

Newsletter

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Action on The Ground field day Thoona near Benalla

Photograph: Jack Hand

Inside: Action on the Ground Project Update;

“Spring spelling” - can we design grazing to always make a profit .

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STIPA is not an acronym. The association was named after the *Stipa* genus of grasses, now *Austrostipa*. One of the *Stipas* 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.

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From the Chair

Annabel Walsh

As I am pulling the words and thoughts together for the 54th Stipa Newsletter, the ABC radio news is my back ground company, it's encouraging to hear on the radio that President Obama is stressing the importance of tackling global warming and the importance of the upcoming COP21 Summit in Paris in November 2015. He talks of global warming being society's most challenging problem in a positive manner espousing hope not devastation.

Just as Courtney White author of 'Grass, Soil, Hope' does in his book at a time when environmental narratives have been gloomy. White's book is a breath of optimism and gives real life and real time examples of agricultural practitioners solving climate, water, food, soil health and human health issues all at the same time by working with a careful blend of science and common sense using perennial grass plants. After so many years of back room nudging by Christine Jones, Darryl Cluff, Wal Whalley, George Taylor, Sue Rahilly, Peter Weston, Peter



Wykes, Jenny Anderson and the untiring effort by Col Seis, all have contributed, through their sharing of their innovation and science, to the content of this book and we are starting to hear some news making headlines that reflect that work of these pioneers in soil health and landscape regeneration. Now that give us hope.

It was this lateral thinking group of people who were the founding members of Stipa Native Grasses Association, with an aim to promote innovation and share knowledge in grazing and cropping systems using the soil biology, native perennial grasses, multi species plantings, livestock and sunlight.

From the Chair

Annabel Walsh

Over the years Stipa aims have been achieved through field days, workshops and our bi annual conference. As mentioned in our last newsletter the field day/ workshop for our action on ground soil carbon project replaced the conference this year but next year 2016 there are preliminary plans to hold a conference in the Canberra/ Albury region and in Adelaide.

As many of you would be aware Col Seis has been collaborating and networking with several American farmers who have been regenerating their farms using adaptive planned grazing, multi species pasture cropping and multi species cover cropping. They have indicated that they would like to visit Australia in the spring of 2016 and they have offered their time to present in-between their touring of our Stipa farmers and sightseeing.

Timing is everything, when Darryl Cluff and Col first presented their innovative farming systems, to agency people and farmers, it fell on very deaf ears but a start had to be made and it must be very satisfying for both Darryl and Col to



observe the quantum leap in uptake that has been made due to the carbon debate. As we all know the best way to increase soil carbon, especially in semi-arid zone, where I come from is to nurture those native perennial grasses in our farming systems. We feel the timing will be just right for Stipa to hold these two proposed conferences next year and when we have more details we ask all Stipa members to help promote this initiative.

And this brings us full cycle back to carbon. We have moved from guessing how a carbon trading system will operate, to an operating system, this system will most likely look very different in 10 years' time but a start has been made and farmers are benefiting. Graeme Hand and I attended the recent National

From the Chair

Annabel Walsh

Carbon Conference in Albury. Michael and Louisa Keily again orchestrated an invaluable insight into the world of carbon, starting with what an Australian Carbon Credit Units (ACCU's) looks like, what counts as a ACCU's in your farming systems, efficiencies, increasing soil carbon, retention of standing timber, and many others. The trading system is at present quite cumbersome and it was advised that one needs an aggregator of broker to assist with your application to bid through the auction system. Jeff Baldock (soils) CSIRO spoke about the difficulties that are surrounding the precise measuring of soil carbon and this backed up Stipa findings in the Action on the Ground Project, Jeff and Graeme had long and meaningful conversations, but we need more productive dialog and collaboration between the sciences and practitioners quickly!!

Again many thanks to Sue and Graeme for their work in pulling the Stipa soil carbon field days successfully together. Graeme will include these details in his report



and our progress with the Mongolian project.

Hope this find you all well and keeping warm and your microbes are multiplying, your grasses are cycling carbon, your protozoa and nematodes are feeding your soils and your mycorrhiza fungi are working to fix some of that carbon in your soils.

Best Wishes

Annabel

From the CEO

Graeme Hand

In this report:

- Action on the ground project finished
- Mongolia Update
- Spring spelling to regenerate grasslands and businesses
- Carbon Conference summary



Photo By Lucy Hand

Action on the Ground Project

This project has been completed and as discussed in the last newsletter produced great farm outcomes in regenerated perennial grasslands and drastically improved soil health but as discussed in the Action on the Ground article these changes were not found in the soil carbon results. See the article for discussion on some of the identified causes of this variation. The field days Thoona, B.raidwood and Gulgong were well attended with lots of questions and enthusiasm

Mongolia Update

Dr Ariungerel Dorjgotov is managing this project in Eastern Mongolia. Ariungerel is a rangeland specialist with Mongolian Ministry of Industry and Agriculture working on the Livestock Early Warning System project. This project involves that forecasts of the likely chance of a

zud or dzud where low feed going into winter (low rainfall) coincides with heavy snow or harsh conditions. Ariungerel has been using the MODIS satellite data to estimate biomass towards the end of the summer and providing a report. The combined abstract for this project has been accepted for presentation at the Dehli, India, International Grasslands Conference, IGC-2015. This paper is based on the Mongolian/ Stipa project: Regenerating the Stipa Grasslands of Mongolia.

Spring spelling to regenerate grasslands and businesses

This article is based on testing a policy to address the problem of below average rainfall springs in South West Victoria. The frequency of low rainfall springs has only slightly increased but low landscape function is amplifying the

impact on profit, landscape health and people's workload.

Carbon Conference summary

Annabel and I went to the Carbon Conference in Albury in July. This conference run by Carbon Farmers of Australia – Louisa and Michael Kiely was a 3 day event including a farm visit and 2 days of presentations. Many of the presenters explained the process of running a carbon project and the need to aggregate groups of farms to reach the minimum amount of CO₂e to be able to place a bid to the Emissions Reduction Fund described as a reverse auction. Biggest issue for me was that the variation in the landscape such as distance to perennials, subsoil variation (old perennial grass islands?), soil types, seasons etc are not yet able to be sorted. See article for the Action on the Ground project for more discussion on this issue <http://www.carbonfarmersofaustralia.com.au/>

Let me know your thoughts on these issues or anything else of interest.

Graeme



Braidwood AOTG site

Photo Jack Hand



Gulgong AOTG site

Photo Jack Hand



*Friends of
Grasslands*

Supporting native grassy ecosystems

Action on the Ground Project

Demonstrating practices that increase soil carbon: Update

Graeme Hand

Key points:

- Soil carbon results over 2 years were not conclusive
- Grassland and resulting improvement in soil health were very significant
- Longer recoveries and high stock density grazing carried average district stocking rates
- Main reason for inconclusive results is believed to be subsoil variation/ patches

The Action on the Ground project has now been completed. This project funded by the Australian Government to demonstrate farming practices that increase soil carbon has provided good results demonstrating that active adaptive management (landscape goal, monitoring and corrective action) of long recoveries combined with high stock density grazing rapidly increase perennial grass density and diversity.

As Wal Whalley stated in his endorsement of the project report:

This project clearly shows that the use of adaptive management coupled with high impact, low frequency (HILF) grazing can result in increases in desirable perennial grass diversity, proportion in the herbaceous vegetation, density, tussock size and biomass production. These improvements were achieved on commercial properties over a substantial area of the mixed farming zone in southern NSW and Victoria without the addition of pasture grass seeds or fertiliser and with or without pasture cropping. Evidence for increases in landscape function and nutrient cycling were obtained using the Tongway Landscape Functional Analysis procedures.

This project also highlighted the sampling problems associated with attempting to obtain evidence for increases in soil organic carbon in the short term in response to management changes.

The trial areas were managed and monitored over a 2 year period and many of the changes were very exciting. This project clearly shows that these changes are a result on focusing on increasing landscape function.

Specifically:

- Perennial grass density with large bases (basal area)
- Decomposing/ composting litter in the inter-tussock space

By creating these conditions with long recoveries and then high impact (see bullet points).

- Recoveries long enough to regrow fresh litter in the base of perennial grasses (generally >6 months) and perennial grass seedlings established
- High impact grazing 70 - 80% green leaf defoliation, at high stock density >5000 DSE/ha
- Making sure that animals do not pick up litter before shifting

This management may not be able to be achieved over a whole property but does provide clear direction to achieve the landscape we need to regenerate Australian biodiversity.

Peter Raynolds from Araluen, NSW is trialling this design over their whole property and at this stage it has lowered risk and stress, increased landscape function (Figures 2&3) and cow health is markedly improved. Peter told me that they have lowered all inputs, especially hay making, and feeding and now have a very stable, moderately profitable business that provides lots of time for outside work and some relaxation.

Peter has systematically worked through their business design and has completed actions addressing the initial weak link in the grazing enterprise which was converting sunlight into grass. This was addressed by enterprise design so that stocking rates can be adjusted at a profit, increasing recovery, adjusting calving times, increased fencing and water development. Now that growing grass is no longer the weak link Peter is now looking at cattle phenotype to boost stocking and growth rates on fully recovered perennial grass. Marketing will be addressed next.

Action on the Ground Update from page 9

Figure 2&3 Reynolds, Araluen 6/8/2015 Photos Peter Reynolds



Excellent ground cover, plenty of litter for building landscape function and increasing stability, water infiltration and nutrient cycling through promoting conditions for high soil microbial biomass

Overview of paddock showing high perennial grass content and biomass - running out of grass is no longer an issue



As discussed in Stipa Newsletter 53 the results for the soil organic carbon were not conclusive. It is believed that this is because current sampling is not able to handle soil variation. The following factors are all known to be influencing soil carbon storage to 30 cm. Rainfall total and distribution, temperature range, soil type, management practices, sub soil variation and distance from perennial grasses and trees

Further work during the AOTG project suggested that variation in the subsoil could be the cause of the soil carbon results not matching other indicators. The reason for the subsoil variation could be that these high carbon areas were old perennial grass patches or biological islands (reform after cropping) and the low carbon areas are from annual or younger perennial grass patches Figures 3&4.

Figure 3 Trench showing subsoil variation (Inverary)



Until we get a high technology way of sorting this out or even estimating from satellites I am thinking that entering into a legally binding agreement on increasing soil carbon is a bit risky.

I would like to also take this opportunity to again thank everyone that made this project possible and successful.

Figure 4 Pasture cuts showing difference in sub soil



Farmers – Stevenson’s, Taylor’s, Harvey’s, Maurice’s, Bulloch’s, Raynolds, Mullooon Institute, Robertson’s, Deery’s, James’ & Ellis’

Steering committee – Anabel, Wal & George

Project Management - Sue Ogilvy & Danny O’Brien

Experimental design soil and data analysis – Sydney University team led by Dr Peter Ampt

Monitoring, discussion and assistance with corrective action – Col Seis

Let me know if you have any comments or questions.

Graeme

Spring spelling – can we design grazing to always make a profit? Graeme Hand

Can spring spelling make planned grazing regenerative, profitable and so easy it's boring?

Key points:

- Minimising losses is more important than maximising profits
- Grazing mainly fails from running out of grass
- In Southern Australia the key is to finish spring with enough grass to get core livestock through to the autumn break
- The root cause of increasing financial loss in below average rainfall springs is management not rainfall
- A policy of adjusting stocking rate at the start of spring reduces the chances of running out of grass
- This policy can be equally if not more profitable and lowers risk

Problem

In South West Victoria, one of the most reliable rainfall areas in Australia, below average spring rainfall results in grazing enterprises running out of grass in early summer and having to buy extra grain and buy or make hay. This feeding is costing between \$10 - \$30/ DSE when the gross margin/ DSE is between \$15-\$27/ DSE resulting in a loss of equity in the business, damaging landscapes while exhausting people.

In Mediterranean environments cool season (C3) perennial grasses now dominate. Native grasses usually are Wallaby grasses (*Rytidosperma* species), Weeping grass (*Microlaena stipodes*), Speargrass (*Austrostipa scabra*) and Common wheatgrass (*Elymus scaber*). Introduced perennials include Perennial ryegrass (*Lolium perenne*), Phalaris (*Phalaris aquatica*) and Cocksfoot (*Dactylis glomerata*). For cool season grasses to provide growth over summer requires high perennial grass content,

decomposing litter between the perennial grasses and a high rainfall event. Native (C3) perennial grasses can respond to lower rainfall.

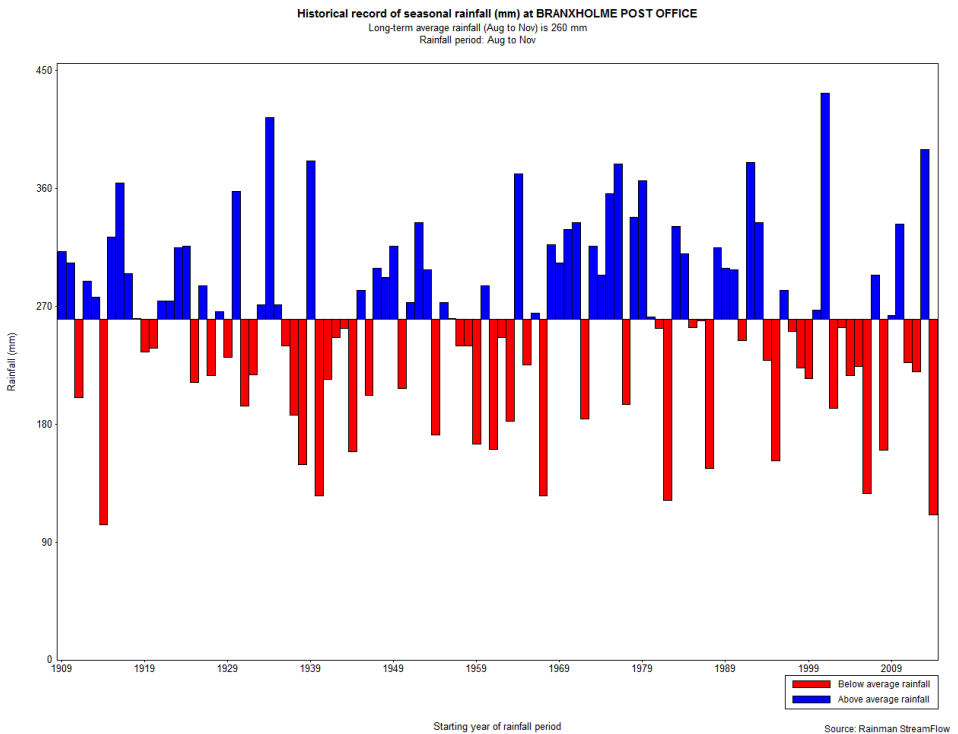
As the summers and autumns are typically dry, enough grass needs to be grown in spring to feed stock until the autumn break.

Cause

Spring rainfall has always been variable in SW Victoria (see Figure 1) but even if the frequency is slightly increasing the extent of feeding and resultant financial loss is not solely related to rainfall.

If rainfall is not the sole cause what else has changed and what policies could improve the outcome?

Figure 1 Rainfall August to November 1909- 2014, Branxholme SW Vic



Source: Rainman Streamflow from Dale Grey Seasonal Risk Agronomist, Farm Services, Victorian Department of Economic Development, Jobs, Transport and Resources

Spring spelling – can we design grazing to always make a profit? continued

When I was discussing this problem with an agronomist he thought the most likely cause of the large impact of this seasonal variation was that farming businesses were now “more financially and agronomically geared with higher stocking rates”.

A formal diagnosis highlights that extremely low landscape function (low perennial grass basal area, density and diversity and no decomposing litter between the perennial grasses) is amplifying the financial loss as well as grassland/ pasture, soil health and biodiversity decline.

This is clear in the photos of paddocks with different management taken in summer/ autumn 2007. See Figure 2 Paddock photos after drought breaking rains. When I am asked by scientists and farmers what is the palatability of the planned grazed feed I always reply ‘a lot higher than dirt’. Animals maintained weight and had good dung and gut fill scores.

Figure 2 Paddock photos after drought breaking rains summer 2007



“Current best practice” 6/2/2007



Farmer paddock 'current best practice advice' 29/3/2007



Planned Grazing 27/3/2007

Spring spelling – can we design grazing to always make a profit? continued

Very low landscape function

Only by grazing a perennial grass plant before it has replaced its root reserves (definition of overgrazing) can you create this very low landscape function and perennial grass diversity that I have measured in South West Victoria.

Work funded by the Glenelg Hopkins CMA clearly shows that allowing long recovery between grazing's directly addresses the cause and increases landscape function and perennial grass density and diversity. See Figures 3 & 4

Figure 3



Control

Practice paddock

Spring spelling – can we design grazing to always make a profit? continued

Figure 4



Practice paddock

Control

Current Practice

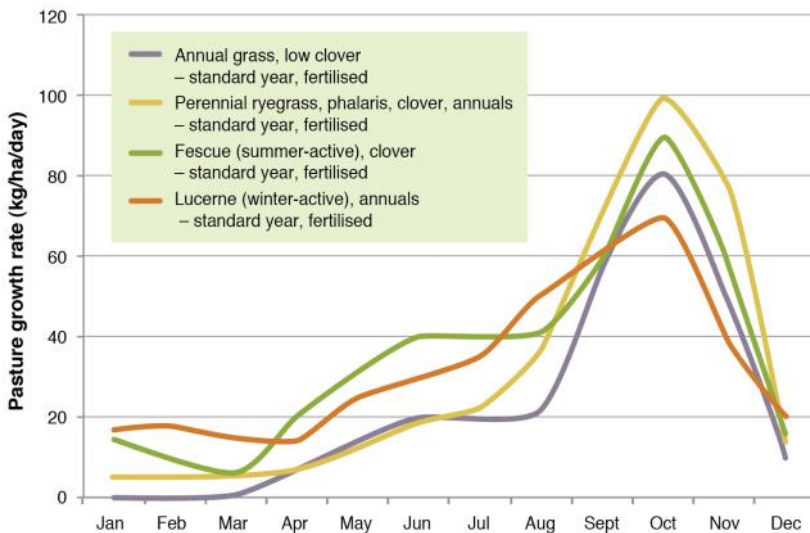
In South West Victoria a large proportion of the annual production occurs in spring or more accurately August - November. See Figure 5

Typical advice is to aggressively manage the spring flush by calving, lambing, buying stock, making silage and hay and do not let the spring 'beat you' and end up with dry feed. See box for why this is not an issue with planned grazing

Spring spelling – can we design grazing to always make a profit? continued

Resowing and forage crops (e.g. forage brassica) and buying grain and hay are then used to try and fill ‘the feed gap’. Early weaning and putting animals into stock containment areas is also extensively practiced. These practices damage landscape function are high cost and high risk and the evidence is that this practice is failing overtime (see below for why this practice cannot work in the long term).

Figure 5 Pasture growth rates South West Victoria



Source: http://www.evergraze.com.au/wp-content/uploads/2013/10/PastureGr_Sth-West-Vic_Hamilton.jpg

Spring spelling – can we design grazing to always make a profit? continued

Potential Policy

For a policy to work in the short term and long run, with low unintended consequences, several design principles are required:

- As policies are designed to solve a problem or prevent a problem the policy must address the root cause of the problem.
- Policy must be holistic and improve the landscape while improving financial stability and the quality of life of the people involved in the farm business.

Current practice of early weaning, sowing forage crops, resowing pastures and buying and growing grain/ hay to fill feed gaps does not satisfy these design principles as it does not address the root cause of matching stocking rate to actual carrying capacity. These practices also reduce landscape function and biodiversity and create more work or fixed cost creep. These practices are the antithesis of an holistic policy and the evidence is clear that it fails over time - declining trends in GM/DSE, return on equity and landscape function

The policy we have been testing in South West Victoria, based on the design principles is to adjust stock numbers, at the start of spring, to make sure that enough grass is grown to easily get through to the autumn break. Generally more than 30% reduction is required.

I have been calling this spring spelling as it is similar to wet season spelling in Northern Australia which has been shown to increase landscape function, perennial grass diversity and soil health.

The Glenelg Hopkins CMA and the Action on the Ground projects also confirmed that this practice regenerates pastures/ grasslands in Southern Australia - specifically Gulgong, Wellington, Geurie, Braidwood, Benalla, Bengworden and Branhholme

Spring spelling – always make a profit?

continued

Financial Impact

Simple financial modelling shows that this practice is equally as profitable to sell in August as selling in November. Although weights are higher in November the costs of running out of grass in dry springs and summers such as feeding and pasture damage quickly eliminate this advantage.

Testing is showing that this policy works in practice. In August 2014 we sold 50% of our stock and managed to just get through to the autumn break (50mm of rain in January was helpful) in a very dry second half of 2014 See Figure 4. Other members of the group did not adjust as significantly but still massively reduced feeding costs.

Enterprise design

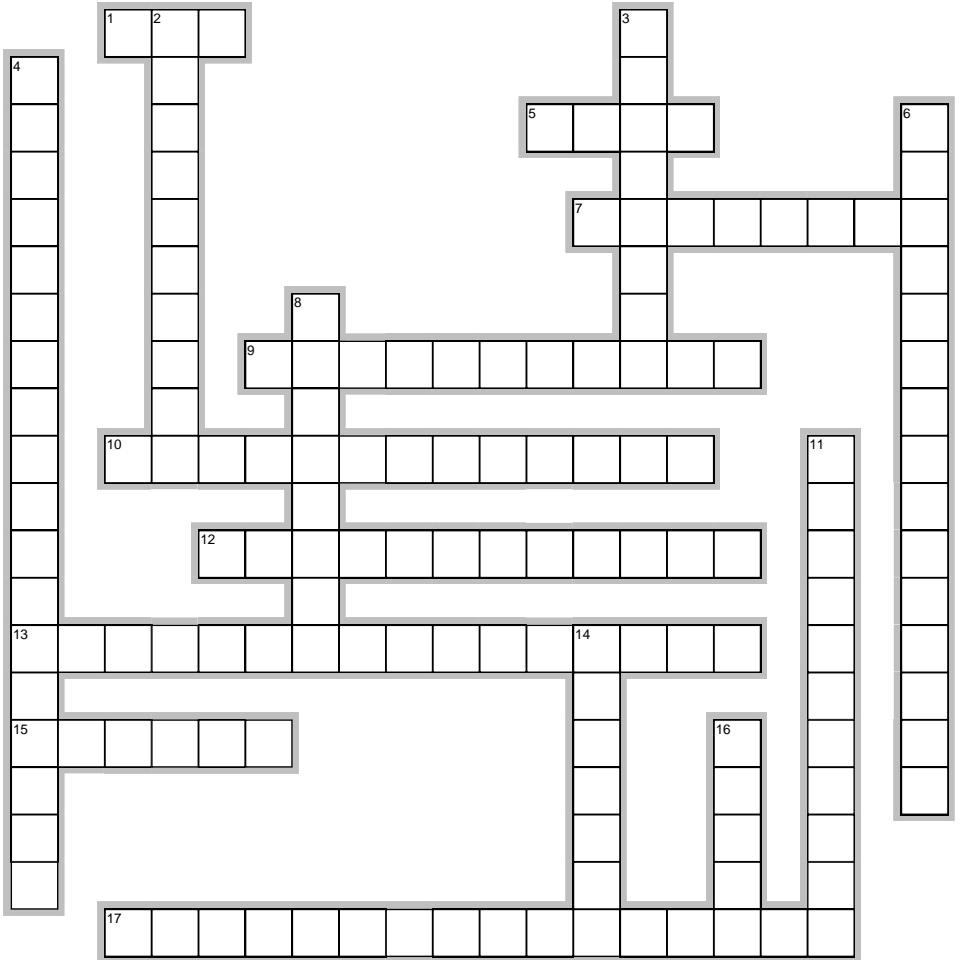
A big barrier for sheep and cattle breeders is time of lambing and calving. Some are now adjusting lambing and calving times from spring to autumn to match this policy.

Summary

This policy satisfies the policy design principles as it matches stocking rate to carrying capacity, the cause of running out of feed, is equally if not more profitable, regenerates pastures/grasslands and stops the worry of feeding animals for extended periods of time. The policy will continue to be tested over time. Please check your figures and think through enterprise design before adopting. Feel free to call or email (references available).

MANAGING DRY FEED

Dry feed is not an issue with planned grazing as using the animals at high stock density allows stalks and dry feed to be pushed onto the soil surface as litter. This litter in the inter-tussock space decomposes to fuel the nutrient cycle and can be thought of as sheet composting.



Across

1. Type of feed which is not an issue with planned grazing
5. Acronym for grazing management described in AOTG project
7. Month fast pasture growth stops in South West Victoria
9. Which Perennial grasses now dominate in Mediterranean environments
10. Common name for *Microlaena stipodes*
12. Genus of grass that includes wallaby grass formerly known as *Danthonia*
13. Decomposing litter between tussocks can be thought of as this
15. Month fast pasture growth starts in South West Victoria
17. Landscape function Index shown to be linked to soil carbon

Down

2. What a policy must address to prevent problems in the long run
3. AOTG site near Braidwood
4. Scientific name of speargrass
6. Type of forage crop
8. Policy must also be?
11. Grazing a perennial grass before it has replaced its root reserves is
14. One of the developers of landscape function analysis
16. City where International Grasslands Conference is being held

Membership renewals

Please note

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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.

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