Evergreen FARMING

incorporating

Western Australian Lucerne Growers

Newsletter of Evergreen Farming March 2009

Harvest pain = Grazing gain

2008 was a wet and painfully slow harvest for many WA grain growers. But there was a silver lining for those with perennial pastures, such as Luke & Annette Caelli who farm west of Ravensthorpe. They received 225 mm of rain from late October to early December and their lucerne went absolutely mad! In fact, they had so much feed they decided to cut one paddock for hay. It was cut in late December and baled in early January, and yielded a handy 1.2 ton/ha of hay. This will be saved for a less rainy day...

"Show us your grass"

Green grass at Gingin

The green paddock in the background of this photo was sown in early September last year to the Evergreen mix of subtropical perennial grasses by Murray Green of Gingin. The good late spring rains really helped to achieve an excellent establishment. The dry paddock in the foreground shows how poorly traditional annual pastures use out of season rainfall. Photo 10 Dec 08.

Pasture Cropping with Panic?

Don and Anne Nixon of West Gillingarra sowed this paddock to Gatton Panic in early September last year as part of an Evergreen demonstration. The plan is to "pasture crop" over the perennials in future years. A combination of highly non-wetting sand and dry conditions severely affected initial germination, but some summer rain has really turned this paddock around. Photo 11 Feb 09 courtesy Mark Weston NACC.

Making decisions made easy with new pasture tool

A new tool to help farmers choose the right pasture for their needs has been released by the Grain and Graze Project.

The "Decision Support Tool" will help growers and advisers in the NAR determine the best innovative pasture options, such as Subtropical Perennial Grasses, Grazing Cereals, Tagasaste and Saltbush, for their particular farming enterprise.

According to Richard Quinlan, (Agronomist, Planfarm Agronomy Pty Ltd) the web-based Decision Support Tool guides users to the best pasture option for your farm and then provides technical information to establish and utilise the pastures.

Mr Quinlan said one of the strengths of the program was the direct involvement of farmers in local trials, development and extension activities.

"The testing and input from farmers and scientists has lead to us being able to develop a very useful tool".

The tool can be found on the web and includes:

* A decision key for deciding on the best pasture system.
* Technical Information on which species to use, how to establish them and what kind of production can be expected from them.
* Costing and economic projections on establishing the various pasture systems and how long it takes to recover these costs.
* A photo gallery of successful pasture systems as well as contact details for researchers and key growers involved with these pasture systems.

The Grain and Graze Program was established to boost farm profitability across the mixed farming zone of southern Australia, while helping to protect the environment.

The Grain and Graze Project was delivered locally by the Mingenew-Irwin Group, Evergreen Farming, the Liebe Group, the Victoria Plains Landcare Management Group, the Department of Agriculture and Food, and the Northern Agricultural Catchments Council (NACC) is now drawing to an end.

For more information contact Richard Quinlan 0428 648828

www.mingenew-irwin.asn.au

Committee Column

Erin Gorter (President), Kojonup

With extreme weather conditions throughout the state in the past few months, it is a timely reminder to all, the value of having perennial pastures as part of the farming system. With the merger of Evergreen Farming and WA Lucerne Growers, your Evergreen membership provides great value and back up for farmers using, or planning to use, perennials. Our network includes growers of sub tropicals, Tagasaste and other shrubs, temperates and lucerne and is backed up with leading advisers through agVivo.

Our Pastures for Profit series is in March this year, so be sure not to miss it. More details can be found in this newsletter and on our website. This conference has become a must on the calendar of all involved with perennials in this state and promises to be another value packed day. The committee looks forward to seeing you at Mt Barker or Dongara.

The mission of Evergreen Farming is "To provide leadership, knowledge and enthusiasm to change farming systems to include perennials". Evidence of this mission was demonstrated recently at a field day in Kojonup where a large crowd was treated to an afternoon of leadership, knowledge and enthusiasm from two Evergreen farming families as they continue to push the boundaries of what is possible on their own farms. It was clearly demonstrated how WA farmers can improve their soils and systems by incorporating perennials into their existing practices. One such farmer is Rob Rex, whom we welcome to the commitee.

Committee Exposé

Rob Rex, Wagin

Rob and Caroline Rex farm 2,000 ha in the Beaufort River area south west of Wagin. They run a typical mixed farm with both sheep and crops. Approximately 25% of the farm consists of salt, waterlogging and frost prone valley floors. This country is risky and not sustainable to crop long term, so is being progressively sown to perennial pastures. Over the last 8 years they have sown a range of perennial pasture species, but have now narrowed this down to 4 temperate perennial grass species – Tall Wheat Grass, Phalaris, Cocksfoot and Tall Fescue. These are sown in late winter after the autumn / early winter fed gap has been dealt with. Paddock size has been reduced to improve grazing management with the addition of extra water points and electric fencing.

Rob and Caroline have a passionate interest in improving their soils, having seen this country gradually decline since it was cleared in the 1950's. Acidity, compaction, organic matter and erosion were all getting worse under the existing annual pasture based system. They are hoping that with perennial pastures, good grazing management and well chosen inputs their soils will improve, leading not only to a healthier environment but also to productivity gains. It is very early days, but the signs are encouraging.

In recognition of their stellar work they were recently awarded the Landcare Primary Producer Award at the 2008 National Landcare Awards in Canberra.

Pastures for Profit workshops

March 17th Mt Barker & March 19th Dongara

2009 COMMITTEE

President

Erin Gorter - Kojonup
Ph: (08) 9833 7524

Vice President

Bob Wilson - Lancelin
Ph: (08) 9655 1055

Secretary/Treasurer

David Monks - Badgingarra
Ph: (08) 9652 9277

Committee

Bob Leeson - Lancelin
Ph: (08) 9655 1785

Charlie Hick - Narrikup
Ph: (08) 9845 3076

Phil Chalmer - Esperance
Ph: (08) 9076 6092

Marcus Sounness- Borden
Ph: (08) 9827 9277

Luke Caelli - Ravensthorpe
Ph: (08) 9835 7050

Stuart Bee - Jerramungup
Ph: (08) 9835 5030

Jim Wedge - Binnu
Ph: (08) 9936 6366

Rob Rex - Wagin
Ph: (08) 9862 6067

Executive Officer

John Duff
Ph: (08) 6272 4545

Agronomy

Philip Barrett-Lennard
Ph: (08) 6272 4545

Administration

agVivo Pty Ltd
PO Box 645
BELMONT WA 6984
Ph: (08) 6272 4545
Fax: (08) 6272 4555
admin@agvivo.com.au

Case Study - Ash Reichstein, Esperance

Philip Barrett-Lennard, Evergreen Farming, Ph: (08) 9475 0753.

Summary

Name: Ash Reichstein & Megan McDowell

Location: Esperance

Farm Size: 4800 ha

Species Sown: Lucerne, canola, barley and wheat

Enterprises: Sheep and crops

Soil Type: Shallow sandy gravels over clay subsoils

A second year lucerne paddock showing a high plant density. The lucerne was established under a Clearfield canola crop the previous year.

Background

Ash Reichstein and Megan McDowell farm 4800 hectares of transitional mallee country 40 km north east of Esperance. The soils are predominantly shallow sandy gravels over very hard and compacted clay subsoils. As a result, paddocks lower in the landscape are prone to waterlogging and, ultimately, salinity. Crop yield potential suffers from waterlogging and totally evaporates when salinity rears its ugly head. But the addition of a regular lucerne phase dries up the excess soil moisture, allowing these low lying paddocks to be kept in the cropping rotation over the longer term to maximise profit.

Apart from keeping their lower paddocks in the cropping rotation, lucerne also brings a number of other benefits. The sheep enterprise benefits as the lambs have access to high quality feed right through spring, summer and autumn. This allows cross bred lambs to be finished and merino lambs to be grown out without a lot of expensive supplementary feeding.

The cropping enterprise enjoys other benefits from the incorporation of lucerne. The nitrogen requirements of the crops grown after a lucerne phase are significantly reduced. Fertiliser nitrogen requirements are 50% less for the first crop after lucerne, and 25% less for the second crop after lucerne. This is a significant saving. Wild radish is controlled, as the lucerne competes aggressively with it at the break of the season. And those radish plants that survive can be grazed out later with sheep. Another useful benefit of the lucerne is its ability to penetrate and break up the hard setting clay subsoils. This improves soil water holding capacity, increasing both trafficability and potential crop yield.

Establishment

Ash says his preferred method of establishing lucerne is by sowing it under a Clearfield canola crop. This eliminates the opportunity cost that occurs when lucerne is sown on its own and the paddock taken out of production for 6 to 12 months while the lucerne establishes. He says he hasn't had a failure yet with this method.

A relatively high sowing rate of lucerne (5 to 6 kg/ha) is used to reduce the risk of establishment failure. The canola is sown at 2.5 to 3.0 kg/ha. The lucerne and canola seed is mixed together and sown with a DBS airseeder fitted with knife points, closing plates and press wheels. Highly winter active varieties are used, including Trifecta, Aquarius, Sceptre and Sardi 10. And even though topsoil pH is only 4.5 to 4.7 across the farm, additional lime is not seen as critical to successful establishment, as soil aluminium levels are not high. Having said that, every paddock has received one application of 1.5 t/ha of lime over the last 10 years. And more is planned, with 800 to 1000 tonnes to be spread in 2009.

Lucerne Phase

Lucerne is usually kept in a paddock for 4 to 5 years before being removed and replaced with a 4 to 5 year crop phase. The first year of the crop phase is usually canola as this gives excellent weed control before moving in to three consecutive cereal crops. The last year of the crop phase is also canola but this is undersown with lucerne to commence the next lucerne phase. Lucerne is removed at the end of its phase with a knockdown spray in January or February consisting of high rates of Glyphosate and Lontrel. Heavy grazing is also used to improve the kill. Ash says it would be better for the following crop if this occurred in spring, rather than summer, but he is too greedy for the extra sheep feed! This late removal of lucerne does occasionally reduce crop yield, especially if the following winter and spring is drier than average.

Ash likes the lucerne to be a mixed stand including annual pasture species such as subclover and ryegrass. He doesn't bother with weed control in the first few years of the

Continued

The second crop after a lucerne phase - a high yielding barley crop. Note the salt scald in the background showing the presence of the high water table.

lucerne phase, in order to maintain a good pasture density. Spraytopping and mechanical topping is used in the last 2 years of the lucerne phase to gain control of annual grasses. This helps the following crop phase.

Livestock Management

When it comes to managing livestock on lucerne pastures, Ash says he prefers bigger mobs and smaller paddocks every time. A few years ago when sheep were more of a focus (and numbers were higher), he would use temporary electric fencing powered by portable solar energizers to subdivide large lucerne paddocks into smaller areas. This produced a much more even grazing, and forced the sheep to eat everything, weeds and all, rather than just selectively grazing the lucerne. These days, with more crop and fewer sheep, he's given away the strip grazing but still rotationally grazes his lucerne with large mobs.

Ash and Megan now run 1800 ewes (down from 6000 over 10 years ago) with half mated to Poll Dorset rams to lamb in autumn, and the other half mated to Merino rams to lamb in winter. The lucerne is critical in the September to November period to finish the cross bred lambs. But the lambs don't just eat lucerne, they also have access to two self feeders full of barley. Ash says the barley provides the lambs with extra energy, which when combined with the protein from the lucerne, supplies a very balanced finishing diet. Growth rates of approximately 250 grams/day are common.

The later drop Merino lambs are then run on lucerne over summer and autumn, in addition to spending some time on stubbles. With a wet summer, they will spend more time on lucerne pastures. These lighter weight weaners really get a boost from the lucerne. Ill-thrift is never an issue. Other stock have access to lucerne opportunistically if there is feed to spare. Ash says it is most important to "use it" or "lose it" with lucerne. When leaf drop occurs, you "lose it"!

Lucerne pastures are usually fertilised with 100 to 150 kg/ha of Super or a Super Potash blend. But with current high fertiliser prices, they will only receive 75 kg/ha in 2009.

Insect control is achieved with large numbers of livestock, rather than insecticides, with Ash "wanting the sheep to beat the insects to it".

Ash is adamant that lucerne pastures should be mixed pastures and not monocultures. This improves both winter carrying capacity and animal performance. He says that too much lucerne can be a bad thing for an animal, and it's important to have other pasture species present to balance the diet.

The Future

Currently 2800 of the 4300 hectares of arable land is continuously cropped. This land is higher in the landscape and does not suffer from waterlogging and salinity. He sees no role for lucerne on this country.

The other 1500 hectares of arable land is rotated between phases of crops and pastures. In the well drained country, the pasture phase uses annual species such as sub clover. The lower lying country is where lucerne is currently used to mop up excess water and control salinity and waterlogging.

In the future, Ash thinks that every paddock that isn't continuously cropped will have a phase of lucerne. He is interested in using less winter active lucerne varieties with the thought of cropping in to them without killing the lucerne. He can envisage the use of 2 cm RTK auto-steer to plant the crops between the rows of lucerne without disturbing the lucerne plants. This would allow the lucerne and crop phases to co-exist at the same time. Lucerne plant densities would need to be lower, to reduce the competition with the crop. But water use could still be enough to control waterlogging and salinity. Research conducted by DAFWA suggests that water use at low lucerne plant densities (10 plants/m^2) is significantly greater than annual pastures, and not much less than at high lucerne plant densities (>20 plants/m^2).

One issue that will need to be overcome is the poorer seedling vigour of the less winter active lucerne varieties. Using alternate rows to establish lucerne under canola might be just the trick to make this work.

An initiative funded by the National Landcare Program

Perennials reduce Nitrate-N leaching compared to annuals

A.M. Hasson, G. Patterson, T.Wiley, W. Parker, D. Nicholson & W. Scott. DAFWA.

Farming systems in the Northern Agriculture Region (NAR) of Western Australia have traditionally been based on annual crops and pastures. The water use (evapotranspiration) of the annual plants in winter months is less than rainfall, resulting in recharge below the root zone. This is particularly a problem on the coarse textured sandy soils. This recharge also results in nitrate (NO_3) moving freely through the soil with the water that drains down the profile.

Nitrate leaching through the soil can cause pollution of ground water aquifers. This is already a problem with the New Norcia town water supply exceeding health standards for nitrate and nitrite. Nitrate leaching also causes acidification of soils as the lost nitrate is alkaline. In addition there is a direct financial cost from the need for more fertiliser and/or a reduction in production due to nitrogen deficiency in crops and pastures.

Nitrogen in the soil goes through complex transformations involving different 'pools'. These 'nitrogen pools' include simple chemical ions, organic matter, plant roots and soil microbes. Ammonium–N is a simple ion that is retained in soil as a component of the exchange complex of clays. It can be transformed to nitrite and nitrate by nitrifying bacteria, with both forms being very susceptible to loss by leaching. Nitrate moves into plants by being carried in the soil water sucked in by transpiration, and is leached by water draining down the soil under gravity.

Nitrate loss varies with rainfall, nitrogen inputs and sources, soil characteristics, soil transformation rate, stocking rate, pasture composition, and growth rate. Plant residues and soil organic matter are affected by nitrogen mineralisation but the magnitude of these processes in field environments is unknown for many agricultural systems in WA.

The problems associated with nitrate leaching could possibly be addressed by converting from annual plant based farming systems to perennial plant based systems.

The Department of Agriculture and Food WA, with funding assistance from the Northern Agricultural Catchments Council (NACC) and NAP, have investigated these nitrogen and soil water issues. This project endeavoured to establish how much more efficient perennial pastures are in terms of water usage, nitrate leaching reduction and mineralisation utilisation compared with annuals. The main objectives of this study were to:

* quantify the water balance parameters at two sites with sandy soils,
* determine the extent of nitrate leaching below 1.5 m under annual pasture, sub-tropical (C4) perennial grass pasture and the fodder shrub, tagasaste, in adjoining paddocks,
* determine the efficiency of the utilisation of soil inorganic nitrogen forms by annual pasture, perennial pasture and tagasaste,
* assess the biomass production of the annuals, perennials and tagasaste fodders.

Perennial pastures recycle leached nitrogen from deep in the profile back to the soil surface

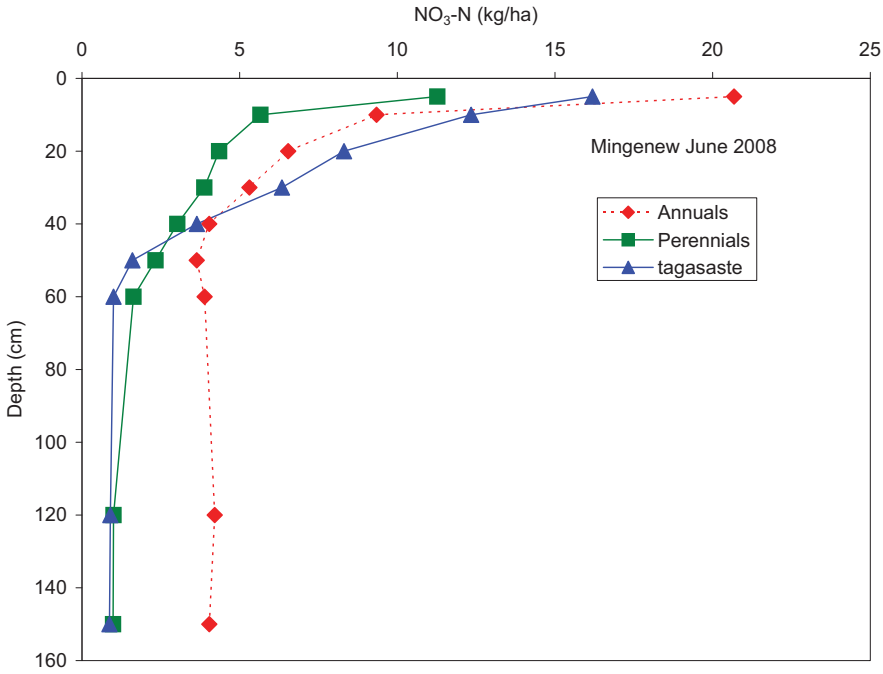
Two sandy sites were chosen for the study. These experimental sites were at Craig and Donnelle Forsyth's farm at Mingenew and at Tim and Michael Nixon's farm at New Norcia. Soil samples were collected monthly from paddocks of the annual pasture, perennial grass pasture and tagasaste. Replicate samples were taken at 8 depth increments down to 1.5 m along with volumetric water content measurements. Samples were analysed by the CSBP soil lab for pH (water), pH (CaCl), nitrate-N, ammonium-N, Total Nitrogen, Organic Carbon (Walkley Black), Total Phosphorus, Potassium, Sulphur, 'reactive' Iron (Tamms reagent) and 'available' Phosphorus (Colwell P).

Water balance calculations were made for each pasture type and along with soil NO_3 sampling, was used to predict water drainage and nitrogen leaching. Actual NO_3 leaching was confirmed by collecting drained water using buried leach pipes. Some results from the Mingnew sites are presented below.

The annual pastures had higher amounts of soil water throughout most of the year particularly around 3 m depth. The perennial grasses have less soil water throughout the early parts of the year and less deeper in the profile. Tagasaste also has lower soil water content than annuals and less than the

Continued

Figure 1. Nitrate down the soil profile under tagasaste, perennial grass and annual pasture in late spring at Mingenew



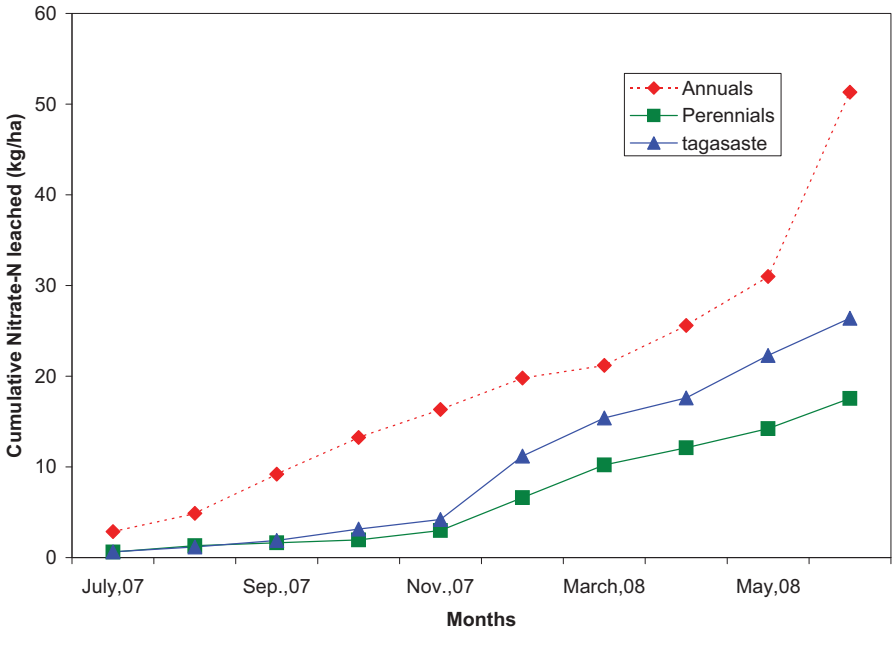
perennial grasses at depth. The annuals have significantly more water near the surface (~0.04 cm^3/cm^3). The additional drying of the soil in the summer months under the perennial grasses and tagasaste created a buffer to soak up more of the winter rain before drainage commenced. All of the pasture types had large amounts of water in the profile during September 2007 following rainfall events that significantly exceeded evapotranspiration. So even under perennials there was water moving down the profile following heavy rainfall events that are common during winter. At both sites the perennial grasses used more water down to ~4.5 m than tagasaste, but the tagasaste used more water below this depth.

The differences in soil water content between the annual, perennial grass and tagasaste pastures was attributed to differences in plant water use and not drainage per say.

There was some unseasonal summer rain (07/08) that accelerated the mineralisation of surface litter causing a spike in soil NO_3. Following heavy rains in winter, that NO_3 leached down the profile even under the perennials. However, as perennial grasses and tagasaste are very deep rooted they can recover much of that NO_3 leached to depth. Under shallow rooted annual pastures, leaching rains in winter will inevitably lead to permanent NO_3 leaching.

Nitrate levels in the soil profiles varied from month to month. But over the whole year there was more Nitrate in the top 50 cm under the annual pastures than under perennial grass or tagasaste. However the annual pasture used less of the available NO_3. At New Norcia the annuals only used 40%, the perennial grasses 76% and the tagasaste 74%. At Mingnew (Figure 2) the total cumulative quantities of NO_3 lost below 1.5 m was at least twice as high under the annuals pastures (51 kg/ha N) compared to the perennial grasses (17 kg/ha N) or tagasaste (26 kg/ha N). Both perennial grasses and tagasaste have roots well below 1.5 m and will be able to recover some of the nitrate laeched from greater depths.

Figure 2. Cumulative Nitrate leached below 1.5 m depth under tagasaste, perennial grass and annual pasture at Mingenew



EverGraze - South Coast Satellite Sites

Ron Master, DAFWA, Albany, Ph: (08) 9892 8521.

Across the South Coast region 8 farms are being monitored as part of the Future Farm CRC EverGraze project. These were chosen based on; the suitability of the system to that part of the region, innovation, willingness to participate and the availability of supporting data from either the Wellstead research site or other trials in the region. We are monitoring tall fescue, a lucerne and tall fescue mix, high input kikuyu systems, lucerne and chicory sites.

In the last article (December 2008) we introduced four of the sites in the western part of the region, so now we would like to introduce the four sites in the Esperance region. These sites cover a range of perennial systems and include two kikuyu paddocks, a lucerne paddock and a chicory paddock.

The last 12 months have been a challenge however the perennial pastures have shown some good outcomes. Grazing and plant density data is now starting to be collated with some of the property's starting to accumulate sufficient information to allow some interrogation.

Andrew and Sue Hill's property is in a 550 mm rainfall zone and is approximately 40 km north-west of Esperance. The area is dominated by mixed farms with annual pastures. Andrew already has kikuyu and is establishing more. Andrew has recently purchased the property and his goal is 100% cattle and perennial (kikuyu) based pastures on this property, though currently the property has a small percentage cropped. The plan is to use this property to finish calves/weaners for market from his Salmon Gums property.

Andrew and Sue were attracted to kikuyu due to it persistence and its ability to provide summer feed and stabilise soil. They also had some country that was prone to waterlogging and felt that kikuyu would grow well in those areas.

Photo 1. Andrew and Sue Hill's kikuyu paddock in late 2008 after a tough year, still keeping the paddock stable.

Photo 2. Rob West's chicory in 2007, note the new plants growing near the fence line.

The pasture was seeded at a rate of 1 kg/ha using whittit kikuyu with 120 kg of superphosphate using a great plains double disc seeder (photo 1). The paddock was spray grazed prior to seeding and then sprayed again with 2 L/ha of Glyphosphate, 100 ml of Le-mat and 200 ml of Talstar pre planting.

Andrew strategically uses Flexi-N to drive pasture growth at a rate of 50-80 L/ha depending on the season. This will be complemented with a full rotational grazing plan to take advantage of the out of season growth from the kikuyu.

This year has been particularly difficult with a very dry start. Normally a fair amount of summer rain can be expected however, this was not forthcoming and the break came very late putting considerable pressure on paddocks. Despite this the kikuyu has performed very well and kept the paddocks from blowing, which would have occurred otherwise.

Rob West manages a grazing property running SAMM's for meat and wool 30 km north west of Esperance in a 550 mm rainfall zone. He has a well established 50 ha paddock of Puna chicory that was planted in 2001 at a rate of 4 kg/ha (photo 2). The stand is very good and has far exceeded his expectations and has managed to increase in plant density over the last few years. Rob is on the committee of the local farmer sheep group called ASHEEP and recently hosted a tour of other farmers to New Zealand to see how chicory is managed on farms there.

Rob established the paddock to take advantage of out of season rainfall and excess moisture in the profile. He was particularly keen on the potential to provide high quality out of season feed and the opportunity to finish lambs and turn them out to market early. He plans to implement a cell grazing strategy in the paddock and is keen to investigate techniques to encourage recruitment.

Continued

Photo 3. Andrew Middleton's lucerne paddock in 2008 after a very dry start.

Photo 4. Quadrat in Andrew and Carolyn's lucerne paddock with a mixture or annuals and perennials.

Andrew and Carolyn Middleton are in a 550 mm rainfall zone and are situated 15 km north-east of Esperance. They run predominantly cattle and some sheep and have implemented an innovative alley farming system with between 25 and 30% of the property dedicated to blue gums.

They are rotationally grazing lucerne of varying ages along with improved annual paddocks. Lucerne was investigated because it had the potential to provide out of season feed, which would allow them to turn animals out to market earlier. They also would have the option of cutting the lucerne for hay.

Andrew has been trialling perennials for 25 years and has tried phalaris, lucerne, chicory, tagasaste and kikuyu and in late 2008 planted a paddock of Blue Ace lucerne (WAR 9). The lucerne is strip grazed and despite the tough season has performed well.

Phil Cleghorn and Erica Ayers are in a 550 mm rainfall zone and are situated 25 km north-east of Esperance. They are young farmers who have recently acquired the farm and have several well established kikuyu stands as well as some paddocks established recently. They run cattle and sheep for both meat and wool.

The paddock was sown to kikuyu in 2003 at a rate of 1 kg/ha (photo 5). 1.5 L/ha of Glyphosate was used about one month prior to planting and then 1 L/ha of SpraySeed just prior to sowing. They were keen on kikuyu because it had the potential to use out of season rainfall, providing valuable summer and autumn feed while controlling wind erosion.

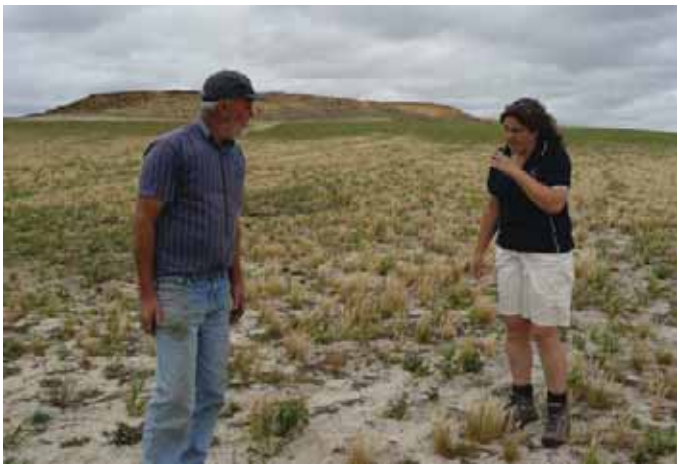
Grazing data for the annual and kikuyu paddock has been interesting with some considerable differences evident. The kikuyu has been stocked at 13 DSE/ha over a 13 month period with the paddock continuously stocked from January to late May 2008. This has been maintained through some tough conditions without the paddock even looking like blowing. Supplementary feeding was provided at times throughout the year with a combination of a lupin/barley mix and/or hay, especially through the January to May period during which the paddocks were very heavily stocked.

The annual paddock during this time was stocked at a rate of 11 DSE/ha. The paddock was destocked in January, February and May as well as other times through the year to avoid potential wind erosion. Supplementary feed was also provided to the annual paddocks with lupins, hay and barley provided at strategic times.

Photo 5. Phil and Erica's kikuyu paddock, notice the blowout demonstrating the potential for wind erosion on this country and the ability of kikuyu to stabilise light soils.

A different approach to establishment

Christel Schrank, TIP Officer, NACC, Geraldton, Ph: (08) 9964 1005.



2008 seeding on difficult white sands near Badgingarra. Photo December 08 courtesy of Christel Schrank

2007 seeding with hay cut instead of grazing in the first year. Photo December 08 courtesy of Christel Schrank

Lyndon Brown from Top Cattle Company can be described as anything but conventional. By establishing and maintaining perennial pastures his own way since the mid-1990s, Lyndon has demonstrated that various different approaches can still be successful in difficult white sands with 550 mm rainfall.

In December, NACC and Mingenew Irwin Group staff attending a Targeted Investment Program meeting at Badgingarra visited Parron Place on Cowalla Road to inspect pastures seeded in August 2007. Rhodes grass was the dominant species in the mix, with lucerne, chicory and other sub-tropical grasses such as signal and panic present in smaller quantities. The pastures had just been cut for hay with 1,800 round bales from 200 ha.

Manager Barry Swinbank said that baling instead of grazing in the first year allowed the rhodes grass runners to take root and the pasture to thicken up, rather than be torn off the plant by cattle. Using the hay on the property at different times of the year meant that there was only a small nutrient or seed loss from the property.

Parron Place is also participating in NACC's Soil Carbon Initiative – a collaboration between the Australian Soil Carbon Accreditation Scheme, NACC and DAFWA. It recorded the highest baseline carbon results of the twelve paddocks sampled across the Northern Agricultural Region.

Using a modified air seeder and seeding at a rate of 1.5 kg/ha, applying 1 t/ha lime, 100 kg/ha multimix fertilizer and one pass of weed control instead of two were other cost-saving establishment management techniques used. Lyndon has also applied a range of alternative soil ameliorants such as coal finings, chicken manure and fertiliser by-products.

The results are spectacular and attract a lot of passing interest, although Lyndon and Barry prefer if visitors talk to them first instead of just jumping the fence!

The Targeted Investment Program is jointly funded by the State and Australian Government, and aims to protect high quality assets from salinity and declining water quality over 750,000 ha in the Northern Agricultural Region by assisting landholders to adopt practices that will address these issues.

Contacts:

Christel Schrank, Targeted Investment Program Officer, NACC, Geraldton 08 9964 1005 tipo1@nacc.com.au

Jane Bradley, Investment Programs Manager, NACC, Geraldton 08 9964 9774ipm@nacc.com.au

Stock piles of soil ameliorants that Lyndon Brown plans to use to establish perennial pastures at Bonza Farm north of Moora this year. Photo courtesy of Christel Schrank.

Herbicide tolerance trial on perennial grasses

Arjen Ryder & John Moore, DAFWA, Albany, Ph (08) 9892 8531.

Why do a trial?

Plantings of perennial pasture species are increasingly being recommended to growers for increased productivity and environmental benefits. One of the hurdles with perennial grasses is that they are slow to start and therefore can be out competed by annual weeds within the first 6 months of establishment. The current recommendation is to control weeds prior to sowing either by cultivation or knock-down herbicides. Success has not always been achieved, with some resulting in increased weed competition leading to reduced plant density.

This trial examined the tolerance of 5 perennial grass species to a range of pre-emergent herbicides to find out if it was possible to reduce grass weed competition without causing damage to the perennial grasses.

Method

The trial was conducted on Mount Barker Research Station in 2007 with annual rainfall of 570 mm which is 86 mm below the average of 656 mm.

The 4 ha site was made up of 150 spray plots, 5 m wide by 20 m long, allowing for 28 different herbicide treatments and 2 controls. A variable rate sprayer using rates from 0.5 to 5 times label rate was used to apply the herbicides down the 20 m plot.

Results

Results are positive and show that there are a number of herbicides which can be used at rates which do not cause damage yet control weeds. Unfortunately none of the herbicides tested are 'registered' for use as a pre-emergent on any of these grass species.

Summary of results from pre and post (<6 months old) emergence Herbicide Tolerance trial. Rate required to control annual ryegrass with figures in brackets showing the range of rates causing damage to the young sown grass. Legend (damage to perennial): red - excessive, yellow - moderate, green - low or nil.

Pre-emergence herbicide	Tall Fescue cv. Resolute	Tall Fescue cv. Quantum	Tall Wheat Grass cv. Tyrell	Rhodes Grass cv. Callide	Kikuyu cv. Whittet
Simazine 900	1 kg/ha (1 - 1.1)	1 kg/ha (2.8 - 4.4)	1 kg/ha (2.8 - 3.1)	1 kg/ha (2.5 - 4.4)	1 kg/ha (4.4)
Atradex 900	1 kg/ha (1.6 - 1.7)	1 kg/ha (2.5 - 4)	1 kg/ha (1.6 - 2)	1 kg/ha (1)	1 kg/ha (3.1 - 4.4)
Bladex	2 L/ha (1.8 - 4)	2 L/ha (3.1 - 4)	2 L/ha (1.8 - 4)	2 L/ha (4 - 6.3)	2 L/ha (5 - 6.3)
Lexone DF 750	250 g/ha (300)	250 g/ha (600 - 800)	250 g/ha (500 - 1200)	250 g/ha (200 - 1000)	250 g/ha (500 - 1600)
Diurex 900	1 kg/ha (1.6 - 2)	1 kg/ha (1.6 - 3.1)	1 kg/ha (1.8 - 4.4)	1 kg/ha (0.8 - 1)	1 kg/ha (1.9 - 4.4)
Logran	(<30 g/ha)	(<30 g/ha)	35 g/ha (50 - 240)	(15 - 19 g/ha)	35 g/ha (120 - 200)
Glean	(10 - 14 g/ha)	(<10 g/ha)	(12 - 20 g/ha)	20 g/ha (63)	15 g/ha (16 - 50)
Yield	2.3 L/ha (1.8 - 3.1)	(<1 L/ha)	2.3 L/ha (1.2 - 6.3)	2.3 L/ha (2.5)	2.3 L/ha (4)
Dual Gold	(<500 mL/ha)	(<500 mL/ha)	(700 - 900 mL/ha)	(<500 - 900 mL/ha)	(1000 - 1200 mL/ha)
Di Pend (Stomp)	(2.5 - 3.1 L/ha)	(1.2 - 1.6 L/ha)	(1.8 - 3.1 L/ha)	(1.6 - 6.3 L/ha)	(1.2 - 3.1 L/ha)
Trifluralin 480	(<1 L/ha)	(<1 L/ha)	(1.8 - 3.1 L/ha)	(<1 L/ha)	(1.2 - 3.1 L/ha)
Post-emergence herbicide					
Atradex 900	1 kg/ha (2.8 - 4.4)	1 kg/ha (2.8 - 4.4)	1 kg/ha (3.1 - 4)	1 kg/ha (2 - 3.9)	1 kg/ha (3.1 - 3.5)
Simazine 900	500 g/ha (500 - 4400)	500 g/ha (800 - 1600)	500 g/ha (500 - 2500)	500 g/ha (1200 - 2000)	500 g/ha (1200 - 2500)
Logran 750	10 g/ha (31 - 90)	10 g/ha (12 - 56)	10 g/ha (20 - 90)	10 g/ha (25 - 50)	10 g/ha (25)
Ally	5 g/ha (7 - 40)	5 g/ha (6 - 31)	5 g/ha (12 - 31)	5 g/ha (16 - 20)	5 g/ha (10 - 12.5)
Glean	20 g/ha (70 - 90)	20 g/ha (20 - 90)	20 g/ha (45 - 90)	20 g/ha (50 - 80)	20 g/ha (20 - 40)
Brodal + Lexone	100 mL + 100 g/ha (300+300 - 450+450)	100 mL + 100 g/ha (150+150 - 450+450)	100 mL + 100 g/ha (350+350 - 450+450)	100 mL + 100 g/ha (150+150 - 250+250)	100 mL + 100 g/ha (100+100 - 250+250)
Diurex 900 W	0.5 kg/ha (0.45 - 2.2)	0.5 kg/ha (1 - 1.1)	0.5 kg/ha (0.8 - 1.2)	0.5 kg/ha (0.8 - 1.2)	0.5 kg/ha (0.4 - 1.2)
Lexone DF	250 g/ha (900)	250 g/ha (400 - 500)	250 g/ha (250 - 900)	250 g/ha (400 - 600)	250 g/ha (200 - 600)
Achieve + oil	(250 g/ha)	300 g/ha (600)	300 g/ha (800 -1000)	300 g/ha (1200)	300 g/ha (600 - 800)
Hoegrass	(<500 mL/ha)	(<500 mL/ha)	750 mL/ha (1000 - 1900)	750 mL/ha (2500 - 3900)	750 mL/ha (1200 - 1900)
Hussar	(<100 g/ha)	(100 g/ha)	200 g/ha (250 - 400)	200 g/ha (500 - 600)	200 g/ha (300)
Sertin + oil	(<250 - 300 mL/ha)	(250 - 300 mL/ha)	(<250 - 400 mL/ha)	500 mL/ha (800 - 1200)	500 mL/ha (630 - 1200)
Kerb 500 SC	(350 - 1600 g/ha)	(600 g/ha)	(<200 - 250 g/ha)	(300 - 1000 g/ha)	(300 - 400 g/ha)
Reglone	(400 - 600 mL/ha)	(400 - 900 mL/ha)	(<200 - 900 mL/ha)	(400 - 1000 mL/ha)	(600 mL/ha)
Select + oil	(<100 mL/ha)	(<100 mL/ha)	(<100 mL/ha)	(250 - 500 mL/ha)	(200 - 250 mL/ha)
Weedazol TL	(<0.5 - 4.5 L/ha)	(1.1 - 2.8 L/ha)	(<0.5 - 3.9 L/ha)	(1.2 - 2.5 L/ha)	(2.5 - 3 L/ha)
Propon	(<1 - 8 kg/ha)	(1.2 - 1.7 kg/ha)	(<1 kg/ha)	(2 - 5 kg/ha)	(2 - 2.5 kg/ha)

Saponin Toxicity - A potential grazing issue for perennial grasses

Dr Helen Spillman, District Veterinarian, DAFWA, Geraldton, Ph: (08) 9956 8512.

Potential for problems

Panic and signal perennial grasses continue to demonstrate their immense value to grazing enterprises, with their high palatability and good nutritive value. Lurking beneath the surface however, are clever chemicals called **steroidal saponins,** which have been demonstrated to cause significant disease or even death under certain conditions.

What do saponins do?

A healthy liver is responsible for breaking down many potentially dangerous chemicals so they can be safely used or removed from the body. Saponins in plants such as panic and signal grasses cause direct damage to the liver, resulting in **secondary photosensitisation.** This condition arises in sheep and cattle when the liver can no longer break down the toxic by-product of chlorophyll – the pigment which makes plants green. This by-product is called phylloerythrin and is activated by light, so when it is circulating in the blood and comes close to the skin surface, it becomes reactive and causes tissue damage.

Tissue damage can initially look like swelling under the skin, until the skin comes away to reveal raw sores. The areas of the body less protected by wool or dense hair are usually worst affected, such as the nose, ears and eyes.

Will animals recover?

If detected early, animals which are removed from the pastures, given shade and ready access to good quality water and hay, will usually recover. Occasionally tissue damage is severe around the eyes and lips, preventing the animal from seeing and grazing, possibly resulting in death from dehydration.

Because the saponins are damaging the liver, animals will not be able to break down protein essential for growth and development. While the liver has an amazing capacity to regenerate, it is possible that a severe case of photosensitisation or chronic exposure to saponins over time may inhibit the animal's future growth and production potential. If the liver damage becomes a chronic problem, future grazing may result in the problem reoccurring very quickly.

When are the risky times?

It is accepted that saponin levels in plants are likely to vary greatly under different environmental conditions. It seems that secondary photosensitisation occurs when animals are grazing stressed plants, which is likely to occur in late spring and summer when good rain is followed by a period of hot conditions. Young animals are most at risk, and animals which could have had previous damage to their liver may be more susceptible.

Signs of saponin toxicity

How can we reduce the risk?

More research is required for our local conditions, however best practice may be;

* Avoid grazing perennials when the plants are stressed.
* Reduce selective grazing by using higher stocking rates.
* Ensure a good mix of perennial plant species is available in the paddock.
* If you must graze in risky conditions, use adult animals which are less likely to be affected.

Upcoming Events

4 March - Perennial Pasture Field Tour (Dandaragan)

Pastures for Profit

17 March - Mt Barker

19 March - Dongara

(Helen will be presenting at Dongara)

Pasture Cropping workshops

23 & 24 March - Kojonup

26 & 27 March - Geraldton

Mixing Perennial Pasture Seed the easy way

Peter & Norman Summers, Dongara, Ph: 0429 086 270.

After some twenty years of direct mixing pasture seed out of a five in one bin for under sowing into grain crops with a small steel funnel we decided to upsize to a hopper made from scrap which held 60 kilograms of perennial pasture seed.

The hopper is fixed to a 50 mm water pipe hole in one of the elevators of a five in one bin. There is a control plunger in the hopper to start and stop the flow of pasture seed into the elevator as it is started and stopped. The plunger is attached to a control rope which is attached to the weight on the elevator start stop leaver.

This system mixes the seed with fertiliser very evenly and only mixes as much as is required when filling the seeder bin.

If seeding different varieties in alternative rows a similar system could be set up using two hoppers (one on each elevator).

In our case the 60 kilograms running through a 50 mm hole mixes with enough superphosphate to cover 20 ha at 3 kg of seed per ha.

Darkan Lucerne Establishment Demo Trial

Tom Bailey, Evergreen Farming, Katanning, Ph: (08) 9821 3333.

Trial site August 2008

The aim of this demonstration was to show different methods of lucerne establishment under a barley cover crop to reduce establishment costs.

A lot of farmers are concerned about the costs involved in establishing lucerne and the loss of production in the establishing year. Using a cover crop can help recoup these costs but may compromise the lucerne establishment.

A demonstration site was selected at Geoff and Kylie Whittakers property at Moodiarrup in the West Arthur Shire. Geoff was sowing a paddock with oats and lucerne for hay production. The demonstration site was a gently sloping gravely loam corner of the paddock.

Method

Thirteen treatments were used with three replications of each treatment. Plots were 2.4 metres wide by 10 metres long with a 5 metre buffer between each rep.

Sardi 10 lucerne (inoculated and lime coated) was sown at 5kg/ha across all rows, two treatments were lucerne only (a new lower winter activity variety was sown in one treatment), eleven treatments with barley sown at 10, 20, 40 and 80 kg/ha in three different row configurations. Barley in all rows, in alternate rows and one row barley and two without. The only exception was at the 80kg rate of barley the one in, two without was not used as this would have given a row rate of 240 kg/ha.

The paddock was knocked down with 1L/ha of glyphosate followed by 1 L/ha of sprayseed.

The trial was sown on the 4/6/08 with a cone seeder (triple disc with press wheels) with 130 kg/ha of super potash 3:1. No nitrogen was applied to the crop.

Table 1. Rainfall data 2008

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	30	38	65	61	117	7	33	36	37	13

Total 432 mm

Lucerne flea attacked the small lucerne seedlings in July but due to the wet boggy conditions the paddock could not be sprayed until August. LeMat at 150mL/ha was applied after the paddock dried out in August.

Measurements

Lucerne density (plants per square metre) measured in Spring and Summer.

Crop yield (ton/ha) and lucerne production (kg/ha) measured at harvest.

Results

On the 4th of December results show that the mixed 20, 40 and 80 kg/ha plots had the lowest plant numbers and the lowest lucerne dry matter.

The lower dry matter is mainly due to the smaller plant size. There is a strong possibility that a lot of these smaller plants will not survive over summer as their root systems were not properly developed.

The mixed barley sowings and the high barley rates in the alternate rows gave the highest barley yields but not as good a lucerne establishment.

Due to the late rain in November and December the barley was stained and had some mould on the tip so would most likely have been feed quality.

December 2008 - 80 kg/ha mixed lucerne and barley

Continued

December 2008 - alternate rows of barley, lucerne in all rows

December 2008 - one row barley and two without barley, lucerne in all rows. One of the preferred establishment options, although 1:2 barley gave a significantly lower barley yield.

Conclusion

Results so far indicate that for successful lucerne establishment, alternate rows or one of barley and two without will help cover costs and establish a good lucerne stand.

It is anticipated that plant counts at the end of summer will reinforce this conclusion.

Alternate row establishment is the method recommended by Evergreen. Alternate row seeding is easier to manage than one crop and two without and reduces establishment costs and usually results in a good lucerne stand

Table 2. data from the Darkan trial (average of 3 replicates)

		8 Aug 08	4 Dec 08	4 Dec 08	4 Dec 08
Treatment		**Plants/m² lucerne**	**Plants/m² lucerne**	**kg/ha lucerne**	**ton/ha barley**
1	mixed 40 kg/ha	65	66	69	1.62
2	mixed 80 kg/ha	69	51	30	1.59
3	alternate 80 kg/ha	66	59	63	1.54
4	Sardi 10 lucerne	69	93	279	-
5	mixed 10 kg/ha	67	64	101	1.34
6	alternate 40 kg/ha	63	71	81	1.28
7	mixed 20 kg/ha	65	57	68	1.56
8	new Sardi lucerne	97	125	210	-
9	1:2 10 kg/ha	69	77	144	0.65
10	alternate 10 kg/ha	58	68	106	1.19
11	1:2 40 kg/ha	82	78	125	0.88
12	1:2 20 kg/ha	78	89	167	0.89
13	alternate 20 kg/ha	73	77	92	1.17

Farmers experience with lucerne - Part 2

Perry Dolling, DAFWA, Katanning, Ph: (08) 9821 3261.

Background

In 2007 I interviewed 25 farmers who had experience and had been growing lucerne for many years. We wanted to identify the advantages and disadvantages of growing lucerne and how best to establish and manage it. This information would assist new lucerne growers. The interviews were from farmers in the low-medium rainfall zone, ranging from 325 to 510 mm and from Buntine in the north to Borden in the south and Kojonup in the west to Ravensthorpe in the east. The average area of lucerne per farm was 430 ha (25% of the pasture area) but there was a large range from 0 to 2000 ha of lucerne.

Part 1: Advantages and disadvantages of growing lucerne was published in the December 2008 newsletter.

Establishment and management

Most farmers use the more reliable practice of establishing lucerne by sowing it as a monoculture. 17 of the interviewed farmers chose this technique, 2 farmers sowed lucerne with other perennials and 4 farmers used both monoculture and cover cropping. Only 4 farmers used cover cropping as the only technique to establish lucerne. This is a more risky way of establishing lucerne due to the competitive effect of the crop and the variable climate. However, cover cropping does allow the costs of establishment to be offset by a greater amount with the sale of grain compared to monoculture, which relies on grazing for the return.

Most farmers wanted a mixed lucerne pasture once established (16 farmers out of 25), with the remaining 9 farmers wanting both mixed and pure stands. The mix would consist of annual legumes, grasses and broad leaf. Many farmers prefer a mix as it increases growing season productivity, particularly winter production, and reduces erosion in summer. Lucerne plant density also declines with time and farmers prefer to allow annual legumes to fill the spaces in between. A pure stand maximizes lucerne productivity which can benefit livestock and crop, but it requires at least 30 plants/m^2 to allow optimal production.

The average length of the lucerne stand was 4-6 years with some farmers leaving lucerne in for 12-13 years. The average crop length after the lucerne was 3-4 years. After 4-6 years (3-4 years in the lower rainfall region) of lucerne the plant density does reduce and therefore production of lucerne goes down. This is generally sufficient time for the lucerne to dry the soil and control weeds and build up soil nitrogen to benefit the crop. Farmers will let the stand go longer than 4-6 years if the paddocks are less suitable for cropping, if they are still getting production or if annual legumes have compensated for the declining lucerne plant density.

What constituted a successful stand varied from farmer to farmer and there was generally a large range in tolerance. All the farmers realise that establishment counts are often very high (>50 plants/m^2) but by the end of the first summer they will have declined and will continue to decline with time. Several farmers go by the saying that “the lucerne density declines to a plants/m^2 density equivalent to your average rainfall measured in inches” for example 16 inch rainfall area (400 mm) will result in 16 plants/m^2. Most farmers thought that 20-40 plants/m^2 was a success 6 months after establishment. Some farmers had a lower level of success of around 10-20 plants/m^2. Some farmers judge success on how it looks, how well it is growing, whether it is free of disease, has nodules and some judge success on its impact such as lowering the ground water or seeing clovers come back.

Most farmers still believe a pasture with a low plant density (1-3 plants/m^2) is still of value especially if clovers are part of the mix. For some farmers, having part of the paddock with lucerne was difficult to manage. One farmer mentioned that on his sandier soils if the density is 2-3 plants/m^2 then he limits grazing over summer due to risk of wind erosion. If the farmers had an establishment failure then they would tend to crop the following year, work out what went wrong and try again in the future.

Establishment tips

Many farmers said that if you can grow canola, you can grow lucerne as many of the establishment tips are similar. The first 6-8 weeks after sowing is the critical period, with weeds and insects the biggest challenges. To maximize the number of plants established per kg of seed sown, the following tips should be followed:

* Good weed control before establishing lucerne is critical as it is a poor competitor. Most farmers would advise controlling the weeds the year before if you are early sowing. If you are late sowing then use more than one herbicide application to control weeds before sowing. One suggestion is to kill weeds at the same time as the cropping program and then allow 4-6 weeks before sowing and if needed use another spray. A short fallow also builds up soil moisture.
* Paddock selection: don’t choose deep sands, subsoils

Continued

with aluminium, salt scalds or severely waterlogged sites. Know the history of the paddock, for example, if it has got herbicide resistant weeds.

* Time of sowing: allow sufficient time for the plant to develop before summer. Sowing after the cropping program allows more time for establishing the lucerne, greater time to control weeds as well as obtaining good moisture conditions.
* Seed placement and seeding conditions are also important and this includes sowing no deeper than 1 cm, sowing into soil moisture, ensuring good seed to soil contact (using press wheels or broadcast and harrow or roll), sowing into short stubble so it doesn't come up cloddy, sowing slower than for normal crop to get better seed placement and sowing after waterlogging events. Seeding machinery is not critical as long as shallow seed placement is achieved. One suggestion is to sow after a cereal crop so that you get fewer bugs, more friable soil and better seeding depth control, while the stubble gives wind protection and phosphorus levels have increased. Another suggestion is to sow perpendicular to damaging winds.
* Seeding rate: not too much or too little. The rate varied from farmer to farmer, ranging from 1.5 to 5 kg/ha, with most between 3-5 kg/ha.
* Fertility and inoculation: if you have a low soil pH use lime at least a year before sowing. The soil needs to be reasonably fertile so fertilise with phosphorus and potash if required and inoculate the seed. Check the flow of lime pelleted seed as it can cause distribution problems due to the build up of lime. One farmer used a small amount of starter nitrogen fertilizer to get it going while nodules develop.
* Insect control is also critical in getting a successful stand. Red legged earth mite is the most important insect to control as they can kill plants within hours. All farmers used at least one application of insecticide to prevent damage. However, other insects can also be a problem so this needs regular monitoring and insecticide application if required.
* First grazing: don't graze too early, the plant needs to be established so it can not be pulled out. It is best to wait until 10% flower before grazing as it gives time for the roots to bulk up and get the stock out quickly once the dry matter has been consumed. If radish is present then use a light grazing to remove the flowers and green seed.

Management tips

The main management tip is about good grazing management.

* The key point is to rest the stand when it is growing until it flowers at least once a year, and when it is dormant. Rotational grazing is preferred and the more paddocks you have the easier it is to rotationally graze. However, you do not have to rotational graze, so long as you give it a rest once or twice a year. During the growing season it is difficult to rotational graze because the available paddocks have been reduced due to crop and the sheep are difficult to move because they are lambing. Rainfall influences how much rest you should give, the harder the year the less rest you are able to give it. However, you give it some rest usually around harvest as you have plenty of stubble and the lucerne has stopped growing. This allows its roots to get going so it can withstand the summer. As one farmer said "I look at it in terms of how much pressure you're putting it under and then give it a spell, let the plant build up energy reserves in its root."
* You can set stock for a couple of months especially in winter, but don't continuously graze for long periods or eat crowns down to the ground as it will kill the plants or cause erosion. Try not to graze until 10% flower to maximize production.
* At the other end of the scale do not under graze. Try to graze before it's in full flower so it doesn't go woody or rank. If it is too tall they just pluck the leaves off.
* The animals need diversity in their fodder so allow access to grass or give them hay. With a pure stand watch that the sheep are gaining weight. With young stock allow it to get to the woody stage.
* It is helpful to have a good companion, allow annuals to come through such as subterranean clover and ryegrass to increase diversity and production during winter.
* Have plenty of water points.
* If you want more production keep it fairly clean but at a minimum reduce the weeds. Prevent barley grass, geranium, capeweed and ryegrass being major competitors. Use chemicals and grazing to keep weeds in check.
* When you get summer rain take the sheep off for a couple of days to let the new growth get going.
* Make it earn its keep, keep the stock up to it even in the tough years.

This work was supported by GRDC and the Future Farm Industries CRC.

Hillman flats never looked better

Katie Robinson, NRMO, Shire of West Arthur, Ph (08) 9736 2004.

The Lubcke family own a 2,600 ha sheep and grain property 10 km north east of Darkan. Their home property is mostly situated on the Hillman flats and due to rising water tables the property has been subject to growing areas of salinity.

The family has been experimenting with landcare for over 40 years. This includes tree planting, surface water management, pumping and deep drainage, however in the last few years they have been participating in various perennial pasture projects.

They started by planting 10 ha of puccinellia through Envirofunds and a very small saline area (about 30 m x 30 m) to Eyres Green Saltbush purchased at the Wagin Woolorama in 2006.

In 2008, with the help of the local Landcare Officer Katie Robinson, advice from Phil Barrett-Lennard from Evergreen and funding through Blackwood Basin Group and the South West Catchments Council, they expanded their "trial" to 30 ha of saline land. The area runs up the middle of the Lubcke's property 'Kambrook', and after many efforts to pump the water table down it was considered a lost cause until their trials with perennial pastures persuaded them to have another shot.

In August 2008, 30 ha of the saline area was ripped and mounded in belts with two rows of Eyres Green Saltbush and then a combine seeder width of tall wheat grass and puccinellia.

Craig Lubcke commented, "This is the most exciting work we have done so far and we are finally turning our unproductive land into what we consider a very valuable asset."

Planting was a whole family event and included BBQ's in the paddock, with Bob and Beth Lubcke, Craig and Helen Lubcke, Craig and Helen's children Amy and Todd, and the French trainee Paul all pitching in.

"It became very dry after planting and a series of frosts worried us, but in the end we had a very long season, which didn't help the cropping program but helped our saltbush and perennial pasture enormously."

The Lubcke's plan to first graze the area in April/May this year, depending on what happens with the season, and plan to mainly use it for deferred grazing at the break of seasons. They also plan to increase ustilisation of the area at different times of the year as they learn more about how to use the system.

In 2009 the Lubcke's are planting another 10,000 saltbush with perennial pasture to finish off the saline area at 'Kambrook' and after that will start plans for another couple of areas on 'Panorama'.

They also hope that they will be able to come back over the area at Kambrook in another couple of years with balansa clover or maybe even the salt tolerant *Melilotus sicilus* annual legume that has been trialled on their property by the Department of Agriculture and Food, which they are very excited about.

Now the best varieties come with the best protection

Darren Driscol, Heritage Seeds.

When choosing a high quality pasture it is wise to protect that investment with Agri-COTE Pro-Tech coating. AgriCOTE Pro-Tech is an exciting and unique seed coating technology that is tailored to the application and designed to give seed the best chance of producing a productive pasture and protect your investment in pasture seed.

The core components of AgriCOTE Pro-Tech are the use of advanced binding and protective polymers, and lime as the basis for the coating. Lime helps to increase the pH immediately around the germinating seed. The unique binding polymers developed by Heritage Seeds protect the seed and rhizobia and also bind the coat to the seed where it will be effective, not turning to dust in the bottom of the bag.

Other components of the coating vary depending on the application. The nutrient mix is adapted to provide the best start to the developing seedling, and other additives help promote early seedling growth and protect against insect pests, fungal diseases and abiotic stresses such as dry periods after germination.

Where applicable AgriCOTE pro-Tech also includes Dormbreaker the new seed dormancy breaking technology not available in any other seed coating.

It is generally accepted that Agri-COTE Pro-Tech coated seed is the means for ensuring the best possible returns on your pasture seed investment. This advanced coating technology is brought to you by Heritage Seeds, a company dedicated to investing in the breeding, developing and introduction of seed varieties and technologies suited for Australian conditions.

Agri-COTE Pro-Tech provides many benefits, including:

* insect protection
* increased resistance against biting and sucking insects
* deterrent to ant theft
* chemical growth promotant for improved early vigour
* improved tolerance to stress
* improved early root growth and development
* protection against damping off diseases
* immediate access to NPK nutrients and trace elements
* allows maximum early growth

"Show us your grass"

Too hot for lucerne?

Marcus Sounness snapped this photo of a lucerne hay crop growing in Katherine whilst on holidays in the top end. At the 2008 Pastures for Profit seminar a question was raised whether temperature was a limitation to growing lucerne in the northern agricultural region. Clearly not! What this highlights is management is the key to success with lucerne and we need to diagnose the cause of problems and identify limitations in different environments and manage accordingly.

Building soil fertility

Over the last decade Rob and Caroline Rex of Beaufort River have been establishing temperate perennial grasses on all their salt, waterlogging and frost prone valley floor paddocks. Species sown include Tall Wheat Grass, Phalaris, Cocksfoot and Tall Fescue. Rob is enthusiastic about the benefits that year round ground cover and a dense fibrous root system will bring to soil fertility and long term productivity. Photo 11 Feb 09.

Summer weed control

This new Kikuyu and Rhodes grass pasture was planted in late October on a farm near Condingup, Esperance. The perennial grasses have survived a chemical application of 120ml/ha of Garlon with 1% oil and 400ml/ha of Ester 680, which did an excellent job on the melons and mintweed. The establishing perennials will now have full access to recent summer rains, allowing them to fill in the gaps. Photo 20 Jan 09 courtesy Daniel Bell, Landmark, Esperance.

3 ton/ha Barley + 7 DSE/ha Sheep

Nick and Jane Trethowan of Kojonup have "pasture cropped" this lucerne paddock the last 3 years in a year. The 2008 Baudin barley crop went on to yield 3 ton/ha of malting barley. But in addition it was grazed once in late July by a large mob of ewes and lambs, and the stubble will be grazed at least 3 times over summer by weaner sheep. That brings the year round stocking rate to approx. 7 DSE/ha. Not bad for a crop paddock! Photo 11 Feb 09.