

final report

Project code: B.NBP.0490
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Date published: September 2011
ISBN: 9781741916324

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

PDS Demonstrating Recovery of Pasture Productivity, Mulga Lands

Bollon, South West Queensland

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

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Abstract

Four producer demonstration sites were established on three commercial properties in the Bollon district of South West Queensland. These sites demonstrated the recovery of pasture productivity through incorporation of sown pastures where land was severely degraded and tactical resting (spelling) of existing pastures in poor condition. Sites were selected and prepared using various mechanical processes and pastures sown during 2008. Sites were monitored at the end of each growing season and grazed occasionally through 2009 and 2010. Tactically spelled paddocks were also established in 2008, with the objective of spelling pastures in the early phases of growth after sufficient rainfall (30+mm) in spring or summer to stimulate effective pasture growth. The sown pasture paddocks demonstrated some alternative and companion grasses and legumes for the climate and soils of the Bollon region. Summer spelling of pastures improved land condition on all properties irrespective of pasture type or starting land condition. While the sown pasture paddocks are yet to recover fully, land condition has improved, pasture species composition has improved and suitable pasture species options were identified, that over time will result in greatly improved land condition. This PDS project has demonstrated management options for recovery of land condition, particularly after a number of dry seasons.

Executive Summary

For native and buffel pastures in South West Queensland recovery of pasture and land condition after periods of prolonged drought and/or overgrazing is critically important to productivity and stability of livestock grazing businesses. For recovery, managers need to implement changes in their pasture and grazing management to improve legume and 3P (palatable, perennial, productive) grass composition, soil fertility, and water availability.

An EDGENetwork Grazing Land Management workshop for Bollon graziers identified there was a need to demonstrate options for pasture recovery at local sites. The Producer Demonstration Site (PDS) group was formed and two key areas of pasture recovery were identified for investigation; 1. pasture renovation through sown pastures where few if any desirable pasture plants remained and 2. tactical spelling of existing pasture.

Four producer demonstration sites were established on three family-owned, commercial properties in the Bollon region of South-West Queensland. At each property both a sown pasture paddock and a tactical spelling paddock were identified. These paddocks were on land types that were common to South West Queensland and were in poor land condition at the commencement of the project. Sown pasture paddocks were prepared and sown in 2008 to a mix of potentially suitable pasture grasses and legumes. Establishment techniques were varied depending on skills and equipment available to each of the collaborating landholders, however best-bet industry information and advice from experts was followed where practical to ensure the best possible success of establishment.

Sown pastures were monitored throughout the three-year project at the end of each growing season (March or April each year). Management history and Stocktake land condition monitoring techniques were used to monitor pasture recovery together with yield and individual species frequencies.

Collaborating landholders identified an existing paddock within their property where they would implement tactical pasture spelling practices. Demonstration paddocks selected were in an average of C land condition. These were spelled either after sufficient rainfall for pasture growth (30+mm of spring/summer rainfall) or during the early phases of pasture growth in summer.

The demonstration sites proved that summer spelling of pastures improved land condition (by at least 1 condition score) at all properties irrespective of pasture type. These spelled paddocks appeared to recover more quickly than neighbouring paddocks and properties in the region due to tactical spelling management.

The pasture renovation demonstration paddocks resulted in improvements in land condition at two of the four sites; 'Yendon' and 'Woolerina'. Over time it is anticipated that the sown pastures at the 'Bindebango' and 'Arakoola' sites will increase in density, and land condition will rapidly improve. This has shown that there are some good alternative grasses and legumes for the Bollon district. Curly Mitchell grass is a native grass that showed promise as a sown pasture on the heavier alluvial soil types of the region. Bambatsi, Medway creeping blue grass, Floren blue grass, Caatinga stylo and Desmanthus were promising on the heavier soils of the coolibah and gidyea land types. Premier digit grass, Wynn cassia and Caatinga stylos established well on the sandier poplar box and pine land types. Persistence and resilience of these sown pasture species will need to be further reviewed into the future particularly after a number of lower rainfall years.

Two field days were held over the project's lifetime to demonstrate progress. 80 people from Southern Queensland attended and discussions indicated their views on pasture species and

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spelling to improve land condition were influenced by what they saw. Media coverage of the field days was wide (Qld Country Life, MLA's Feedback Magazine, local papers) reaching a broad audience. Subsequent enquiries fielded by cooperating graziers and DEEDI extension staff demonstrated the broad coverage of the PDS activities.

Recovery and improvement of grazing land condition, particularly in country that has undergone prolonged drought condition and/or periods of overgrazing is of great importance to sustainability and productivity of the meat and livestock industry. Carrying capacities and animal productivity are both dependant on land condition; and rapid recovery of land condition is becoming increasingly important due to changing rainfall patterns and associated climate variability. Routine 'effective rainfall' spelling of pastures as part of good grazing management, and the renovation of pastures where little or no native pasture exists, have both been demonstrated at these sites and as a result have provided options and key principles about pasture recovery to landholders and advisors in south west Queensland.

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1 Background

Land managers can only enhance their pasture's health and productivity with improved pasture management, where soil fertility and water availability is enhanced and undesirable pasture species are replaced by desirable (3Ps; Perennial, Palatable and Productive) species. The aim of this Producer Demonstration Site (PDS) project was to look holistically at both recovery of native pastures through tactical spelling and the role of exotic species for common land types in the Bollon region.

In August 2006 a group of local Bollon producers attended an EDGENetwork Grazing Land Management (GLM) workshop (figures 1 and 2). As a result of the workshop and associated planning session, the group identified areas of declining land condition on their properties as an issue, one which could be addressed by tactical grazing management where sufficient native pasture remained or by sown pastures where little or no favourable pasture existed.

For a number of years leading up to the commencement of this PDS in 2008, both the native and buffel based pastures in the Bollon region and much of South West Queensland had been declining in productivity and overall grazing land condition. Extended drought conditions, changes in grazing management and increased total grazing pressure had all contributed. The PDS project, resulting from participants' discussions at the GLM workshop, addressed the recovery and management aspects of these pastures. Participants determined options for improved productivity and stability of the grazing ecosystem and their businesses.

2 Project Objectives

By completion of this PDS project on 30 November 2010, the research organisation has:

1. Tested a number of species and mixes of pasture grasses and legumes for establishment ease, resilience and productivity in the soils and climate of the Bollon region
2. Demonstrated the value of "effective rainfall" spelling as a grazing management tool for improving land condition and pasture productivity
3. Communicated the results and learnings of the demonstrations to other landholders in the region via field days and media releases.

3 Methodology

3.1 Project Identification

DEEDI extension officers, Col Paton and Jane Hamilton, worked with group members to describe suitable conditions for testing pasture recovery options and expert advice was sought on suitable sown pasture options and the history of what had been tested in the south west previously. Very few pasture species had been tested commercially in the Bollon region and group members were keen to test a mix of grasses and legumes. Ease of establishment, productivity and persistence were of key importance to the selection of any sown pasture options. Also, companion pasture species for buffel were actively being sought to assist in improving pasture diet quality and to limit the impact of pasture rundown. The pasture spelling management was to review the value of "effective" rainfall spelling systems in low and variable rainfall areas as a practical, low-cost tool for improving grazing land condition.



Figure 1 and 2. Planning session and field session at Bollon GLM workshop August 2006

3.2 Demonstration paddocks

Four producer demonstration sites were established on three, commercial, family-owned properties in the Bollon district:

- 'Yendon' and 'Woolerina' owned by the Winks family (Andrew and Lauren Winks, Ian and Wendy Winks respectively), 60 km south of Bollon
- 'Bindebango' owned by Ernie and Lee Blayden, 30km north-west of Bollon
- 'Arakoola', owned by the North Family (Peter, Diana and George North), 20km north of Bollon

On each property a pasture recovery paddock was identified and a sown pasture paddock was established. The sown pasture plots consisted of a paddock of approximately 12 hectares where a mix of pasture species was planted. An enclosure was also constructed where individual strips of each species were sown to prove establishment (figure 3).

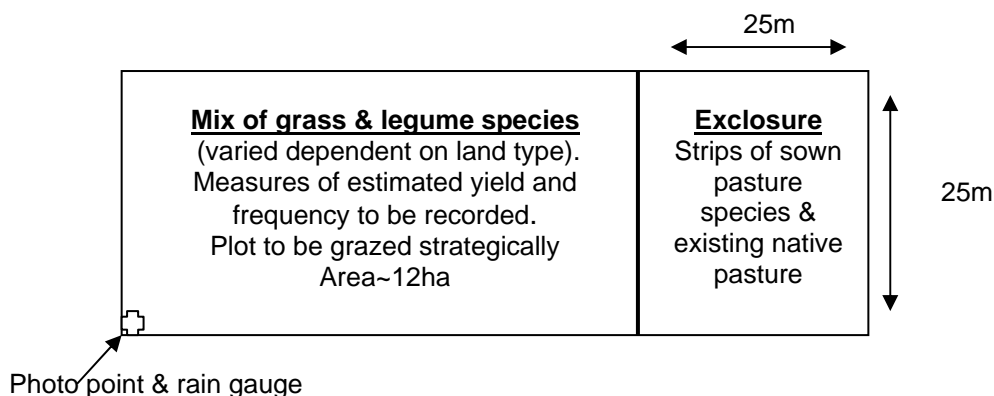


Figure 3. Design of sown pasture paddock established on each of the properties

3.2.1 Site selection

Three broad land types were targeted for testing pasture recovery options; poplar box, pine and mulga on deep sand, coolibah and gidyea country on heavier grey clay soils, and claypans which were originally poplar box and coolibah flats on floodplains. These land types were selected by landholders to be suitable for sown pasture and which were often degraded by selective grazing.

Paddocks were identified for sown pasture and spelling demonstrations on each of the properties by the landholders. These paddocks on average were in C (poor) land condition and were identified as priority areas for pasture recovery and management by landholders in their GLM planning process.

3.2.2 Establishment - Sown pasture paddocks and exclosures

Landholders were asked to prepare, fence and plant their sown pasture paddocks using best-practice techniques given the skills and equipment available. This meant each site was prepared slightly differently.

'Yendon' and 'Woolerina' - Winks family

Proposal paddock (Coolibah and Gidyeh land type) was in C/D condition at the start of the PDS project; it was dominated by gidyea burr, pig weed and a few scattered buffel and native pasture tussocks (figure 4).

The paddock was stick-raked, cultivated and treated with herbicide (RoundUp) in February and March 2008. It was sown with the pasture mix (table 1) on 3 September 2008 after 23 mm of rain (31 August). The Winks attempted to use an air-seeder to plant this paddock, which proved unsuccessful, mainly due to the Mitchell grass seeds bulky nature in comparison to the smaller size of other seeds. Remaining seed was spread manually.

Table 1. Sown pasture species 'Yendon', Gidyeh/Coolibah

Bambatsi
Medway Creeping Bluegrass (flowcoat)
Curley Mitchell Grass
Floren Bluegrass
Caatinga Stylo (flowcoat)
Sequel Lucerne



Figure 4 and 5. Paddocks at 'Yendon' and 'Woolerina'

The Horse paddock at 'Woolerina' (poplar box and pine on deep sands) was allocated as a sown pasture demonstration paddock and was also in C condition. Preparations for the sown pasture included stick-raking and cultivation. Seed was manually spread following cultivation on the 11 September (after 23 mm of rain on 31 August and 26 mm on the 5 September). Table 2 lists the pasture species mix. Both paddocks at 'Yendon' and 'Woolerina' required fencing and water points prior to planting.

Table 2. Sown pasture species 'Woolerina', Poplar box on red soils

Premier Digitaria
Caatinga Stylo (flowcoat)
Wynn Cassia (flowcoat)
Sequal Lucerne
Tagasaste (strips in enclosure only)

'Bindebango' - The Blayden family

GLM paddock at 'Bindebango' was fenced into an existing paddock on a claypan that was classified in D condition. This claypan was originally a Coolibah land type that had degenerated over a number of decades.

At commencement of the PDS project this paddock had very little vegetation, most of which were annuals and weeds. The Blaydens fenced and deep-ripped during February and March 2008 in readiness for planting (Figure 6). In March, Eyre-Gray saltbush seedlings were hand planted and watered into strips within the trial area (figure 7). Due to prevailing dry conditions after planting, the surviving saltbush seedlings were transplanted into the house yard where they could be more easily watered. The surviving saltbushes were transplanted back into the GLM paddock on 24 October 2008. The GLM paddock was again deep ripped and sown with grass, legume mix (listed in table 3) on the 15 September 2008 after 50 mm of rain in early September.



Figure 6 and 7. GLM paddock at 'Bindebango' being prepared and saltbush planted

Table 3. Sown pasture species 'Bindebango', Claypan

Curley Mitchell Grass
Floren Bluegrass
Medway Creeping Bluegrass (flowcoat)
Marc Desmanthus
Silk Sorghum (strips in enclosure only)
Eyre Green Saltbush

'Arakoola' - North family

Goat paddock at 'Arakoola' was selected for the sown pasture trial. The paddock was primarily poplar box and pine on deep sands and was in C land condition, dominated by greybeard grass (*Amphipogon caricinus*, an unpalatable non-3P grass) and paddy melon weed (figures 8 and 9). To prepare this paddock for sown pastures the North family fenced off a 12 hectare section of an existing paddock and added an additional water point. The paddock was cultivated with a stick-rake and dozer and sown (by hand) in March 2008 with species listed in table 4.

Table 4. Sown pasture species 'Arakoola', Poplar box on red soils

Premier Digitalia
Caatinga Stylo (flowcoat)
Wynn Cassia (flowcoat)
Sequal Lucerne
Tagasaste (strips in enclosure only)



Figure 8 and 9. Goat paddock at 'Arakoola' prior to PDS project, dominated by Greybeard

3.2.3 Establishment - Effective rainfall spell paddock

Landholders were asked to identify an existing paddock within their property where they would implement 'effective' rainfall spelling practices throughout the three-year PDS project. Each landholder chose a paddock that was, on average, in C condition that was practical for them to spell either after effective rainfall (30+mm of spring/summer rainfall) or during the early phases of pasture growth in spring/summer. These paddocks did not require any infrastructure developments, simply changes in grazing management to allow for pasture spelling.

3.3 Monitoring

Practical and paddock based monitoring was used in this PDS project to document and illustrate broad landscape changes resulting from the implemented recovery strategies. In terms of land condition, three years is a short time to measure large changes unless management or weather conditions change significantly. Rainfall was also measured to explain some of the variation in response to management change.

At the start of the project and at the end of each growing season (March/April) all demonstration paddocks had Stocktake land condition monitoring undertaken. This included soil surface condition, ground cover, pasture condition, density of 3P (perennial, palatable and productive) species and fixed point photographs. In the sown pasture paddocks dominant species were recorded by frequencies, measured in 20 quadrats at set intervals across the paddock. Pasture yield was also estimated (Kg DM/ha) and recorded at each site.

Landholders kept diaries of basic activities relating to the demonstration paddocks and management history was documented, particularly in relation to the effective-rainfall spelled paddocks.

3.4 Communication

This PDS project was not only about demonstrating options for pasture recovery but also very much about capacity building. The project created opportunities for land managers (both within the PDS project group and other neighbours and interested people) to work with DEEDI staff, MLA and other industry experts to collectively develop their knowledge and skills in grazing land management, particularly that associated with pasture and land condition recovery.

3.4.1 Field days

A major objective of the PDS project was to communicate the results and learnings of the demonstration sites to other landholders and the broader industry. Field days were planned and designed to demonstrate the many aspects of this PDS project as well as additional learnings which collaborating landholders experienced throughout the years.

Two field days were held at the demonstration sites (appendix 2). Each field day had industry guest speakers and the collaborating landholders described their experiences with the pasture recovery options. The field days allowed interested landholders and stakeholders to see the demonstration paddocks first hand and hear results discussed.

3.4.2 Media

Both print and radio media were used to publicise the PDS project and field days. This media was additional to printed flyers and invitations mailed and emailed to all graziers in Bollon region.

4

Results and Discussion

4.1 Overview

Seasonal conditions, particularly rainfall, contribute strongly to trend in condition of pastures and this was also the case in this PDS project. Table 5 shows monthly rainfall averages for Bollon. Rainfall varied between the properties but the overall trends in monthly rainfall were similar to that at the Bollon weather station.

It is important to note that for each of the three years of this PDS project, annual rainfall was above the long-term average however, while six out of the last ten years were below average. Variability is a significant characteristic of rainfall in this region and pasture recovery management when seasons are favourable is crucial to the sustainability and productivity of both pastures and beef and sheep grazing businesses.

Table 5 Monthly rainfall for Bollon (Source Bureau of Meteorology, 2010)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2000	43.2	72.2	80.0	10.4	43.8	15.0	4.0	19.2	0.0	100.8	242.6	10.6	641.8
2001	38.2	31.6	8.2	0.0	27.6	46.6	36.4	0.0	7.8	64.8	105.0	8.0	374.2
2002	24.8	89.6	5.6	10.6	1.6	30.0	9.2	0.0	8.2	0.0	1.2	16.6	197.4
2003	6.0	38.4	33.4	34.9	19.8	16.0	44.4	21.0	0.0	46.2	22.2	35.9	318.2
2004	169.3	24.4	102.3	17.2	14.7	0.0	8.4	21.0	55.3	2.0	23.0	152.5	590.1
2005	0.0	6.4	0.0	0.0	53.9	89.8	2.4	8.9	15.5	57.7	22.0	14.1	270.7
2006	83.6	14.5	16.6	33.2	5.1	45.6	31.9	2.5	2.0	0.0	10.7	25.0	270.7
2007	32.5	22.7	60.9	11.2	39.4	9.3	0.0	27.5	21.8	15.9	101.6	126.8	469.6
2008	88.0	79.8	32.3	0.0	8.9	63.4	18.7	5.4	70.6	18.7	52.7	59.6	498.1
2009	104.3	16.7	0.0	51.5	46.3	65.5	7.6	1.5	25.0	50.8	42.2	222.6	634.0
2010	46.0	118.4	268.9	17.6	16.6	12.8	82.5	35.4	57.8	67.8	140.8		864.6
Average 1885-2010	63.1	53.4	49.9	31.6	32.7	29.9	27.8	22.3	24.5	35.6	41.6	52.2	461.7

4.2 Testing a number of sown pasture species for establishment ease, resilience and productivity in the soils and climate of Bollon region

4.2.1 Overview

This demonstration has shown there are some alternative or companion grasses for Buffel and that there are some promising legumes for the region.

The success with curly Mitchell grass at Bindebango demonstrated its promise for the heavier alluvial soils, and the legume Desmanthus shoed potential for these soil types as well. Bambatsi, Medway creeping blue and Floren bluegrass demonstrated their potential on the heavier soil types at Yendon as did Caatinga stylo.

Premier digit grass, Caatinga stylo and Wynn cassia demonstrated strong potential in the lighter soils at Arakoola and Woolerina.

Of course, long-term persistence and resilience of these pasture options could not be fully evaluated within the three years of this PDS project and needs to be monitored in future years, particularly following below-average rainfall years.

4.2.2 'Yendon' and 'Woolerina'

Initially, establishment was poor in Proposal paddock on the coolibah and gidyea site at Yendon but the pastures thickened in the summer of 2009/10. Bambatsi was dominating in large areas of this paddock (found in 55% of quadrats) at sampling in January 2010, while curly Mitchell, Floren bluegrass and Medway creeping bluegrass occurred in 20%, 25% and 15% of quadrats, respectively. Caatinga stylo was scattered but didn't occur in quadrats sampled. Figures 10 and 11 show Proposal paddock in 2010 with establishing pastures.

The soil condition in this paddock was rated as A and pasture condition rated as B to give an overall land Condition rating of B for the paddock (table 6). Once the density of sown grasses and legumes thicken some more, this paddock should move to A condition. Pasture yields averaged 1,850 kg/ha in January 2010 and 2,000 kg/ha in November 2010.

On the poplar box and pine site (Horse paddock) at Woolerina pasture establishment was highly successful, with overall pasture yielding 3,300 kg/ha in January 2010 and 5,250 kg/ha in November 2010 (figures 12 and 13). Buffel grass is now dominating (occurred in 95% of quadrats), with Premier digit grass second dominant (occurring in 50% of quadrats) in November 2010. Wynn cassia and Caatinga stylo are thick in patches, Wynn occurred in 20% of quadrats, and Caatinga in 15%, at sampling in January 2010 but abundance of both was slightly reduced to 10% and 5%, respectively by November 2010. Full details of monitoring assessment can be found in appendix 1.



Figure 10 & 11 – Proposal paddock, 'Yendon' November 2010. Bambatsi, Floren Bluegrass and curly Mitchell grass.



Figure 12 & 13- Horse Paddock 'Woolerina' - November 2010. Buffel grass, premier Digit, and Wynn Cassia

4.2.3 'Bindebango'

Ernie Blayden deep ripped GLM paddock and sowed in September 2008. Rain in September and October germinated many seeds but subsequent dry weather and heat resulted in a much reduced establishment. At the end of April 2010, there was a good scattering of curly Mitchell grass, some Medway creeping blue and a few plants of *Desmanthus* (each of these occurred in 5% of the quadrats sampled). There was a high death rate of salt bush seedlings, despite deep ripping and careful management.

With good rain between July and November 2010, vegetation yields had almost doubled from 800 kg/ha in April to 1,400 kg/ha at sampling in November 2010. Major species were saltbushes (native species), roly poly, early spring grass and ray grass. Although none of the sown pastures were recorded in quadrats (only 20 quadrats recorded at intervals for the paddock) quite a few plants of *Desmanthus*, curly Mitchell grass, and Queensland blue grass were seen across the paddock indicating that they may spread and dominate in the future given suitable management (figures 14 and 15).

Land condition of the paddock progressed from D in August 2008, prior to ripping and sowing pastures to C condition on all occasions sampled (table 6). While greater improvements in land condition may have been expected, the paddock was severely depleted of organic matter, rainfall runoff rates were very high and it was an extremely harsh environment for seedling establishment prior to ripping and sowing with pasture in 2008. The ripping helped trap some moisture but the surface sealed again quickly after rainfall which reduced establishment. The encroachment by native saltbushes and weeds has allowed organic matter and soil condition to recover so that the better pasture species may now be able to establish from seed shed by existing sown plants.

There may be enough curly Mitchell to develop into a reasonable pasture over time. In fact, Ernie has been so encouraged by what he has seen with curly Mitchell grass to sow it in other areas and he has had good success.



Figure 14 & 15 – GLM Paddock, 'Bindebango'. Left landscape photo. Right, trayback photo (*Desmanthus*). Nov 2010

4.2.4 'Arakoola'

Peter & George North stickraked Goat paddock and sowed in March 2008. Prior to sowing the paddock was in C/D condition, with pasture dominated by greybeard, a tough unpalatable grass. Some rain in June germinated the grasses and legumes and the lucerne grew well but did not persist. Good spring and summer rainfall since 2008 helped establish a reasonable sown pasture, although greybeard has returned to dominance.

Greybeard, Premier digit grass and buffel dominated when pastures were sampled in January 2010 (figures 16 and 17) and November 2010. Pasture yield averaged 2,250 kg/ha in January and 1,800 kg/ha in November. Over 1,400 goats grazed the paddock between January and November, reducing the yield of more palatable sown species, however the paddock is planned to be spelled over summer to allow recovery.

Greybeard was found in 70% of quadrats, Premier digit grass was present in 35%, buffel in 20 %, Wynn cassia in 10% and Caatinga stylo in 5% of quadrats at sampling in January 2010. By November 2010, greybeard was found in 70% of quadrats, buffel was present in 35% of quadrats, Premier digit grass in 30% and cassia in 15% of quadrats.

This pasture has established reasonably well and Premier digit grass looks like providing an alternative to Buffel with some legume options. Land condition of the paddock at the conclusion of the demonstration was in C land condition but with continued summer spelling, should easily progress to better condition as Premier digit grass and buffel increase.



Figure 16 & 17– Goat Paddock, 'Arakoola', February 2010.

Table 6 Monitoring results for each of the demonstration paddocks at each site

Property	Paddock	Date	Soil			Overall land Condition
			Condition	% Cover	Pasture Condition	
Yendon						
2009	PROPOSAL	28/01/2009	B	70	D	D
Feb-10	PROPOSAL	10/02/2010	A	75	B	B
Nov-10	PROPOSAL	24/11/2010	A	85	B	B
Nov-10	BILLY GOAT	24/11/2010	A	80	A	A
Woolerina						
2009	HORSE	29/01/2009	B	70	B	B
Feb-10	HORSE	1/02/2010	A	85	A	A
Nov-10	HORSE	24/11/2010	A	95	A	A
Arakoola						
2009	GOAT	29/01/2009	B	70	B	B
Feb-10	GOAT	11/02/2010	B	75	C	C
Nov-10	GOAT	25/11/2010	B	90	C	C
Feb-10	FRONT	11/02/2010	A	80	A	A
Nov-10	FRONT	25/11/2010	A	90	A	A
Bindebango						
2009	GLM	27/01/2009	B	50	C	C
Feb-10	GLM	29/04/2010	B	60	C	C
Nov-10	GLM	26/11/2010	B	70	C	C

4.3 Demonstrating value of "effective-rainfall" spelling as a grazing management tool for improving land condition and pasture productivity

4.3.1 Overview

Each of the three 'effective-rainfall' spelling demonstration sites were managed slightly differently, however each paddock was spelled either after 'effective rainfall' (30+mm) and/or during spring and summer. Land condition and pasture productivity were improved at all three sites by spelling.

The value of spelling for pasture recovery was effectively demonstrated at these sites, with collaborating producers and neighbours extending, or reinstating, this practice to other paddocks and properties. The value of spelling was assisted by good seasons, however this highlighted the importance of good grazing management, as pastures were recovering after drier years. The following sections describe the recovery process for each demonstration site.

4.3.2

'Yendon' and 'Woolerina'

Paddock for effective rainfall spelling demonstration

Billy Goat Paddock (1214 ha). This paddock was identified as a priority area for pasture recovery. The Winks family had been trying to address poor land condition in this paddock through mechanical means and grazing management for a number of years prior to the commencement of the PDS project.

Land type

Poplar Box and Gidyea on red soils.

Management history

Billy goat paddock is located near the yards on 'Yendon'. It has a history of running many feral goats (approximately 500 goats were harvested from this paddock each year), which has reduced land condition over time.

Paddock timber was pulled in 2004 and buffel was aerially sown in 2005. Since paddock developments (2004/2005), the paddock has been spelled often in summer for 2-3 months then lightly stocked with short periods of heavy stocking (crash grazing).

Figures 18-21 depict changes in Billy Goat paddock from 2005 to 2010.

Table 7 Land condition changes in Billy Goat Paddock

Year	Land condition	Stocktake Monitoring	Observations and Management
2008	C *Classified in D condition in 2004	Soil condition: 1 Ground cover: n/a Pasture condition: 3 Yield: n/a	Paddock dominated by wiregrass*, saltbushes, greybeard and some newly establishing buffel plants. Management: Paddock spelled over summer
2009	B	n/a	Dominated by buffel spp Management: Paddock spelled over summer
2010	A	Soil Condition: 1 Ground cover: 90% Pasture condition: 1 Yield: 4000 kg/ha	Dominated by buffel and glycine. Currently stocked with 300 breeders. Management: Paddock spelled over summer

Paddock Photos



Figure 18 and 19 – Billy Goat paddock 2005



Figure 20 (left) Billy goat paddock winter 2007. Figure 21 (right) March 2010

At the end of the project the Winks family described the benefits of "effective" rainfall spelling to their business;

- "Summer spelling is the biggest lifter of productivity". It is important to spell paddocks when establishing pasture; both native pastures after paddock developments (pulling) and sown pastures.
- "Need to spell paddocks every couple of years".
- "Rainfall is the biggest variable in spelling pastures for recovery. Effective rainfall at various time of the year can help depending on the timing of the rain and management".

Over the project duration Bollon has experienced two exceptional La Nina years which has resulted in excellent summer seasons for rainfall. This alone has helped significantly in terms of pasture recovery, however implementing an 'effective' rainfall spell has been noted as an advantage by all collaborating landholders.

4.3.3 'Bindebango'

Paddock for effective rainfall spelling demonstration:

The Blayden family already use spelling in many paddocks at 'Bindebango'.

Land type:

Mixture of Coolibah on gray clays, claypans and poplar box on red soils

Management history:

Blayden family use spelling in many paddocks at 'Bindebango' to allow pastures to recover and improve in condition. Their system is to bring sale and growing cattle from another property in the district to 'Bindebango' in autumn and turn them off within a few months to a year. This allows many of the paddocks to be spelled over the summer months when it is critical for pasture recovery. During, and due to, the extended drought conditions prior to the commencement of this PDS project, the Blayden's had 'Bindebango' very lightly stocked, which has helped pasture recovery when good seasons returned. Furthermore, Ernie has cutter barred scalded areas and sown silk sorghum in strips. This has worked well to improve infiltration, lift soil organic matter and also provide alternative forage sources, allowing other native and buffel pasture paddocks to be spelled.

Results

Due to the summer spelling system implemented, many paddocks on 'Bindebango' have improved from C and D land condition to high C or B land condition, particularly with good recent seasons.

4.3.4 'Arakoola'

Paddock for effective rainfall spelling demonstration:

Front Paddock (416.7 ha). This paddock was identified as a priority area for pasture recovery by the North family, however most of the paddocks on 'Arakoola' get a summer spell every three years or so in an informal rotational type system.

Land type:

Poplar box, pine and mulga red soils

Management history:

'Arakoola' was purchased by the Norths in September 2004. Front paddock had been stick-raked and sown to buffel grass in 2000. At the start of the PDS project this paddock was classified in C land condition and was a "dust bowl in droughts (2005-2007)".

Table 8 Land condition changes in Front Paddock

Year	Land condition	Stocktake Monitoring	Observations and Management
2008	C	Soil condition: 1 Ground cover: n/a Pasture condition: 3 Yield: n/a	Paddock contained only scattered buffel tussocks Management: Paddock spelled over summer
2009	B	n/a	Dominated by buffel spp Management: No stock for most of 2009; 30 head Feb-October. Spelled October 2009 till 2 January 2010
2010	A	Soil Condition: 1 Ground cover: 90% Pasture condition: 1 Yield: 3500 kg/ha	Dominated by mulga Mitchell, mulga oats and buffel. Management: 55 weaners then 37 weaners from 2 January till 4 February. Paddock had steers from April to November. Will get a spell again from December till March 2011.

Spelling for pasture recovery and productivity was noted by the Norths at the end of the project to have definitely improved pasture composition, particularly in Front paddock. It has also resulted in better condition of cattle and increased weaning rates (85% in 2008 to 87% in 2010). In 2010, steers in front paddock averaged 1.3 kg/head/day (over a 30 day period in October and November).

4.4 Communicating the results and learnings of the PDS project demonstrations to industry

4.4.1 Field days

As proposed, two major field days were conducted as part of this PDS project;

- 12th March 2009

The first PDS field day was a roving field day held between 'Bindebango' and 'Arakoola'. The field day had a number of guest industry speakers on hand to answer questions and provide insights on pasture selection and establishment, including Richard Silcock, Brian Johnston, Trevor Hall and Col Paton (DEEDI) and Tony Illing (Illing pastures). The field day was well attended by over 40 people, most of whom were local landholders (figures 22 and 23). Comments from attendees on the day were overwhelmingly positive.

Demonstrating recovery of pasture productivity, Mulga Lands - Bollon

- 6th May 2010

The second and final field day was hosted by the Winks family at 'Yendon' and 'Woolerina'. This was a combined field day with the Bollon NLIS for herd management PDS project. Again a number of industry guest speakers were in attendance. The field day was well attended, with 40 participants including local landholders, regional Agribusiness bankers, and NRM group representatives (figures 24 and 25).

The focus of each of the field days was to allow people to see first-hand the demonstration paddocks on each property and to provide them with some commentary from industry experts on possible reasons for success or otherwise of both pasture recovery options. Importantly, each of the PDS collaborating landholders gave personal accounts of what they had learnt by participating in the PDS project and what they believe were successes and/or failures. The field days generated discussion about pasture recovery and grazing land management and provided key take home messages for participants.

Field day photos



Figure 22 & 23 – Field day 'Bindebango' (left) and 'Arakoola' (right) March 2009.



Figure 24 & 25 - Field day photos 'Woolerina', May 2010

4.4.2 Media

The PDS project generated significant radio and print media which informed industry of upcoming field days and key results. Articles appeared in the MLA Feedback Magazine (May 2008 and April 2009) and a Feedback TV story was also produced at the first field day. The story, 'The rundown on pasture recovery' was released in Feedback TV episode 6 June/July 2009. Numerous other articles appeared in the Rural Weekly (October 2008, April 2010), Queensland Country Life (March 2009, April 2009, February 2010, April 2010, May 2010. Circulation 34,099 readers), Western Times (Charleville March 2009, October 2008. Circulation

1935), Balonne Beacon (St George October 2008. Circulation 1480) and Maranoa Mail (March 2010).

Lauren and Andrew Winks were also interviewed by Arlie Douglas on ABC radio twice throughout the project about results to date and upcoming field days.

The media generated by this project was a testament to the enthusiasm of collaborating landholders and DEEDI project coordinators. Each release provided key take-home messages related to pasture recovery options as well as promoting MLA's PDS projects generally to the broader industry. They also helped to document the process of the project over the three years to interested stakeholders. Some examples of media released have been included in appendix 2.

5 Success in Achieving Objectives

5.1 Objective One: Testing a number of sown pasture species for establishment ease, resilience and productivity in the soils and climate of Bollon region

Twelve different grass and legume pasture species were tested for establishment ease, resilience and productivity on three different land types common to the Bollon region. Sown pastures were established under practical conditions given best-information, skills and equipment available to each collaborating landholder.

This demonstration has shown there are some alternative or companion grasses for buffel and that there are some promising legumes for the region. Persistence and resilience of these pastures could not be fully evaluated in the three years of the PDS project and should be checked in future years, particularly following below-average rainfall years.

5.2 Objective Two: Demonstrating value of 'effective rainfall' spelling as a grazing management tool for improving land condition and pasture productivity

The value of 'effective rainfall' spelling as a grazing management tool for improving land condition and pasture productivity was clearly demonstrated within this PDS project. For each of the three demonstration sites, both land condition and pasture productivity were improved where spelling was allowed during spring/summer months and/or after 'effective rainfall' (30+mm).

Paddocks that were in C condition, with limited native or buffel pasture remaining, were improved over the three years of the project to B or A land condition. The benefits of spelling pasture for recovery have been a key message resulting from this project. Rainfall is a crucial factor to pasture recovery particularly after a number of dry seasons, and planning to spell paddocks after effective rainfall provided a significant advantage for improving land condition and pasture productivity.

5.3 Objective Three: Communicating the results and learnings of the project to industry

Results and key learnings from the PDS project were extended to industry in a number of ways, including field days, media releases and annual progress reports. As a result of this PDS project a number of neighbouring properties are applying both effective rainfall strategies and some plan to establish some sown pasture options to assist with pasture recovery and increased productivity.

6 Impact on Meat and Livestock Industry – now & in five years time

6.1 Short-term impact on Meat and Livestock Industry

6.1.1 Pasture recovery

The PDS project has demonstrated valid pasture recovery options for the Bollon region. It has shown that there are some alternative or companion grasses for buffel and native grass pastures and that there are some promising legumes for the region. The project has also demonstrated the success of routine summer spelling of pastures to improve land condition, and thus carrying capacity, irrespective of the pasture type. Feedback from collaborating landholders and field day attendees indicate that they have taken the key principles from these recovery demonstration sites and plan to apply them to other paddocks and properties. Management strategies for recovering land condition, particularly after prolonged drought conditions, are critical for productivity both in the short and long-term. Producers involved in this project have noted higher stocking rates, live-weight gains and higher weaning percentages from demonstration paddocks that have been either spelled or established with sown pastures.

6.1.2 Communication and adoption

This project has enabled further communication and extension work between landholders in South-West Queensland, DEEDI staff and MLA. There has been significant collaborative learning about pasture recovery and general grazing land management principles as they are practically applied through this demonstration. Producers involved also feel they have been directly involved with relevant industry research, development and extension, which is very satisfying for all involved.

Through the media generated from this project, key messages about pasture recovery, grazing land management and PDS projects have been extended to the broader industry. In particular the FeedbackTV episode (June/July 2009) has been a talking point for landholders. Enquiries about the project, its progress and applicability of the key principles to individual situations were received from MLA members in both QLD and NSW.

A majority of field day attendees have expressed willingness to adopt some of the key principles from this project within their management.

6.1.3 Links with other projects

All collaborating landholders within this PDS project expressed interest in being involved in other DEEDI and MLA projects, so as to ensure continual improvement of their management and businesses. As a result, two of the three landholders have volunteered to be case-study properties for the Maranoa Balonne Northern Grazing Systems (NGS) Project phase II.

6.2 Long-term impact on Meat and Livestock Industry

6.2.1 Land condition and productivity

Improvements in land condition through pasture management for recovery is important to the meat and livestock industry, as carrying capacity and animal productivity are both underpinned by land condition. Rapid pasture recovery during good seasons is vitally important to the viability of beef businesses particularly with the additional influence of increase climate variability with climate change. This PDS project has demonstrated pasture recovery options that have resulted in a quick recovery of land condition following prolonged drought conditions. Pasture and animal

productivity improvements have been noted by landholders and anecdotally these demonstration sites, both sown pasture and spelled paddocks, have recovered more rapidly than neighbouring paddocks and properties on similar land types.

7 Conclusions and Recommendations

7.1 Conclusions

7.1.1 Sown pasture options for Bollon region

Where little or native pasture remained on paddocks, sowing pastures was found to be a relatively quick way of improving land condition and productivity. This PDS project has shown that there are a number of sown grass and legume options suitable for the land types and the climate of the Bollon region. Premier digit grass, Caatinga stylo and Wynn cassia are suited to lighter poplar box on red soil land types. For heavy soils that have developed into claypans, curly Mitchell grass and Desmanthus are options. Bambatsi, Medway creeping bluegrass, Floren bluegrass and Caatinga Stylo have demonstrated their potential on heavier clay soils (Coolibah and Gidyea land types).

7.1.2 Pasture recovery through effective rainfall spelling

Regardless of quantity and timing of rainfall events, spelling after rain during the growing months is beneficial to pastures and results in improvement of land condition. The more rain and longer the spell after rain, the quicker the recovery from poor pasture condition regardless of land type.

7.2 Recommendations

7.2.1 Sown pasture options for Bollon region

It is recommended that land holders thinking about sown pastures for the Bollon region continue to observe these demonstration paddocks over the next few years to better determine persistence and resilience of these pasture species, particularly in drier season.

Good establishment practices for sown pastures can be the difference between success and failure of sown pasture, particularly in marginal and variable rainfall environments. Good establishment practices include appropriate seed-soil preparations, suitable soil moisture (which may require fallowing for up to 12 months), ideally a positive forecast for follow-up rain after sowing and then spelling to allow establishment.

7.2.2 Pasture recovery through effective rainfall spelling

Routine spelling of pasture after effective rainfall is a good grazing land management practice both for recovery periods and better seasons. It is recommended that landholders plan to spell a paddock once they have had effective rainfall to promote pasture growth. It is ideal to spell particular paddocks in a plan, depending on priority for recovery and previous stocking rates. The length of spell required is dependant on land condition and productivity goals. Finally, it is recommended that landholders take advantage of early spring or summer rainfall to spell their highest priority paddocks first, then others in sequence depending on the season.

7.2.3 Key messages from collaborating landholders to Industry about pasture recovery

"Spell to improve land condition and don't overstock. Stock only to carrying capacity" (pers comm. Peter North, 'Arakoola' 2010)

"Try new things; don't be afraid to change. Talk to people; get other ideas and knowledge" (pers comm. Lauren Winks, 'Yendon' 2010)

8 Bibliography

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9 Appendices

9.1 Monitoring Data

Property	Paddock	Date	Recorder	Stock #	Land Type	Soil		Pasture	Dominant species				TBA (m2/ha)
						Condition	% Cover	Conditio	Spp 1	Spp 2	Spp3	Spp 4	
2009	PROPOSAL	28/01/2009	Col Paton	Nil	Coolbah / gidyea	B	70	D	salt bushes	common bottlewashers	fairy grass	spring grass	0
Feb-10	PROPOSAL	10/02/2010	Col Paton	0	Coolbah / gidyea	A	75	B	Bambatsi, Floren blue, Medway, awnless barnyard, some Caatinga, not much lucerne. Caatinga & curly mitchell grasses patchy				
Nov-10	PROPOSAL	24/11/2010	Col Paton	0	Coolbah / gidyea	A	85	B	Bambatsi	buffel	BLW & Ogs		
Nov-10	BILLY GOAT	24/11/2010	Col Paton	Breeders 300	Box & sandalwood	A	80	A	buffel				
Woolerina													
2009	HORSE	29/01/2009	Col Paton	Nil	Box & pine on deep sand	B	70	B	buffel	godgee burr	sown pastures collectively		
Feb-10	HORSE	1/02/2010	Col Paton	2 horses	Box & pine on deep sand	A	85	A	Buffel, Premier, BLW (saltbushes, roly polys, goatheads) plenty of Caatinga & Cassia in places, some mulga mitchell, lots of buffel seedings				
Nov-10	HORSE	24/11/2010	Col Paton	0	Box & pine on deep sand	A	95	A	Buffel.	Premier			
Arakoola													
2009	GOAT	29/01/2009	Col Paton	Nil	Box & pine on deep sand	B	70	B	Greybeard	BLW	Digit	Cassia	0
Feb-10	GOAT	11/02/2010	Col Paton	None	Box & pine on deep sand	B	75	C	Greybeard 40%; Digit 25%; Buffel 10%; Caatinga & Cassia 5%; BLW & Others 20%				
Feb-10	FRONT	11/02/2010	Col Paton	92 mixed weaners	Box & solf mulga	A	80	A	Buffel 45%., Mulga Mitchell 45%, others 10%				<1m ² /ha
Nov-10	GOAT	25/11/2010	Col Paton	400 goats	Box & pine on deep sand	B	90	C	Greybeard	Prem digit	buffel sidas	flannel weed potato weed	
Nov-10	FRONT	25/11/2010	Col Paton	92 mixed weaners	Box & solf mulga	A	90	A	Buffel 40%., Mulga Mitchell 40%, Mulga Oats 20%				<1m ² /ha
Bindebango													
2009	GLM	27/01/2009	Col Paton	Nil	Box, coolibah flats, floodplain	B	50	C	roly-poly	copper burr	button grass		0
Feb-10	GLM	29/04/2010	Col Paton	Nil	Box, coolibah flats, floodplain	B	60	C	Pigweed	Katoora	button grass	flinders	0
Nov-10	GLM	26/11/2010	Col Paton	None	Box, coolibah flats, floodplain	B	70	C	salt bushes	katoora	early spring grass		0

9.2 Appendix 2 Field Day adverts



Dept. of Primary Industries & Fisheries

Recovering Pasture productivity

Field-day

12th March 2009

MLA Producer demonstration sites (PDS) have been established on Arakoola, Bindebango and Yendon near Bollon to start evaluating options for pasture recovery.

The aim of these sites is to demonstrate recovery of pasture productivity and grazing land condition for properties, through pasture renovation and tactical spelling of pastures.

On the 12th March the North's, Blydens' and Wink's along with QDPI&F will be hosting a "roving" field day to show-off their plots and share some of the lessons learnt so far. Pasture establishment and selection will also be discussed, by DPI&F and industry leaders.

When: 12th March - 9:30am to 5pm
(with BBQ dinner and drinks to finish the day)
Start at Bindebango and finish at Arakoola
(A second field day will be held later in the project at Yendon)

For more information and to RSVP please contact: Jane Hamilton, DPI&F Roma, jane.hamilton@dpi.qld.gov.au

Dept. of Primary Industries & Fisheries

RSVP to: Jane Hamilton
DPI&F Roma

Phone: 46 229 915
Fax: 46 229 900
E-mail: jane.hamilton@dpi.qld.gov.au

This project is an Meat and Livestock Australia (MLA) Producer Demonstration Site



Directions to Bindebango: From Bollon head out of town to the west and take the first right, which is the Mitchell—Bollon road. Bindebango is ~30km up this road.



You are invited to attend **Bollon Beef Futures:**
An afternoon in the paddocks and yards at Yendon.



This is the final field day for two Producer Demonstration Site (PDS) Projects:
NLIS for herd management & pasture recovery options for SW QLD.

When: Thursday, **6th May** 2010

Where: 'Yendon', Winks' property, 60km south of Bollon

Time: 12pm, with dinner & guest speakers to follow our afternoon in the paddocks & yards (all meals included in the cost. Please BYO Chair)

RSVP essential: Jane Hamilton 0428 103 483 or email

jane.hamilton@deedi.qld.gov.au

Or Jean Prow 0428 220 136 or email bollon@southwestnrm.org.au

Cost: \$10 per person (Field day has been subsidised by the MLA PDS projects)

Highlights to expect:

1. Results of a three year pasture recovery trial. Observing the impact summer spelling has had on native pastures and what sown pasture options have been successful on different land types, in the Bollon District.
2. First hand accounts of how producers have used NLIS to better their businesses and see one NLIS system in action in the Yendon yards
3. Opportunities to talk with a number of industry guest speakers with expertise in the fields of;
 - Research and Development and how this information can better the local beef industry
 - Benefits of NLIS to the whole supply chain,
 - Pasture selection, establishment and management.

The State of Queensland, Department of Employment, Economic Development and Innovation, 2010

9.3 Appendix 3 Examples of media generated from PDS project



Queensland Country Life
05/03/2009
Page: 19
General News
Region: QLD
Circulation: 34099
Type: Rural
Size: 299.55 sq.cms
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Pasture recovery focus

By **LOUISA McKERROW** DPI&F
THE first results from current pasture recovery trials in South West Queensland will be available to producers at a Bollon field day on Thursday, March 12, at two commercial beef properties Arakoola and Bindebango.

The Recovering Pasture Productivity Field Day will be hosted by the property owners, DPI&F and Meat and Livestock Australia.

It will focus on on-farm research collected from Producer Demonstration Sites (PDS) conducted in the Bollon district.

DPI&F Grazing Lands extension officer Jane Hamilton said these sites would demonstrate recovery of pasture productivity and grazing land condition for properties, through pasture renovation and tactical spelling.

"Through the Demonstrating Recovery of Pasture Productivity project, we are evaluating options for pasture recovery, and this field day is a great opportunity to show off these plots and share some of the lessons learnt so far," Ms Hamilton said.

"The field day will move between two of the three PDS properties so that

participants have an opportunity to look at each pasture establishment and tactical spelling site and ask the landholders any questions about establishment techniques."

Pasture establishment and selection will also be discussed by DPI&F officers Col Paton, and Brian Johnson and Tony Illing from Illing Pastures.

Ms Hamilton said PDS' were on-farm research and demonstration projects that supported groups of beef producers and extension staff to demonstrate, develop and adopt priority research technologies and findings.

Ms Hamilton said the Demonstrating Recovery of Pasture Productivity project in the mulga lands aimed to determine options for improved productivity and stability of livestock operations and looked holistically at native pasture recovery and the role of exotic pasture species for common land types.

The project is producer driven by Ernie and Lee Blayden at Bindebango, Andrew and Lauren Winks at Yendon and Peter, Tiki and George North at Arakoola.

Co-funded by MLA and DPI&F, the three-year PDS mulga lands proj-

ect began in March 2008.

Ms Hamilton said each of the three landholders had set up 12ha plots for the pasture trials, with the Winks establishing two plots on different land types.

"The producers have also agreed to rainfall spelling management plans for a native pasture paddock on their property, so we can monitor the effect of spelling after rain on the recovery of our native pastures," she said.

The project provides opportunities for land managers to work with DPI&F and MLA to further their knowledge of the grazing ecosystems and continually build on their management capacity.

"It is really the local landholders who are driving this research and development," Ms Hamilton said.

She said the Blayden, Winks and North families were part of a small but active group in the Bollon region who were looking proactively at their management and resources and what opportunities they had to "improve their productivity and sustainability".

● Contact Jane Hamilton, DPI&F Roma Research Station, jane.hamilton@dpi.qld.gov.au or 0428 103 483.

Participants have an opportunity to look at each pasture establishment and tactical spelling site and ask the landholders any questions about establishment techniques.

AT A GLANCE

- **When:** Thursday, March 12.
- **Time:** 9.30am to 5pm with a barbecue dinner to finish
- **Where:** Start at Bindebango and finish at Arakoola.



Bollon beef field day back on

GRAZIERS and consultants will have the chance to see first hand how cattle data collection systems, spelling pastures, and sowing grasses and legumes might work for them at the Bollon Beef Futures Field Day next week.

The field day, an initiative of the Queensland Government's Future-Beef program, was interrupted by South West Queensland's floods, but will now go ahead as planned on Andrew and Lauren Winks' property, Yendon, on May 6.

The field day will mark the completion of two, three-year producer demonstration projects, supported by the Department of Employment, Economic Development and Innovation, and Meat and Livestock Australia.

Jane Hamilton, FutureBeef extension officer with DEEDI, said the Pasture Recovery Producer Demonstration Site Project was based around four on-farm demonstration sites, across three properties near Bollon

in South West Queensland.

"The Blayden, Winks and North families have been driving this project, taking a proactive approach towards managing their resources and improving their productivity and sustainability," Ms Hamilton said.

"These producers took several degraded paddocks across their properties and tested the impacts of spelling – or resting – paddocks over the summer period for recovering native pasture species, and sowing different combinations of sown pasture species.

"At the end of three years, they now have a better mix of pasture species, better soil condition, more ground-cover, and a carrying capacity that is greater and more sustainable."

The Beef Futures Field Day will start at 12pm on May 6, and will be followed by a dinner and industry guest speakers. Producers will need to register in advance to attend.

To register, phone Jane Hamilton on 0428 103 483.



Peter North, one of the drivers of the pasture recovery project, monitors the progress of his own pasture growth at Arakoola.

Queensland Country Life 29th April 2010

 MEDIA MONITORS



Queensland Country Life
16/04/2009

Page: 85
Livestock
Region: QLD
Circulation: 34099
Type: Rural
Size: 516.91 sq.cms

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Page 1 of 2

Pasture productivity focus at Bollon

THE first results from current pasture recovery trials in South West Queensland were available to more than 40 producers and industry stakeholders at a recent field day at two commercial beef properties in the Bollon district, Arakoola and Bindelango.

The Recovering Pasture Productivity Field Day were hosted by the property owners, Queensland Primary Industries and Fisheries (QPI&F) and Meat and Livestock Australia (MLA).

It focused on on-farm research collected from the Producer Demonstration Sites (PDS) established in the Bollon district.

QPI&F Grazing Lands extension officer Jane Hamilton said these sites demonstrated recovery of pasture productivity and grazing land condition for properties, through pasture renovation and tactical spelling.

"Through the Demonstrating Recovery of Pasture Productivity project, we are evaluating options for pasture recovery, and this field day was a great opportunity to show-off these plots and share some of the lessons learnt so far," Ms Hamilton said.

"The field day moved between two of the three PDS properties so that participants had an opportunity to look at each

pasture establishment sites and ask the landholders any questions about species selection, establishment techniques and ongoing management."

Pasture establishment and selection were also discussed by industry experts – QPI&F officers Col Paton, Brian Johnson and Richard Silcock and Tony Illing from Illing Pastures. Dale Kirby and Tim Emery from QPI&F Roma also assisted with the running of the day.

"It was wonderful to get the support of so many knowledgeable and personable industry experts for our field day," Ms Hamilton said.

"Many of the participants commented on the value of having our experts on hand for the day."

Ms Hamilton said PDS were on-farm research and demonstration projects that supported groups of beef producers and extension staff to demonstrate, develop and adopt priority research technologies and findings.

Ms Hamilton said the Demonstrating Recovery of Pasture Productivity project aimed to determine options for improved productivity and stability of livestock operations and looked holistically at native pasture recovery and the role of introduced pasture species for common land types.

The project is producer driven by Eric and Lee Blayden at Bindelango, Andrew and Lauren Winks at Yendon and Peter, Tiki and George North at Arakoola. Co-funded by MLA and DPI&F, the three-year PDS project began in March 2008.

Ms Hamilton said each of the three landholders had set up 12ha plots for the pasture trials, with the Winks establishing two plots on different land types.

"The producers have also agreed to rainfall spelling management plans for a native pasture paddock on their property, so we can monitor the effect of spelling after rain on the recovery of our native pastures," she said.

The project provides opportunities for land managers to work with DPI&F and MLA to further their knowledge of the grazing ecosystems and continually build on their management capacity.

"It is really the local landholders who are driving this research and development," Ms Hamilton said.

"The Blayden, Winks and North families are part of a small but active group in the Bollon region who are looking proactively at their management and resources and what opportunities they have to improve their productivity and sustainability." - Source: DPI&F

Continued from Queensland Country Life 16/04/2009

Demonstrating recovery of pasture productivity, Mulga Lands - Bollon



Wynn Cassia established very well on the red soils at Arakoola.



ABOVE: Richard Silcock (centre), OPI&F Brisbane, talks establishing pastures with David Jamieson (left), Bunglebree, Dirranbandi and Chris McLean, Abbleglassie, Mitchell.



LEFT: Producer Demonstration Site pastures at Arakoola: *Digitaria*, *Cnalinga stylo*, and Wynn Cassia.

BELOW LEFT: Establishing *Desmanthus* on the site at Bindebango.

RIGHT: David Jamieson and Phil Brownhalls at the Producer Demonstration Sites field day at Bollon. - Pictures: DALE KIRBY, DPI&F Roma.



OPI&F principal extension officer, grazing Lands, Col Paton (left) and landholder Ernie Blayden, Bindebango, Bollon.

9.4

Final Field Day Handout (May 2010)



Bollon Beef Futures Field Day Report
An afternoon in the paddocks and yards

Pasture recovery options for SW QLD

NLIS equipment for herd management



Bollon Beef Futures: an afternoon in the paddocks and yards at Yendon

25th March 2010. Running sheet

What/Where	When
Light lunch at Yendon	12:00-12:40
PDS backgrounds & Updates	12:40 – 1:15
Travel via Oats paddock to Yards	1:15 – 1:40
Yards. NLIS what has been learnt.	1:40 – 2:30
Rotational spelling comment. Near yards + travel to Proposal paddock	2:30 – 3:00
Trial site 1. Proposal pdk. Comments	3:30 – 3:45
Travel to Woollerina (Shearing shed)	3:45 – 4:10
Tank paddock. Native pasture spelling	4:10 – 4:50
Potentially comment from Richard S on Pimelea	
Travel to Woollerina house & park	4:50 – 5:15
Trial site 2. Woollerina. Comments	5:15 – 6:00
Drinks at Woollerina	6:00 – 6:20
Industry snapshot. MLA	6:20- 6:35
A processors perspective. Oakey Abattoir	6:35 – 7:00
Thank – you & Wrap-up	7:00 – 7:05
BBQ Dinner	7-00 – close
(Meat supplied by Oakey abattoir, bar operated by Bollon tennis club)	

This is the final field day for two MLA and DEEDI Producer Demonstration Site (PDS) Projects. NLIS for herd management & pasture recovery options for SW QLD.

Our sincere appreciation goes to the hosts of today's field day Andrew and Lauren Winks (Yendon) and Ian and Wendy Winks (Woollerina)!

Highlights to expect:

1. Results of a three year pasture recovery trial. Observing the impact summer spelling has had on native pastures and what sown pasture options have been successful on different land types, in the Bollon District.
2. First hand accounts of how producers have used NLIS to better their businesses and see one NLIS system in action in the Yendon yards
3. Opportunities to talk with a number of industry guest speakers with expertises in the fields of;
 - Research and Development and how this information can better the local beef industry
 - Benefits of NLIS to the whole supply chain,
 - Pasture selection, establishment and management.

Bollon Pasture Recovery Producer Demonstration Sites

Monitoring 2010

Key Points

Summer spelling of pastures improved land condition at all properties irrespective of pasture type
Curly Mitchell grass is a native grass that shows promise as a sown pasture on the heavier alluvial soil types of the region

Other exotic pasture types also looking promising for the heavier soil types at Bindebango and Yendon include Bambatsi, Medway creeping blue grass, Floren blue grass, Caatinga stylo and desmanthus

Premier digit grass, Wynn cassia and Caatinga stylos have established well at Arakoola and Woolerina on the sandier box / pine soils

Tagasaste has failed to establish where sown at both Yendon and Arakoola

Salt bush failed to persist where planted as seedlings at Bindebango

Lucerne established where sown but failed to persist.

Background

Four producer demonstration sites were established on three commercial properties in the Bollon district in 2008. These sites were set up to demonstrate recovery of pasture productivity, through pasture renovation and tactical spelling of pastures. To date all sites have been selected and prepared; fenced, "ploughed" (using various mechanical processes) and pastures sown. Tactical rest paddocks have also been established. These tactical rest paddocks are native pasture paddocks that are to be spelled after effective rain to demonstrate native pasture recovery.

Project Objectives

By completion of the project on 30th Nov 2010, this PDS project will have;

Tested a number of species and mixes of pasture grasses and legumes for establishment ease, resilience and productivity in the soils and climate of the Bollon region

Demonstrated the value of "effective rainfall" spelling as a grazing management tool for improving land condition and pasture productivity

Communicated the results and learnings of the demonstrations to other landholders in the region via field days and media releases.



What was planted:

Description

"Yendon" - Gidgea/Coolibah

Bambatsi
Flowcoat Medway Creeping Bluegrass
Curley Mitchell Grass
Floren Bluegrass
Flowcoat Caatinga Stylo
Sequal Lucerne

"Yendon" - Poplar Box on red soil

Premier Digitaria
Flowcoat Caatinga Stylo
Flowcoat Wynn Cassia
Sequal Lucerne
Tagasaste (Strip/s only)

"Arakoola" - red soils

Premier Digitaria
Flowcoat Caatinga Stylo
Flowcoat Wynn Cassia
Sequal Lucerne
Tagasaste (Strip/s only)

"Bindebango" - claypan

Curley Mitchell Grass
Floren Bluegrass
Flowcoat Medway Creeping Bluegrass
Marc Desmanthus
Silk Sorghum (Strip/s only) & sugar drip
Eyre Green Saltbush (seedlings from SA)

Results

Yendon and Woolerina

Initially, establishment was poor in the larger paddock on the coolibah floodplain site at Yendon but the pastures have since thickened. Bambatsi is now dominating in large areas of this paddock (found in 55% of quadrats) with curly Mitchell common (in 20% of quadrats), Floren bluegrass common (25% of quadrats) and Medway also present (15% of quadrats). Caatinga stylo was scattered but didn't occur in quadrats.

The soil condition in this paddock was rated as A and pasture condition rated as B to give a Land Condition rating of B for the paddock. Once the grasses and legumes thicken some more it should move to an A condition. Pasture yields averaged 1,850 kg/ha.

On the poplar box / pine site at Woolerina pasture establishment has been highly successful in the larger paddock with overall pasture now yielding 3,300 kg/ha. Buffel grass is now dominating (occurred in 90% of quadrats), with Premier digit grass second dominant (occurring in 35% of quadrats). Wynn cassia and Caatinga stylo are thick in patches, Wynn occurring in 20% of quadrats and Caatinga in 15%.

The Winks' spell paddocks routinely and have some success stories that we will see on the day.

Billy Goat Paddock is near the yards and is a mix of box and gidgee. It has a history of running many goats which reduced land condition and was pulled 2004. It has been spelled often since, usually in summer for a couple months, and the goats harvested often – perhaps 500 in this time. The paddock was aerially seeded with buffel in 2005.

This paddock was initially in D condition, dominated by wiregrasses, but the spelling and goat harvesting has improved condition to low B, with Buffel now dominating.

Tank paddock, near the shearing shed, is spelled for much of the summer but used as a holding paddock and grazed heavily around shearing time. This paddock is in A condition and is a good mix of Queensland blue grass, Buffel grass, bull, curly and hoop Mitchell grasses, button grass and fairy grass. It was initially pulled in the 1960's; stick raked in 1995; and seeded with Buffel in 1998.

Bindebango

Ernie deep ripped the paddock and sowed in September 2008. Rain in September and October germinated many seeds but subsequent dry weather and heat resulted in a much reduced establishment. At the end of April 2010, there was a good scattering of curly Mitchell grass, some Medway creeping blue and a few plants of Desmanthus (each of these occurred in 5% of the quadrats sampled). There was a high death rate of salt bush seedlings, despite deep ripping, and very few plants have survived.

There may be enough curly Mitchell to develop into a reasonable pasture over time. In fact, Ernie has been encouraged by what he has seen with curly Mitchell grass to sow it in other areas and he has had good success.

In other areas of Bindebango, Ernie has cutter barred scalded areas and sown silk sorghum in strips. This has worked well to improve infiltration and lift soil organic matter. The silk has survived well and is expanding into the uncultivated strips, but it is starting to thin out in existing stands.

Ernie uses spelling in many parts of Bindebango to allow his pastures to recover and improve in condition. His system is to bring sale and growing cattle from another property to Bindebango in

autumn and turn them off within a few months to a year. This allows many of his paddocks to be spelled over the summer months when it is critical for pasture recovery. He has seen many of his paddocks improve from C and D condition to high C or B condition, particularly with the good recent seasons.

Arakoola

Peter & George stickraked the paddock and sowed in March 2008. Some rain in June germinated the grasses and legumes and the lucerne grew well but has not persisted. Good spring and summer rainfall since 2008 has helped to establish an effective sown pasture. Although greybeard has returned to dominance.

Greybeard, Premier digit grass and buffel dominated when pastures were sampled in January 2010 and pasture yield averaged 2,250 kg/ha. Greybeard was found in 70% of quadrats, Premier digit grass was present in 35% of the quadrats, buffel in 20 %, Wynn cassia in 10% and Caatinga stylo in 5% of quadrats.

This pasture has established reasonably well and looks like providing an alternative grass to Buffel and some legume options.

Peter regularly spells some of his paddocks each summer. We checked the species and condition of one of those paddocks, Front paddock, and found Buffel and mulga Mitchell grasses dominated, giving a land condition rating of A. Pasture yield was 2,500 kg/ha.

Outcomes from this project

This demonstration has shown there are some alternative or companion grasses for Buffel and that there are some promising legumes for the region.

The success with curly Mitchell grass at Bindebango demonstrates its promise for the heavier alluvial soils, and the legume *Desmanthus* has potential for these soil types as well. *Bambatsi*, *Medway* creeping blue and *Floren* bluegrass have demonstrated their potential on the heavier soil type at Yendon as has *Caatinga stylo*.

Premier digit grass, *Caatinga stylo* and *Wynn cassia* have demonstrated their potential in the lighter soils at Arakoola and Woolerina.

It is still early days for these sown pastures and their progress and persistence should be checked in future drier years before launching into a large sown pasture venture.

More importantly, routine summer spelling of pastures by all the property owners has given improvements in land condition, and thus carrying capacity, irrespective of the pasture type.



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Sincere thanks to the Blayden’s, North’s and Wink’s for their enthusiasm and support of this project. Thanks also to Meat and Livestock Australia for project funding.

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