RCSN NEWSLETTER grdc.com.au

Keys stories for your region

Julianne Hill, RCSN western region coordinator

Well, it's the start of the major field day season. The Mingenew Midwest Expo kicked it off in mid-August with some beautiful weather, outstanding crops in the surrounding area and interesting discussions in the GRDC tent.

This year during the field days, the GRDC stand is being shared with the Centre for Crop and Disease Management (CCDM), which the corporation supports in collaboration with Curtin University.

Growers are encouraged to drop in to the GRDC tent during the Dowerin and Newdegate field days to check out the investments being made to help to combat WA's key crop diseases and talk directly to CCDM researchers.

WA's Regional Cropping Solutions Network (RCSN) groups have been busy during July and August, with the GRDC Open Forum meetings - held right across the grainbelt - wrapping-up in late August.

It was great to see about 520 people in total attend these events, which are staged every year in each port zone.

All the issues raised at the Open Forums are discussed by the RCSN members at their twice-yearly meetings. Those that are given high priority ranking are developed further for GRDC consideration - with a view to possible further investment.

All ideas are valued and considered by RCSN members, the GRDC Western Regional Panel and GRDC nationally. So, we encourage all growers to come along next year to have a say - or catch up with any of your zone's RCSN members at any time for a chat. To see a summary of each of the GRDC Open Forums, see: www.rcsn.net.au.

I wish you all the best during the next couple of months, as the pointy end of the season gets closer. Feel free to contact me at any time. Julianne Hill: 0447 261 607, email, or Twitter.

Around the RCSN Port Zones

Esperance port zone: Sustainable glyphosate use workshops

The Esperance port zone RCSN has recognised long-term sustainable use of glyphosate in modern farming systems is a high RD&E priority in this region.

To discuss this issue with experts, the group initiated two GRDC-funded, half-day workshops that were held in Dunn Rock and Condingup in July.

These were coordinated by Andrew Storrie, of AGRONOMO and the Australian Glyphosate Sustainability Working Group (AGSWG), and attracted 40 delegates.

Andrew says a wide-range of topics were covered, including:

- A review of herbicide resistance status and mechanisms
- Importance of testing for herbicide susceptibility/resistance
- Potential alternative modes of action (MOA) for knockdown herbicides
- Using a double knockdown technique in summer
- Tactics for better herbicide efficacy
- New and innovative non-herbicide weed control techniques
- Crop topping options for different crop types
- Best herbicide options for each major spring and summer weed species
- Potential issues of herbicide residues in grain.

There are now 17 weed species resistant to glyphosate in Australia and this number is expected to increase - along with the incidence of paraquat resistance (as its use increases to counter glyphosate resistance). Incidence of weed resistance to multiple herbicide MOAs is also rising.

Andrew says herbicide resistance in weeds will vary from paddock to paddock and testing for susceptibility helps growers determine which herbicides work effectively on different parts of their farm.

He says harvest weed seed control is also an important part of diverse weed management plans to stop weed seed set.

GRDC project code: ARN1803

More information: Andrew Storrie, AGRONOMO, 0428 423 577, andrew@agronomo.com.au

Caption: *Farmers met at Dunn Rock to discuss glyphosate sustainability at an Esperance RCSN port zone-initiated meeting in July. PHOTO: AGRONOMO*

Kwinana West port zone: Lupins in the spotlight

Kwinana West RCSN has commissioned a case study project through GRDC to highlight some of the key seeding technology innovations that are working well in local conditions.

The featured growers explain the practical applications of a wide range of systems, from the latest in precision seed singulation to their own modified equipment.

Their experience and advice is being collated into a case study booklet targeted specifically at Kwinana West grain grow ers for local conditions. It is being produced by CussonsMedia, with GRDC investment, and is expected to be available in 2018-19.

Featured growers Glenn Smith and Jess Edmonds upgraded from an older Flexi-Coil spring tyne seeding bar to a John Deere Conserver Pak precision seeder, which is 17 metres (56 foot) in width, uses 12-inch single row spacings for lupins and canola and paired row splitter boots for the cereals - which gives them a nine, a three and a nine-inch split.

But Glenn says if they were a bit further east, they would probably just use the 12-inch row spacing.

“The splitter boots are a happy medium - we went from nine-inch spacings on our Flexi-Coil, but that was obviously over four rows,” he says.

The Smith’s precision seeder offers variable rate technology (VRT) systems, which they say is especially useful for deep banding potash in sandplain soils at seeding.

Glenn says it achieves consistent depth control, which is an important consideration, especially in dry seasons - such as at the start of 2018.

“With the dry conditions earlier in the season, we tried to plant the canola as shallow as we possibly could,” he says.

“This was a good tactic because, with all the wind we had, the seed ended up being a bit deeper.”

The Smiths modify and adjust seeding depths as they sow on different soil types by adjusting their packing pressure.

Glenn advises that, when it comes to seeding technology, getting the machine set up right the first time makes everything so much easier.

GRDC project code: 9176151

More information: Kelly Cussons, CussonsMedia, 0407 231 549, cussonsmedia.com.au.

Caption: *Glenn Smith, who farms at Northam and Meckering, is one of the featured growers in a new seeding technologies booklet for Kwinana West port zone. It is being produced with GRDC investment by CussonsMedia. PHOTO: CussonsMedia*

Albany port zone: Combining grain and grazing a winning formula

Developing synergies between crop and livestock enterprises in WA is practical and profitable when managed well, according to AgVivo farm consultant Philip Barrett-Lennard.

He told delegates at the recent Albany port zone RCSN Open Forum meeting that there are several key practices - old and new - that, when implemented, can provide benefits to both the grain and livestock enterprises.

Phil says the use of modern air seeding technology in this State allows mixed farmers to plant and establish fodder crops and pastures well, often in innovative ways.

He says in some years with good seasonal conditions, early sowing of suitable cereal and canola varieties can provide valuable grazing opportunities for stock and high grain yields for crops.

Through the GRDC-supported Grain & Graze project, research has found that for best results, sowing needs to have been completed in March-April (for winter varieties) and grazing carried out in June-July (before cereal Zadoks Growth Scale GS30).

Phil says cereals, canola and vetches can also be used as low cost pastures in mixed farming systems.

He says using productive legume pastures as profitable nitrogen-fixing break ‘crops’ also suits mixed farms, helping croppers to reduce reliance on herbicides by using the weed-eating abilities of sheep.

Use of chaff carts by croppers to drive weed numbers down is also a tactic that is beneficial for the sheep operation by providing harvest residue for sheep feed during summer and autumn. Another option for optimising crop and sheep systems is the use of confinement feeding of stock at the break of the season to maximise early pasture growth and allow timely sowing of crops.

More information about the cropping benefits in a mixed livestock/cropping farming system and findings from the GRDC Grain & Graze program can be found here and here (PDF, 2.3MB).

GRDC project code: SFS00028

More information: Philip Barrett-Lennard, AgVivo, 0429 977 042, pbl@agvivo.com.au

Caption: *Sheep can be a good fit in WA cropping systems when managed well. PHOTO: GRDC*

Geraldton port zone: MIG tackles sodic soil management

In many parts of WA, subsoil sodicity at depth is a major constraint commonly restricting crop root growth, the amount of subsurface moisture the root can access, plant establishment and subsequent grain yields.

Sodic soils are characterised by a disproportionately high concentration of sodium and poor physical and chemical properties that make the structure unpredictable.

Mingenew Irwin Group (MIG) research and development manager Debbie Gillam says sodicity can severely restrict plant growth and development.

She says this potentially results in lower grower returns from unproductive sections of paddocks that are affected by the constraint.

At the recent GRDC Open Forums in the Geraldton port zone, Debbie outlined a new MIG research project with GRDC investment that is being undertaken in 2018 that is seeking to help growers address this priority R&D issue.

She says it involves MIG working with a local grain grower who has observed sodicity in a range of paddocks and is keen to identify some practical strategies to manage it.

MIG is trialling the application of different rates of gypsum to develop a yield response curve.

Debbie says treatments also include liquid gypsum and gypsum with deep ripping, as this can help root development and access to subsoil moisture.

Fortunately, she says 2018 is proving to be a high rainfall year in this region and crops on all treatments being trialled have had moderate-to-good emergence.

As the season unfolds, MIG will be collecting soil moisture, plant counts and NDVI readings for all treatments.

More information: Debbie Gillam, MIG, 0427 281 006, debbie@mig.org.au

Caption: *Using deep ripping can help northern grainbelt growers manage soil sodicity issues by improving the zone for crop roots, as shown here. Wheat from a non-ripped area is at the top, compared to wheat from a ripped area below, which has denser roots and thicker tillers. PHOTO: Debbie Gillam, MIG*

Kwinana East: New traits for the LRZ

Eastern grainbelt growers know that wheat is the hardiest crop to grow in their low rainfall region, especially in tough seasons.

CSIRO-led plant breeding research, with GRDC investment, is investigating ways to further improve its performance in these types of drier environments across Australia.

CSIRO Agriculture and Food scientist Dr Andrew Fletcher says pre-breeders are focusing on specific traits to help overcome common constraints that can hamper the crop's productivity - and matching these traits with specific management, such as early sowing.

He told the Kwinana East Open Forum meetings, coordinated with the help of this port zone's RCSN group, the key traits Australian pre-breeders were considering for low rainfall zones included coleoptile length, flowering time and season length.

These have an impact on achieving:

- Better crop emergence
- Vigorous early growth
- Crop development
- Reduced tillering
- Transpiration efficiency.

Dr Fletcher says breeders and applied researchers are continuing to develop the main traits to improve wheat yields from early sowing, which are flowering time genes and a long coleoptile. "Early sowing opportunities often arise in the eastern grainbelt due to changing rainfall patterns and seasonal variability," he says.

"This requires wheat varieties for WA that are slower-maturing, in order to better match the crop's flowering time with the optimum flowering period.

"A long coleoptile is also an opportunity to target deep sowing into stored soil moisture enabling earlier establishment of crops.

"Breeders are selecting for alternative dwarfing genes to help reach this goal."

Dr Fletcher says, in combination, these breeding efforts are going a long way towards improving varieties of wheat that will help to optimise production in low rainfall areas.

GRDC project code: CSA00056

More information: Dr Andrew Fletcher, CSIRO, andrew.fletcher@csiro.au

Caption: *Wheat is the hardiest crop to grow in the eastern grainbelt and new pre-breeding research is finding ways to further improve its performance. PHOTO: GRDC*

Hot topics

Tool helps growers tackle economics of soil constraint strategies

Modelling research indicates lost grain production due to soil constraints costs WA growers an average $330 per hectare.

Implementing soil amendment tactics to address the problem is estimated to cost $41/ha on average, but benefits can be worth an average $124/ha/year (annualised value) - depending on farm location, soil type and crop type.

DPIRD economist Elizabeth Petersen leads the modelling project, using the Ranking Options for Soil Amelioration (ROSA) decision-support tool. This has been developed with investments through GRDC's Soil Constraints West group of projects with DPIRD and is being tested this season by WA growers and advisers as part of an update to the model.

Dr Petersen says ROSA was designed to help growers and their advisers better prioritise the money farm businesses spend on addressing key soil constraint/s.

She says it considers short and long-term budget implications of the costs and benefits at a paddock or farm scale - for single amendment options and combinations, including:

- Claying water repellent soils
- Deep ripping to address subsoil compaction
- Adding gypsum to address structural decline
- Liming to address topsoil and subsoil acidity
- Soil mixing (shallower than 40cm) to address water repellence
- Use of wetting agents for water repellent soils.

Dr Petersen says most WA growers would benefit from undertaking a ROSA analysis, which requires input of individual farm data for:

- Location/agricultural soil zone
- Soil type
- A proposed budget allocation for soil amelioration
- Rotation used
- Current and potential grain yields
- Soil properties (ranked as low, medium or high - except for soil pH).

More information about the model can be found here or contact Dr Petersen, DPIRD, at: 0404 077 194, liz.petersen@dpird.wa.gov.au.

Keep an eye out for...

For a list of all **Western Events**, click here.
For **GrowNotes™** - your one-stop shop for trial results and best practice recommendations, click here.
For **GrowNotes™ Alert** click here.
For the **GRDC YouTube** Channel, click here.
For **publications** for the Western Region click here.

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