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Northern Snap Shots - Winter 2006



Gatton Panic at Dandaragan

David and Joan Cook of Dandaragan sowed this paddock to a mixture of perennials in spring 2004. Following organic principles, it was established without the use of a chemical knockdown spray. Old fashioned cultivation was used instead and the seed was broadcast. After a slow start the paddock really powered away during the wet 2006 summer. As this photo shows, Gatton Panic is the standout performer in the better drained parts of the paddock. The growth during this year's very dry winter has also been most impressive. Photo 13 July 2006.

Thriving in a drought

Jim Wedge of West Binnum (north of Northampton) established these sub-tropical perennial grasses in spring 2005. A converted culti-trash combine with press wheels was used to create deep furrows and overcome the non-wetting top soil. An excellent germination resulted. These perennials have thrived in one of the driest years on record and have bounced away with the recent rain and warmth. The annual component is non-existent due to the extraordinarily dry winter. Photo courtesy Tim Wiley 15 September 2006



More Beef out the Gate – Rod tells “Pastures for Profit” Attendees

The recent Evergreen Farming Pastures for Profit workshops in Mt Barker and Dandaragan were two of our most successful events ever.

Attendees were very impressed with the line-up of speakers at each venue. One attendee from a very large enterprise said it was the best workshop he had ever attended.

Key speaker Rod Manning was very well received.

Rod described how he runs 1000 breeding cows using an intensive rotational grazing system at high stocking rates (20 DSE/ha) to achieve a cost of production < 70 c/kg.

He drove home the point “Once you question where your real profit drivers are, you realise it’s all about numbers and for us it’s about stocking rates,” he said.

“We aim to produce more kilograms of beef per hectare while keeping our cost structure, particularly fixed costs, as low as possible through economy of scale.”

“We’re driving the system harder – our focus is more beef out the gate. It’s kilograms of beef/ha. While the individual animals do not perform as well, production/ha is higher and this drives costs down.”

Copies of all the speaker’s presentations can be downloaded from the members section of the Evergreen website.



Rod Manning pictured on Davilak Pastoral Company, north-eastern Victoria.

From the President



David Monks, Badgingarra, Phone: (08) 9652 9277

Green Farms in a Drought? is the heading for a press release you will find in this issue. The press release was targeted at farmers searching for solutions to the summer and autumn feed gap which will be with us soon.

The big question is whether this weather pattern is a foretaste of the future? It also highlights the massive reliance our pasture systems have on annuals. Will similar years devastate our livestock industries?

Thanks to the foresight of our sponsors AWI and CSBP, the first results of the AWI validation project were published in our last edition. This hard data can be used to form sound economic decisions to take your farm forward, effectively using rain when it falls.

I logged on to the MLA Rainfall to Pasture Growth Outlook tool to try to get some handle on projected accumulated feed to the end of the growing season. The future appears bleak as with good rains, growth will be in the lowest 10%. At worst, pasture growth will be half my district average. This ties in with Department of Agriculture and Food climate projections indicating a severe pasture growth deficiency across WA.

It appears that the hard decisions need to be made now (if not already) to limit the pain over the next 6 months.

Many farmers are keeping their sheep and cattle going on tagasaste. Its deep roots are accessing water and producing nutritious feed. Some farmers are utilizing the overgrown stands by pulling every second row out with their tractors and feeding the entire tree to their stock. This has the added benefit of improving access to the remaining trees for grazing or trimming purposes.

The perennial grasses north of Perth have been actively growing until the cold snap of mid June. Most farmers have them down to "Bowling green" height and have been amazed at the production they have achieved off them at high stocking levels.

Seed supplies are an item of concern. The interest in perennials is rapidly accelerating; so much that our local Kikuyu seed producer has sold out. Those wishing to plant Kikuyu this year should move immediately to secure supplies. Given the drought in the Eastern States, Panic seed will not be available this year and the Evergreen mix has been modified to a Rhodes grass mix.

But we all need money to try new things. Help is available through a couple of different bodies. MLA has Producer Initiated R&D (PIRD) grants (up to \$15,000 over 3 years) to turn your ideas into action. In addition, NLP Innovation grants are available to turn your ideas into reality. Also remember that your local catchment council may have funding to trial some new species or expand your existing area.

I have recently been speaking with 2 members about their plans for the future. Both are convinced of the long term benefits of perennials and between them are sowing down over 1,000ha. I find it incredibly motivating to be able to assist these people achieve their dreams of increasing stocking rates by 400% and drought proofing their farms. Please call your closest committee member if you need advice or help.

Everyone is welcome to come and voice their farming ideas and issues at the upcoming Evergreen AGM to be held in Perth October 31st.

David Monks

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Green Farms in a Drought?

According to David Monks, Chairman of Evergreen Farming “Many farmers are seriously questioning if the disastrous start to the 2006 season is a foretaste of the future due to climate change.”

Annual pasture systems have failed due to lack of rain and unless “get out of jail” falls are received during winter and spring 2006, pastures and grain production appears bleak for summer and autumn 2007.

Coupled with rising oil prices and static returns, the cost price squeeze is driving farmers to search for lower cost production ideas.

Many farmers are convinced that adding perennials to their annual pasture systems hold hope for the future. Those that have established perennials have said “we would have been stuffed without them”. They are appreciating the benefits of utilizing out of season rain and achieving solid autumn/winter growth i.e. a more balanced pasture system.

Success with perennials in WA means matching species to climatic conditions, rainfall, soil type and livestock requirements. This involves C4 sub tropicals (e.g. Kikuyu, Rhodes and Panic grass), C3 perennials (e.g. Phalaris and Lucerne), and Fodder shrubs (e.g. Tagasaste, Salt bush and Rhagodia).

Quality & Quantity trial results are now becoming available and are published in technical information sources such as the Evergreen Newsletter.

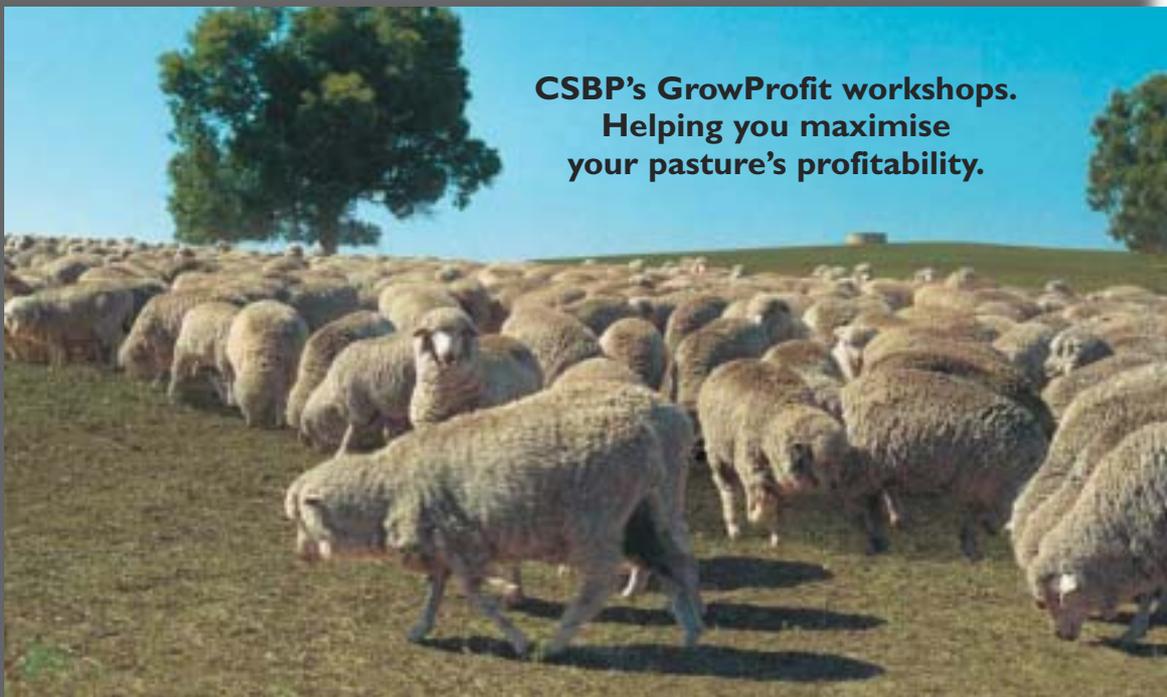
If the current long term forecast is accurate, a dry spring and wet summer will enable good establishment of perennials in spring 2006 and good autumn 2007 pasture production.

The capacity of the perennials to utilize summer and autumn rain will provide valuable feed and save hay and grain costs. If farmers have failed crops they may be able to turn a negative into a positive by utilizing the fertilizer and weed free status of the paddocks. As a benefit they have almost halved their establishment costs.

The establishment of perennials is seen as a risk by many. However, many farmers have done it successfully and Evergreen members have the experience to significantly reduce this risk.

We also acknowledge that perennials are not a “silver bullet” solution for every farm, but stress that they may be a vital tool for long term sustainability of livestock industries in WA.

If farmers are interested in tapping into the experience of Evergreen Farming they can visit the website (www.evergreen.asn.au) or call Charlene or John in the office on 9475 0753.



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Profit Driven Water Use - Esperance

Greg Warren, Farm & General, Ph: (08) 9072 0888.

A partnership between Esperance Regional Forum (ERF) and Farm & General to deliver the on ground component for the project "**Profit Driven Water Use with Sub Tropical Perennial Pastures**" commenced in early May 2006.

Initial work involved the assessment of 11 trial sites established in 2005 which resulted in the decision to continue with 6 sites this year. These sites are predominantly where the cooperating farmer has established paddock scale trials using Evergreen perennial mixes, rhodes grass, panic and chicory.

Small scale variety demonstration sites made up the majority of sites that have been discontinued. It appears that a combination of cone seeder inefficiency, low soil temperature, water logging and in particular poor insect control after seeding and emergence contributed to the failure of these sites. The one successful small scale demonstration site which will be continued is at Salmon Gums in the low rainfall zone.

Whilst the failures were not a desired outcome, it helped enormously to develop best practice establishment techniques for the south coast, a major project requirement. It also proved once again that you learn a lot from your mistakes.

We now have 7 new paddock scale trials (including another 2 plot size variety demonstration sites) planned across the Esperance south coast. They range from the high rainfall, sand plain zone from Jerdacuttup to Condingup up to the low rainfall region including Salmon Gums. We also plan trial work further east to Thomas River.

The establishment of the trials is only possible with the amazing level of enthusiasm and cooperation of the landowners for their land, sowing equipment and time. The financial support provided by the National Landcare Program through SCRIPT and advisory support provided by Evergreen also helps.

These new trials aim to deliver enough successful examples to confidently recommend Best Practice establishment techniques for growers. The trials will investigate establishment techniques for the major perennial grass species currently available that have shown suitability to the south coast. We had planned to include setaria and panic to develop the best ratio of species in the same mix, however could not source quality viable seed this year. We will utilize rhodes grass and kikuyu instead and will investigate:

- whether discs or tines work best for seeding
- cover crops and wetting agents to reduce wind erosion risk and improve germination on non-wetting sands
- alternate row sowing of different perennial species, based

- on the theory that no species competition in the same row will allow faster and better establishment
- establishing annual legumes into perennial grass pastures by undersowing with serradella pod and seed
- establishing kikuyu into existing couch pastures
- establishing sub tropical grasses (rhodes and kikuyu) into an existing low density lucerne stand on heavier loamy clays
- perennial grass establishment on heavy and light soil types within the same rainfall zones
- paddock scale establishment of perennial grasses on heavy, high soil pH soil types in the low rainfall region
- grazing management for different species
- Broadleaf weed and insect control options

All the sites have been sprayed using knockdown chemicals for weed control and insecticide for Red Legged Earth Mite and aphid control. We aimed to have seeding complete by mid September depending mainly on soil moisture.

Contact Greg Warren at Farm and General on 9072 0888

About the Project

This NLP funded project on the South Coast is being delivered by four partner groups. The project is now managed by Evergreen Farming. The partners are Esperance Regional Forum, WA Lucerne Growers Association and Fitzgerald Biosphere Group.

In particular, the project aims to firstly increase the area sown to sub-tropical perennial pastures. Secondly to better understand critical issues associated with site selection, establishment and management of these pastures within a mixed farming environment on the south coast and up into the cooler climate of the Great Southern.

Evergreen's Philip Barrett-Lennard has been working closely with Robyn Cail of ERF and the other groups on the project. They are working on a guide to perennials on the south coast to be released early next year.



Perennial Pasture Variety Trial at Esperance

Matthew Ryan & Tony Albertsen, Department of Agriculture and Food WA, Esperance & Katanning.

Introduction

There is minimal data on the seasonal production and quality of warm season (C4) grasses grown in WA, except for kikuyu which has been extensively studied on the south coast. Knowledge of the production capacity of warm season grasses in different environments and on different soil types is essential for making better informed decisions on their expected production and quality. Seasonal production and quality data is needed to establish the cost:benefit ratio to optimise the mix of enterprises in a region.

To address this issue, a series of trials were established across the agricultural area of WA in a collaborative arrangement between AWI-Evergreen Project, Grain & Graze and DAFWA, with one site in Esperance. To provide a reference point, lucerne was included in the trials as the production and quality of lucerne is well documented in the Esperance area. In autumn an annual pasture trial was established adjacent to the perennial pasture trial for an additional comparison.

Aim

To measure seasonal production and quality of warm season

grasses, perennial legumes and annual pastures in Esperance.

To determine the cost:benefit analysis of perennials and the best performing perennials.

To demonstrate farming system models that optimise the mix of enterprises in the Esperance region

Methods

The experiment is assessing 20 species, which have been sown in either spring and/or autumn. All of the spring sown treatments were sown on the 22 September 2005. The pasture plots were sown following a double knockdown with Roundup and Sprayseed.

The pastures are being monitored monthly for dry matter production, botanical composition and pasture quality. At the end of each month after the biomass is measured the pastures are mown to a height of 5 cm to simulate grazing. The persistence of the pastures is being assessed every six months and all the pasture measurements will be continued for three years to determine the production and persistence of each of the species in the Esperance environment.

Table 1. Monthly biomass of the perennial species in order of highest to lowest March biomass production in the t/ha dry matter.

Species	24 Jan	14 Feb	15 Mar	11 Apr	16 May	20 Jun	17 Jul	Total
Finecut Rhodes grass	0.9	1.5	2.6	2.1	1.4	1.8	1.1	11.3
Narok Setaria	1.2	1.5	2.5	2.1	1.4	1.5	1.0	11.1
Splenda Setaria	1.1	1.4	2.4	2.1	1.4	1.3	0.9	10.6
Strickland Finger grass	1.2	1.5	2.4	2.0	1.0	0.5	0.4	8.9
Callide Rhodes grass	0.8	1.1	2.3	1.9	1.3	1.6	0.8	9.8
Gatton Panic	0.9	1.0	1.9	1.4	0.7	0.5	0.4	6.9
Green Panic	0.7	1.1	1.9	0.8	0.7	0.4	0.2	5.8
Premier Digit grass	0.8	1.0	1.7	1.1	0.5	0.3	0.1	5.4
Bambatsi Panic	0.4	0.6	1.2	0.3	0.2	0.2	0.1	2.9
Kikuyu	0.5	0.9	1.1	0.8	0.8	1.5	0.7	6.3
Signal grass	0.2	0.5	1.0	0.7	0.8	0.4	0.2	3.9
Annual volunteer	0.9	0.5	0.6	0.2	0.8	1.3	1.2	5.6
Tall wheat grass	0.3	0.1	0.2	0.1	0.3	0.7	0.4	2.1
Siratro	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Lucerne	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.3
Lotononis	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2

Perennial Pasture Variety Trial at Esperance - continued

Results

A number of the species have shown good dry matter production throughout late summer and autumn especially when compared to the annual volunteer pasture. Table 1 shows the monthly dry matter production of each species. The table is in order of highest to lowest dry matter production for the month of March, which is a traditional month of feed shortage. Finecut rhodes grass, Narok setaria, Splenda setaria, Strickland finger grass, Callide rhodes grass, Gatton and Green panic all produced above one t/ha of dry matter per month from January to April.

The persistence of the perennials can be seen in table 2. The establishment of most grasses was very successful and as expected initial plant densities have fallen after six months to between 10-20 plants/m². However the establishment of the perennial legumes (Siratro, Lucerne and Lotononis) was not as successful as hoped and their persistence has fallen to below four plants/m².

Conclusions

There are a number of species that produce more biomass over the summer and autumn than annual volunteers (summer weeds). The varieties of rhodes, setarias, Strickland finger and panics look very promising, producing high levels of biomass from January to April. However the trial still has two years to run and it will be of interest to see the production in later years. In particular rhodes grass in other areas has proven to be a good coloniser but production has fallen in later years.

Table 2. The persistence of each perennial pasture after six months (plants/m²)

Species	20 Dec 2005	17 May 2006
Finecut Rhodes grass	20	10
Narok Setaria	83	16
Splenda Setaria	64	14
Strickland Finger grass	64	17
Callide Rhodes grass	12	10
Gatton Panic	41	12
Green Panic	33	9
Premier Digit grass	46	11
Bambatsi Panic	40	11
Kikuyu	43	20
Signal grass	23	9
Tall wheat grass	68	6
Siratro	7	2
Lucerne	26	4
Lotononis	7	4



Geoff Moore of DAFWA explaining the different species to attendees at an Evergreen Field Day in March 2006



The trial site in July 2006 showing the effect of cold temperatures on many of the sub-tropical grass species

Water use by sub tropical grasses

Phil Ward, CSIRO Plant Industry, Ph: (08) 9333 6616.

Background

Despite the generally low rainfall in recent years, the threat of expanding dryland salinity continues. Even short periods of excess rainfall are likely to cause groundwater tables to rise, and so we must prepare the soil to be able to accept excess water when it arrives.

The incorporation of perennials into farming systems is now widely recognized as a useful tool to control groundwater recharge and dryland salinity. The summer activity and generally deep-rooted nature of perennials acts to dry the soil, enabling it to store more water in periods of excess. Lucerne stands out as a good perennial option, and has been proven to decrease groundwater recharge in many areas. However, there are areas where Lucerne is not well suited, or where it does not fit readily into farming systems, and so the search for alternatives continues.

One of the most promising perennial options in Western Australia is the group of sub-tropical grasses including rhodes grass, setaria, Green panic, Gatton panic, Bambatsi panic, Signal grass and others. These grasses are being adopted in many areas of the state, particularly on the sand plains in the northern wheat belt and along the coastal strip north of Perth. However, there is little information available on their patterns of water use, and so at this stage it is difficult to know what their impact on dryland salinity is likely to be.

In October 2004, The Evergreen Group joined forces with CSIRO to measure patterns of soil water uptake by a mixture of sub-tropical grasses. The site chosen for the study is located between Mingenew and Dongara, on a deep sandy soil.

The story so far...

Agronomy

A mixture of sub tropical grasses was sown in September 2004. Dry conditions following sowing and throughout the 2004/05 summer resulted in a generally poor establishment, although several individuals of rhodes grass survived. Better conditions in 2005 and particularly in January 2006 enabled the rhodes grass to spread (via runners), and it has now covered the entire area where it was sown.

The adjacent volunteer pasture consists mainly of capeweed, wild radish, and brome grass during the growing season. In the 2005/06 summer, despite the reasonable rainfall, only a few individuals of mint weed grew.

Water Use

Soil water content under the annual pasture and the rhodes grass has been monitored electronically at 15 minute intervals since shortly after sowing, down to a soil depth of 3.3 m.

Initially there was little difference between the two pastures. If anything, the annual used slightly more water, mainly because the perennial pasture was so sparse. However, with the spread of the rhodes grass, and some summer rainfall in January 2006, differences between the pastures became apparent.

The rainfall in January penetrated the soil to a depth of around 1.2 m under both pasture types. In the annual pasture, the top 10-15 cm rapidly dried out, but at a depth of 25 cm and deeper most of the water was retained in the soil. However, water that infiltrated under the rhodes grass was rapidly taken up, and had completely disappeared from the soil within 5 weeks. Figure 1 shows soil water contents under the two pasture types at a soil depth of 85 cm. There was little difference between soil water contents under the two pasture types until the rainfall in January 2006. The initial response to this rain was similar with water contents increasing to around 9% under both pasture types. Soil under the rhodes grass pasture rapidly dried back to around 5% whereas soil under the volunteer pasture remained at a water content of around 9%.

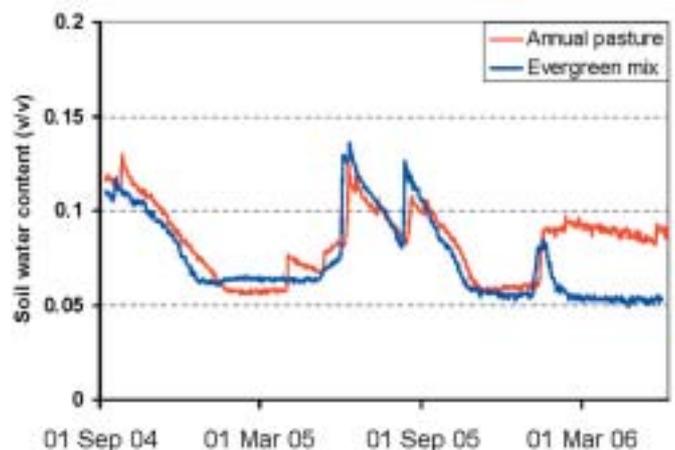


Figure 1. Soil water content under volunteer and rhodes grass pastures at a soil depth of 0.85 m from September 2004 to June 2006.

Furthermore, substantial water uptake under the rhodes grass was detected from the deepest soil layer measured – 3.3 m (see Figure 2). There was also some evidence of water uptake from this depth under the annual pasture early in summer, but water uptake by the rhodes grass was far greater in magnitude, and proceeded for a longer period of time.

Water use by sub tropical grasses - continued

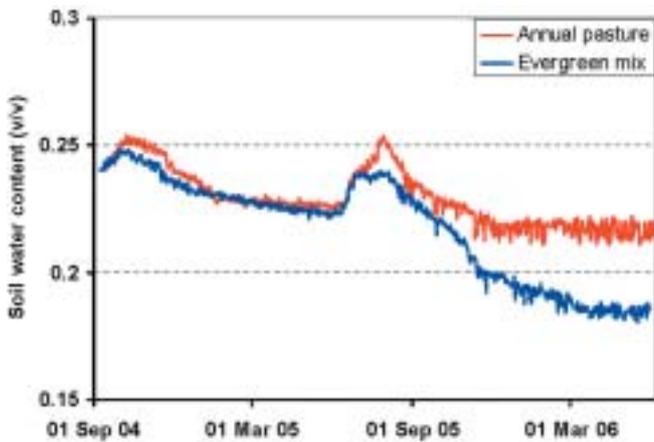


Figure 2. Soil water contents under volunteer and rhodes grass pastures at a soil depth of 3.0-3.3 m from September 2004 to June 2006.

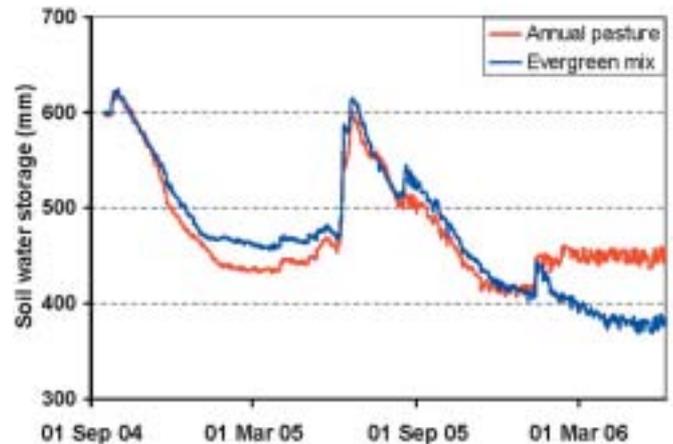


Figure 3. Total soil water storage in the top 3.5 m of soil under volunteer and rhodes grass pastures, for the period September 2004 to June 2006.

The combined impact of rapid use of summer rainfall and greater deep soil water uptake resulted in a difference in stored soil water of around 60 mm in June 2006. Therefore, the soil under the rhodes grass pasture is capable of absorbing 60 mm more rainfall before water starts leaking to the groundwater table. This will be important protection during the next period of excess water.

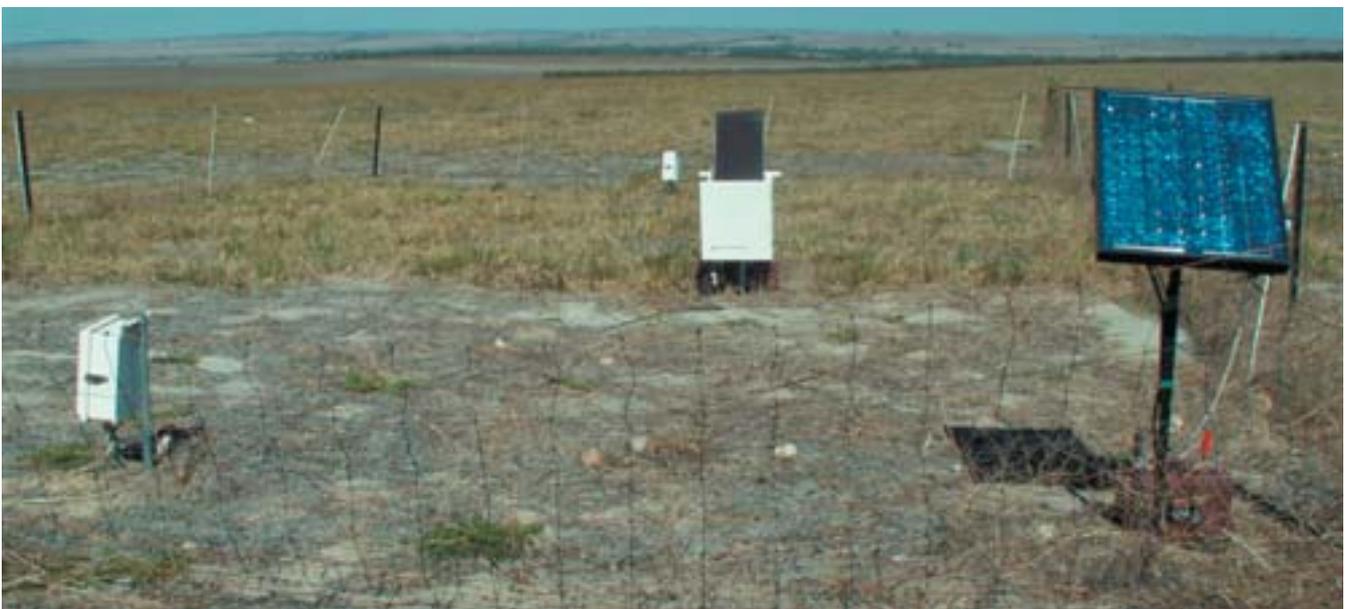
Implications

Soil water modelling indicates that on deep sandy soils in this region, average leakage beyond the root zone of annual crops and pastures is around 50 mm per year. Assuming that rhodes grass does not extract further water from the soil next summer, a rotation of 3 years of rhodes grass, followed by three years

of cropping, would reduce average annual leakage to around 30 mm per year. If rhodes grass can extract more water from deep in the soil, the reduction in leakage would be greater.

Leakage reduction of this magnitude, if adopted over a large proportion of the landscape, could have substantial beneficial implications for the spread of dryland salinity in the region. Conversely, the impact on freshwater sandplain seeps could be detrimental. Careful targeting will be necessary to maximise the benefits from the adoption of rhodes grass on the sandy soils of Western Australia.

We will continue to monitor soil water extraction by the two pastures for another 12 months, and will update these calculations then.



Annual pasture during summer (foreground) and Evergreen mix (background)

Improving perennial establishment in the NAR

Philip Barrett-Lennard, Evergreen Farming and Tim Wiley, DAFWA, Geraldton.



Until recently, the establishment of sub-tropical perennial grasses in WA was a hit and miss affair. The number of establishment failures was unacceptably high and the vast majority of sowings ended up with less than ideal plant densities. Reliable establishment techniques just did not exist.

Recent research and development by both farmers and advisors is leading to the rapid development of a reliable establishment package.

Evergreen Farming, with help from Australian Wool Innovation, and the Department of Agriculture and Food have conducted a number of establishment trials over the last couple of years in both the Northern Agricultural Region and the South Coast. This article focuses on the northern trials.

A large trial was sown at Grant and Alyssa Bain's Walkaway property on 30 August 2005. A number of establishment factors were examined including:

- 1) Knockdown herbicide type, rate and timing
- 2) Residual herbicides
- 3) Seeding machinery and depth
- 4) Seed treatments and fertiliser

Plant counts were taken on 11 November 2005.

The conclusions to be drawn from the trial are:

- 1) Knockdown herbicide type, rate and timing
 - A "double knock" of herbicides should be used
 - The first knock (Glyphosate) should be applied 6 weeks prior to sowing
 - A rate of at least 2 L/ha of Glyphosate needs to be applied
 - Glyphosate or Sprayseed can be used as the second knock (just prior to sowing)
- 2) Residual herbicides
 - Residual herbicide tolerance varies between the different perennial species

- None of the options significantly enhance germination (although weed burden was low in this trial)
- More work needs to be done (esp. for ryegrass and radish)
- Residuals will need to be registered for sub-tropical grasses before use

3) Seeding machinery and depth

- A converted culti-trash disc drill or wide points (furrow sowing) should be used
- Furrows must be deep enough to remove the highly non-wetting surface sand
- Early knockdown sprays greatly assist good furrow formation
- Top dressing seed is a complete waste of time

4) Seed treatments and fertiliser

- Seed treatments do not enhance germination
- DAP fertiliser can be used to increase seedling vigour (on an infertile soil)

Following a review of these results and local farmer experiences, a new trial was recently sown (August 2006) at Alan and Joy Heitman's block at Walkaway. Establishment factors being addressed at this site include:

- 1) Pre- and post-emergent residual herbicides
- 2) Perennial species evaluation
- 3) Seed mix ratios
- 4) Seeding rates
- 5) Gatton panic density

The first two factors are part of ongoing work.

The work on seed mix ratios will help to determine the ideal ratio of Gatton panic and rhodes grass seed in a mix. Rhodes and Gatton panic are the stand-out species in this region. We suspect that current mixes contain too much rhodes and not enough Gatton panic. Six different ratios will be tested.

The work on seeding rates will help to determine if, with improved establishment techniques, seeding rates can be reduced to lower establishment costs. Seeding rates of 1, 2 and 4 kg/ha will be tested.

The work on Gatton panic density will help to determine an optimum stand density (number of plants per square metre) over the longer term. Without an optimum plant density in mind, it is difficult to set establishment targets. There is some evidence to suggest that very high plant densities might reduce summer and autumn production due to competition for moisture. Conversely, we know that low plant densities lead to low dry matter production.

Improving perennial establishment in the NAR - continued

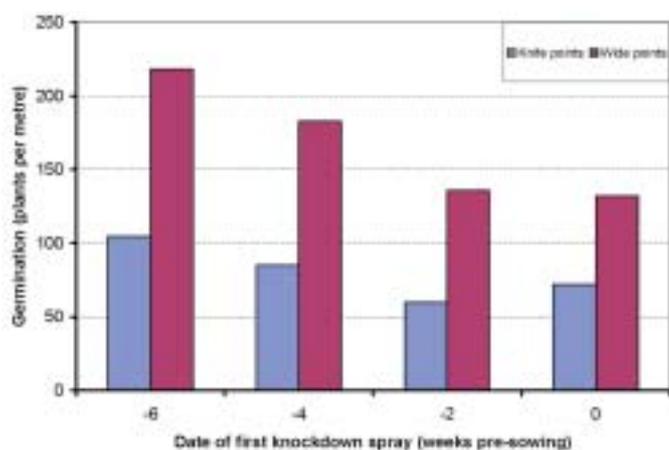
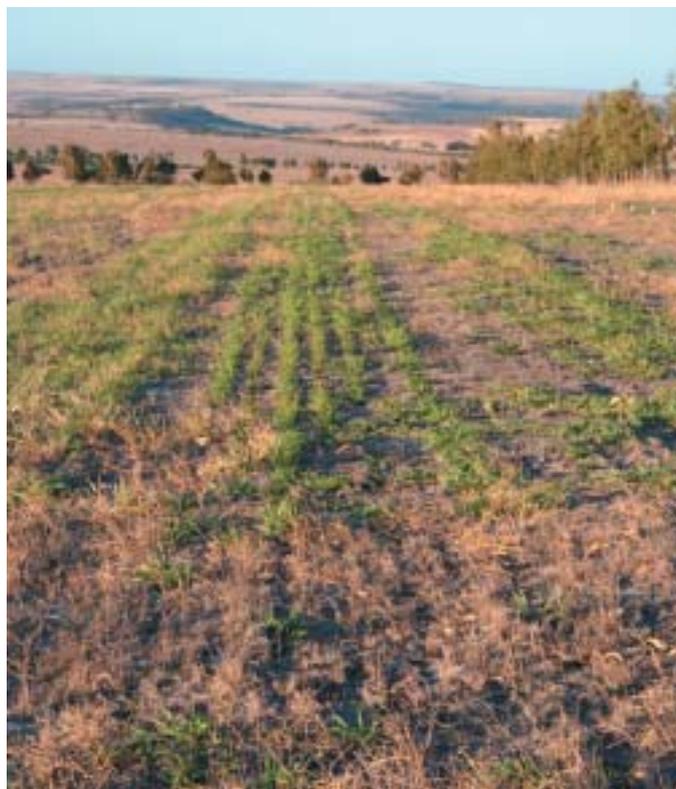


Figure 1. Establishment was improved with early knockdown sprays and the use of wide points (furrow sowing)

It is pleasing to see the conclusions from these trials and farmer experiences having a large impact on recent broad-acre sowings. A number of growers have converted their Culti-trash combines specifically for sowing perennials. Some of these growers have even gone into contracting, such is the demand for better seeding machinery. And some growers with conventional combines have replaced knife points with wide points for furrow sowing.



A herbicide cross strip in the foreground showing the impact of poor weed control on establishment

WANTED

FARMERS SOWING WARM SEASON PASTURES IN 2006 TO PARTICIPATE IN A PADDOCK SURVEY

The CRC for Dryland Salinity, the Department of Agriculture together with Kings Park have just started a new project to improve the establishment of non-traditional pasture species by using exciting new seed technology and developing an improved agronomy package. The project covers warm season pastures, saltland pastures and native species and is jointly funded by SGSL, MLA, AWI & CRC Salinity.

In general, the establishment of warm season perennial pastures at the paddock scale is resulting in fair, but sub-optimal results (paddock survey 2005/06 – Evergreen Newsletter March 2006). There also is a significant gap between the establishment in small plot trials and at the paddock scale.

As a result there is an opportunity to both significantly increase the plant density in the first autumn (increase out-of-season production, decrease time to full grazing) plus also reduce the seeding rate.

Improved establishment and lower seeding rates appears very attractive. However, there is always a catch and some important questions first need to be answered, like – What are the key factors affecting establishment at the paddock scale, whether the results are good, fair, or poor?

To try and answer this question we are planning to undertake a detailed paddock survey in spring-summer 2006. The project staff would be present at seeding to monitor paddock conditions, seed quality, machinery set-up, etc and then would follow-up with germination counts and persistence over summer.

Wanted about 10 farmers – 5 in the north agricultural region and 5 on the south coast who are willing to participate in the paddock survey this year.

For more information please contact Ron Yates on 9368 3665 (office) or 0427 550 125 (Mob).

The Saltland Story

John Paul Collins, SGSL, Katanning, Ph: (08) 9821 3249.



*Primaries Stock Agent Wayne Fuchsichler and John Pepall
- host farmer of Jinka's Hill LCDC*

Background

John Pepall runs "Edenia", a 1,700 ha property located in north Badgebup, approximately 30 km north east of Katanning. Annual rainfall is 325 mm and main enterprises include wheat, barley, oats, canola, lupins and merino sheep (both for wool and live export). 1,000 ha of crop is grown annually. Sheep numbers include 1,700 ewes mated to merino rams, 650 ewe hoggets and 1,000 wether hoggets which are sold for live export as 2 year olds. The sheep are run on 500 winter grazed hectares.

Much of the low lying flats of Edenia are adjacent to the edge of the Coblinine River, the major drainage system east of Katanning flowing north in Lake Dumbleyung. Relief is very shallow and widespread clearing throughout the catchment

has resulted in a shallow watertable and surface expression of salinity. Currently, 300 ha of Edenia is salt affected with a further 1,000 ha at risk of going saline. In 2003, assistance was sought through the SGSL Producer Network to set up a demonstration of productive saltland pastures.

Previously, WISALT banks have been tried but with mixed success. Planting of oil mallees has been extensive and is an ongoing program with 60,000 currently in the ground. Saltbush and perennial grasses (mainly Tall wheat grass) have been successful on barley grass country and will be extended in the future.

Setting up the SGSL trial

Areas that grew thick barley grass were selected out of a larger 300 ha site. An EM38 map helped to identify these areas. Areas growing samphire were completely avoided and have been fenced separately. 42 ha of saltbush (100 km of direct seeding) were sown. The establishment process is summarized in Table 1.

The cost of fencing was very high, as many strainer posts were used to follow the edge of the barley grass areas. In future, straighter fences will be used to cut down on costs and some samphire will be allowed into the grazing cells. Without infrastructure costs, the cost of establishment is \$317/ha.

Saltbush was established using Kimseed Saltland Seeder. A mix of River, Old-man, Wavy-leaf and Creeping saltbushes, Acacia saligna, Tall wheat grass, Puccinellia, rhodes grass, Gatton panic and Lucerne were seeded. Old-man and Wavy-leaf saltbushes appear to be the most successful shrubs whilst Tall wheat grass is the most successful grass.

Table 1: Establishment timeline and costs for the SGSL trial on Edenia

When	Activity	Cost
Aug 2003	Glyphosate and Dimethoate spray	\$362
Aug 2003	Scarify (contract rate)	\$395
Aug 2003	Topdress 80 kg/ha MultiMAP @ \$522/t delivered	\$1,808
Sept 2003	Contractor - direct seed saltbush + perennials - 100 km	\$6,600
Feb 2004	Gypsum \$14/t delivered - 13 ha @ 2.5 t/ha; 10 ha @ 5 t/ha	\$1,247
April 2005	Insect control with mister	\$65
April 2006	Topdress annual pasture seed + insect control	\$2,028
Fence/Water	Contractor fence - lots of strainer posts. 2 tank/troughs	\$11,605
Total		\$24,110 (\$610/ha)

The Saltland Story - continued

Autumn 2006 Grazing

A livestock trial was set up with assistance from CSIRO staff (Colin White and Dean Thomas) and the SGS team (Jessica Johns and John Paul Collins). 30 trial wethers were randomly drafted from a mob of 535 purple tag wethers destined for the live export market. They were weighed and condition scored prior to going on the site and at fortnightly intervals during the trial.

At the start of the grazing on March 6th, 2006 the trial sheep weighed an average of 60 kg with an average condition score of 1.9. The whole mob (including the 30 trial sheep) were put onto a 14 ha grazing cell within the trial. Two weeks later the wethers had consumed all of the *Acacia Saligna*, perennial grasses (mainly Tall wheat grass) and some of the saltbush. When the trial sheep were weighed on the 20th March, they maintained their weight (61 kg) and condition score (2.2) with limited supplementation of 100 g/head/week of oaten silage and 100 g/head/week of barley silage.

During the next 2 weeks, the sheep ate the remainder of the saltbush and when weighed on the 3rd April, they still maintained their average weight (58 kg) and condition score (2.1) with only 350 g/head of lupins being fed.

The sheep were weighed immediately after shearing on the 5th April (average weight 51 kg) and then moved onto the next grazing cell, 13 ha in size. As this site was saltier, there was a lot more saltbush and less Tall wheat grass understory. The trial sheep were reweighed 2 weeks later on the 20th April and had an average weight of 54 kg and condition score 2.2. During this period, 350 g/head/week of lupins and 1050 g/



Mix of Old-man saltbush, Wavy leaf saltbush and Tall wheat grass in the first grazing cell the sheep were put onto

head/week of oats were fed to complement the saltbush.

John noted that his normal rate of feeding if the wethers were on a dry, annual pasture would have been 700 g/head/week of oats, 700 g/head/week of lupins plus 1 x 400 kg oaten hay roll/week.

Summary

John was very happy with the trial, as his objective was met by maintaining his purple tag wethers for a 7 week period during autumn with reduced supplementation on a saline site that had been stocked at 40 sheep/ha. John commented to the farmers at the Katanning Crop Updates during his presentation that "he was extremely happy with this outcome" – given that he had managed to defer other paddocks elsewhere on the farm and maintain his shipper wethers with reduced extra supplement.



First grazing cell being grazed by wethers.

Soil is a sandy duplex and direct seeding has been successful - particularly Old-man saltbush and Tall wheat grass.

Rob McTaggart Case Study

Alison Cooke, Grain & Graze, Ph: (08) 9952 5030.



Rob (pictured above) and Sally McTaggart are one of 20 Grain and Graze demonstration farmers in the Northern Agricultural Region

With stands of bluebush adjacent to some of their stubble paddocks, Rob and Sally McTaggart avoided hand feeding their cattle this year in autumn and early winter, despite the lack of rainfall.

Their Mingenew property, Bolinda, recorded just 90mm of rain this year up until mid June and almost half of that fell in the summer.

The cropping program was cut short and the bulk of Bolinda's cattle have been sent to Rob's brother's property in the Murchison, which is currently enjoying good feed conditions.

This will enable Bolinda to maximise the bulk-up of feed from any rain before spring and then hopefully return some or all of the cattle before Christmas.

The family run a mixed cropping and cattle enterprise, located 5km north east of Mingenew.

Average annual rainfall is generally 320mm.

About 1600ha of the farm's 5000ha is normally cropped, with cattle numbers normally including 500 breeders, 100 maiden heifers, 200 weaner heifers and 20 bulls.

Purchased in 1990, the property is all heavy country and can be split two ways based on soil type.

Half of Bolinda sits in the Nangetty valley and is grey clay, with the balance a red loam, being the Lockier River valley.

Rob believes he has a reasonably good understanding of his salt country.

"We don't have salty creeks but we are dealing with an old sea bed," he says.

"If our farming practices are not correct we are concerned the salts will build up on the surface.

"We don't want salt concentrating on bare ground – the more groundcover we have the better."

He has made some observations about slender iceplant and believes it is a product of farming techniques on heavy country and bare degraded ground.

"The grasses need to be encouraged to compete with the iceplant," Rob says.

"A few years ago we had 3.5t wheat crops growing adjacent to iceplant."

Areas on Bolinda that are unsuitable for cropping have been fenced out over the years.

These smaller paddocks of native bluebush and saltbush down in the valleys, now colonised with an understorey of native medics, ryegrass, wild oats and barley grass have proved to be invaluable in the autumn.

The bluebush areas cover 20 per cent of the total farm area and supported 19 percent of the farm's total grazing days last year, at a time of year when feed is ordinarily short.

Initially the McTaggarts were running sheep with their cropping operation.

When they introduced cattle 12 years ago they noticed that this saltbush country looked much happier supporting cattle.

The saltbush pasture paddocks are grazed in conjunction with the adjacent crop stubbles.

The relationship between the stubble and bluebush and the cattle's need to balance energy and protein became obvious to the McTaggarts when cattle began breaking out of stubble paddocks to get to the bluebush.

Rob McTaggart Case Study - continued

Rob and Sally find these areas of bluebush adjacent to crop stubble most useful in autumn and put cows in one month before they calve, when in an ordinary year they are busy seeding.

By locking up these areas of bluebush in spring (at seed set) they have encouraged the bluebush to bulk up over the years.

The bluebush areas cover 20 per cent of the total farm area and supported 19 per cent of the farm's total grazing days last year, at a time of year when feed is ordinarily short.

Inclined to minimise risk, Rob can see the need to grow crop and while breeding his way into cattle, his next goal is to match his farming techniques to increased stock numbers.



Bluebush paddocks on Bolinda



Ben McTaggart in a native bluebush paddock sown to rhodes grass and Bambtasi panic in spring 2003. The soil is a heavy cracking clay. Rob is not convinced the sub-tropical perennial grasses are the answer on this soil type. They have not performed anywhere near as well as those on nearby sandplain country.

The couple readily admit that they have not pushed their stocking rate to the maximum.

"We are still refining the cropping – cattle mix and looking to apply our cropping knowledge to growing pasture," Rob says.

"We want better quality pastures and have introduced Safeguard ryegrass to combat Annual Ryegrass Toxicity and have prepared a further 200 ha for planting in 2007"

Rob McTaggart is inclined to think that subtropical perennial grasses are not the answer on his property.

"Although they grow well when conditions are right, early summer rains are not reliable," he says.

"We sowed a mix of Katambora rhodes grass and Bambatsi panic in spring 2003 but germination was not great and then we had only 25 mm of rain in the next eight months."



Cows have access to both bluebush and stubbles over the critical summer and autumn period. The two feed types compliment each other well.

Southern Snap Shots - Winter 2006



Kikuyu at Kojonup

This variety trial at Digby Stretch's at Kojonup is providing some very valuable data. As discussed in the last newsletter, most of the sub-tropical grass species died out last winter due to the cold and wet conditions. The exception being kikuyu which prospered but, as this photo shows, it gets frosted each winter. It is being compared with tall wheat grass, lucerne, tall fescue and a range of annual pasture species. It is early days but the tall fescue (top right) is looking very promising although persistence may be an issue. Photo courtesy Tony Albertsen 26 June 2006.



Tall Fescue at EverGraze

Tall Fescue is a temperate perennial grass species with potential for WA. There are two types – winter active and summer active. The EverGraze research site at Wellstead contains an excellent stand of summer active tall fescue. It will be interesting to observe its persistence over time as summer active tall fescues are less drought tolerant than the winter active types. However they do produce green feed over summer so they are worth a punt. Photo courtesy Paul Sanford 2 May 2006.



Setaria as shelter?

Paul Sanford and his team at DAFWA in Albany manage the MLA funded EverGraze research site at Wellstead. The aim is to increase profit by 50% and decrease groundwater recharge by 50% through the use of perennial pastures. They have planted Setaria in a small nursery paddock to aid lamb survival in twin bearing ewes. It was allowed to bulk up over autumn and early winter in preparation for a late winter lambing. Photo courtesy Paul Sanford 16 August 2006.



Chicory at Wellstead

The EverGraze research site at Wellstead contains a reasonable area of the herb chicory. This very high quality plant will be used primarily for finishing lambs over summer and autumn. During winter chicory and sub clover make a good mix but Paul Sanford notes that due to the very dry winter there is almost no sub clover in the stand this year. Photo courtesy Paul Sanford 13 April 2006.



Grow to your full potential.

