

# UNFS UPDATE



Upper North Farming Systems Newsletter

March/April 2014

## Improving Fodder Shrub Systems for Low Rainfall Areas

Michael Wurst

The Upper North Farming Systems group received funding from the Australian Government through the Caring for our Country program for a two year project (2011/12 and 2012/13), in the Upper North and Eyre Peninsula. Rural Solutions has coordinated this project for UNFS in conjunction with the Eyre Peninsular NRM Board.

Although fodder shrubs may only be established on a small percentage of the total farm area, the benefits of fodder shrub systems extend to the paddock, farm and the landscape including: i) improved ground cover reducing wind and water erosion; ii) improved soil organic carbon; iii) provision of wind breaks; iv) deferred grazing of other pastures and stubbles allowing improvements in soil cover and biomass of these areas; v) managing for climate variability; and vi) biodiversity conservation in modified agricultural landscapes. The improved management of marginal cropping areas with fodder shrub systems and renovation of older fodder shrub plantings with inter-row pastures and improved management will improve productivity, soil condition and biodiversity.

### Eyre Peninsula demonstration sites include:

- Buckleboo: showing a range of innovative inter-row options and alternatives to the use of volunteer pasture and weeds. The site has two paddocks sown in two successive years to demonstrate differences between seasons and inter-row options.
- Cleve: located at Sims Farm at the Cleve Area School the site demonstrates the different species which can be sown. This project has involved the school students.
- Elbow Hill: the demonstration sites (x4) have been direct seeded with fodder shrub species, illustrating alternative ways in which shrubs can be established.

### Upper North demonstration sites include:

- Pekina: showing alternative use of unviable cropping land through planting two species of fodder shrubs.
- Willowie: Two sites illustrate farm planning for fodder shrub systems where unviable cropping land has been planted with a range of different fodder shrub species, and innovative inter-row solutions have been demonstrated including legumes and perennial grasses.
- Orroroo Area School: a demonstration site with different fodder shrub species suited to the local area.
- Fodder shrubs were also planted at Booleroo, Baroota, Peterborough and Wollaway.
- At other established fodder shrub sites pasture species were sown in the inter-row to evaluate their performance. Cereal or cereal vetch mixtures gave the highest production but need to be sown every year, therefore regenerating pastures such as annual medic may be a better option.

A fodder shrub management book has been developed, please contact Michael Wurst for an electronic copy. Thank you to all those involved in the project.



Fodder Shrubs with interrow sowing of annuals. Photo by

### In This Issue

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## 2014 UNFS Seeder Trial

This year the UNFS will be once again undertaking a seeder trial at Booleroo Centre. This year the trial will be sowing Canola and comparing 4-5 seeding systems across uncultivated, cultivated and burnt land.

This trial will contribute to the Stubble Initiative Project being run by UNFS with GRDC funding.

Site preparation has begun and seeding will occur after this weeks predicted rainfall most likely in the week prior to Easter.

We will not be holding a formal Seeding Day, however if you are interested in seeing the seeders in action please contact either Todd, Joe or Ruth.



## From the Chairman's Desk

Joe Koch

It has been a busy time for Upper North Farming Systems over the past 6 months with many changes taking place. UNFS has made the transition from being fully managed out of the Rural Solutions Office in Jamestown to the management being undertaken by the executive committee. These changes to the management structure will help maintain transparency and provide members with a strong and independent farming systems group into the future. We are still working with Michael and Mary-Anne at the Rural Solution Office in Jamestown. They have been contracted to undertake projects and project management roles on our behalf.

Our project officer/Secretary, Ruth Sommerville is now back on deck after some time off with maternity leave after the birth of William Charles. Ruth has been doing a fantastic job with putting this newsletter together every month and helping the committee get things back on the rails behind the scenes.

While Ruth has been away I have been filling in a bit here and there. In March Michael Wurst and I went to Melbourne for a GRDC Stubble Initiative project meeting. At the meeting the farming systems groups involved in the project in the southern region discussed what they were planning to undertake with trials and demonstrations for the project. This was a great opportunity to meet with other farming systems groups and hear about what goes on in their part of the world and how they operate.

I also attended the Ag-Excellence Alliance Forum in Adelaide a few weeks ago where each farming system group in South Australia presented about different topics on issues related to their group. UNFS's topic was 'responding to change' where I spoke on the changes we have made in the last year and our direction into the future. There was some excellent feedback with the direction UNFS is taking.

The Committee recently met to discuss what projects we are undertaking for the coming season. We have quite an exciting line up including;

- Replicated Onion Weed control trial at Mt Robert
- Canola Establishment Demo at last year's Seeder Demo Site
- Cultivation vs Direct Drill Into Lay ground Demo east of Booleroo
- Grazing Stubble Trial at Appila
- Nitrogen Management Trial at Willowie
- Crown Rot Management Trial at Booleroo and Baroota

We also have a number of events planned for the year including;

- Annual Field Day on August 7th at Booleroo Centre
- Bus Field Trip to visit Central West Farming Systems and Mallee Sustainable Farming Systems Groups in the week of the 20-25th of July
- A Spring Crop Walk on the 11th of September

The 2013 trial results booklet is due out around May 15<sup>th</sup> and will include results from last year's trials such as the Seeder Demonstration and Crop Sequencing Trial. Keep an eye out in your mailbox/inbox during seeding as the results booklet will provide some good reading while the auto steer is engaged.

Feel free to provide feedback about the planned trials, newsletter or our Facebook page. We also encourage members to let us know what issues you face on your farm. Your feedback means we provide more relevant information and undertake the right trials to benefit the Upper North. Good luck with the upcoming seeding and we will see you at one of our events after seeding.

## 2013 UNFS Annual Trial Results

The 2013 Annual Trial Results book is currently being finalised and will be sent to the printers at the end of the month.

If you would prefer to receive this electronically please let me know and we will reduce the number going to the printers and save on printing and postage costs.

If you have changed your postal address in the past 12 months please let me know.

I apologise for the delay in the printing of this report this year, as most are aware I have been on maternity leave for the last 3 months looking after our little man, William. I am excited to be back at work and getting back into the UNFS trial planning and management. I'm really looking forward to catching up at one of our upcoming events. Ruth.



## FACTSHEET - Recovering after bushfires – Land management

Rural Solutions has put together a factsheet of things to consider when recovering from a bushfire event, including:

- Re-fencing and the Re-establishment of waterpoints - points to consider.
- Dams and Watercourses - Managing Run-off
- Effect of Fire on Lime and Gypsum Piles.
- Erosion Risk and Management
- Establishing feed/cover on bare ground
- Livestock Feeding
- Feral Animal Control

If you would like a copy of this Factsheet please contact Ruth Sommerville or Mary-Anne Young.



The Bangor Fire. Photo by Todd Orrock

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## Pulse Update Annual 2014

Pulse Australia has recently released its Pulse Update Annual 2014.

For the first time Pulse Update Annual is only available electronically.

There are two viewing options;

To view Pulse Update Annual 2014 as a online magazine ([click here](#))

To view Pulse Update Annual 2014 as a pdf file (files size 6MB) that can be saved ([click here](#)) or go to;

[www.pulseaus.com.au/pdf/Pulse%20Update%20Annual%202014.pdf](http://www.pulseaus.com.au/pdf/Pulse%20Update%20Annual%202014.pdf)

Contents include;

Variety releases for 2014

World markets explained

Pulse growers in profile

Lupins for food

Lentils love stubble

Regional reports

And much more



## More soil characterizations mean Yield Prophet is easier to use!



Excerpt from an article written by  
Mike Roberts Communications  
Research and Consulting

Prior to the launch of Yield Prophet in 2003 there was some excellent data from both state and university investment over the years that described soil types texturally, described the chemistry that might influence crop production but hadn't really described 'bucket size'. We hadn't described the water holding capacity of our soils. That key factor was crucial to our understanding of how much water is actually available to plants.

In order to describe 'bucket size' for a given soil, in addition to knowing something about its texture, horizon levels and chemistry you actually had to measure how much water it could hold at drained upper limit/ field capacity (DUL) and compare it to what remained at the crop lower limit/wilting point (CLL). That meant wetting up soil profiles, doing bulk density measurements and erecting rain shelters post flowering to get accurate CLL figures in spring.

The good news is that since advisors began using Yield Prophet in SA in 2005, nearly 70 soil types around SA have been characterized. These have largely been done in the Lower North, Mid-North and YP regions with an additional few on EP and in the Mallee. Thanks to an important investment from GRDC through the "Where in the Landscape Project" and "Grain & Graze 2" we can now more easily select a soil type near to us that can be used with confidence in the Yield Prophet model.

In conjunction with the CSIRO's soil water project Grain & Graze 2 initiated the creation of a **SoilMapp** that can be downloaded from the App Store. It provides a description of all the soil types right across Australia that are contained in the national soil database. That means that now we can stand in a paddock, dig a hole, look at a soil type and with our iPad or tablet search within a 25k radius to see if we can match an already described soil type with the one that we are standing on. If we can't find a match, then we might look further afield until we discover something we think is similar.





### A New Column for the Newsletter:

Research that other grower groups are implementing that may be of interest. If you think that this work is something we should be looking at, or if there is a project that you would like featured please feel free to drop us a line and let us know.

## Looking Over The Fence

### Quantifying quality under elevated CO<sub>2</sub>



*Excerpt from an article by Justine Severin,  
Birchip Cropping Group*

The impact of rising atmospheric carbon dioxide (CO<sub>2</sub>) levels on Australia's grains industry is being closely examined by scientists involved in the Australian Grain Free Air CO<sub>2</sub> Enrichment (AGFACE) program at Horsham in the Victorian Wimmera.

With CO<sub>2</sub> levels predicted to rise by about 40 per cent over the next 40 years, the AGFACE program – a joint initiative of the Department of Primary Industries, the University of Melbourne and the GRDC – was set up in 2007. The objective was to provide tools and information that will enable the grains industry, through policy makers and pre-breeders, to remain productive and competitive despite changes in climate.

According to researchers, increases in atmospheric CO<sub>2</sub> will bring with it both benefits and challenges. Because CO<sub>2</sub> acts as a fertiliser, it promotes improved water use efficiency, plant growth and yield, but under elevated levels grain quality is reduced. AGFACE scientists are investigating how the grains industry might realise the potential of this 'CO<sub>2</sub> fertilisation effect' while maintaining grain quality, and under which conditions it will be beneficial.

The aim is to identify the combination of management techniques and germplasm that will ensure sustainable production in the Australian grains industry under future environments.

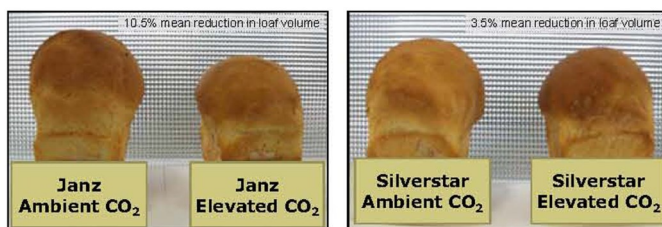
#### The program

The AGFACE program seeks to gain knowledge of cultivar traits and cropping systems capable of performing under elevated atmospheric CO<sub>2</sub>. BCG (Birchip Cropping Group) is involved in an extension capacity, charged with the task of raising awareness about the AGFACE program and the work being done to address issues that will emerge as a consequence of rising CO<sub>2</sub> levels.

As well as looking at traits future varieties will need, AGFACE researchers are working on projects focusing on grain quality (including the impact on bread and noodle making), increased nitrogen uptake and how pulse and wheat rotations can address this, the behaviour of pests and diseases in an elevated CO<sub>2</sub> environment and below-ground processes.

#### Grain quality and Nutritional Changes

According to data collected so far, elevated CO<sub>2</sub> has been found to adversely affect important grain traits such as protein content, mixing properties and baking properties, as well as the micronutrients in wheat. However, different wheat cultivars interact differently when grown under elevated CO<sub>2</sub> conditions which will allow breeders to select for adaptations.



**Figure 2.** The loaves of two of cultivars grown under ambient and elevated CO<sub>2</sub>.

AGFACE research also indicates that in the future wheat micronutrients could be reduced as a consequence of higher CO<sub>2</sub> levels. AGFACE project leader Glenn Fitzgerald said while this effect is less well documented, it is critical to future human and animal nutrition and food security. "Changes in grain nutritional qualities would impact people most severely in developing nations where much of the food consumed is plant based," he said.

#### Where to from here?

Maintaining productivity in the future will require new crop cultivars that can maintain yield and grain quality under elevated CO<sub>2</sub> in conjunction with changes in rainfall patterns and increasing temperatures. So far the research has found the quality premium grade wheats such as Yitpi and Janz suffer greater effects of elevated CO<sub>2</sub> than H45 or Silverstar. The AGFACE facility is helping researchers to provide vital information on benchmarking cultivars such as Janz and Yitpi and monitor potential new cultivars.

Data from this research will help ensure key quality parameters such as protein content, dough rheology and loaf volume, are not compromised as CO<sub>2</sub> increases in the future.

# Balancing crop safety and effectiveness when using Pre-Emergent Herbicides



Excerpt from an article written for Grain & Graze 2 by Mike Roberts Communications, Research and Consulting.

Damage to emerging crops is common. Understanding a few basic principles about herbicide behaviour and crop tolerance can reduce the chance of crop damage significantly. Here are a few things to think about to get the best out of your pre-emergent weed control.

## Some tips for using pre-emergent herbicides

- Herbicide efficacy is reduced when there is more than 50% stubble cover. It is best to leave stubble standing rather than laying over. Straw choppers on headers are fantastic as they mulch and pulverize stubble into chaff, which breaks down faster. This is much better than slashers that leave stubble in long lengths and act as a thatch that limits chemical access to the soil surface.
- Knifepoints and press wheels allow greatest crop safety as they throw chemical out of the furrow. Be aware that this can result in weeds in the furrow.
- If using a disc seeder, understand the mechanics of your machine and the limitations it may carry compared to a knife point and press wheel. What are the depth wheels and closer mechanisms doing to soil in the seed row?
- Pay attention to detail in your sowing operation and ensure soil throw on the inter-row whilst maintaining a seed furrow free from herbicide. Concentrated chemical soil in the furrow can cause crop damage and reduce plant vigour.
- Ensure the seed furrow is closed to prevent herbicide washing onto the seed. Seeding systems vary in their ability to “close the slot.”
- Ensure even seed placement, typically 3–5 cm of loose soil on top of the seed in cereals for best crop safety. This is a key safety mechanism. Whatever else you do, keep the seed below 3cm if in marginal conditions or in crops sensitive to particular herbicides. If you can't – wait for better conditions!
- Incorporate by sowing (IBS) rather than Post Sowing Pre-Emergent (PSPE) for crop safety.
- Understand herbicide chemistry. Choose the right herbicide in the right paddock at the right rate. Crop tolerance varies considerably.

The full article is available for those that are interested. Topics include;

**How do pre-emergent herbicides work? Principles of incorporation. Will efficacy be reduced if I apply herbicides to dry soils? What is the importance of herbicide solubility?**

# SOIL SMART: UNDERSTANDING YOUR SOILS

## SOIL PIT WORKSHOPS

Take a look underground where crop and pasture roots grow.

Find out what the agricultural productive capacity and limitations of soils in your area are.

### SPALDING AREA

**Thursday April 10th 2014**

Starting 9.00 am Finishing 12.30 pm

Meeting at the corner of Hacklin's Corner Road and Spalding-Jamestown road

- First Pit Stop: Tyler Stephenson's property, Second: Ben and Damien Sommerville's
- Third: Andrew Cootes'

### MANNANARIE AREA

**Thursday April 17th 2014**

Starting 8.45 am Finishing 12.30 pm

Meeting at the corner of 3 Chain Rd and Hall's Rd, south of Mt Lock

- First Pit Stop: Will Bray's
- Second: Lyndon and Hadyn Jacka's
- Third: Pat Clark's

For more details, contact Mary-Anne Young 0418 897 775



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