a pig to a marketable weight of 60-70 kg. To save her labour, she planted plots of *Stylosanthes guianensis* 'Stylo184' and sweet potato near her pig pens.

... but only 5 months with stylo

By feeding the pigs with legume leaf and with sweet potato tubers and vines, she found that she could now fatten a pig to 60 kg in just 5–6 months, and could manage to feed a batch of 6 pigs at a time instead of two. With the shorter fattening time, she can fatten two batches of pigs a year and so sell 12 each year.



Village pig production in Laos

Now the whole village has changed from pig raising as a sideline to a profitable enterprise. Of the 65 households in the village, 16 have planted'Stylo184' and other feeds to fatten pigs.

Feeding young pigs with 'Stylo184' and sweet potato halved the time to marketable weight.

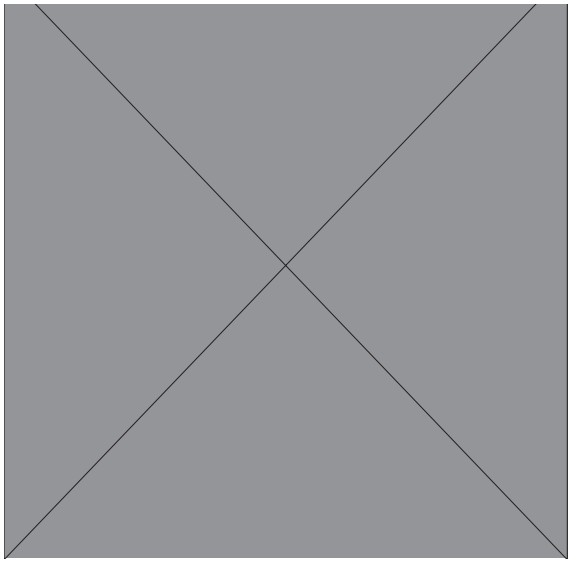
Expanding practice

A recent survey of 30 pig farmers in 11 villages in northern Laos found that growth rates of their pigs doubled from 100 g/day on traditional feeds to 200 g/d when supplemented with 300 g fresh 'Stylo184' leaf. Their pigs fatten in half the time and the labour demand for cutting feed dropped from from 90 minutes a day to 20.

Most farmers feed the stylo to their pigs fresh but some produce leaf meal for the dry season when other sources of fresh leaf are not available.

Farmers many other regions of South-east Asia are producing leaf meal from 'Stylo184' for use in the dry season

(John Connell is working with CIAT and managing this project in collaboration with the Livestock Research Center of National Agriculture and Forestry Research Institute (NAFRI) in Laos and the Animal Research Institute, Queensland DPI&F.)



Stylo leaf increases the protein level of this pig's diet.

Beware of spin

Richard Silcock (Pasture Agronomist)

I recently came across a website for an organisation called Agrifood Awareness Australia Ltd. They say they are 'an industry initiative established to increase public awareness of, and encourage informed debate about, gene technology'. The two partners, the National Farmers Federation and the Grains R&D Corporation (GRDC), put out a number of bulletins and a recent one caught my eye. Entitled '***Stocktake: GM Pastures***' Bulletin 19 of July 2006 features 'information on genetically modified (GM) pasture research underway in Australia and New Zealand'.

'25% increase in milk yield'?

One of the first items was about a Victorian professor who 'predicted a 25 percent increase in milk production if a high digestibility perennial ryegrass, developed using gene technology, is utilised in the future'. To me that is a big call, especially as perennial ryegrass is already one of the most digestible grasses around. My experience is that such increases in biological production are unlikely to be achieved from changing a single biological variable. Big potential gains often prove very difficult to sustain in the modern world where environmental and ethical behaviour trade-offs are not taken lightly. Later in the bulletin, the increased digestibility is said to be gained by altering (reducing presumably) lignin production. One can only imagine what the faecal consistency of animals on such a diet might fine down to.

My scepticism is based on things that began in my student days when the C_4 pathway for photosynthesis was discovered, and predictions were made of significant potential benefits because the reason for the exceptional growth rates of maize and sugarcane were understood. After a decade of detailed research into that new biochemical pathway, in which Australia played a leading role, Roger Gifford wrote a review (*Aust. J. Plant Physiol.* **1:**107-117, 1974) of the significance of C_4 photosynthesis. My summary of his findings was that the large difference that existed between C_4 and C_3 photosynthetic rates under ideal conditions at the chloroplast level were steadily diluted as the products were assimilated at the leaf level and even more at the plant level and further still as production progressed towards the bin of the header. There were also potential benefits in water use efficiency but a downside in the ability to profit from higher atmospheric CO_2 levels (not an issue in the 1970s).

What was also clear was that growing maize in northern Europe was unlikely to revolutionise world corn markets any more than attempts to grow huge amounts of barley in equatorial regions of the world would threaten European brewers. So I am most sceptical that fiddling with the lignin synthesis of ryegrass will result in a 25% increase in milk production by cows.

GM – safe or not?

There was then a second item in the same bulletin that perturbed me. It was about the limited commercial release in the USA of a herbicide-tolerant GM lucerne and a high lysine GM corn. For both, there was the usual list of potential benefits that such plants offer. For me the alarming bit was that the release would be constrained '*until import approvals have been granted in key export markets.*'

Why would approval from overseas markets be so important for crops that are mainstream for the domestic rural industries of the USA? If they are so good, so safe and so advantageous to animal production, why are export licences (type and product unspecified) so critical to general release in the USA? Only a small proportion of US corn and beef product is exported, so is the hidden message that separation of sources is impossible?

I recommend that TGS members read carefully the information being offered by some GM advocates. Gene technology is producing lots of exciting new insights and possible alternatives, even solutions, to biological problems and constraints. However, let us not allow the 'spin doctors' to bypass good scientific practice and enquiry. Plant breeders have amply demonstrated that human-driven genetic breakthroughs will be either circumvented by Nature or be very costly to maintain, and that the goalposts are always shifting. Let's go for a 5% sustained benefit and bed down the benefits at home before exporting more new technology to others who are incapable of withstanding the propaganda tsunami.

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