Newsletter

Number 48

June 2012

Native Grasses Association Inc

Difference in soil cores taken from under managed perennial native grasses or recently harvested bluegum (Eucalyptus globulus) plantation (lower core)

Photo courtesy Graeme Hand

See inside for the article on "Action on the Ground - Demonstrating practices that increase soil carbon "

www.stipa.com.au

CONTENTS

STIPA is not an acronym. The association was named after the *Stipa* genus of grasses, now *Austrostipa*. One of the *Stipa's* is commonly known as spear grass. At its inception in 1997, the association aimed to spearhead a change in attitude to native grasses. As that change is occurring, Stipa continues to promote the use of native grasses to achieve profit from a healthy landscape.

Stipa Native Grasses Association (ABN 42 300 161 459)
www.stipa.com.au

Chief Executive Officer: Graeme Hand
150 Caroona Lane, Branxholme Vic 3302
M: 0418 532 130
E: graeme.hand@bigpond.com

Chair: Annabel Walsh E: annabelwalsh@moorna.com.au

Treasurer: George Taylor E: gandktaylor@activ8.net.au

From the Chair

Annabel Walsh

Who owns the carbon credits?

Welcome to our Stipa newsletter which will focus this month on the Carbon Farming Initiative and the role that Stipa Native Grasses Association members can play in the management of soil Carbon.

Stipa management systems recognise the importance of native grasses in our grazing and cropping systems and these principles dovetail very well with the government Carbon Farming Initiative.

In this newsletter, Graeme Hand will announce that Stipa has won an Action on the Ground Grant to demonstrate Stipa members' ability to accelerate soil Carbon Sequestration. This contribution to knowledge about how to store and manage Carbon in soils will help to develop clearly understood guidelines for mainstream agriculture to build soil carbon in our farming systems.

The carbon cycle, is as intrinsic to life, as the water cycle, and in many cases is poorly understood. The complex biological processes that store organic matter as soil carbon, can be enhanced at low cost by management of our grazing and cropping systems. The principles are deceptively simple. Firstly we have to create some organic matter by allowing sufficient recovery in our grazing systems and retention of stubble and pasture cropping in our cropping systems. We then need the soil, organic matter, moisture and the right organisms to do their work.

The variation in this process is enormous due to soil history, management actions and climatic conditions. Some soils have reached a tipping point and need a real leg up to grow anything, arid and semi-arid areas need long recovery times.

The skill of the manager is a critical element. Estimating the amount of grazing and disturbance is critical; not enough and you will be losing organic matter to oxidation, too much and you will be depleting the plant's resources to a point where it dies.

The threat of climate change has focused the world's agricultural Research, Development & Extension into developing farming management principles that increase soil carbon in our soils and auditable, creditable methods of measuring these increases. Whether you are a believer in anthropogenic climate change or not, this is a positive development from the climate change and Carbon debate.

There is a considerable amount of territory still to cover to confidently say we have nailed the vitally important aspects of managing and measuring soil carbon. There are also some other questions that need to be seriously thought through before we have a seamless, transparent soil carbon trading system that is healthy and safe for farmers to be involved in. These questions are:

How do we value carbon and

Who owns the carbon to claim the credits.

2007 Mudgee Field trip to Steve Kiss's farm.

Valuing soil carbon at the moment feels as if it's in the hand of the gods but working out who owns the carbon credits is going to create a great debate.

Much of the farming and grazing land in Australia is leased. In NSW alone, 42% is Western Lands Lease. The NSW government may be thinking that they will be reaping the rewards from Western Lands Leases, but it is the management of the landscape that is going to create the increase in soil carbon.

The communities in landscape project, funded by the federal government through the Caring For our Country programme, was a collaboration between, Sydney Uni, Landcare NSW , NSW DPI, Lachlan CMA, Central west CMA, Murrumbidgee CMA, CSIRO, CMN, Greening Australia, NSW Department Environment, Climate Change & Water and Stipa has been a shining light in demonstrating that it's the landscape management that builds the soil carbon, just being the identity that owns the land is not going to build soil carbon.

As the Action on the Ground Project, led by Stipa Native Grasses aims to demonstrate, the seasonal timing of the grazing, the grazing time, the recovery period and animal impact are all factors that will decrease or increase the biological activity in soils which in turn will affect the soil carbon percentage in our grazing systems.

These management decisions dictate the quality and quantity of soil carbon in our soils and heavily impact the cost of increasing soil Carbon.

So we will look on with great interest, as the governance guiding the principles, for soil carbon creation, measurement and trading are established, by the responsible authorities.

I would also like to bring to members' attention that the Australia Rangeland Conference will be in Kununurra WA this year, starting on the 23rd September. Google their website for conference details and registration forms. It is a fascinating part of Australia, with easy access to Darwin from most capital cities and a short flight to Kununurra from Darwin.

Cheers

Annabel Walsh

From the CEO

Graeme Hand

Photo By Lucy Hand

In this report:

- Successful application for the Action on the ground program
- Bengworden (East Gippsland) Caring For our Country Project complete
- Profitability of native grasses in grazing
- Trial of producing the Stipa newsletter in electronic form
- Staff changes
- Future articles

Action on the Ground Project

The Australian Government has recently announced that Stipa has been successful in obtaining funding to run a 3 year project titled **"Soil carbon sequestration through landscape function improvement"**. This project is supported by funding from the Australian Government Department of Agriculture, Fisheries & Forestry as part of its Carbon Farming Futures—Action on the Ground program. This is great news and has provided on going funding to confirm and promote native grasslands as the solution to many environmental problems. The project will be over at least 12 farms in NSW & Victoria. There are opportunities to expand this into other areas and states at low cost if funding from other sources is combined with this funding. If your CMA, NRM board or other organisation is interested let me know.

Project updates will be posted as monitoring and results become available.

Bengworden Regenerating Perennial Grasslands Project

This project in partnership with the Bengworden Landcare Group was to develop management skills to regenerate perennial grasslands (combination of native and introduced perennials). The project was funded through the federal governments Caring for our Country Sustainable

Farm Practices programme. For further details please see article in body of the newsletter.

Electronic Newsletter Trial

Due to the cost of producing a paper newsletter a trial is to be run on publishing an electronic newsletter thus allowing for more frequent updates. If you cannot access an electronic version or would like to go stick with a paper newsletter please let me know.

Profitability of native grasses

Frequently advisors, agronomists and consultants cannot see how native grasses can be profitable in grazing enterprises. The typical comment that I receive is that “unlike your farmers mine have to make money”. I have had a look at what drives profit in a grazing enterprise and will try to show in a series of articles that in many situations native grasses will be equally if not more profitable than re-sowing introduced grasses and plants and cropping.

Staff changes

Debbie Milne has been working part time for Stipa for just over a year but has decided to leave to concentrate with her husband Steve on their own consultancy business "Richmond Hill Agribusiness Pty Ltd".

Debbie said “Steve and I have each just completed some post graduate study (Steve a Masters in Animal Breeding Management from Sydney University and myself a Graduate Certificate in Rural Science (Agricultural Consultancy) from University of New England).”

“We could see a need to assist farmers better utilise the latest technology” she said. “Programs such as ‘Lambplan’ and ‘Merinoselect’ can offer rapid genetic gain and greater profits. Electronic tags in stud and commercial sheep enterprises are also opportunities for better management decisions.” The services Debbie and Steve offer include individual advice, training and data management (Pedigree Wizard and Koolcollect) as well as group based workshops such as 'Ram Select' and 'Bred well Fed well'. For more information call Debbie on 03 55786327 or 0407 724066, or email sjdjmilne@bigpond.com .

I would like to thank Debbie for her work and assistance

Future Articles

I currently have on the list for the December newsletter the following articles: Weaning lambs on native grasslands & Profitability of native grasslands. Let me know if you have any other topics.

Action on the Ground Project

Demonstrating practices that increase soil carbon

The Australian Government has recently announced that Stipa has been successful in obtaining funding to run a 3 year project titled “Soil carbon sequestration through landscape function improvement”. This project is supported by funding from the Australian Government Department of Agriculture, Fisheries and Forestry as part of its Carbon Farming Futures – Action on the Ground program.

This is great news, and has provided ongoing funding (to July 2015) to confirm and promote native grasslands as the solution to many environmental problems, including increasing sequestration of carbon in soil. The project, which is a partnership with Sydney University, will be over at least 12 farms in NSW and Victoria. There are opportunities to expand this into other areas and states at low cost if funding from other sources is combined with this funding. If your CMA, NRM board or other organisation is interested let me know.

Col Seis explaining the trial site set up at a farm in North East Victoria, July 2012.

The basis of this project is to use management practices such as modern grazing management and pasture cropping to intensively regenerate perennial native grasses back to high function, structure and diversity on a small area of the 12 properties.

Based on previous Stipa work, the data and information to be collected is expected to show that managing perennial native grasses for landscape function and diversity will quickly improve soil health i.e water infiltration, nutrient cycling and resistance to erosion while increasing soil carbon storage.

Difference in soil cores - perennial native grasses (top) or annual plants

The management will be based on close monitoring to ensure that perennial grasses have fully recovered before being grazed again. Several of the sites will be also treated with an overlay of both winter and summer multispecies pasture cropping. The plan is to use the sites for field days for Stipa members as well as promoting the profitable regeneration of native grasslands and how these grasslands can increase soil carbon and improve soil health.

If you have any questions, please contact me.

Never take advice or Why grazing native grasses is more profitable than re-sowing or cropping.

Graeme Hand

Article 1 Risk & Agricultural Economics

Frequently advisors, agronomists, staff of state departments of primary industries and consultants cannot understand how native grasses can be profitable in grazing enterprises. The typical comment that I receive is that "unlike your farmers mine have to make money".

I am confident that managing native grasses with modern regenerative grazing and pasture cropping is equally if not more profitable than current pasture management and current cropping methods that rely on bare ground between the plants. To justify this comment takes a fair bit of explanation so this will be a series of articles with this first one exploring the impact of risk on agriculture.

The key points below are referenced and supported in the body of the article.

Key Points:

- Much of the discipline of current agricultural economics appears to be unable to cope with the complexity of agriculture and repeatedly fails to take into account farmer risk
- It appears that the main reason for the inability to cope with risk is the static methods of financial analysis
- As much "best practice" advice does not take risk into account. This means that farmers need to trial first to ensure that loss making farming practices are not adopted

Risk

Reports and personal communications clearly show that risk is a major problem for many farmers in terms of advice and designing enterprises. The current static measures of financial performance (gross margins, profit and cash margins) do not allow for risk and almost certainly result in flawed advice and a low level of successful farming[3].
Risk-adjusted cash margins seem to be the only measure which show the long-term, cumulative effects of the enterprise mix on the bank balance[3,4].

The following is a reply from Tim Hutchings who has just completed his PhD on risk in agriculture. I asked about his thoughts on 100% grazing businesses. His final line I found very disturbing.

Graeme,
I purposely restricted my research to mixed farms, where I saw the biggest threat. Hence I did not get lower than 30% crop. My figures show that you can run a relatively risk-free situation with grazing only, so long as:

1. *The fixed and capital costs are low. Both upside and downside variability is less for grazing than for cropping, so it is easy to develop a cost structure which exceeds the income over a range of prices and rainfall scenarios. As long as the costs are low then low-cost farms will have more stable margins with grazing than with cropping, with fewer*

compounding losses.
2. *Grazing enterprises will not support much debt. However, because of the relative lack of risk, and lower costs, grazing farms are less likely to develop large debts.*
3. *Grazing enterprises only work in climates with either extremely low costs (rangelands) or high rainfall areas with low rainfall variability (along the coast). In the latter case these areas both support a. the higher stocking rates needed to cover the fixed costs, b. have fewer droughts, and c. have low feed costs in a drought.*

These conditions lead to the problem that high-cost mixed farms, which need to reduce their exposure to risk, cannot tolerate the risk associated with cropping, and cannot make money by diversifying into the lower risk grazing enterprises. Catch 22. Similarly grazing businesses are unlikely to earn sufficient money to buy extra land, or to finance the loans. Catch 23. Hence farms are unlikely to increase scale by increasing size – in fact the opposite is the case because loans cost 9%, and the purchased land returns <3%. Both these points show that agricultural businesses are now facing a new paradigm ie.
1. Productivity has stalled, because most farmers are achieving close to the practical limits of water-limited potential.
2. Costs are increasing by at least 3% per year (inflation). Because costs and income are about equal, this suggests that productivity will need to increase by at least 3% to match the rise in costs. That is very unlikely in grazing, and almost impossible in cropping.
3. Debt is out of control, because of the cumulative effects of the drought of the last decade. Farm debt has increased exponentially at nearly 9% per annum since 1965, suggesting that few farmers have repaid any debt over that period.
4. Land values are falling, both because of consolidation after the bubble in values in the six years pre-GFC, and because few farmers can afford land because of their high debt. There have only been 3 clearing sales advertised in this area in the past year. We used to see three a month.
As a result of these factors farms will inevitably run out of margin, unless prices increase. I think that cropping farms ran out of margin sometime in late 1990s.
I have discussed all of these issues at length in my thesis, which shows that most dryland farms in SE Australia have unsustainable risks of loss.
Regards,
Tim

The advice presented in many industry publications suffers from this poor understanding of risk as Mark Gardner (Lead coach, consultant and co-owner of Vanguard Business Services, Dubbo, NSW) explains below. I found that Mark's reply may provide hope and future direction for agriculture which I will explore in the future articles.

G'day Handy
Excellent timing.
I reckon we need to shift the thinking on profit. While everyone needs profit to survive and achieve their goals within a triple bottom line context (holistic context) what is killing people is risk.

The models out there for profitability enhancement no longer may be relevant for such a dynamic world in which agriculture is facing. Most of the traditional approaches to profitability enhancement focus exclusively on improvements in production that is, achieving more from a groaning, stressed and declining resource base. The only way that this can be maintained is through an increased level of farm inputs, such as fertiliser, energy, seed, labour and machinery.

This is where the traditional models fall

down; Fertiliser is no longer $280/t, Fuel is no longer 80 c/l, labour is no longer either plentiful or available (or often of the desired quality) and machinery prices are very expensive and the cost of family living and education has skyrocketed. To try and recreate a model of production based on the old model, by attempting to recreate the past, unfortunately may create a failure to achieve any level of profitability, let alone massively increase risk.

The contemporary approaches to profitability enhancement recognise current reality and do not dwell in the past; Commodity prices are not excessive, capital is scarce, stock numbers are low, costs are exorbitant and climate is variable. The managers of the land are tired and stressed and they want an easier, lower stress way of doing things.

They are sick of worrying about the overdraft, the bank manager and their future. They are reclaiming their futures by redesigning their farm business approaches to better suit current and future reality.
Some of the things they are doing are:

1. *They focus on profitability enhancement through smart substitution of high cost technological solutions with lower cost more natural tools, the most powerful of these being recovery of perennial plants through planned grazing management.*
2. *They realise that perennial pastures provide the best way to improve land health and that perennial pastures can be created in a low cost way through contemporary grazing management approaches and smart regenerative land management decision making.*

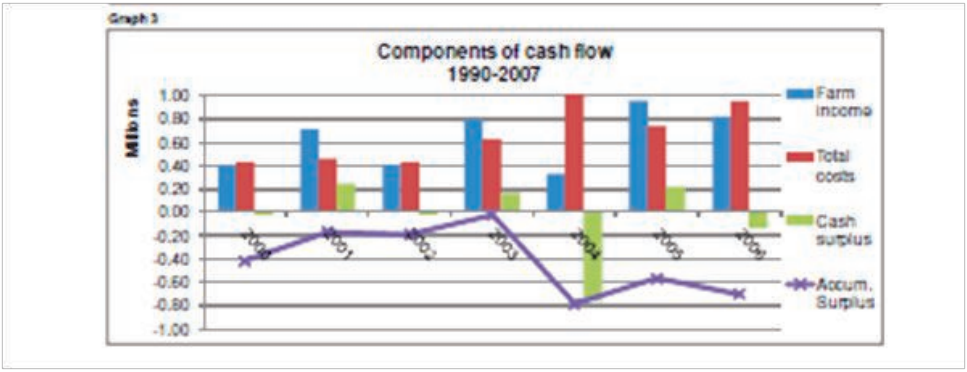
Using contemporary grazing management approaches can regenerate land in a far lower cost way than the traditional methods. A recent industry report indicated that the breakeven point for traditional pasture renovation was some 7 years. Contemporary land managers see this as being too long, too risky and does not compare well with alternative choices that land managers have for their capital, such as investment in low cost electric fencing, livestock or debt reduction. Unless land managers embrace some of the contemporary grazing and land management techniques available to reduce the impacts of rainfall variability; such as ground cover management, reliance on lower cost native perennial grasses with enhanced biodiversity (grow feed when rain falls, regardless of the season), plan their grazing to have a longer recovery period for perennial plants to mitigate against the rainfall variability (min. 120 days preferably longer depending on a range of factors) and are prepared to slightly adjust their stock numbers to match feed ahead. They must Graze Plan to allow feed budgeting to occur, this is an essential part of the new land management paradigm.

Many land managers are finding the productivity increases (income in for cash out) allow them to enter a new paradigm of profitability. This is different to "production increases" which is measure in kg of wool/ meat per ha, with No regard for the costs associated with the production. Understanding this is central to creating a new business model of profitability.

There are real opportunities for branded marketing using natural approaches to land management and many landholders with the skills are taking advantage of these to improve profits. There is a fundamental shift occurring which negates economies of scale, by shifting production into a higher value area. One central west NSW farmer makes more from their 100 goats from 100 acres than they do from the 4000 acres of traditional and well run farm lands. Regards, Mark

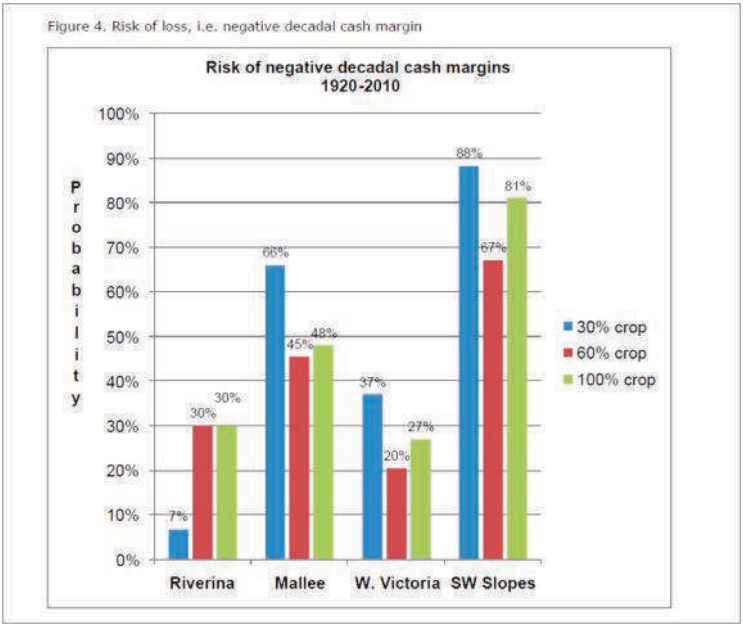
Risk-adjusted cash margins

I found that the graph below gave me the clearest idea of why farming is struggling to be successful. This graph (fig 4.4) from Tim Hutchings PhD is for a northern Mallee farm in Victoria showing that even though the static measures do not appear too bad the cumulative result is a significant decline in farm equity.



Risk of loss

Graph below shows the risk of losing money for mixed farming between 1920-2010. Tim Hutchings highlights that this is most likely understating the actual risk



Source Reference 3

Complexity

It is clear that agriculture is more complex than many businesses and one definition that has been used for agriculture is:

"When there are many complicated decisions combined with risk, uncertainty and social factors the decision is complex not merely complicated"[1]

This is an important point as when making complex decisions there are no right answers[1] and many practices such as fertilizer, herbicide and area cropped have "flat payoff curves" ie very similar profit over a wide range. This means that farmers have a wide margin for error and flexibility to pursue outcomes[2] such as native grassland regeneration and social / community activities.

Conclusion

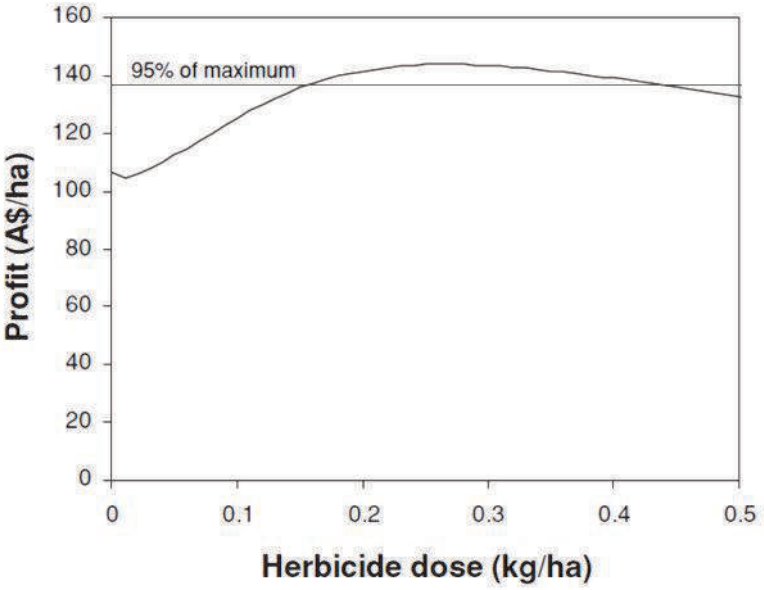
It appears clear that current static agricultural economics and associated "best practice" is leading to poor advice as risk is either poorly understood or ignored.

Trialling, at levels that do not put the business at risk, seems to be the only way to check if a practice will be profitable for you i.e. never take advice check for yourself

In the next article I will explore what practices successful Stipa members are using to reduce and manage risk and "keep more money".

Contact me if you would like to discuss this article further

Figure 2. Profit from wheat production as a function of herbicide dose



Source Reference 2

References:

1. Farm business decision making – how can we help? Nigel McGuckian, RMCG, Bendigo Victoria

2. Flat Earth Economics: The Far-reaching Consequences of Flat Payoff Functions in Economic Decision Making, David J. Pannell 2006, Review of Agricultural Economics—Volume 28, Number 4—Pages 553–566

3. A financial analysis of the effect of the mix of crop and sheep enterprises on the risk profile of dryland farms in south-eastern Australia , TR Hutchings and TL Nordblom, 2011, Charles Sturt University AFBM Journal vol 8 no 1

4. Sense and Nonsense in Dairy Farm Management Economic Analysis, Alexandria Ferris and Bill Malcolm, Department of Food Science and Agribusiness - Institute of Land and Food Resources - University of Melbourne, Paper 31, 29 November 1999

Gecko Clan Field day, near Benalla Victoria . Pasture cropping to regenerate native grasses. (Cols Seis)

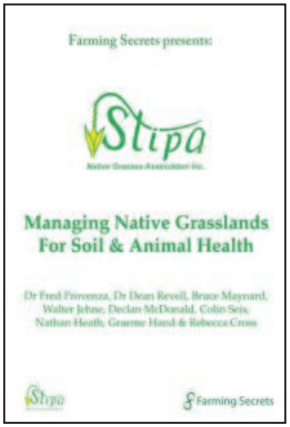
7th STIPA NATIONAL CONFERENCE

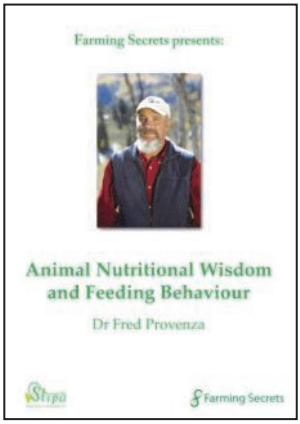
3 Days = 6 DVDS = Over 13 Hours = 9 Speakers

To purchase contact Hugo and Helen Disler on Ph 03 9752 0522 or info@farmingsecrets.com

Are your curious to extend what you are doing?

Have you heard about STIPA Native Grasses Association?
What about Pasture Cropping?
Holistic Management?
Wisdom of Animals in Feeding and Behaviour?
Stress Free Animal Handling?
The Role of Animals in Pasture Biodiversity?
Experiences of Innovative Farmers?
The value of 100s of Australian plants for macro, micro and extra-nutrients?
Building Carbon with Ease





What was your answer? Why do we ask? Because these are all part of the great topics presented at last year's Stipa conference. The Stipa presentations were at once stimulating and provocative with the information which in most cases resulted from 1000's of hours of research, much of it mind boggling and far too much to retain in the short time provided.

Stipa National Conference 2011: - Managing Native Grasslands for Soil and Animal Health

$97 (3 DVDs)

Day 1 & 2 includes presentations from:

Dr. Fred Provenza, Dr Dean Revell, Bruce Maynard, Walter Jehne, Declan McDonald, Colin Seis, Nathan Heath, Graeme Hand and Rebecca Cross and a farm talk from Anna Coughlan. All brilliant!

For instance **Dr. Fred Provenza** showed through studies with shepherds that sheep follow a daily diet if given the choice, **Dr Dean Revell** showed how animals can sense nutrient rich food and **Bruce Maynard** gave examples of grazing strategies to even train animals to eat what we consider weeds. Far too much for me to describe here! It is all captured and presented in this DVD set - 2 days of top research and information.

RRP $97

Animal Nutritional Wisdom and Feeding Behaviour

– Dr. Fred Provenza

$97 (3 DVDs) Includes

The Wisdom Body

Day 3 as well as Fred's 2 presentations at the Stipa Conference.

Fred is a leading authority on animal feeding behaviour and management and has co-authored over 230 papers. For 27 years Fred has been researching and teaching. He provides a fascinating insight into the world of animal and human nutrition. Funny too!

We came away in awe of the members we spoke to and of the work being done which is ground breaking and of interest to all. For more details or to join Stipa visit:www.stipa.com.au

RRP $97

Another Super Special! Buy Both DVD sets For Only $127

Order Now for Delivery after 16th Dec. 2011

Only 200 sets are available at this special price. Don't Miss out!

(Like to give them separately as gifts? Separate cases add an extra $10 Total $137)

Bengworden Regenerating Perennial Grasslands Project

(Bengworden between Sale and Bairnsdale in East Gippsland, Victoria)

This project, which was funded by an Australian Government Caring for Our Country through a Community Action Grant, has now been completed. This project was a partnership between Bengworden Landcare Group and Stipa and involved about 15 farm businesses. The project comprised the following:

- Four workshop days based on using grazing to regenerate perennial grasslands
- Farm visits
- Training in monitoring landscape function and animal health and performance
- Assistance with trial site set up
- Focus on management that controls and reduces African Love Grass

This project was very successful with many of the sites showing large increases in perennial grass

Trial site focusing on decreasing bracken fern (Pteridium esculentum?)

density and diversity. At the same time there were big increases in nutrient cycling through increased decomposition of litter.

An interesting exercise carried out during one of the workshops was answering the question “if your life depended on growing African Love grass how would you do it”?

This was the list developed by the group to grow African Love Grass

Overuse,

- Spray
- Reduce competition
- No litter and overgrazing
- Bare ground all summer
- Warm soil
- Set stock
- Plough

Underuse,

- Low stocking rate – too few animals all the time
- Leave it alone
- Spread the seed around the farm via machinery.
-

Let me know if you would like more details about this project.

Perennial grass recovering sandy hill subject to blowing (sheep).

Treatment 1100 wethers in 1/4 acre (0.1 ha) trial site for 4 hours to create massive change in 12 months

Bengworden Group monitoring site

Increased landscape function on right hand side

Area before grazing – litter not on the soil surface and little carbon cycling

Vibrant regrowth after high animal impact and recovery

Serrated Tussock Control

By Graeme Hand

Further to an article in the June 2011 Newsletter - 'Never eat the weed and always let it seed'.

Barry Hardwick from NRM South (Regional Landcare Facilitator) thought this very dense infestation of Serrated tussock (Nassella trichotoma) may be a good place to work with the land owner to trial the techniques explained in this article. The land owner and Barry were very excited with the early results.

Long term, low cost weed control can only be achieved by displacing the weeds with better perennial grasses.

Overview of serrated tussock - symptom of previous and current management

Perennial grasses germinating between the tussocks

So the problem is really not too many weeds but not enough better or higher successional perennial grasses.

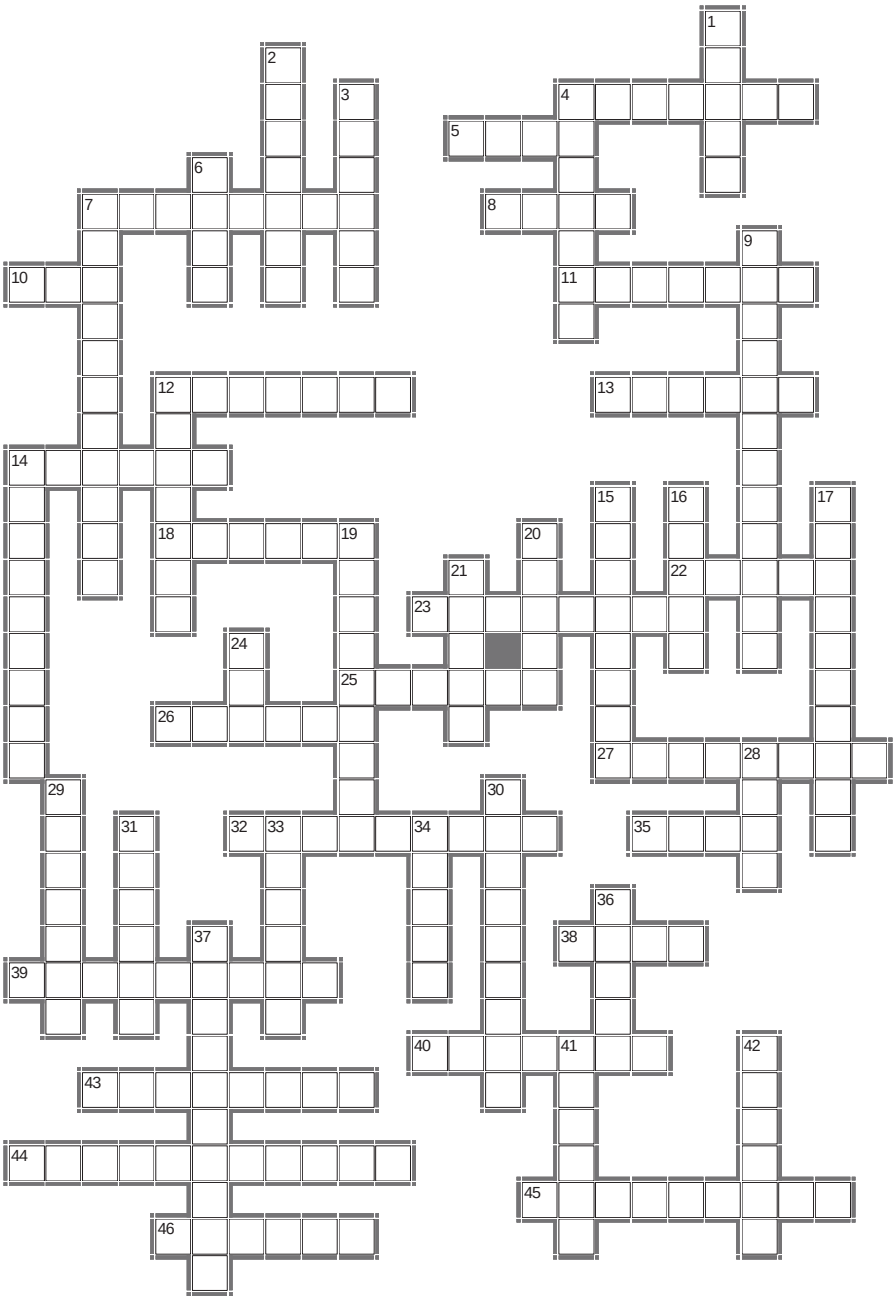
The technique is to focus on creating the conditions, between the tussocks, that promote the germination of higher successional grasses and then allow them to establish by removing animals until the better germinated grasses are fully recovered or contain litter.

This same technique works for all low successional perennial grasses, such as African lovegrass (Eragrostis curvula) & Chilean needle grass (Nassella neesiana) as it creates the conditions for better perennial grasses.

Let me know if this is not clear.

Crossword

Christine McRae



EclipseCrossword.com

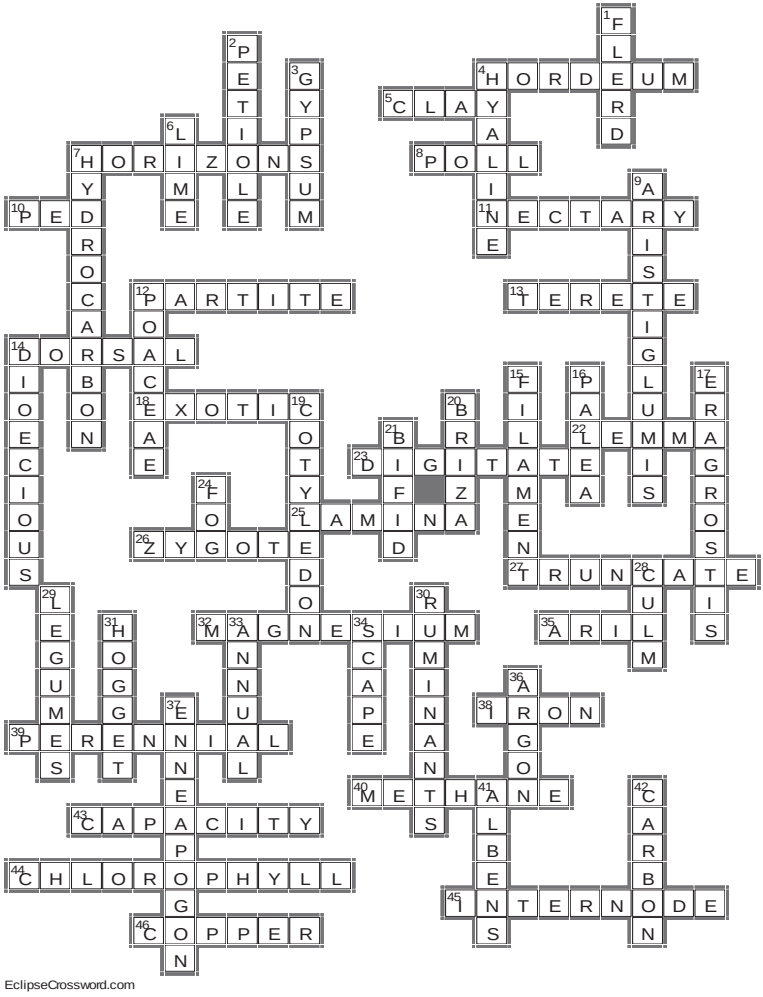
ACCROSS

4. The Barley genus
5. The smallest sized soil mineral particle
7. The different layers seen in the cross section of a soil profile
8. Without horns
10. The basic unit of soil structure
11. Gland that produces nectar
12. Divided into parts
13. Cylindrical
14. At the back
18. Not native
22. The larger and outermost of the two bracts of a grass floret
23. Diverging from a single point, like the fingers of a hand
25. Blade or flat part of a leaf
26. A fertilized egg cell
27. With an abruptly blunt end
32. Mg? a key component of chlorophyll
35. A fleshy, coloured outgrowth from a seed, often attractive to ants
38. Fe
39. A plant with a normal life span of more than two years
40. A topical hydrocarbon
43. CEC, cation exchange .....
44. Essential for the process of photosynthesis
45. Section of stem between two nodes
46. Cu

DOWN

1. Mosely's combination of sheep, cattle and goats
2. A leaf stalk
3. Calcium sulphate
4. Thin and translucent
6. Calcium carbonate
7. A compound of carbon and hydrogen, e.g. Methane
9. Plains grass, Austrostipa .....
12. Corn, rice and bamboo belong to this family
14. Plants with male and female flowers on separate plants
15. The stalk of an anther
16. The smaller, inner bract of a grass floret
17. Lovegrass genus
19. Seed leaf
20. The 'trembling' grass genus
21. Forked into two parts
24. *Holcus lanatus*, Yorkshire ...
28. Inflorescence stalk of grasses and sedges
29. Plants which fix atmospheric nitrogen in the soil
30. Sheep, cattle and goats, for example
31. A two toothed sheep
33. A plant that completes its life cycle in one season
34. Flowering stem of an otherwise stemless plant, e.g. Dandelion
36. A noble gas
37. The nine awn grass genus
41. white box, eucalyptus .....
42. Soil organic .....

Crossword solution



Membership renewals

Please note

Stipa is changing the way they renew memberships. We will endeavour to mail out your renewal tax invoice one month prior to your expiry date. If you would like to renew please mail us a cheque or EFT your membership.

Please remember to make reference on all EFTs and return cheques your INVOICE NUMBER (found on the top of your Stipa tax invoice).

Attention all members

To ensure that you continue to receive Stipa newsletters and updates, please remember to advise us of any change of address.

Also if you wish to receive emails about forthcoming events and other matters of interest, it is important that we have your correct email address.

Contact Stipa

CEO Graeme Hand

Phone: 03 5578 6321 Mobile 0418532130

Email: graeme.hand@bigpond.com

Native Grasses Association Inc.
ABN 42 300 161 489

Stipa promotes and proves the profitable management of native grasses by motivated people in healthy landscapes.

(please keep a copy for your records) TAX INVOICE

MEMBERSHIP APPLICATION/RENEWAL

Name: .....

Company or trading name: .....

Address: .....

.....

Town: ..... State: ..... Postcode: .....

Phone: ..... Mobile: .....

Email: .....

Annual membership (please select one – note that subscriptions include GST):

☐ ACT & NSW $75 ☐ Interstate $45 ☐ Student $30 ☐ Corporate $500

Payment options (please select one):

☐ **Cheque/money order** (to Stipa Native Grasses Association Inc.) for $..... is enclosed.

☐ **Direct deposit**: Deposit of $..... made on ..... (date).

Stipa Native Grasses Association account at Westpac BSB: 032 647 Account: 106 924

Please include your surname in the reference field to help us match your payment to your membership.

Send your completed membership form (with your payment, if applicable) to:
Stipa Native Grasses Association, 150 Caroona Lane, Branxholme Vic 3302

For more information contact Stipa CEO Graeme Hand on 0419 532 120, fax 03 5578 6370 or email graeme.hand@bigpond.com

Stipa Native Grasses Association aims to:
*promote native grass as pasture and for conservation * educate the community about native grasses * document pasture systems using native grass * distribute information to agencies and landholders * network with other groups with complementary activities.

November 2011