SCF Focus

Summer 2013

STIRLINGS TO COAST FARMERS

Events for your Calendar

Thursday 20th February

SCF Management Committee Meeting at Kamballup Hall - 1.00pm

24th February - 25th February

Perth Crop Update
(refer to email for more info)

Friday 21st February

Farm Office Workshop
(Venue and time still to be finalised)

Thursday 13th March

SCF Management Committee Meeting at Kamballup Hall - 1.00pm

Thursday 20th March

Regional Crop Update at Kendenup Lodge

IN THIS ISSUE...

Jottings from the Chair

There has been a lot happening since our last newsletter.

Firstly I would like to give a special thanks to Scott Smith for taking on my role as President/Chairperson during the last few months especially with running our Stirlings to Coast meetings and the Spring Field Day held in September. The Spring Field Day was very successful with a good attendance. The only problem was trying to fit the whole program into one day.

The Stirlings to Coast farmer trials of different barleys have showed up which varieties performed well this year and those that didn't. There has been a lot of head losses in some varieties, and John Blake will have some good information for members in the near future. John also organized the Blackleg and Resistance testing leading up to and during harvest. I'm sure these tests will show some interesting results and good information for future decision making.

Canola has been a mixed bag this year with some good yields but others disappointing due to disease. Sclerotinia has to be looked at and managed for next year. Some varieties of canola have been less effected than others.

Lastly I would like to thank the committee for their work during the year, especially Heather for her organization. John Blake who has also been very efficient is a great asset to the Stirlings to Coast Group.

With the New Year fast approaching I would like to wish everyone a Merry Christmas and a safe and happy New Year.

John

We would like to thank our Tier 1 Sponsors

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SCF Research and Development Report

John Blake: Stirlings to Coast Farmers R&D Coordinator

Mobile: 0438 761950

Report Period: *October-November 2013- some highlights and some issues:*

- **Harvest of trials:** Trials have shown huge variation in disease levels and harvest results are reflecting this (see separate article).
- Preparation for harvest included ongoing trial monitoring for disease and other observations (e.g. on barley trials, head retention, straw strength and other pre and post - harvest assessments).
- Evaluation of **SCF 2013 Spring Field day:** There were 27 evaluation surveys completed with ranking of 6 out of 7 (v. good) and also some good suggestions from members and SCF committee on how to continue to improve and adapt.
- **Crop Disease developments**: Patho-type testing of Barley Leaf Rust by Sydney University confirmed resistance breakdown. Initial development of Spore Trap Early Warning System has produced excellent results. Traps placed next to DAFWA automatic weather stations will support disease level projections (Kith Jayasena funding from GRDC for 2014).
- **Organised Field Walk 8 October on emerging crop diseases**. Conducted Radio interview with Owen Grieve on BLR implications (ABC rural report).
- **Our MLA Pasture R&D proposal (EOI)** was rated highly by the WA coordinators of MLA but had to be re-designed for National submission.
- **Final GRDC proposals submitted**.
  - "Renewing Rotations- new legume pasture phase options" with the SCF Pastures Working Group and Jeremy Lemon. GRDC has confirmed funding of this proposal for two years.
  - "Lime Efficacy" with Jeremy Lemon and SCF committee.
- Submitted a proposal for an **Industry Development Award** to GRDC. This could provide funding for Industry skilling on Canola Disease Management following the SCF survey of 107 Canola paddocks (see separate article).
- **Canola crop disease assessment survey**: Contact and liaise with all grower members and Steve and Geraldine Janicke to undertake survey of 107 paddocks across the SCF region (membership area is Frankland to Boxwood Hills). Steve and Geraldine have done a superb job with the survey and the analysis (see Jeremy's article on the Canola survey).
- Sampling paddocks for **Herbicide Resistance Tests:** liaise with all grower members and Steve and Geraldine Janicke (contractors). Steve and Geraldine have completed all the sampling and will process samples this month for forwarding to Charles Sturt University along with any other samples provided by growers in early January.
- **Harvest of all of the trials** has been completed except for the last broad-scale barley variety trial.

Wishing you all a rewarding completion to harvest, a joyous Christmas and all the best for 2014.

JOHN BLAKE

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Stirlings to Coast Famers: Barley broad-scale variety trials 2013 - some preliminary results

John Blake: SCF R&D Coordinator

With a need to replace Baudin as an export malting variety, there are new varieties which have the potential for this market. Stirlings to Coast Farmers initiated a set of trials in 2012 and 2013. Two of three sites were harvested in 2012 and in 2013 four of the four trial sites will meet test requirements. Varieties are replicated at each site. Plot lengths have been increased to 200m to improve harvest-ability and flexibility. This year Henley was replaced by GrangeR (better adapted for Southern areas) and Wimmera by Commander in the four SCF broad-scale trials. It was planned to include IGB 1101 (now La Trobe) however seed supplies were short. Future broad-scale trial protocols are likely to change for high crop disease level years.

Below is a summary of some of the preliminary 2013 harvest results. NOTE: these are broad-scale trials and need to be considered in context with research trials such as the NVT's. *Our current protocol* is that the broad-scale trials get same treatments as bulk paddock and depending on which diseases are prevalent in any given season this especially disadvantages certain varieties.*

	Kendenup: Chris Kirkwood's trial	**South Stirlings: Mal Thomson's trial**		**North Manypeaks: John Howard's trial****	**South Stirlings: John Hood's trial**
Caution: these are preliminary results from broad-scale trials and statistical analysis will be provided at the SCF Crop Updates				Nil Fungicide yields reported in these preliminary trial results. Large yield effects from Powdery Mildew and BLR	
Treatment	*Yields with fungicide applied*			*Yields without fungicide applied*	
Paddock variety*	Bass	Baudin		Oxford	Oxford
Sowing date	11 May	23 May		4 May	15 May
Oxford	5.06	6.03		5.73	5.65
Flinders	5.03	5.01		4.15	3.31
GrangeR	5.28	4.60		4.39	4.68
Bass	4.96	4.60		2.48	2.32
Baudin	2.76	4.41		2.04	1.52
Commander	4.43	4.32		2.86	2.35
Current* protocol is that trials get same treatments as bulk paddock	Trial was treated with Tilt Extra on 13 August. Initial disease levels were lower than at other sites.	Trial had 3 replicates and was treated with 2 fungicide applications with the bulk paddock. Small wet area in 3rd rep of Granger		NOTE: Part of Trial** had separate fungicide treatment (full report at SCF Crop Updates).	NOTE: Trial treated same as the bulk paddock of Oxford barley and did not receive fungicide sprays. All trials are tissue tested for nutrient levels.

***NOTES:**

Paddock Rotations: Kendenup trial: 2011 Wheat (Calingiri) 2012 Wheat (Mace) 2013 Barley (Bass). South Stirlings and North Manypeaks sites were all Canola: Barley rotations.

Plot length: *200m of seeder-width.* **Sowing rate**: 70Kg/Ha. Replicates two except for Mal Thomson's which had three reps. Small wet area in 3rd rep affected Granger in particular.

The Kendenup trial received the same treatments as the bulk paddock and Baudin had high levels of Powdery Mildew by July. One application of fungicide on 13 August was insufficient for the Baudin plots as tillering already reduced. In August other varieties did not have disease at spray threshold levels. Barley leaf rust levels sampled and rated in August were very low (<1%) in contrast to the sites in the South Stirlings.

Two trial sites, one on John Howard's and one on John Hood's properties were in paddocks of Oxford feed barley and under our current protocol for broad-scale trials, the trials received the same treatments as the paddock. Both trials had Oxford as a control with the Oxford yielding an average of 5.73t/Ha across the replications at John Howard's and 5.65t/Ha at John Hood's. The yields for Flinders, Bass, Commander and Baudin varieties were variable and yielded an average of less than 4 tonne/ hectare (down to less than 2 tonnes per hectare) as in the 2013 growing season Powdery Mildew and Barley Leaf Rust disease levels were exceptionally high. NOTE: These trials were within paddocks of Oxford Barley and fungicides were not applied. John Howard applied a fungicide treatment across part of the plots and this will be reported as soon as the analysis is completed.

Stirlings to Coast Famers: Barley broad-scale variety trials 2013 - some preliminary results continued

John Blake: SCF R&D Coordinator

Seed Treatments: because seed was from various seed suppliers' seed treatments were varied. Treatments and the early crop disease levels (see below) will be presented at the Crop Updates.

Crop Disease Levels: Trials were sampled for foliar disease: Example below from John Howard's trial on 19 August shows the range of diseases and % level infection on flag leaf and older leaves to flag leaf minus 4. These and other results are courtesy of Kith Jayasena and Kazue Tanaka (DAFWA) will be presented at SCF 2014 Crop Updates.

Example of disease levels (% level of infection) on 19 August at North Manypeaks site

Variety	Disease	Flag(F)	Flag -1	Flag -2	Flag -3	Flag-4
Oxford	Spot type net blotch	0.1	0.2	0.3	2.2	3.5
Baudin	Barley Leaf Rust (Powdery mildew)	3(0)	23 (2.6)	58 (28)	80 (80)	90 (90)

Tillering, head size, Straw strength, Head Loss, Grain Fill and Grain colour: Tillering and head size was reduced by disease infection. Also straw strength was reduced by BLR infection resulting in some head loss in the varieties affected. Further results are to be presented at the SCF 2014 Crop Updates.
Weed Control and Crop nutrition: all trials had excellent weed control and adequate crop nutrition was verified by plant tissue analysis (analysis courtesy of CSBP). Of particular attention was potassium levels given the high level of disease challenge.
Qualities of barley varieties: Samples have been taken of all reps and will be tested with samples from the other trials in December. Hectolitre weight, colour and screenings will be tested so a grade and value can be assigned for Gross Margin analysis. In 2012 Yields at the Kendenup site were too variable for significant differences however the 2013 sites will have statistically significant results (analysis to be provided at the Crop Updates 2014).

SCF 2014 Crop Updates: 20 March 2014
These and the results of the fungicide applied trials will be analysed and reported in the SCF 2014 Crop Updates and next edition of the SCF newsletter. From the results across the region it is evident cost management and a balanced selection of varieties for the range of disease challenges will be a priority (refer GRDC article from GRDC Western Panel chair Peter Roberts).

Acknowledgements: Chris Kirkwood, Mal Thomson, John Hood and John Howard have in 2013 provided sites and conducted the farm scale trials. John Blake arranged seed, trial layout and additional monitoring of these trials. Thanks to Intergrain for supplying seed of Flinders, Heritage Seeds for seed of Grange and Oxford, Coorow Seeds for the Commander seed and the growers for seed of other varieties.

Variety	*NOTES*
Oxford	Long season feed barley with (R) resistant rating for Powdery mildew and Barley Leaf rust but MS for Scald
GrangeR	Medium season barley for malt. Good hectolitre weight (up on Henley). R-MR for PM and MR for BLR and net type Blotch
Baudin	Medium Season. Very susceptible (VS) to Powdery Mildew and now VS to Barley Leaf Rust. Trials with fungicides at Woogenellup and South Stirlings. To be replaced.
Flinders	Medium to late Maturity. Potential malt variety for release in 2015. R for PM and MR-MS for Barley Leaf Rust and MR for net Blotch
Commander	A preferred variety for Local malt. Being assessed for international malt markets (then maybe a segregation available for part of Albany Port Zone?). MR-MS for Powdery Mildew. Susceptible for BLR
Bass	Market development stage for Malt export. Possible Baudin replacement. MS for Powdery Mildew and now susceptible a new Barley Leaf rust type identified in 2013.

Useful Websites and Links

Results of National Variety Trials including South Stirlings and Kendenup will be available online. www.nvtonline.com.au

Next Rural is a private consultancy that has put together a simple, yet comprehensive guide to business transition and succession planning. To obtain a copy of this guide for free, and with no obligation, email info@nextrural.com.au or call 1800 708 495.

This **farmers song on You Tube** about wild radish herbicide resistance is both entertaining and informative! http://www.youtube.com/embed/J7Kv5tl2rK0

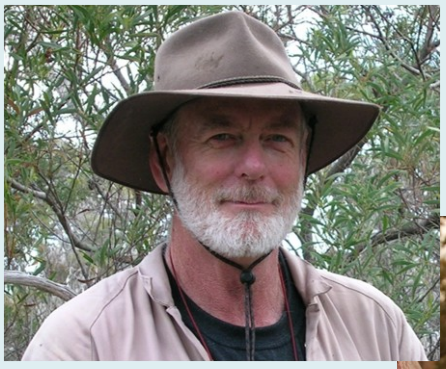
This **lime calculator** takes account of analysis by particle size and transport cost, however it doesn't tell you how much to put on as equivalent rates. It is the best tool available on line at this stage. http://www.soilquality.org.au/calculators/lime_comparison

Thank You Steve and Geraldine...

Steve and Geraldine Janicke are a partnership consultancy in Environmental Assessment & Investigations. They both have many years' experience in natural resource management issues and have worked for the Department of Agriculture and Food, the Department of Water and the University of WA in various technical and research capacities.

Stirlings to Coast Farmers has been fortunate enough to have Steve and Geraldine, working on a contract basis, to carry out the canola disease surveying, and the ryegrass and radish sampling for herbicide resistance testing. We would like to thank them for the excellent work they have done, both out in the paddock and with the data collection, and for their understanding of the need to be flexible at this busy harvest time.

We look forward to working with this dynamic duo on other projects in the future.



Wishing all our Members, Sponsors and Agency Partners a Merry Christmas and a safe and prosperous New Year!

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Canola disease survey 2013 – preliminary results

Jeremy Lemon, Geraldine and Steve Janicke and John Blake

Stirlings to Coast Farmers funded a canola disease survey this season in response to the seasonal conditions and to track the resistance of varieties to blackleg in our area. This year we also scored plants for sclerotinia given the seemingly sudden appearance of the disease. Preliminary results are presented here and further analysis will be conducted.

Disclaimer!! These are survey results. They are not an experimental site with similar management and history. Some varieties had one or very few paddocks assessed. Given the between paddock variation for single varieties, conclusions can not be drawn for varieties with low numbers of observations. Refer to the GRDC blackleg management guide for current general resistance ratings and resistance groups. This will be updated in autumn next season, take care you use the current version of the guide.

Blackleg levels were relatively low this season, about half of the levels recorded in 2012. When blackleg stem infection reaches about 50% yields are reduced but this season the highest levels were around 25%. We have investigated the reasons for this by using the DAFWA blackleg sporacle model with local weather data to compare timing and amount of spore release for 2012 and 2013.

After initial development of spore fruiting bodies on canola stubble, the physical impact of raindrops releases the spores and the associated leaf wetness provides conditions for infection. There were fewer wet days during the critical 4-6 leaf crop stage for crown canker infection in 2013 than in 2012 through most of the SCF area except Mt Barker and Cranbrook. Leaf wetness from dew needs associated spore release for infection. Later spore release with wet periods after mid July explains the prevalence of leaf stem and pod infection. I expect a return to higher (normal) levels of blackleg stem canker infection next year.

Average blackleg stem infection for paddocks in 2013 shows that Crusher can have the highest level of infection as it did last year. Of the paddocks surveyed, Gem, Jackpot and IH50 had moderate levels of blackleg. 10 paddocks of Gem and 20 paddocks of Crusher had a wide range of infection levels but a potentially high infection in our environment indicating that disease is a combination of factors. All 22 paddocks of Hyola 404 had lowest levels of this disease along with the three paddocks of Hyola 559. GT 50 and Hyola 555 had moderate levels in this year's survey. Your individual results should be discussed with your agronomist. The results from varieties grouped in the "D" resistance grouping and the "E" resistance grouping appear encouraging for 2014.

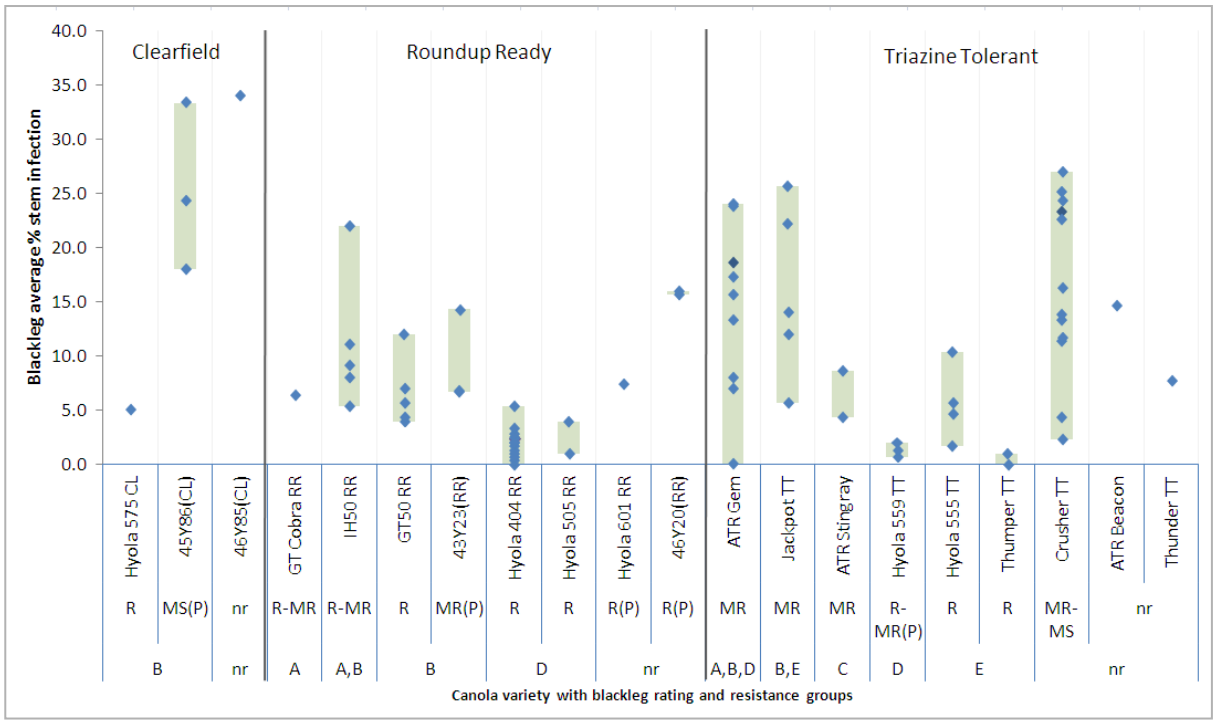


Figure 1: Individual paddock scores for blackleg by variety for 2013 SCF survey.

Canola disease survey 2013 – preliminary results …

Continued

Jeremy Lemon, Geraldine and Steve Janicke and John Blake

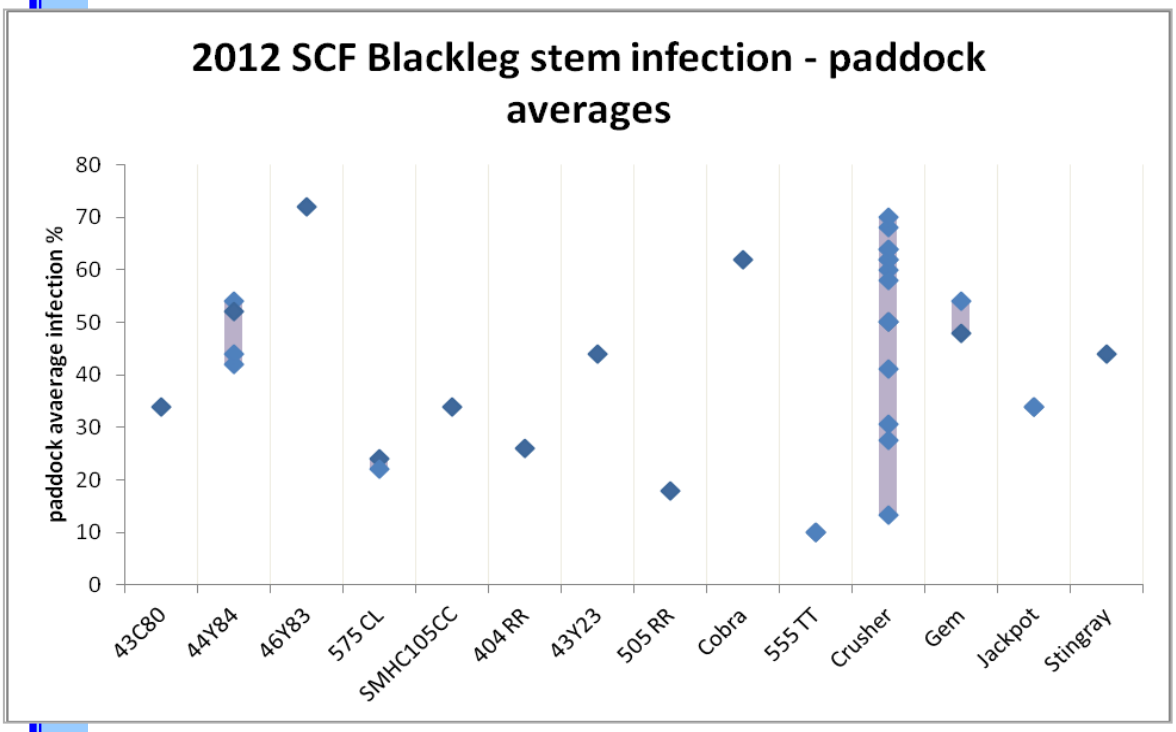
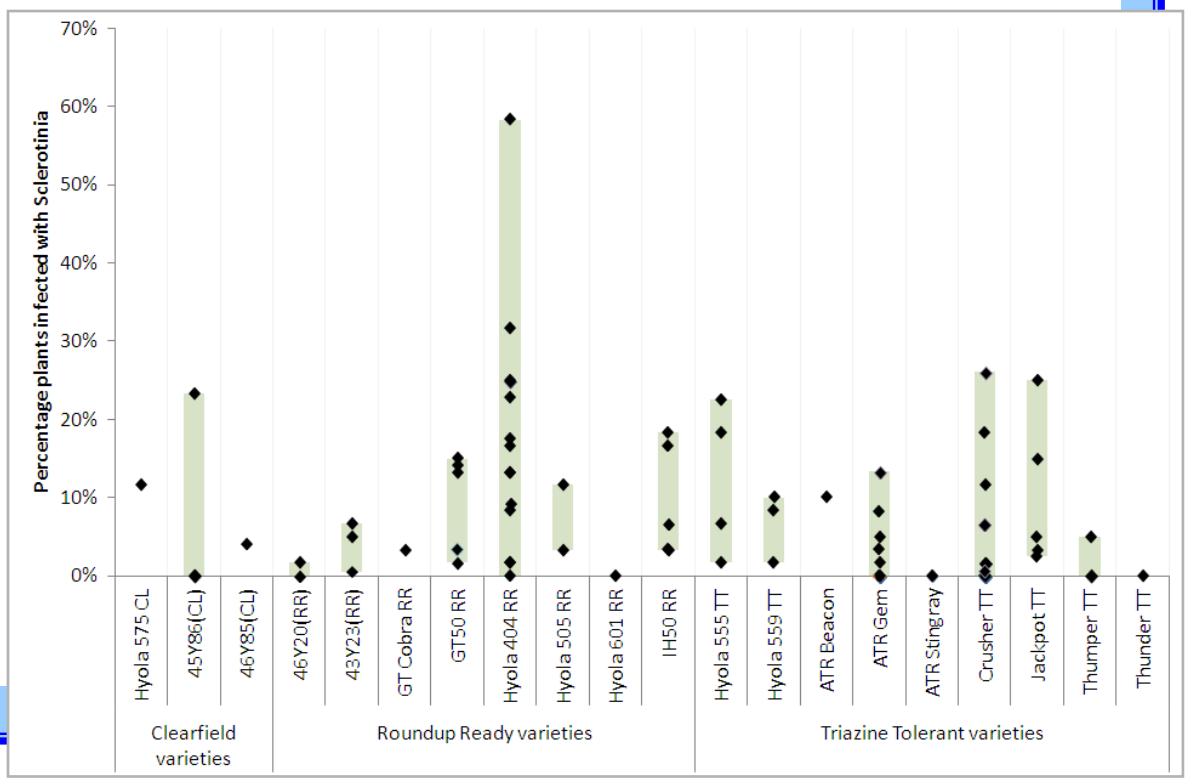


Figure 2: Individual paddock scores for blackleg by variety for 2012 SCF survey.

Sclerotinia has been around at low levels for decades but this season it took off in response to seasonal conditions and the buildup of inoculum in our tight rotations. During last season's canola disease survey sclerotinia was barely noticed but this year it was very noticeable so we recorded percent disease incidence. At this stage there is no sound experimental basis showing varietal difference in response to this disease. Paddock history, relative soil wetness, sowing/flowering time and maturity all interact to give highly variable results within and between paddocks. Paddock observations indicate sclerotinia is more common on finer textured soils, this could be related to soil wetness. While there are differences within varieties in this survey, there is no variety trend in this survey data. While Hyola 404 had one paddock with very high sclerotinia it is also the most represented variety with 22 samples and more likely to have an extreme result. When this one extreme paddock is removed, Hyola 404 appears no different from other varieties.

We also checked for clubroot, currently a disease of horticultural brassica crops in WA. It is an infrequent broad area canola disease in eastern states. We are pleased to report none was observed in the 113 survey paddocks.

Figure 3: Individual paddock scores for sclerotinia by variety for 2013 SCF survey.



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Learn practical ways to set up and manage your farm office with a fun day full of useful tips and information.

From 8.45am – 3pm, presenter **Jeanette Buegge** will cover the following topics:

- Reduce office time by being organised
- Office design and essential equipment
- Systems and processes for mail sorting, finances and office filing
- Keeping of physical records and staff records
- Going paperless – where to start & what it involves
- Communication and farm meetings

LOCATION	DATE	LOCAL CONTACT
Lake Grace	Tues 18 FEB	LIFT, Lauren: 9865 4012
Ravensthorpe	Wed 19 FEB	RAIN, Elisa: 0417 174 299
Jerramungup	Thurs 20 FEB	FBG, Anne: 0428 351 127
Mt Barker	Fri 21 FEB	Stirlings to Coast Farmers, Heather: 0428 541 051

Places are Limited. Click Here to Register through the WA Events section of our website.

$165 inc GST for the first person from a business. $110 inc GST for any other person from the same business.

Min of 10 farm businesses. Maximum of 20 participants. Registration is accepted on receipt of payment by EFT.
Registrations close and payment is due one week prior to the workshop date. Price includes the workshop manual and all catering.

This workshop has received very positive feedback from all participants, no matter their prior level of office skills:

"It's always nice to get information that can make a difference to your business immediately."

"Brilliantly presented!"

"Thank you for organising a fantastic course. I learnt a lot of time saving tips and yesterday started to rearrange and sort our office!"

"It was an absolutely brilliant course and I got so much out of it."

"The workshop itself was excellent & I would thoroughly recommend it to others. We picked up so much valuable information and are excited to put this into practice, when we get a spare minute!"

"The workshop was fantastic. Excellent hints and tips that once initiated will improve my time management and overall efficiency immensely."

For further details contact your local grower group contact or:

Partners in Grain WA Coordinator, Erin Green. M: 0429 108 936. E: wa@partnersingrain.org.au

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CBH offers products to suit your business

CBH offers deferred delivery terms on cash contracts for wheat and feed barley. Our contracts not only offer deferred payment but the actual transfer of ownership does not occur until the new financial year also, providing tax benefits if required. We also offer a deferred payment option in all our CBH pools if you are looking to defer some income until the next financial year.

CBH encourages growers to seek the advice of your financial advisor when determining the best products to suit your tax requirements. CBH deferred delivery contracts require you to hold the grain in your LoadNet account for nomination between 1-7 July 2014.

After harvest it can be easy to overlook deferred contracts. If you're unsure if you have any deferred contracts in place, please double check your pre-existing contracts via LoadNet, the Grower Service Centre or myself.

CBH is also currently offering delivered end user pricing for wheat, barley and lupins. Grain delivered under these contracts will not incur any CBH receival fees as the grain is stored on your farm and delivered direct to the end users in the Perth Metro area. If you would like to receive daily pricing or discuss how this may be a fit for your farming operation please contact me on 9890 2311.

Given the emerging pattern of protein in Albany and Esperance zones, CBH is now offering a new grade, APW105 at a premium to standard APW2. APW105 will provide WA wheat better leverage into high protein wheat markets in Asia and the Middle East and enable WA grain to compete with the east coast of Australia.

For cash products, APW105 is currently priced at a $3 premium to the standard APW2 price and is available on a cash multigrade or fixed grade contract. This new grade will also be accepted into the Wheat Harvest Pool. APW105 has the same EPR as APW2 in the Harvest Pool as all pool tonnes already receive quality increments under the CBH Quality Rewards programme.

APW105 is a virtual niche segregation service for CBH. Receival specifications for this new grade will be APW2 standards, except protein will be a minimum of 10.5%.

Regarding pools, barley Harvest Pool EPR's have been revised upwards this week with BFED1 now at $242 per tonne. Malt1 EPR's have been increased between $7-$10 per tonne depending on the variety, with the BAU1 EPR now at $280 per tonne.

Wheat and Canola Harvest Pool EPR's are currently unchanged with APW2 at $310 per tonne and CAN1 at $527 per tonne. For information on CBH Pool EPR's and payment schedules for all grades and pool products, go to the CBH Pool Calculator which can be found on the CBH Group website.

From the team at CBH and myself I wish all Stirling's To Coast Farmers members and their families a safe and happy Christmas and a prosperous 2014 season. I will be leaving my role at Business Relationship Manager with CBH on the 3rd Jan 2014 for the next 12 months as I head off on maternity leave. My replacement will be announced shortly and will be contactable on my usual numbers of 9890 2311 or 0429 919 794. Best wishes for 2014.

Regards

Nikki Lewis

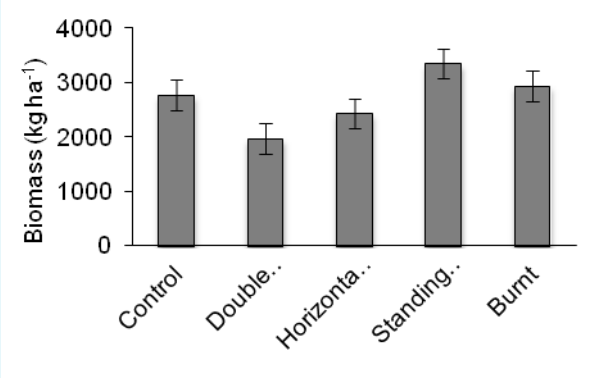
Improving crop establishment in non-wetting soils through stubble management

Kimberley Adams – Fourth Year Honours Project
University of Western Australia

Along the south coast region soil water repellence is a major limiting factor in crop production. With the sandy soils of this region soil erosion is a major threat, and consequently the majority of the farmers use no-tillage cropping methods with full or partial stubble retention. The retention of stubble has the potential to exacerbate water repellence in soils, by increasing soil organic matter and the associated hydrophobic waxes. The aims of my experiment were to: determine if stubble quantity and orientation has an effect on soil water repellence during crop emergence; establish if there are differences in soil water content between the stubble row (previous crop row) and the inter-row under different stubble treatments; and find a stubble management practices that reduce soil water repellence, or its impact, on crop production. It was expected that greater amounts of stubble would increase water repellence of the soil and this would negatively impact crop emergence and performance compared with no stubble. The seven month study was conducted on a water repellent sandy soil on Mark Adams's property under no-tillage with treatments including: control (standard farmer practice), burnt, horizontal stubble (standing stubble was trampled), standing stubble only (horizontal stubble was removed from between standing stubble) and double the amount of stubble (double the horizontal stubble). Measurements included soil water repellence, soil water content, soil total carbon, crop emergence, density, vigour and biomass.

There was no differences in soil water repellence under any stubble treatment and this research clearly showed that stubble retention had no influence on soil water repellency; nonetheless, a major limitation of this work is that these stubble management effects may take a number of years to manifest and the current work was only done over one cropping season. There was 67 mm of rainfall in March, which is well above average for the site area. This rainfall may have also reduced the impact of water repellence at the time of seeding, because the soil had already wet up, causing there to be no significant differences in plant emergence counts under any stubble treatment.

The amount and orientation of the stubble also had no effect on soil water content, though there was a higher soil water content in the stubble row from the previous crop compared to the inter-row. The double stubble treatment was the poorest performing having the lowest emergence count, visual density and vigour assessments and biomass, with the burnt and standing stubble treatments being the best performing. Thick stubble on the soil surface causes the elongation of the hypocotyl reducing the allocation of the seed resources to the roots and shoots in order to emerge through the stubble into the light, which may have happened in the double stubble treatment. When seeding through thick residues from the previous crop the canola seeds can be placed into the residue rather than into the soil, this may have also been the case with the double stubble treatment, as the seeding equipment was not altered to account for the thicker surface stubble.



In no-tillage systems, stubble retention is unlikely to have an influence on soil water repellence in the short term, however, high levels of surface stubble can negatively impact crop growth under the conditions experienced during the experiment. In order to better determine the effect of stubble quantities and orientations on the soil water repellence and crop production this experiment should be conducted over several years.

I would like to acknowledge the support that I have received from my supervisors Kenneth Flower, Dr Phil Ward and Dr Margaret Roper, the GRDC, the Sir Eric Smart Bursary, the Grower Group Alliance, Stirlings to Coast Farmers and my family.

Kim getting a hand with monitoring from her Grandmother

Choose varieties carefully to reduce rust risk

By GRDC western regional panel chairman Peter Roberts

GRDC Grains Research & Development Corporation
Your GRDC working with you

To minimise the risk of crop damage from rust in wheat and barley in 2014, Western Australian growers need to think carefully about the varieties they retain now for crop seed, or plan to source.

Controlling the 'green bridge' and monitoring summer regrowth for rust is also imperative.

This follows the identification of wheat and barley leaf rust pathotypes new to WA – by the Grains Research and Development Corporation (GRDC)-supported Australian Cereal Rust Control Program (ACRCP) at the University of Sydney, with support from the Department of Agriculture and Food (DAFWA).

Based on reactions in eastern Australia, the findings – announced in recent months – could have significant implications for commonly grown varieties including Mace PBR - by far the State's most popular wheat variety.

The full extent of any changes in the rust resistance of different varieties will not be confirmed until more exhaustive tests have been completed.

Wheat leaf rust

Growers need to be aware of the potential changes to wheat leaf rust resistance ratings to make informed decisions now about what varieties to retain this harvest or to source.

Professor Robert Park of the ACRCP recently identified an eastern Australian wheat leaf rust pathotype (76-1,3,5,7,9,10,12 +Lr37) from samples collected across WA's grainbelt.

This is expected to result in several wheat varieties becoming more susceptible to leaf rust.

Varieties that carry the *Lr13* gene (such as Mace PBR, Wyalkatchem PBR, Corack PBR and Emu Rock PBR) and *Lr17a* (Fortune PBR) will be more susceptible and may require additional management in 2014.

The resistance ratings of Mace PBR and Wyalkatchem PBR may be reclassified from resistant to moderately resistant (R-MR), to moderately susceptible (MS).

Some varieties have other leaf rust genes that are expected to still be effective so have a lesser rating shift.

These include King Rock PBR, Fortune PBR and Zippy PBR that are likely to be reclassified from resistant to moderately resistant (R-MR) to moderately resistant to moderately susceptible (MR-MS).

The responses of Carnamah PBR (MS) and Cobra PBR are not likely to change, but further tests are needed to establish their responses more accurately.
Resistance ratings for all other wheat varieties are unlikely to change.

For example, Magenta PBR, Sapphire PBR and Bullaring PBR remain resistant (R) to leaf rust in WA.
Information about other wheat disease resistance ratings is available in the *WA Wheat Variety Guide 2013*, available on the DAFWA website www.agric.wa.gov.au

When consulting this guide, growers should keep in mind the possible revisions to resistance ratings outlined above.

Disease information is also available on the GRDC-supported National Variety Trials website www.nvtonline.com.au

Choose varieties carefully to reduce rust risk

continued...

By GRDC western regional panel chairman Peter Roberts

GRDC Grains Research & Development Corporation
Your GRDC working with you

Barley leaf rust

A new pathotype of the barley leaf rust pathogen (*Puccinia hordei*) was identified by Prof Park, based on samples collected by DAFWA in WA's southern cropping regions in 2013.

The new pathotype (5457 P-) is expected to reduce resistance to leaf rust in several varieties known to carry the Rph3 resistance gene in WA.

Test are underway to assess its impact on Bass PBR, Fairview PBR, Finniss PBR, Fitzroy PBR, Grange PBR, Henley PBR, Oxford PBR, Wimmera PBR and Yarra PBR barley varieties.

In barley leaf rust-prone areas such as the South Coast, Bass PBR is likely to require careful management of leaf rust, comparable to existing susceptible varieties.

However, the leaf rust susceptibility of three of these varieties – Grange PBR, Henley PBR and Oxford PBR – is not expected to change markedly due to the additional presence of the adult plant resistance gene *Rph20*.

Information about other barley disease resistance ratings can be found in the *2013 WA Barley Variety Guide* on the DAFWA website.

Management

Researchers recommend that all growers develop a rust management strategy for 2014.

Information on developing a strategy can be found on the Rust Bust website www.rustbust.com.au, which includes a 'Rust Bust Management Checklist', or in the GRDC *Cereal Fungicides* Fact Sheet at www.grdc.com.au/GRDC-FS-CerealFungicides.

Growers need to control the green bridge in coming months. But if leaf rust is detected on any regrowth, samples should be sent to the University of Sydney Plant Breeding Institute for pathotype analysis.

Rusted plant samples can be mailed in paper envelopes, not plastic wrapping or plastic-lined packages to the Australia Cereal Rust Survey Plant Breeding Institute, Private Bag 4011, Narellan, NSW, 2567.

Proactive research

The ACRCP is supported by growers through the GRDC. It is one of the GRDC's core investments to monitor, assess and develop a rust management strategy for Australian growers.

Since the early 1970s, ACRCP researchers have identified new sources of rust resistance and have assisted breeders to incorporate these into new cereal cultivars.

The work has included extensive testing of cereal lines with new rust pathotypes to ensure industry-wide preparedness to the emergence of new rust threats. This ensures that plant breeders are provided with new sources of leaf rust resistance to breed into new Australian wheat varieties.

PHOTO: Peter Roberts

'Lime bank' deposits a good investment

By GRDC western regional panel member Dr Bill Ryan

GRDC Grains Research & Development Corporation
Your GRDC working with you

For years farmers understood the concept of a 'super bank' and applied phosphate as a resource for the future, much like you would put money into a savings account.

My challenge to the Western Australian grains industry is to adopt a 'lime bank' mentality, in which regular and targeted lime application becomes a regular part of farm operations, delivering long-term yield benefits through reduced acidity.

The Grains Research and Development Corporation (GRDC) western regional panel and Regional Cropping Solutions Networks (RCSNs) have identified soil acidity as a priority for research, development and extension (RD&E).

As outlined in the *GRDC External Investment Plan 2014-15* (www.grdc.com.au/Investment-Plan), the GRDC is increasing its western region investment into understanding and managing subsoil constraints, including acidity and compaction.

The Department of Agriculture and Food (DAFWA) now estimates that soil acidity costs up to $500 million annually in lost production across WA's grainbelt.

Estimates for the financial opportunity loss from acidic soils in WA have increased dramatically in recent years as new and more detailed data has become available.

Researchers including DAFWA's Chris Gazey estimate that 2.5 million tonnes per year of lime is needed for the next decade to recover soil pH to the targets of 5.5 in the surface and 4.8 in the subsurface layers and address ongoing soil acidification.

Farmers can be reluctant to apply lime as its cost and application might not be fully recouped in the first year.

But the response from lime application is ongoing, while yield penalties from soil acidity are substantial.

Research has provided clear evidence about the long-term potential yield losses from soil acidity.

The long-term average loss is 9 to 12 per cent per year, but individual losses can be much greater where the soil pH is well below the target when sensitive crops are grown.

If you are growing a 2 tonne per hectare wheat crop at $300 a tonne, this represents losses of $50-70 a hectare if soil pH is low.

So the investment in lime needs to be considered over a number of years.

This type of investment is usually evaluated using an internal rate of return.

An investment in lime provides an internal rate of return of 10 to 20 per cent, depending on the amount applied and yield response.

This is a very good return on the investment.

Acidic soils impact on plant growth in a number of ways.

The key problem in WA is that as the soil gets more acidic, the solubility of highly toxic aluminium increases, stunting root growth.

In addition, as pH decreases, phosphorus and nitrogen in the soil become less available to plants.

When soil pH is at the right level plants have access to more water and nutrients, resulting in better yields.

Research has highlighted the importance of subsoil pH and applying lime not just at the surface, but at depth.

If topsoil pH is improved but subsoil pH is low, yields will still be penalised.

This means that soil sampling needs to be not only just to a depth of 0 to 10cm, but to 30cm in 10cm increments to get an accurate picture of soil health.

Researchers are investigating practices which combine liming with soil amelioration techniques like deep ripping or mouldboard ploughing.

These practices can cause big yield responses to occur quickly, but to maximise the benefit the lime incorporation technique needs to distribute lime well through the subsurface layers.

Researchers also stress that the additional cost of the amelioration technique needs to be weighed up with any potential additional benefits.

More information about lime can be found in *Soil Acidity: A guide for WA farmers and consultants*, available by searching 'acidity' on the DAFWA website www.agric.wa.gov.au, or www.limewa.com.au which can be used with the www.soilquality.org.au online lime comparison.

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The Management Committee

The following are members of the Stirlings to Coast Farmers Management Committee. This group meet regularly and guide the events and research priorities for the group. They appreciate input from the wider membership and can be contacted on the numbers listed below :

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