

## Keys stories for your region

### Julianne Hill, RCSN western region coordinator

Mild and cool spring conditions in September and October have helped a great deal in softening the season and helping to lift yields around the grainbelt. Unfortunately, there was also a bit of frost damage from some cold snaps in September. Here's hoping it hasn't been too bad at your place.

The staggered start to the season and the 'late-ish' finish have resulted in a bit of weed activity late in-crop this year, which means many growers are now thinking about harvest weed seed control (HWSC) options.

The Kwinana West RCSN group initiated a HWSC project involving four free workshops in mid-October. These were run by Planfarm Pty Ltd's Nick McKenna and Peter Newman and attracted about 250 growers. Highlights included the opportunity to catch up with machinery dealers of all makes and colours to seek advice about weed seed management at harvest - while having Peter and Nick on-hand to answer questions.

It is worth following-up on a range of options for weed seed capture at harvest by checking out the resources available on the [GRDC-supported WeedSmart](#) and [Australian Herbicide Resistance Initiative \(AHRI\)](#) websites. There are also a range of HWSC project findings and publications stemming from RCSN group-initiated GRDC investments that can be found on the [RCSN website](#).

The recent round of RCSN Open meetings held across WA highlighted other issues of importance to WA growers this season and a summary of these can be found on the [RCSN website](#), along with the recently-released RCSN annual report.

Further details of specific programs and projects with GRDC investments in the western region can be found on the [GRDC website](#) (Project summaries) and through the [GRDC's Online Farm Trials \(OFT\) website](#).

With harvest underway in many regions, GRDC wishes all growers the best. Stay safe, look after yourselves. For further RCSN information, contact me - Julianne Hill: 0447 261 607, [email](#), or [Twitter](#).



**CAPTION:** Julianne Hill, RCSN western region coordinator

## Around the port zones



### Kwinana West: Growers seek ways to get set for zone management

The variable nature of soils in the Kwinana West port zone make it particularly challenging to choose spatial information tools to help set up in-paddock management zones for variable rate technology (VRT) in precision agriculture systems.

GRDC invested in a one-year project (FUT0001), flagged by the Kwinana West RCSN group, to analyse and compare a range of soil mapping layers for identifying paddock variability and to set up production zones.

It was carried out on properties at Popanyinning, Wickepin and Corrigin by Precision Agriculture, with support from the Facey Group, Corrigin Farm Improvement Group, adviser Hilary Wittwer, of Planfarm, and adviser Angus Sellars, of Landmark.

Precision Agriculture adviser Bindi Isbister says some key findings of this locally-focused research included:

- Ground-truthing was very important - relationships of spatial layers varied between paddocks and farms, particularly at Corrigin (which had a highly variable soil landscape)
- Data collection is best based on understanding what the grower wants to manage - such as crop nutrition/inputs or soil constraints
- Zone management can be used for applications such as variable deep ripping and potassium - at Corrigin, the cost of zoning for variable rate potassium was covered in the first year through input cost savings alone of \$29-35 per hectare (not accounting for yield benefits)
- Initial soil tests at strategic locations are a key to success and five or more sampling sites per paddock may be needed if soils are highly variable
- Start using information that is already on farm (such as yield maps, an aerial photo, grower knowledge and/or strategic soil tests) to determine if managing inputs by zone will be beneficial and then decide if more information is needed.

Bindi says, when using mapping layers and VRT systems, some other lessons learned through this project included:

- It is good practise to format yield data cards
- Technology can be fickle and it is a good idea to check that sensors are logging a few times during operation
- If growers know paddocks well, spatial data can add confidence to decision-making
- Poor mobile signal can limit the usability of technology.

Outcomes for P research include improved knowledge and quantification of soil P storage, sources of supply, responsiveness of crops to P, economics of using P and methods of fixing P deficiencies in subsoils.

For further findings and results from this project, contact Bindi Isbister on 0428215006, [bindi@precisionagriculture.com.au](mailto:bindi@precisionagriculture.com.au)

**CAPTION:** Precision Agriculture adviser Bindi Isbister has conducted a study into spatial information tools that may suit Kwinana West growers. **PHOTO:** DPIRD

### Kwinana East: Matricaria weed on the nose

The bright yellow - and foul smelling - matricaria weed is spreading across the grainbelt and Kwinana East port zone growers have identified it as an increasing threat to their businesses.

At the recent RCSN open forums in this region, many growers reported that both types of matricaria found in WA (Columba Daisy - *Oncosiphon suffruticosum* - and Globe Chamomile - *Oncosiphon piluliferum*) are very difficult to control in pasture once they have taken hold. These weeds spread quickly due to a big seedbank that can remain viable for up to five years.



Department of Primary Industries and Regional Development (DPIRD) Katanning research officer Alex Douglas says matricaria has been reported on a range of soil types in Southern Cross, Mukinbudin, Merredin, Kellerberrin and Beacon - and a population has recently been found near Esperance.

She is studying the biology and control options for this weed as a part of a five-year project (UA00149), with GRDC investment, which is also looking at stinking lovegrass, Feathertop Rhodes grass and marshmallow in the western region.

Alex says initial research into matricaria management is focused on seed set control options for the pasture phase to help reduce the weed seedbank.

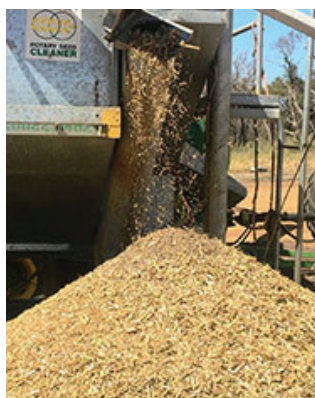
Control is difficult while the plant is flowering, but she advises growers to note where they are finding the weed and be prepared for control in 2018 when small plants emerge.

Preliminary results from field trials at Merredin and Mukinbudin indicate herbicide timing and combination will be critical and applications are best made before plants are fully flowering next year.

Alex says a few plants may have germinated in late winter and might continue to grow and produce seed during the summer period of 2017-18 if there is sufficient rain.

She is urging growers to report sightings of matricaria to DPIRD via the free [Pestfax Reporter App](#) (suitable for iPhone and Android) (note, matricaria appears as a 'problem' under the 'host' situation - crop, pasture etc) Or, growers can send photos and sightings to [alex.douglas@dpiird.wa.gov.au](mailto:alex.douglas@dpiird.wa.gov.au) and contact her on: 0455067755, [alex.douglas@dpiird.wa.gov.au](mailto:alex.douglas@dpiird.wa.gov.au)

**Photo:** Eastern grainbelt growers are grappling with the increasingly problematic weed matricaria and are advised to map where they see it this spring/summer to help with control next year. PHOTO: DPIRD



## Esperance: Dealing with snails at harvest

Esperance region growers are keen to learn more about strategies to avoid snail contamination of grain at harvest.

This comes on the back of increasing incidence of small pointed conical snails (*Prietocella barbara* L.), in particular, in southern coastal areas. It also follows changes in WA receival standards for snails, including a reduction from 10 to two dead or alive snails per half litre in feed barley deliveries.

Snails (including round snails) found above cutting height in the crop canopy, or in windrows, at harvest can impact on returns by clogging machinery (slowing it down), incurring grain cleaning costs and/or leading to discounts for affected grain at receival.

DPIRD and the South Australian Research and Development Institute (SARDI) are undertaking new research, with GRDC investment, in the western and southern regions to provide growers with localised information to help effectively control snails - before they become a pest at harvest.

SARDI entomologist Bill Kimber says it is important to closely monitor round snail populations before harvest to assess if header modifications may be needed to reduce the risk of grain contamination.

He says tactics to minimise snail contamination include:

- Harvesting snail-infested crops first where possible - before all snails have moved into the canopy
- Monitoring in higher risk areas, such as paddock perimeters, and (if necessary) harvesting and storing grain from these areas separately to avoid mixing contaminated grain with snail-free grain
- Windrowing cereal crops to dislodge some round snails (noting snails may still invade windrows that are cut green and left to dry)
- Using dislodger bars attached to the header to knock a proportion of round snails from standing crops
- Considering stripper fronts that can reduce snail intake in cereal crops relative to standard open front machines and allow faster harvest speeds
- Raising harvester cutting height, which is a cheaper but less effective option
- Correctly setting up sieves and mesh screens to maximise snail and grain separation in the header
- Using post-harvest grain cleaning, where needed, as the final opportunity for snail removal.

Small pointed snails and have been found to move into windrows (swaths) of crops, such as canola.

It is advised to harvest windrowed crops as soon as practicable, as the longer a swath is on the ground the more small pointed snails may be found harbouring under (or in) the swath and can be incidentally harvested.

Also consider swath height, as swaths that are close to or on the ground tend to have more small pointed snails underneath that then get incidentally harvested -leading to grain contamination.

More information about snail control at harvest can be found in the [GRDC Fact Sheet 'Snail management'](#) and [GRDC publication Bash 'em, Burn 'em, Bait 'em](#). For further information about GRDC's snail R&D in the western region, contact Svetlana Micic, at DPIRD Albany, on 08 9989 8444, [svelana.micic@agric.wa.gov.au](mailto:svelana.micic@agric.wa.gov.au)

**Photo:** *Cleaning grain may be required if snail incidence is high this harvest. PHOTO: Southern Dirt*

## Albany: Tool to help bridge the yield gap

Past research has found crop yields in WA's high-rainfall zones (HRZ), such as the Albany and Great Southern regions, could potentially be as high as 5.5t/ha for cereals and 3t/ha for canola. But actual yields typically fall well short of this.

GRDC has long recognised a need to close this yield gap, investing in RD&E with DPIRD, CSIRO, universities and local farming systems groups to help growers make better use of reliable rainfall and longer growing seasons to boost crop performance. As part of a GRDC-CSIRO Yield Gap Australia project, an interactive map-based guide has been developed for growers and advisers to be able to better analyse potential versus actual crop yields.

Maps of 'best estimate' yield gaps are generated, based on water-limited yield potential calculations (made from the APSIM-Canola model) and compared to real farm and national yield data from 1996 to 2014.

The maps can be used to benchmark individual farm yields against the water-limited potential and local average yields on the same soil type. These are also helping researchers identify causes of yield gaps and locations where new technologies or technology packages have the best potential.

Maps for individual years or averaged for 17 years can be found on the [Yield Gap Australia website](#).

Clicking on your region and selecting 'compare my farm' in the 'details' drop-down enables a benchmark comparison of an individual farm against local average yields and local water-limited yield potential - while allowing for differing farm soil types.

For more information contact CSIRO Agriculture and Food's Dr Julianne Lilley on 0438 510 169 or [julianne.lilley@csiro.au](mailto:julianne.lilley@csiro.au)

**Photo:** *Waterlogging is a constraint to optimising canola yields in WA's high rainfall zones that is being addressed by research with GRDC investment. PHOTO: DPIRD*



## Geraldton: Business profits in focus at local forum

Yuna will host a GRDC Farm Business Update early next year, providing an opportunity for leading industry professionals to address and network with grain growers in the Geraldton port zone.

The forum, scheduled for February 8, 2018, will feature a range of topics and speakers focused on improving business management and issues impacting most on farm profitability specifically in this region. More information and contact details are available via [this link](#).

Lifting profits was identified as a major priority by growers attending the recent RCSN open meetings in the Geraldton port zone.

GRDC has taken a multi-pronged approach to addressing this issue through its Farm Business Management initiative that includes investments into research, workshops and update events. A range of resources and tools can be accessed on its [Farm Business Management hub](#).

This contains information and links to GRDC Farm Business Update events, farm business newsletters, Fact Sheets, decision support tools, adaptive management tactics and a gross margin and enterprise planning guide.

During October, the annual Planfarm Bankwest Benchmarks were released, providing a snapshot of WA farm business performance for 2016-17. Some key findings included that the average WA farm:

- Made an operating surplus of \$668,000 from a turnover of \$2.2m
- Had a return on capital from production of 4.2 percent
- Experienced a slight dip in equity from the previous year at 79 percent.

Some key performance indicators from farm businesses surveyed in the northern agricultural region included:

- Cash returns averaged 10.7 percent (higher than the southern region at 7.3 per cent)
- Return on capital in the past decade averaged 84 per cent (87 per cent for top 25 percent of producers).

The survey findings highlight areas for performance improvement, including that in 2016-17, the top 25 percent of farm operators in WA produced 24 percent more grain (in higher yields), had 20.4 percent better crop water use efficiency and a 9 percent bigger crop area.

**CAPTION:** *The GRDC Farm Business Update held at Mingenew in the Geraldton port zone earlier this year was highly successful and a similar event is planned for Yuna in February 2018. PHOTO: GRDC*

## Hot Topics

### Prepare and plan to avoid harvester fires

WA growers are being advised to minimise the risks of harvester fires this year with good machinery hygiene, inspection and maintenance.

It is recommended to be particularly prepared when harvesting pulse crops, especially lentil that has the highest susceptibility to starting harvester fires (along with chickpea in some areas).

That is the message from agricultural engineer Ben White, of the Kondinin Group, who says lentil production is expanding in WA and newer growers may not be aware of the higher harvest fire risks associated with this crop.

Ignition temperature, which is the level at which a fire will start in crop residue, varies between crops and from year to year but Ben says mould, variety and agronomic practices are - anecdotally - contributing factors.

To minimise risk, he says growers need to address the 'fire factors' of fuel and ignition and be prepared in the event that a fire did occur.

Ben emphasised the importance of harvester hygiene, with about 25 percent of all harvester fires caused by dust, chaff and straw build-up. He advises growers to regularly clean equipment - especially when there is a lot of crop dust.

He says preventative maintenance is essential and growers should periodically check and log bearing temperatures around the harvester front and the machine generally.

It is also advised to follow the lead of South Australian growers who harvest crops by progressing across the paddock into the prevailing wind so that residue and dust is blown away from the crop yet to be harvested. This reduces the risk of any incendiaries being carried into the standing crop, but rather into stubble - which for lentil is very low.

To be prepared in the event of a harvester fire, Ben says WA growers should have water on site, make sure extinguishers on the harvester are in good working order and rotate powder types regularly to prevent clumping.

For more information, see the [GRDC 'Reducing Harvester Fire Risk' Back Pocket Guide](#).

## Considering grain bags for storage this harvest

Use of bulk grain bags - also known as silo bags - for on-farm storage can be cost-effective, provide flexibility in harvesting logistics and allow growers to take advantage of grain marketing opportunities.

Bulk bags can be a handy option for collecting grain direct from the chaser bin and storing it at a central site on the farm.

Good preparation is the key to success, according to the GRDC's Grain storage extension project specialists.

Typically, bulk bags are best suited to short-term, high-volume grain storage for a maximum of a few months. But there are some potential pitfalls and the risks of storing grain in bulk bags can be higher than using on-farm silos.

Storing grain in bulk bags requires:

- Well prepared sites
- A method of sampling to monitor quality over time
- Regular inspections (at least weekly).

Some tips for filling bulk bags that will make emptying easier include:

- Fill evenly and straight to avoid creases
- Adjust direction often and in small increments
- Avoid over-filling
- Allow for stretching in hot weather
- If filling direct from the harvester, slow down
- Heat the seal or use a clamp to close the bag.

GRDC has produced a comprehensive guide to ['Successful storage in grain bags' in a Fact Sheet](#).

Further information about storing grain in bulk bags is also contained in a new [GRDC 'Grain Storage' GrowNotes™ publication](#).

## World Soil Day celebrations in Perth

DPIRD is hosting a forum to coincide with World Soil Day on December 5 to showcase local research, technical resources and strategies to address local soils issues.

Research officer Tim Overheu says it is vital to invest in maintaining and improving soil health to ensure future agriculture production potential.

He says the forum, to be held at Technology Park, in Bentley, will profile latest soils resources and services for WA growers, many having GRDC investment, and feature speakers on topics related to soils research and challenges.

To register, go to: [soilswest.org.au](http://soilswest.org.au) and click on the 'news and events - soil calendar' tab, or contact Tim at: [tim.overheu@dpird.wa.gov.au](mailto:tim.overheu@dpird.wa.gov.au) or 08 9892 8444.

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For more information about the RCSNs in the western region, contact  
Julianne Hill, RCSN western coordinator  
0447 261 607

[regionalcroppingsolutions@gmail.com](mailto:regionalcroppingsolutions@gmail.com)

[www.rcsn.net.au](http://www.rcsn.net.au)

[@Julianne\\_Hill](#)

PO Box 89, Brunswick, WA 6224, Australia



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Grains Research & Development Corporation (GRDC)  
Level 4, East Building, 4 National Circuit, Barton, ACT 2600  
PO Box 5367 KINGSTON ACT 2604 AUSTRALIA  
Telephone: (02) 6166 4500 Fax: (02) 6166 4599  
[GRDC Ref: 4243]