SCF Focus

STIRLINGS TO COAST FARMERS

AUTUMN 2020 NEWSLETTER

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JOTTINGS FROM THE CHAIR

Ken Drummond, SCF Chair

Welcome to our first newsletter for 2020, I hope everyone has had a good break over the new year.

Water supply amongst our membership is high priority this Autumn maybe we could have some action on this water drought?

Nathan and I have just returned from a GRDC RCSN Geraldton Zone study tour. There was 21 people in total all organised by Julianne Hill from GRDC, who did a fantastic job. There is a written report on the tour with some photos later in this newsletter. A couple of take-home messages from New Zealand Agricultural tour are the social licence to farm and the farming effects on the environment.

Congratulations to Nathan and SCF Staff on a very successful Trials Review day last month at Green Range Country Club. The attendance was fantastic, also high-quality speakers. The feedback I've had was very positive. I'm very pleased that we are including the economics to some of our trials. I feel researchers don't do this enough, if they want farmers to take up new processes a cost benefit study is a must.

June 22-23rd 2020 we are hosting a Livestock Event over two days in Albany partnering with WAPC, Kim Haywood has done a lot of work putting it together. There is some more information on the Livestock '20 event further on in this newsletter.

Big thankyou to our committees, they are a fantastic way to give our members ownership and experience in governance. I would like to encourage everyone to consider joining one of our committees and getting more involved. If you are interested, get in touch with the SCF team or a Board member.

All the best to our members for the year ahead, I hope you have a safe and enjoyable 2020.

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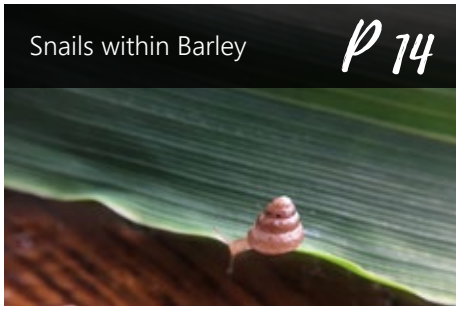


CEO REPORT

Nathan Dovey, SCF CEO

Hi all,

Welcome to the first SCF newsletter in the new decade. It is also my first chance to communicate with you since I was appointed CEO late last year. Firstly, I would like to thank the SCF board and members for the opportunity to lead our group. I would also like to thank our outgoing CEO Dr. Christine Kershaw, who has worked unbelievably hard for our members in the last four years. The group has grown significantly under Christine's leadership and SCF now has a greater capacity to help our members drive adoption change. It is amazing to think that we are only 10 years old as an organisation. In the next 10 years agriculture is going to change dramatically, and SCF will be here to navigate the challenges with you.

I hope you all enjoyed the unusually early harvest in 2019. It must have been nice to experience Christmas as a 1-2-week period rather than the usual 1-2 days.

Our staff have been busy in the new year writing reports and applying for new research grants. We have a couple of new projects developing, but it is too early to make any announcements yet, so watch this space.

On February 18th we held our annual trials review day at Green Range. It was great to have over 70 people attend to hear about local SCF trial results as well as research from DPIRD and sponsors. Jimmy Wilson, CEO of CBH Group, was also a popular drawcard for our members and we thank Jimmy and other staff for presenting to us.

We have some staff changes to announce. Unfortunately, Alaina Smith will be finishing with SCF to focus on the farming business. I would like to thank Alaina on behalf of the staff and members for the work she has done in the last few years. Alaina has been integral to the snail research we have been doing at SCF. At the trials review day, Alaina presented a clear, succinct presentation on the snail roller 2019/20 results followed by a farmer panel discussion. Our farmer presenters: Iain Mackie, Nathan Crosby and Reece Curwen gave clear presentations of their experience using snail rollers last harvest. The quality of the whole snail segment can be attributed to the way Alaina prepares for any SCF task. Alaina's attention to detail on project work will be missed greatly.

Given Alaina is leaving, SCF have been very lucky to add recent Curtin agribusiness student, Philip Mackie to the team. Phillip farms with his brother and parents in Mt Barker and will be joining SCF for at least two days a week. Phillip will be doing project and field work and has already proven to be an asset in his short time with us. Please make Phillip feel welcome when you see him out and about.

Here's hoping the recent rains are a sign of the growing season to come in 2020. I wish all members the best of luck with the coming season and I look forward to catching up at some stage.

Since this was written the Corona virus has taken hold. SCF staff are taking all precautions available to us. This includes working from home as much as possible, canceling non-essential meetings and limiting contact. Our preferred method of contact is via phone or email. Please keep in touch!

Follow SCF online!

Search Stirlings to Coast on these platforms and visit us @ scfarmers.org.au:

YouTube

Introducing new staff member - Phill Mackie

Hi SCF members, I will be the second Phill to join the Stirling's to Coast team with my part time role as a Project Officer. While undertaking this position I will be working on a range of SCF's current projects, as well as implementing some future ones. I hope to bring my enthusiasm for precision agriculture, data utilisation and agronomic practices to the team and provide valuable solutions in research.

I'm originally from a mixed family farm 20km west of Mt Barker which runs a self-replacing prime lamb flock and predominately crops canola, barley and wheat.

I graduated from boarding school in Perth after which I returned home to the farm for an enjoyable gap year. I then revisited Perth for another three years to complete my Bachelor of Agribusiness at Curtin University and am now excited to be able to follow my passion for agriculture in this role with SCF alongside working on the family farm.

I look forward to networking with you all through Stirling's to Coast and helping provide valuable research to the region.

> **One of the marvelous things about community is that it enables us to welcome and help people in a way we couldn't as individuals.**
>
> JEAN VANIER

Bayer CropCast – Podcast

Long days, planning and preparing for the season that is upon us? Why not tune into the latest episode of CropCast - Podcast? There's plenty of back episodes to listen to and Episode 11 will be out in late March 2020.

In Episode 11, you will hear about the recent Bayer Connect – Adviser updates including some of the new Crop Protection developments underway as well as what's happening in agricultural research with the Bayer Market Development Team from right around Australia.

To listen, you can simply scan the QR code with your iPhone camera (or QR reader app on other devices) or subscribe in good podcast apps "Bayer Crop Cast."

Search for it on Google or visit www.crop.bayer.com.au/news-and-insights/cropcast

EVENTS NOTICEBOARD

GREAT SOUTHERN livestock'20

June 22-23

Albany, WA

Field Day

Monday 22 June 2020
12.30 to 5.30pm
followed by lamb on a spit barbecue and refreshments.
West Kendenup, WA.

Farmer's Forum

Tuesday 23 June 2020
8.30am to 5.00pm
full day catering followed by WSD Agribusiness drinks reception.
Albany Entertainment Centre.

This years' Great Southern Livestock'20 will be held over two days - a practical, comprehensive half-day Field day followed by a Farmer led Forum.

Covering highly requested topics including pasture quality, weather, livestock nutrition and health and new on-farm technologies.

With speakers ranging from local farmers to industry leading professionals, this years' event will surely update you on the latest in livestock advancements and management.

GRDC Tour of New Zealand

Nathan Dovey, CEO, SCF

On the 9th of February myself, Ken & Karen Drummond and Emma Russell (my better half) joined a week-long GRDC tour of the New Zealand South Island. The tour group consisted mostly of growers and advisors from the Geraldton zone who had been through a pretty nasty 2019 season, where some growers only received 140mm for the year. In total we had 21 people on the tour including our tour leader Julianne Hill.

We flew into Christchurch and made our way south towards Queenstown over the course of the 7 days. Being a GRDC tour we had a grain focus, but we also visited dairy farms, a deer farm, as well as taking in a field day in Waimumu (like Newdegate) and catching up with some very knowledgeable consultants.

My highlight was visiting the world record yield holders for wheat and barley at Ashburton and Timaru respectively. The world record wheat yield is 16.79t/ha and Eric Watson achieved this in 2017 on his 490ha property. Eric's farm is fully irrigated, which allows him to be confident with high spending on cropping inputs. Having said that, Eric attributes both his world record wheat crop and other cropping successes to having high attention to detail. The example that stuck in my mind was that Eric often delivered plant tissue tests directly to the laboratory in Christchurch (1.5 hours away) to ensure they arrived in optimal condition. I am not saying that is the reason he grows high yields, but it does show his mindset.

Eric also applies variable rate P and K (but not N) through liquid applications. His reason for using liquid was because of the accuracy achieved through spraying, compared to spreading granules. N applications are done through regular applications of liquid urea. Eric only applies 55L/ha at a time, otherwise the leaf damage from scorch is too high. Eric applies about 300 units of N on every wheat crop and it gets two plant growth regulators at growth stage 29 and 31, which is only two weeks apart (label minimum). Growth regulators are required to prevent lodging. Wheat crops are generally sown in early April and harvested in February.

The irrigation schedule is 45mm every 12 days on the heavy soils and 45mm every six days on the 'lighter' soils. The water itself is free, but they do have restrictions on pumping volumes and the electricity required to pump water and irrigate is very expensive. Still, imagine having the ability to apply 45mm every 12 days when required! Eric's suggested his break-even yield for the wheat crop we were looking at (see photo) would be 7-8t/ha and he thought it would yield 15t/ha.

Fun Facts about NZ cropping:

41,400 ha sown to wheat each year.

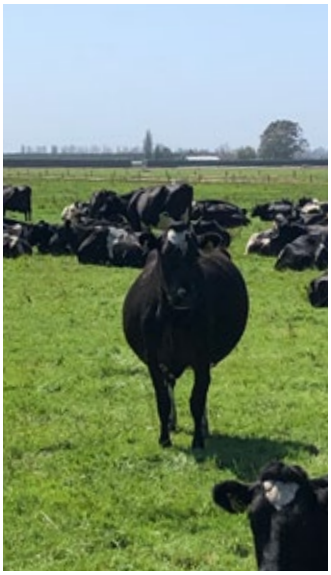
National wheat average in 2018 was 9t/ha

56,300ha of barley sown in 2018

National barley average was 6.7t/ha

The world record barley yield is 13.8t/ha and was grown by Warren and Joy Darling on their 570ha farm, on the outskirts of Timaru in 2015. Warren suspects he will own the record for a while yet, since NZ barley growers are having problems with Ramularia (fungus) that is proving difficult to control with multiple fungicides. The annual rainfall at Timaru is 600mm but the world record barley crop was grown under pivot irrigation. Before Ramularia became a problem, Warren grew 10-12 tonne barley crops regularly, but is now in the range of 7-10 tonnes. This year Warren was getting about $370/tonne on farm for barley.

Warren generally harvests cereals at 17% moisture and then he dries them down to 14% with his recently purchased grain drier. The grain drier can do about 200t/day and is busy for three months of the year. They are lucky not to have snails in NZ, but Warren does have slugs to contend with and they apply two applications of baits on every crop.



Warren and his family have been using variable rate inputs for the last four years. They grid soil-sample each hectare every four years and use yield data to create prescription maps. Variable rate fertilizer applications in NZ are the opposite to Western Australian farming. Warren and another farmer we visited (David Fisher) apply more nutrients to their 'poorer' soils, because they leach more, and the better soils get less inputs but still produce top end results. Warren said that in the four years since they have been employing VR, he has already seen less variation in his paddock yields.

The Darlings grow wheat-barley-sunflowers-hemp-canola and grass-seed in a six-year rotation. *Wouldn't we love to have six profitable crops to grow in a rotation?*

I found it amazing that farms were so small in New Zealand. It should not be surprising that expansion is hard when land costs $40-50,000/ha. But the small size seems to drive the attention to detail which allows then to push yields closer to their maximum potential.

We noted that just the Aussie farmers on our tour probably planted more wheat than the entire nation of NZ. Hard to yield 9t/ha when you only get 140mm of growing season rainfall though!

There are many more things I could say about what I learnt on this GRDC supported trip to New Zealand. It was amazing to discover that Agriculture and its impact on the environment is under a brighter spotlight than what we are seeing in Australia right now. The 'social license' to farm in the dairy industry seems to be collecting the greatest amount of attention currently. New Zealand farmers mentioned that the rural/urban divide is large, and the lack of understanding from North Island city dwellers was mentioned more than once.

The tour finished in Queenstown, which is a hugely popular tourist destination for those that have not been. Being there in the height of summer was about the equivalent of a nice sunny winter's day here in Albany. The group were free to fit as many adventure sports as they and their wallets dared. I enjoyed some of the tamer activities like jetboating on the river and cruising up the gondola to take in the magnificent view. Other people got their kicks from Bungy jumping (Ken) or the canyon swing (Emma and Karen) or mountain biking, paragliding etc. etc. *It's amazing what you can get through in a day and a half.*

To finish, I thought I'd remind members that doing a tour like this would not be impossible to organize for SCF members in the future. I remain interested in learning more about the NZ red-meat industry (possible MLA funding), which we didn't cover on this trip, as well visiting the north island to understand their agriculture systems. The GRDC have funding available on a dollar for dollar basis for international, as well as interstate trips, for growers to utilize. The beauty about New Zealand is that it is so close to Australia (we are the west island apparently) and it is such a small country you can cover a lot of area in only one week. Given the usual time constraints that members have, it is feasible to put an excellent itinerary together for only 7-8 days away from the farm. If you have strong interest in this idea, please get in touch with me or any SCF staff member. Just a simple text message would do in the short term, so we can gauge member interest levels.

Early Success for WAPC Members

Feb 2020 lamb sales results

The new WA Producers' Co-op (WAPC) has had some early success with its first two shipments of prime lamb sold to processors in February, which returned excellent additional cash income to members who sold through the co-op than they would have received through traditional methods. WAPC members also enjoyed another great workshop in March on confinement feeding and lot-feeding nutrition and the use of on-farm EiD data with thanks to Geoff Duddy (NSW consultant) and WA farmer Clayton South.

The WAPC also sold its first lambs in February with great results. Total increased earnings for each of the 3 WAPC members to first sell a total of 1157 lambs through the Co-op in February averaged approx. $3,000 above what they would have earned through traditional methods each. This almost paid for their one-off WAPC joining fee ($3,500) and equated to a total of $8,894 in new premium payments and savings in handling fees based on the total value of $178,077 lambs sold. This is a fantastic start for the new Co-op, which demonstrated a clear benefit to these members of selling through the new WAPC model. The Co-op plans to sell a further 9,000 member's lambs by July 2020.

The WAPC held its second workshop for members in March focusing on sheep nutrition and methods for confinement and lot-feeding systems. The workshop was a great opportunity for those thinking about increasing their lamb production through on-farm lot-feeding or confinement feeding systems. There were also demonstrations on the use of sheep handling equipment, condition scoring and small digital equipment held in a member's lamb feedlot and sheep yards followed by a BBQ. A big thanks to WAPC member Trevor Hanning and the team at First Australian Farmlands in Green Range. The workshop included presentations from NSW sheep consultant Geoff Duddy who also made several visits to WAPC member's farms to advise on their sheep production systems and provide one-to-one advice on the best siting for confinement areas and feedlots.

Apply today or to find out more head to:

waproducers.com.au

If you missed joining the WAPC in 2019, 16 new memberships are now open at the same introductory price of $3,500 (one-off joining fee) plus $500 redeemable share. This joining fee will increase to $7,000 after June and the offer is limited to 16 new members in this period to ensure we don't dilute benefits for existing members. So if you want to join the Co-Op or find out more, please don't leave it too long. The Co-Op plans to expand its operations and membership again after June to sell 60,000 head of lambs and 1,000 head of cattle in 2020/21. Membership forms can be found on the WAPC website or for an information pack, contact:

> Christine Kershaw, WAPC CEO: ceo@waproducers.com.au; 0429 236 729 or
>
> Ken Drummond, WAPC Chair and member; kgd@iinet.au; 0427 541 033

Smart Farms Workshop

Phil Honey, Smart Farms Co-ordinator, SCF

Last month, over 30 SCF members, sponsors and industry representatives recently attended our SCF Smart Farms Workshop held at Gilberts Winery in Kendenup. A wide range of topics was covered across both livestock and grains industries, including 101 on Electronic Livestock Identification (*Kelly Gorter – KG Livestock Services*), Extracting Value from Weather Technology in Agriculture (*Krystelle Venn – DTN*), followed by Next Era Livestock Management (*Derrick Thompson – Hitachi Australia*). An update on the Smart Farms Initiative was provided, along with a demonstration of technologies, sensor limitations, and how they work.

So, what were the take-home messages from the day?

- Identify your on-farm issues first, then select a sensor to solve it...never the other way around.
- When considering AgTech, don't always be scared of upfront costs, particularly for rain-gauges and tank monitors. Factor in your time and travel and perform the Return on Investment Calculations to determine savings. SCF has a calculator template to assist if required.
- There are options available for sharing internet connectivity between farms/buildings, or potentially extending internet coverage to areas not previously covered.
- The use of EID allows the opportunity for producers to accurately select low-performing stock to turn-off in dry conditions, allowing producers to retain favorable genetics/ traits.
- You can start small with EID utilising wand-readers, before later progressing to advanced weigh-heads/readers. You will always find a use in the future to have both!
- Weather (particularly rainfall) is highly variable. Utilise (and add in additional) nearby weather stations to improve local forecasting accuracy.
- Aggregating data from many data-streams into one custom-built platform that suits your organisation will help improve management decisions, as well open the opportunities for improved productivity, traceability, environmental/social compliance.

A big thank-you to all speakers who presented at this event. Stay tuned to learn more about our journey, as well as the case-studies on these technology types being developed over the next few months. Also, a big congratulations goes to SCF member Tracy Bradshaw on being the lucky winner of the Gilbert's Winery voucher Evaluation Form random prize draw - it certainly pays to fill in those pesky Evaluation forms!

Are you interested in applying AgTech on your farm?

Stirlings to Coast Farmers is currently recording interest for a range of agricultural technologies to approach a range of suppliers for a potential collective group-purchase. To register interest, please complete our quick 4-question survey accessible from any internet browser at http://bit.ly/SCFagtech

ACKNOWLEDGEMENTS

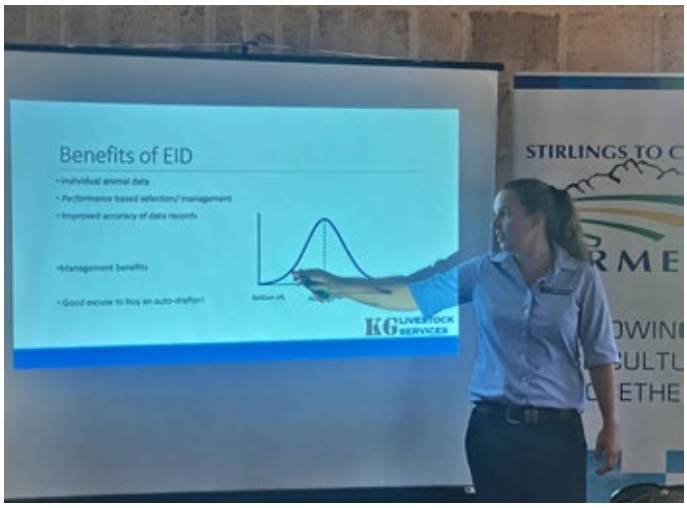
This workshop and the development of the Smart Farm Demonstration Sites was made possible through funding support from the Australian Government National Landcare Program & the WA Government Department of Primary Industries & Regional Development Decision Ag grant programmes.

Australian Government | National Landcare Program

Department of Primary Industries and Regional Development

Gilberts Winery hosted this years Smart Farms Workshop

Krystelle Venn, DTN presentation on extracting value from technology in Agriculture



Kelly Gorter Presentation on AgTech in Livestock

Derrick Thompson, Hitachi presentation on data integrations

Have you missed out on receiving our SCF Smart Farms Workshop Manual from the event?

For an electronic or print copy of the workshop manual and handy hints when selecting AgTech solutions, please contact Philip on 0428 768 589 or philip.honey@scfarmers.org.au

2020 Crop Updates and Trials Review Day

Over 70 SCF members, sponsors and industry representatives attended the recent SCF Crop Updates and Trials Review Day held at the Green Range Country Club on Tuesday Feb 18. A full and varied program for the day awaited with attendees hearing the latest research results from SCF projects including snail roller trials, deep ripping, and legume crop demonstrations and an update on the SCF Smart Farms Initiative. Also presenting were a range of industry representatives speaking on barley agronomy and varieties, N-rates and application of PGR, summer forages, N on canola and an update on the WA Producer's Co-op. Keynote speaker was CBH Group CEO, Jimmy Wilson, outlining the performance of CBH for its members, and providing growers the opportunity for plenty of discussion.

The 2019 SCF Trials Review Book is currently in production and will have full results from the trials run by the group in the 2019 season. The book is planned to be ready for release to members sometime in April.

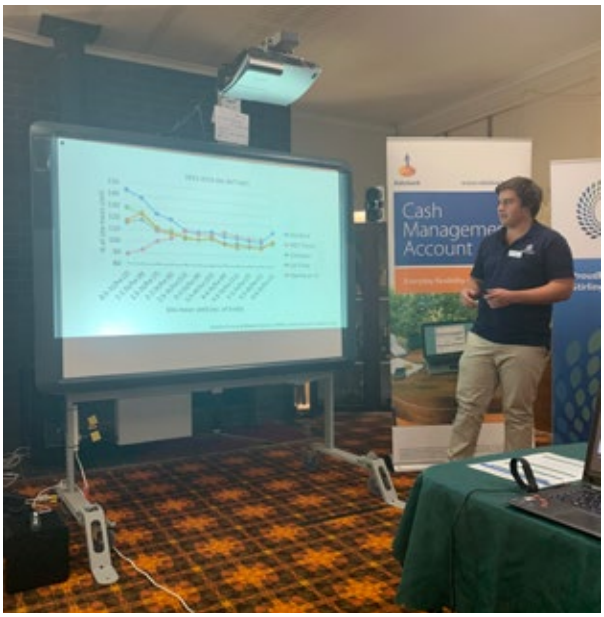
A big thank you to the Green Range Country Club for hosting the day and supplying a great lunch and plenty of snacks for the day. Thank you also to Nutrien Ag Solutions for sponsorship of the sundowner afterwards.

Ken Drummon, SCF opening the day with a welcome

Jimmy Wilson, CBH gave us an outlook of CBH Group's performance

Nathan Crosby, Iain Mackie and Reece Curwen sharing their experiences and processes of using snail rollers within their farms during the 2019 harvest.

Carla Milazzo, DPIRD presenting on Faba beans on south-coast sandplain after soil amelioration



Jeremy Curry, DPIRD presenting on barley agronomy tips for 2020

Stratus Imaging's demonstration of their spray drone

Optimising the profitability of High Rainfall Zone Farming Systems

Nathan Dovey, CEO, SCF

The GRDC investment "Optimising the profitability of high rainfall zone (HRZ) farming systems – survey, farmer scale demonstration trials and field days" aims to reduce the gap between current and potential yield in the HRZ, focussing on wheat and canola production.

The high rainfall zone (HRZ) of Southern Western Australia is the arable area where annual rainfall is between 450-800mm. This area represents approximately 1.2 million Ha in WA. As annual rainfall has decreased over the last four decades, the amount of area in the HRZ sown to crops has increased. This is due to less frequent and less severe waterlogging events, which can reduce yields by 37% in wheat alone. Current research suggests that growers in the high rainfall zone are missing out on an extra 1-3 t/ha of wheat and 0.5-1.5 t/ha of canola, depending on the decile year.

Photo: Darcy Warren, FAR Australia.

Twenty growers were recently surveyed to ascertain an understanding of current farming performance and system practices in the HRZ regions of the Albany Port Zone. This survey was also completed by 20 growers in the Esperance region managed by SEPWA. The survey covered farm profiles, crop rotations, yields, agronomic strategies, technology and production constraints, answering 56 questions in total! Thanks again to those members who gave their time to complete such a comprehensive survey.

The survey results found non wetting soils to be one of the main physical characteristics impacting yield potential, along with waterlogging. Soil type, free draining soils, and favourable seasons were the main characteristics that defined our growers 'best yielding paddock's. 40% of growers surveyed indicated they would like to do more soil amelioration to increase production over the next five years, since 50% of growers believe they can only achieve higher yields once soil amelioration has taken place. Soil amelioration is soil type dependant, and doesn't necessarily mean growers need to do something for every paddock they manage.

Photo: Darcy Warren, FAR Australia

Only three of the twenty growers surveyed did not grow wheat. Most growers current cropping rotation have 20 – 50% barley and the same with canola. Scepter was the main wheat variety grown by the respondents with 55% having it in their cropping program. Nuseed GT 53 was the main variety of canola grown with 21% of respondents growing it. The surveys showed five-year wheat yields ranged from 2.5t – 5.5t/ha, with an average of 4t/ha. Canola yield ranged from 1.5 – 2.4t/ha, with an average of 1.9t/ha.

Twelve of the survey respondents currently have yield mapping abilities with six not currently or under utilising the technology. Protein mapping is not currently being used by any of the survey respondents and VRT is being utilised by six of the surveyed growers. Seven of the respondents are using CTF, however most of the growers are looking at implementing it in the next five years to help increase production.

The growers final question was 'what resources and technology do you need to help achieve an increase in production': six indicated they would like more resources on precision agriculture, four indicated they need access to specialised machinery, and others stated they would like to see more research around legumes.

SISTER PROJECT TO THE SCF SURVEYS AND FARM-SCALE DEMONSTRATIONS IN 2020-2022

Alongside this project, the SCF and SEPWA grower groups will be working alongside partners from the Foundation for Arable Research (FAR), DPIRD and CSIRO, who with GRDC investment will be conducting small-plot trials looking at aspects of pushing for higher productivity in cereals and canola in the HRZ. Within these small plot trials, researchers will investigate how to optimise production through variety selection and appropriate management, particularly given the unique constraints present in the HRZ. SCF will be assisting with the extension of the small plot trial results as well as attending and promoting in-season field days. SCF and SEPWA will also apply some of the 'best-bet' practices to broad-scale farm trial demonstrations throughout the duration of the project for validation and extension purposes.

If you would like to host one of these trial sites, please get in touch with Nathan on 0429 468 030.

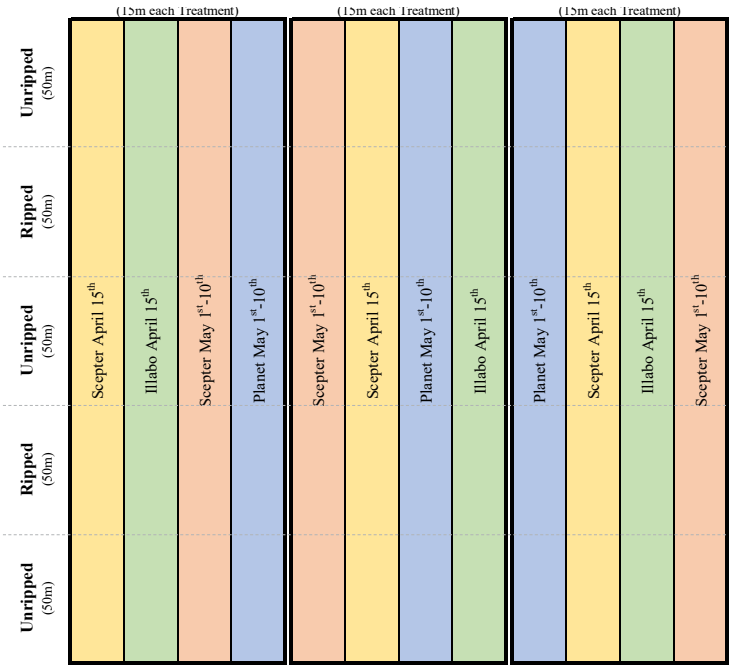


Figure 1: Diagram of the farm-scale demonstration trial to be conducted by Stirlings to Coast Farmers (SCF) in 2020. One trial site will be in the western SCF region and one in the east.


Photo: Darcy Warren, FAR Australia.

WHAT RESEARCH IS BEING DONE IN 2020 AND BEYOND BY SCF AND SEPWA?

As part of this project SCF and SEPWA will be conducting two farm-scale trials each, looking at aspects of high yielding crops in the high rainfall zone. In 2020 both groups will be looking at the differences between long-season wheat genetics, in conjunction with deep ripping compared to not deep ripping. In the following seasons, each group will be taking aspects of the plot trial research and applying to our large-scale farm demonstrations. The trial protocol for the 2020 season is listed below-left and SCF are looking for a site from the South Stirlings/Green Range region and a site in the western SCF region around Kendenup and Tenterden.


Photo: Darcy Warren, FAR Australia.

ACKNOWLEDGMENTS

SCF would like to acknowledge the support from:

Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA
GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION
FAR
CSIRO

Removing small conical snails from barley

Alaina Smith, Research Officer, SCF

KEY POINTS

- Stirlings to Coast Farmers (SCF) sampled 70t Planet barley while it was being processed using a snail crushing grain roller.
- The snail roller reduced snail numbers in the barley by 70%, from 2.2 to < 1 per ½ hectolitre on average.
- The grower determined the optimal gap between rollers was 0.8mm as this setting did not damage grain while still achieving malt or feed receival standards most of the time.
- Rolling the grain did not affect measurements of hectolitre weight, screenings, skinned or cracked grain, protein, moisture or colour.
- Rolling grain can reduce snail numbers in barley to acceptable receival standards, but the set up needs to be right to maximise throughput while keeping the rollers cool.

BACKGROUND

Small conical snails are an emerging pest in southern WA. They can damage crops at germination, reduce pasture biomass and potentially downgrade harvested grain if not managed carefully.

Snail management requires a strategic approach that can include removing the green bridge, burning windrows and timely baiting early in the season to prevent snails from breeding. However, even with a good control program, snails can be a problem at harvest.

The 2019/20 grain harvest in WA saw the tightening standards for snail numbers in barley: currently there is a zero tolerance level for snails in both grades of malt barley and a limit of one snail per ½ hectolitre in feed barley.

Snail crushing grain rollers have been used for >10 years in the Yorke Peninsula to remove snails from grains such as canola, wheat, barley, lentils and faba beans.

Over the 2019/20 harvest, Stirling to Coast Farmers (SCF) set out to measure how effective a snail roller was at removing small conical snails from barley in order to meet the current receival standards. We also wanted to determine the optimal set up of the roller to maximise snail removal whilst minimising grain damage.

SCF sampled 70 tonnes of Planet barley before and after it was processed with a snail crushing grain roller. Before rolling, the barley had on average 2.2 small conical snails per ½ hectolitre. We measured snail numbers and mortality, hectolitre weight, screenings, skinned and broken grains, protein, moisture and colour using CBH facilities and current GIWA receival standards.

SNAIL ROLLER

This trial used a modified Shmik snail crushing grain roller which had a combination of rubber and metal rollers. Prior to the trial, the grower had modified the hopper shape and auger to optimise both grain flow and snail removal. The roller speed was 620 rpm and the gap between rollers was 0.8mm. The gap was initially set at 0.4mm but this caused the rollers to exceed 65°C which can potentially cause the rubber to fail. Rolling using a 0.8mm gap maintained roller temperatures of 48-50 °C. Modifications were made to the hopper of the snail roller to ensure that the hopper remained full during rolling. Having a full hopper helped to crush the maximum number of snails while maximising efficiency.

Photo 1. Barley moving from the auger into the hopper of the snail roller. A sensor ensures the hopper remains full to maximise grain turnover and improve snail removal.

Photo 2. The barley flowing between the rollers during sampling. The roller temperature may need to be monitored to make sure it does not exceed 65°C. Using a gap of 0.8mm the roller temperature remained between 48-50°C.

SNAIL ROLLER RESULTS

Using the snail roller with a roller gap set at 0.8mm significantly reduced the number of small conical snails from an average of 2.19 to 0.67 snails per ½ hectolitre ($p<0.001$) which represents a 70% decrease in snail numbers. Prior to rolling, the samples had 1-7 snails per ½ hectolitre, whereas after rolling the samples had 0-2 snails (Figure 1).

Rolling the grain significantly increased snail mortality by 90% ($p < 0.001$) with the average number of live snails per ½ hectolitre reduced from 1 to 0.1 (n=21).

Rolling the barley using a 0.8mm gap between the rollers did not cause any changes to grain quality. There was no significant change in any of the following quality measurements: hectolitre weight, protein, moisture, colour, screenings, skinned or broken grains. This is a reassuring result which demonstrates that under these conditions, rolling barley to remove snails is unlikely to compromise grain quality.

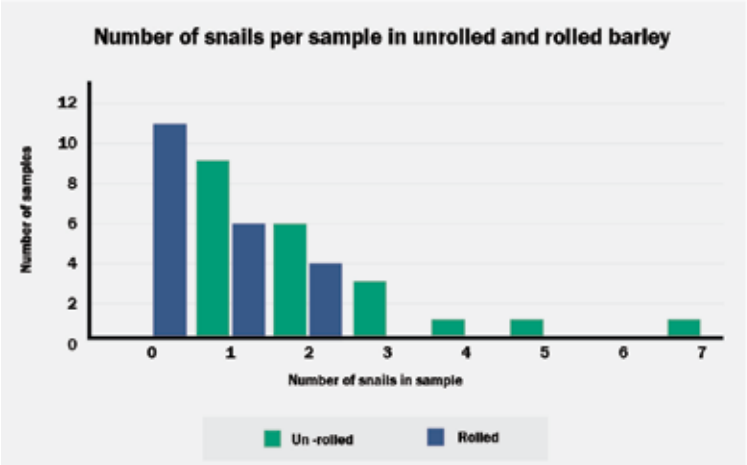


Figure 1. The number of snails per ½ hectolitre in unrolled and rolled barley (n=21). 1 snail = more than half a snail shell.

Table 1. Grain quality measurements conducted on ½ hectolitre samples using CBH facilities and GIWA barley receival standards. Averages and standard errors are given for 21 samples each rolled and unrolled.

Receival standard	Unrolled	Rolled
Number of snails	2.19	0.67
Std. error	0.34	0.17
Number of live snails	1.00	0.10
Std. error	0.14	0.07
Hectolitre weight (g)	316.9	317.8
Std. error	1.05	1.39
Protein %	11.33	11.54
Std. error	0.09	0.06
Moisture %	12.02	12.00
Std. error	0.03	0.03
Colour	55.8	56.1
Std. error	0.12	0.09
Screenings (g)	33.4	35.0
Std. error	0.76	0.88
Skinned grains/100	6.29	6.86
Std. error	0.64	0.43
Broken grains/100	4.00	3.85
Std. error	0.52	0.36

SUMMARY OF ROLLING TRIAL

The roller removed a large proportion of snails from the barley and allowed 52% of the barley to make malt, whereas none of the barley would have achieved malt prior to rolling. This was achieved without damaging the grain and maintaining capacity. However, 29% of the rolled grain was classified as feed barley and 19% was undeliverable because it still had 1 or 2 snails per ½ hectolitre, respectively. To consistently meet the malt grade growers may have to clean barley prior to rolling or roll the grain more slowly and with a tighter gap. This technique has been effective to remove small conical snails from canola.

COST OF REMOVING SMALL CONICAL SNAILS FROM BARLEY

Stirling to Coast Farmers (SCF) worked with farm advisor Rod Grieve (*Evans and Grieve*) to compare the options available for removing small conical snails from barley and estimate the costs.

- Currently growers can either:
- Accept a discount or downgrade,
- Use a rotary grain cleaner,
- Hire or buy a snail crushing grain roller (either a small or large model), or,
- Use a professional grain cleaner.

The analysis considered:

- The capital costs of cleaners or rollers and associated field bins, augers etc.
- Depreciation of machinery over time.
- Labour and fuel cost.
- Estimated grain losses.
- Changes in grain quality.
- The change in cost with grain volume.

TAKING A DISCOUNT OR DOWNGRADING ON DELIVERY

In the 2019/20 harvest there was no segregation for barley with higher snail numbers, so we couldn't estimate the average discount for exceeding snail tolerances. It was more likely that growers with 1 or more snails had their grain downgraded from malt to feed grades where the average spread was $30/t. Since $30/t is higher than the cost of any other cleaning methods for volumes >350t, most growers would be better off cleaning their grain, than accept a discount or down grade due to snails.

CONTRACT CLEANING

It is difficult to accurately estimate the rates charged by professional seed cleaners to remove small conical snails from barley. Anecdotally seed cleaners have said that it is difficult to clean small conical snails from grain without incurring significant losses, particularly if the snails are the same size as the grain. We set the cost per tonne for cleaning the grain at $20/t, which, with an estimated 5% grain losses, means that the cost of getting grain professionally cleaned works out at $25/t. While we have set this as a flat rate here it is likely that the actual cost will vary depending on the volume to be cleaned.

Figure 2. Graph showing the cost per tonne of cleaning small conical snails from barley with increasing volumes of grain. Methods assessed include taking the discount at delivery (Discount), using a professional grain cleaner (Contract cost), cleaning with a rotary grain cleaner (Grain cleaner), and buying or hiring a single or double snail roller.

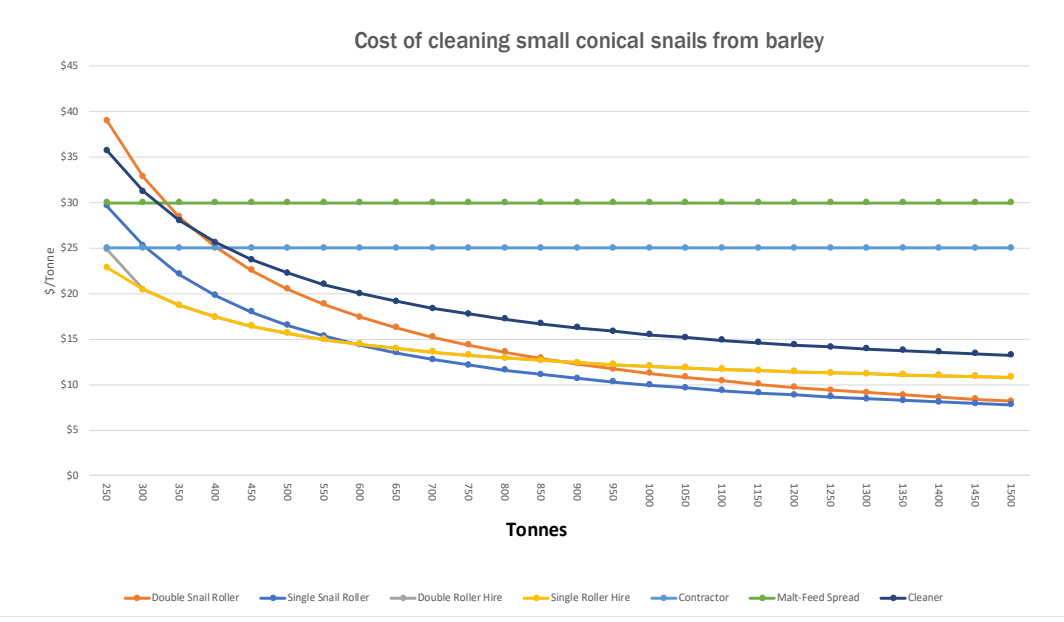


Table 2. The individual cost per tonne of cleaning small conical snails from barley for volumes between 300 and 1500 t. Methods assessed as for figure 1

	Tonnes processed												
	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
Discount	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
Rotary cleaner	$31	$26	$22	$20	$18	$17	$16	$15	$15	$14	$14	$14	$13
Contractor	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25
Hire Single Roller	$20	$17	$16	$14	$14	$13	$12	$12	$12	$11	$11	$11	$11
Hire Double Roller	$20	$17	$16	$14	$14	$13	$12	$12	$12	$11	$11	$11	$11
Buy Single Snail Roller	$25	$20	$17	$14	$13	$12	$11	$10	$9	$9	$8	$8	$8
Buy Double Snail Roller	$33	$25	$21	$17	$15	$14	$12	$11	$10	$10	$9	$9	$8

ROTARY GRAIN CLEANERS

While we did not test a rotary grain cleaner in this trial, it is likely to be the first option for many growers if they already have a cleaner on farm. From our canola cleaning trials we know that using a grain cleaner can be one of the more expensive cleaning options, largely due to grain losses, which we estimated at 5%. There is obviously a trade-off between using finer sieves to remove more snails and incurring larger grain losses. In the canola trial we found that reducing the slotted screed size by 0.3mm increased grain losses by 5% but reduced snail numbers by 95%. If growers can manage to process or use their seconds, this would obviously reduce the cost of using a rotary grain cleaner. If a grower has high numbers of snails it may be necessary to use a grain cleaner prior to rolling.

SINGLE AND DOUBLE SNAIL ROLLERS

We compared the cost of hiring or buying a snail roller since both options were used by growers in the 2019-20 harvest. The cost to dry hire a single or double snail roller was $5 or $7 respectively. However, the costs associated with running the roller such as labour, fuel augers and field bins etc. will be the same whether growers hire or buy. The difference in cost of hiring a single or double snail roller was negligible after growers cleaned their first 300t as the speed of the bigger roller compensated for the extra cost. Hiring a roller was cheaper than buying a roller for the first 600-850t cleaned but thereafter became more expensive. The risk of not being able to hire a roller in a timely manner during harvest should be considered if you do not have adequate grain storage on farm.

In this analysis there was no extra cost associated with using a grain roller due to grain damage. However, if you had more snails per half a hectolitre and were required to run the roller harder to achieve the receival standard, then this will increase the cost of using rollers. Similarly, if growers with high snail numbers were required to either clean the grain before rolling or roll the grain twice to make specification, then the cost of using a roller will increase.

LABOUR COSTS

Cleaning or rolling grain is generally a full-time role and not something you can set and forget. Labour costs were based on the need for someone to regularly monitor the flow grain from chaser bins, through various augers and field bins to cleaners, rollers and ultimately onto a truck. In addition, augers and tractors need refueling, the roller temperature needs monitoring and snail numbers need to be checked regularly. While labour contributed to between only 2 - 7% of the cost of cleaning or rolling grain, it can be difficult to employ and retain reliable staff in any farming operation, and needing an extra employee over harvest in order to clean grain is a significant consideration.

CONCLUSIONS

The tolerances for small conical snails in barley are necessarily low, being zero for malt grades and 1 for feed. As a result, it is important to be able to manage snails after harvest. This trial demonstrates that it is possible to remove small conical snails from barley and meet the malt receival standard without damaging the grain.

The grain sampled here had relatively low numbers of snails prior to cleaning (2.2 snails per ½ hectolitre) and we would have liked to have sampled grain with higher snail numbers in order to thoroughly test the roller's capability. However small conical snail numbers in cereals remain relatively low in southern WA. It is most likely that, as with canola, barley containing a higher number of snails will need to be either cleaned and rolled or double-rolled to achieve the tight receival standards.

WHAT'S NEXT?

SCF have their own snail roller which was hired out during the 2019-20 harvest to growers as needed. We will continue to monitor growers who are cleaning grain with either the SCF roller or their own machines and share information gathered on the best techniques to clean small conical snails out of grain.

ACKNOWLEDGEMENTS

SCF would like to thank

- GRDC for investing in the trial,
- CBH for providing facilities for testing grain samples,
- Rod Grieve (*Evans and Grieve*) for completing the economic analyses on the cost of removing snails from barley,
- DPIRD: Svetlana Micic for advice with the snail measurements and Andrew van Burgel for statistical analysis,
- SCF members for allowing us to sample their grain during harvest and sharing their valuable experience with others.

Great Southern Grammar Drone Demo

Sammy Lubcke, Membership Officer, SCF

SCF are excited to announce the continuation of the Future farmers student connect project into 2020! SCF will partner with Mt Barker Community College, Great Southern Grammar and Denmark Ag College to deliver the student membership and mentoring program.

To kick start the program this year, Stratus Imaging held a drone demo session at GSG where Grammar and Mt Barker students were fortunate enough to learn more about drones (UAV's) and their use in Agriculture. Stratus Imaging first presented a talk on the background of UAV's, from how they were first used to how they are used today in Ag and then touched on future possibilities. The presentation had a careers focus and outlined the role technology plays in Ag.

Then it was outside to check out one of the drones in action. Albany put on some of its finest weather for the drone demo to go off without a hitch. There was a bit of wind producing a reasonably large spray drift but considering it was just water, this was not an issue.

SCF is proud to support the youth and the future of our industry by providing better links between farmers and agricultural students.

Earliest recorded UAV was in July 1849

ACKNOWLEDGEMENTS

This project is supported by the department of Agriculture and Water Resources, through funding from Australian Government's National Landcare Program. We also would like to thank Stratus Imaging for the insightful demonstration.

Downside giving upside: Global Perspective

Cheryl Kalisch Gordon, Rabobank

Management of, and reaction to, the coronavirus pandemic is shutting down countries, creating supply chain havoc and, of course, leaving Australian supermarket shelves devoid of toilet paper. Together with the US-China trade war – which, though temporarily in the shadows, is an ongoing dynamic – and now OPEC's inability to reach an oil production agreement, global market fallout is surpassing that of the GFC. Downside is playing out as dramatic stock market losses and record low bond yields and has unarmed central banks looking to government for fiscal support to keep economies from falling into recession. Australian currency downside is, however, a silver lining in all of this for Australian grain exports.

With a 56 per cent year-on-year increase in east coast winter crop production for 2019/20, the best rain seen for a couple of years in many areas over the past eight weeks and a favourable three- month rainfall forecast, we have hopefully seen the worst of Australia's grain production slump. Of course, for grain pricing, that means we are moving from local prices being at record levels above global benchmarks to return to the position where global price movements will make a far greater difference to local prices than they have for two years.

But in returning to that global grain scene, it will be with a much softer Australian dollar. Three years ago, our dollar was trading around 77USc, and we now find ourselves with an Australian dollar well below 65USc. The depreciation of the Aussie dollar from 77USc to 65USc sees grain prices around AUD45/tonne higher than they would otherwise have been. That is around AUD3.70/tonne for every cent the Australian dollar has depreciated (in the range that wheat has been trading for the past two years).

And the upside of Australia being so exposed to China and global markets is that whilst ever there is downside for those markets, there is downside for the Australian dollar (that is, a lower AUD). And our outlook for Chinese growth and global markets tells us that the Australian dollar will prevail closer to 60USc throughout 2020/21. And for Australian grains that supports a further AUD3-4/tonne for every cent below 65USc.

However, pricing compared to global competitors is what's important to export grain, and our currency is not the only one that has found its way lower. While the Australian dollar is now trading more than 19 per cent below three years ago in US-dollar terms, the ruble is now 18 per cent lower in US-dollar terms than it was three years ago, and Argentina's peso is a whopping 75 per cent lower. By contrast, the Ukrainian hryvnia and the euro are actually three to four per cent higher in US dollar terms.

The relatively uncompetitive pricing of US wheat exports due to the strength of the US dollar will however bring CBOT wheat pricing under pressure. In this situation, Australian local pricing will be gaining on its softer currency and losing on the global price benchmark.

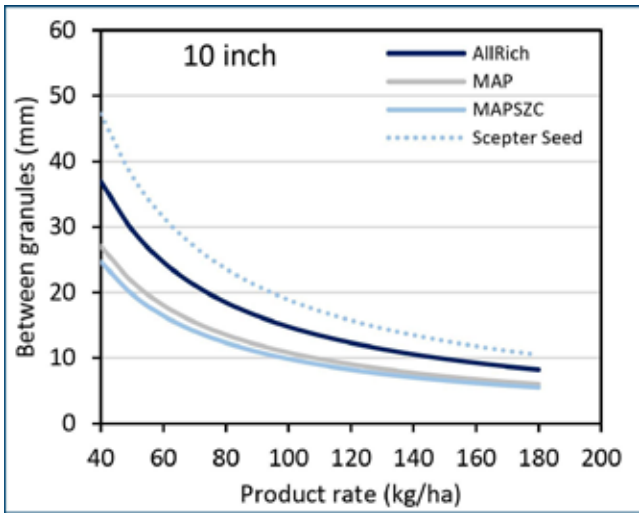
With fundamentals still supporting a wheat price lift year-on-year for 2020 along with some wheat exporters' currencies not having depreciated and the Australian dollar in a sustained position in the low 60USc range, Australian wheat prices stand to remain supported by global factors … even as local basis narrows in growing anticipation of, hopefully, a great looking harvest for east coast Australia in 2020/21.

Shedding Light on Granule Distribution and P Rates

Cropping fertilizers vary significantly in their phosphorus (P) content. Summit's AllRich for example contains 8.7% P, compared to 22.8% for MAP. It follows that different fertilizers need to be applied at different rates in order to achieve the same desired target P rate. Granule output from seeding machinery will also differ and the space between granules (distribution) will vary between product.

This can has clear implications from a logistical standpoint. Using low analysis products results in greater loading, freight and storage requirements, plus greater downtime from more frequent fills at seeding, compared to higher analysis products.

Relative distribution of compound granules and seed along rows at 10-inch tine spacing.



What is less clear is how granule distribution can impact P availability to the growing seedling. To investigate this, Summit's Field Research team collected data on the number of granules in a unit mass of 3 fertilizers – AllRich, MAP and MAPSZC. Calculations and models were then made to determine granule distribution patterns.

Key conclusions from this study:

- High analysis products contain 50% (MAPSZC) and 90% (MAP) more P per granule than AllRich.
- At reasonable seed rates (using Scepter Wheat) with appropriate target P rates, each seed will have access to P from more than one fertilizer granule regardless of the product (AllRich, MAP or MAPSZC) used.

To read the full article, visit our website, www.summitfertz.com.au/summit-news/technotes.html

NUTRIEN AG SOLUTIONS® ALBANY

Landmark Albany is displaying a new brand and different colour scheme reflecting a new era for local farmers. Now recognised as Nutrien Ag Solutions Albany, our knowledgeable staff can assist with a wide range of agricultural services and products.

Nutrien Ag Solutions is the new name for the combined business that was formed late last year when Landmark's parent company Nutrien, acquired Ruralco, and the two iconic Australian businesses were brought together.

Our team still offer the same expert advice in a range of agricultural services including; agronomy and precision farming services, ag merchandise, livestock and wool marketing, real estate, insurance, finance and water.

We value the relationships we hold with our customers and partners, and are here for the long haul. We will continue to support rural communities and local volunteer groups, providing value and service to farmers along the South Coast.

For more information contact:
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NutrienAgSolutions.com.au

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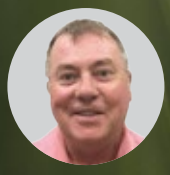
WE WOULD LIKE TO UPDATE SCF MEMBERS ON RECENT STAFF CHANGES AT ELDERS ALBANY



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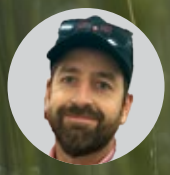

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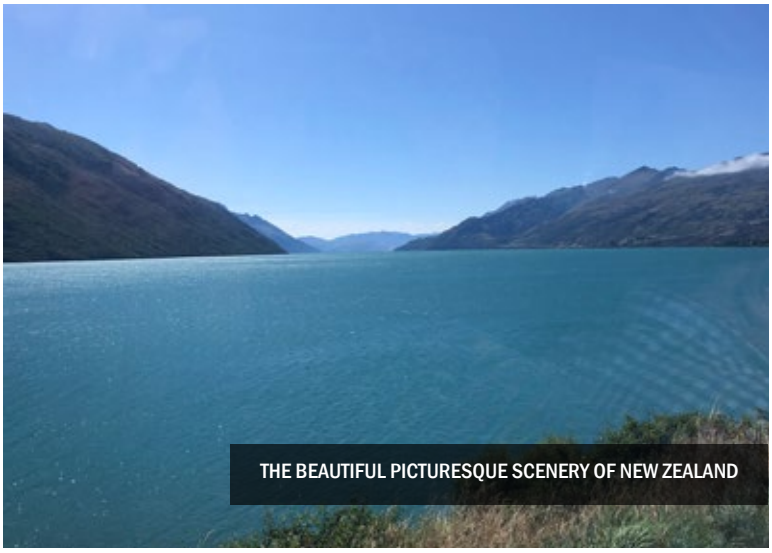
PHOTO GALLERY

THE GROUP OF PEOPLE THAT TOOK PART IN THE NZ TRIP

Share your photo with the SCF community!

We would love to show your photos here – looking for farming life, great landscape shots or even that funny 'whoops' moment captured on film, please send it in to Kathi at kathi.mcdonald@scfarmers.org.au to be included in our SCF Focus Photo Gallery.

THE NZ GROUP INSPECTING THE PIVOT IRRIGATOR



THE BEAUTIFUL PICTURESQUE SCENERY OF NEW ZEALAND

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