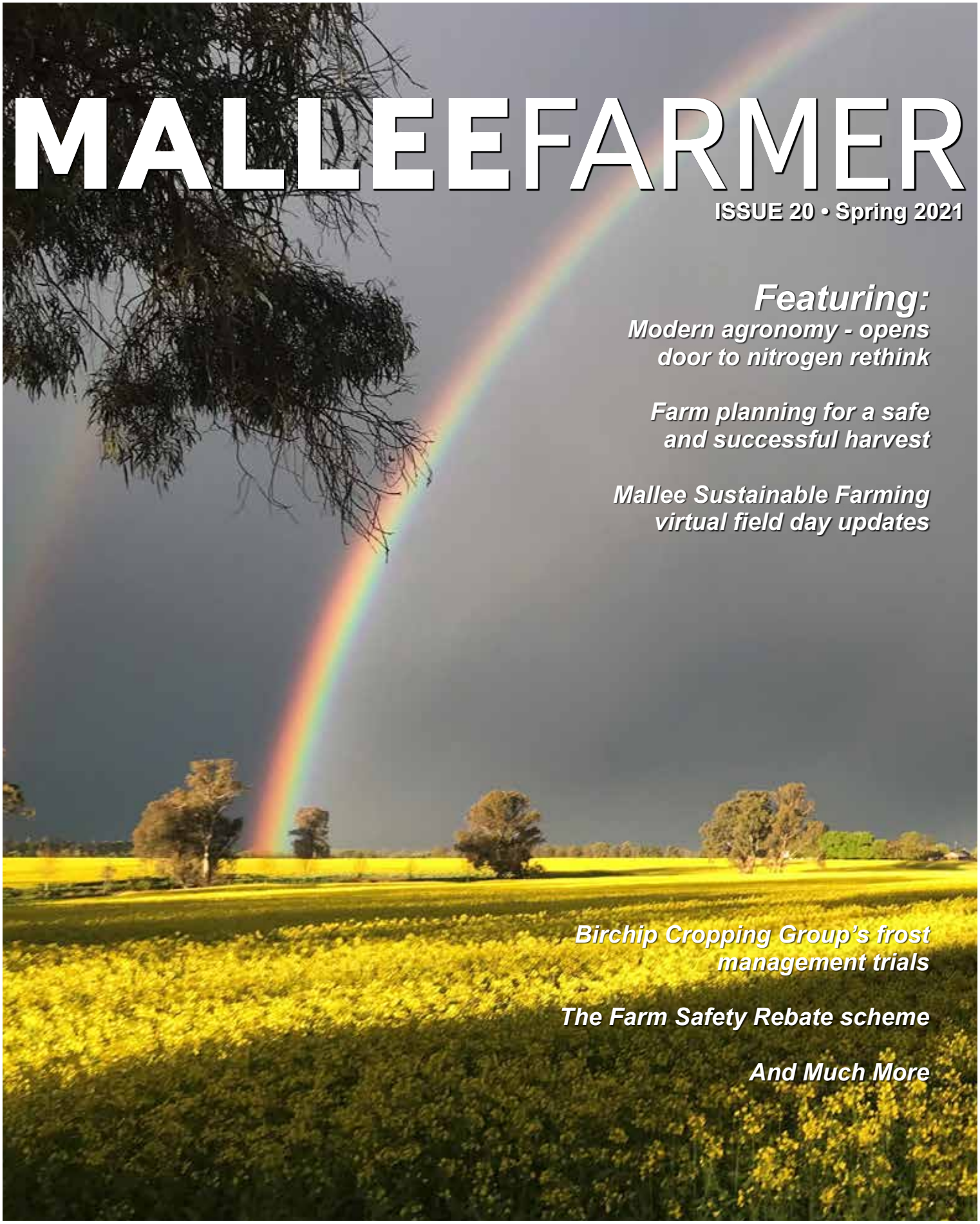

MALLEEFARMER

ISSUE 20 • Spring 2021

Featuring:

Modern agronomy - opens door to nitrogen rethink

Farm planning for a safe and successful harvest

Mallee Sustainable Farming virtual field day updates

Birchip Cropping Group's frost management trials

The Farm Safety Rebate scheme

And Much More

Australian Government

National Landcare Program

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This publication is supported by the Mallee Catchment Management Authority (CMA), through funding from the Australian Government's National Landcare Program.

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ISSN: 1839 - 2229

Cover Photo,
Pot of Gold, Photo: Mallee Catchment Management Authority

Chair's Report

Welcome to the latest edition of the Mallee Farmer – your insight into the latest dryland farming research, trends and programs in the Mallee.

In this edition we have some great articles on a range of important topics including timely management of weeds, farm safety, Landcare projects supporting Malleefowl Recovery and the seasonal outlook.

The Mallee Farmer is a valued resource showcasing some of the work being undertaken by key agencies and stakeholders around the region. The publication would not be possible without the support of contributors such as Agriculture Victoria, Landcare, Mallee Catchment Management Authority (CMA), Mallee Sustainable Farming, GRDC and Rural Aid to name a few.

Among the highlights of this edition:

- AgriVision outlines the seasonal conditions we can expect to see and an important summer checklist to follow;
- New strategies for the management of nitrogen application is the focus for GRDC in this edition, offering some great insights for Nitrogen deficiency research and consideration as the biggest single cause of yield gap in Australian wheat;
- The importance of safety is always a topic worth highlighting and Agriculture Victoria is providing support to develop farm Safety Plans;
- Rural Aid has appointed a new Mallee Counsellor to support farmers and their families with assistance for those affected by natural disaster through financial, wellbeing and fodder assistance;
- Mallee Sustainable Farming is holding its Virtual Field Days with a series of videos available. The next Lockdown Lowdown video will feature Kooloonong farmer Alistair Murdoch, discussing paddock scale deep ripping across a range of soil types, with a range of pulse crops.
- The Victorian Murray Floodplain Restoration Project is providing an overview of the benefits of floodplain watering and the impacts lack of water has on our flora and fauna.
- Mallee CMA is currently delivering its spring environmental watering across the region, with 22 wetlands to receive environmental water over the spring period, bringing an abundance of both community and environmental benefits.

Of course, no edition of the Mallee Farmer is complete without the words of wisdom from Regional Landcare Facilitator Glen Sutherland. In this edition, Glen is keeping us informed about the La Nina event and the implications on dryland farming.

As the newly appointed Chair of Mallee CMA, I am delighted to see such a diversity of stories and information to ensure our farming community is kept abreast of the latest research and studies. A topic close to my heart is mental health and safety, and this edition has a strong theme focusing on these topics. Too often we see farm machinery and assets regularly maintained but health and wellbeing of our farmers can be neglected.

Finally, I'd like to offer a sincere thank you to everyone who has contributed to this edition of the Mallee Farmer. I'm sure you will find it very informative and a helpful resource for the coming season and beyond! The support provided by the community and the Australian Government's National Landcare Program ensures the Mallee Farmer continues to be a valuable resource.

Allison McTaggart
Chairperson, Mallee CMA Board

NLP ACKNOWLEDGEMENT
This publication is supported by the Mallee Catchment Management Authority (CMA), through funding from the Australian Government's National Landcare Program.

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Want to be mailed a copy of the Mallee Farmer?

Two editions of the Mallee Farmer are produced each year. The spring edition is available around July – August and the autumn edition is released around late March. If you would like to register to have a copy mailed direct to you, fill out the form below and return to the Mallee Catchment Management Authority.

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2021 Season Update and Review

By Kate Wilson
Agricultural Consultant, AGRIvision

Another year of surprises and yet we were still surprised. To say that no two years in farming are alike is an understatement.

Many areas, but not all, of the Mallee had reasonable rain in July after an extended period of dry. September saw some welcome rain across most, but sadly not all, districts.

Several reasonably severe frost events have trimmed yield, but current moisture and cool outlook hopefully leads to some reasonable yields across the region.

Kate Wilson Agricultural Consultant, Agrivision

2021 Issues

- Lack of rain after sowing resulted in poor performance of many of the more expensive pre-emergent herbicides. Coupled with tough winter conditions for the crop and a mild spring, there are grass weed blowouts in paddocks even where growers felt confident that the Rye and Brome grass issues had been addressed. Late rains have seen grass weeds emerge in many Lentil crops and the extended season may mean that some grass weeds will set seed as topping may be too late to stop seed set.
- Some growers used preventative fungicides in wheat and most used them in lentils. Supply was very tight given the wet conditions throughout Southern Vic, WA and NSW.
- Impacts of covid on our communities continued. The Mallee South Australia and New South Wales border communities have suffered from travel restrictions as well impacting on the supply of Ag inputs that may still be to come.
- Hay production is (again) very trying this season. Many chose to spray Vetch out for brown manure rather than cut it for hay, this seems like a very sound decision at this stage. With fertiliser prices heading towards an all-time high and supply concerns, any natural source of N in the paddock will be invaluable.

Summer Checklist

- With the prediction of higher-than-average summer rainfall, getting summer weeds controlled will be extremely important - Stored moisture is KING.
- Conduct a fertiliser audit - with supply issues and high prices, soil tests will be a fantastic investment to aid nutrient decisions in 2022. Consider a replacement plus maintenance rate to allow for tie up and losses.
- Consider securing inputs for 2022 early to avoid potential hold-ups to supply. With trade uncertainty surrounding supply of goods from China as well as the impact of covid on manufacturing, early procurement of inputs will be important.
- Monitor mice as there is always potential for numbers to build after a decent season and finally;
- Take a holiday - if allowed!!
- Some timely news from the Grains Research and Development Corporation (GRDC) which is evolving its National Grower Network (NGN) to a more voluntary, inclusive and community-based approach to encourage grower engagement with its research development and extension (RD&E) portfolio.
- The NGN is a community of growers and stakeholders that GRDC will directly engage with through a range of open Grower Network Forums to capture, understand and respond to issues impacting grower profitability. The forums will be held across Victoria in early 2022.

GRDC will also work with industry to utilise existing workshops and events to improve their understanding of the issues facing growers and advisers and identify opportunities for RD&E. Ideas for research can also be raised directly with GRDC staff at any time.

A number of topics relevant to the Mallee region have already been identified by industry stakeholders and responded to by GRDC, these include:

1. Grain Legume D&E investment (Ag Vic) - focused on validation, development and extension to close the economic yield gap and maximise farming systems benefit from grain legume production (this includes vetch and leverages the vetch breeding program, pulse phenology, rhizobia projects and more).
2. Development of the GRDC Nitrogen Manual – comprehensive manual covering nitrogen cycling and management in farming systems in southern Australia – includes case studies in South Australia and Victoria.
3. Optimising soil amelioration costs in typical Mallee soils (currently in procurement).
4. Management of Rosinweed and Star of Bethlehem in Victoria's Mallee and Wimmera (currently in procurement).
5. Practical tactics to improve ground cover and ensure soil preservation following successive low rainfall seasons (MSF).
6. Applying current knowledge to inform grower decision making to mitigate the impact of frost, now and in the future (MSF).

For more information or to discuss opportunities for RD&E, please contact GRDC directly via the Grower Relations Managers for the Southern Region, Tom Blake (0418 893 186), Courtney Ramsey (0428 274 018) or Randall Wilksch (0437 769 098).

The sun sets on another harvest day. Photo Luen Donnellon, Birchip

Modern agronomy opens door to nitrogen rethink

By Nicole Baxter

Grains Research and Development Corporation

"A recent study led by CSIRO's Dr Zvi Hochman showed that alleviating nitrogen deficiency could increase national wheat yields by 40 per cent."

Key points

- Nitrogen deficiency is considered the biggest single cause of yield gap in Australian wheat
- Pre-sowing soil testing is essential to determine mineral nitrogen supply
- Wheat grain protein can be used as an indicator of nitrogen deficiency and over supply
- A nitrogen bank (N-bank) strategy for nitrogen management has been tested with promising results

La Trobe University Associate Professor James Hunt is encouraging a shift in thinking about nitrogen management. *"We need to focus more on a longer-term strategy rather than relying on a short-term tactical approach,"* Dr Hunt said.

At the February 2021 Grains Research and Development Corporation (GRDC) Update at Wagga Wagga, New South Wales, Dr Hunt said yields and profits could be increased and soil organic matter maintained with a longer-term approach to nitrogen management. "A recent study led by CSIRO's Dr Zvi Hochman showed that alleviating nitrogen deficiency could increase national wheat yields by 40 per cent," he said.

Review grain protein

Dr Hunt encouraged a review of nitrogen management by considering how much Australian Standard White (ASW) and Australian Premium White (APW) wheat is produced on farms.

"If you're achieving ASW-grade wheat with less than 10.5 per cent protein, your yields are almost certainly nitrogen-limited and profits will almost certainly be increased by increasing nitrogen application rates," he said.

"If grain protein is between 10.5 and 11.5 per cent (APW), yields are probably nitrogen-limited, and profits are likely improved by increasing nitrogen application."

For paddocks producing 11.5 to 13 per cent protein grain (Australian Hard wheat), he said yields are most likely not nitrogen-limited.

If protein is more than 13 per cent (Australian Prime Hard category), he said growers might be over-applying nitrogen at the expense of some yield and perhaps profit. However, this depended on whether price premiums were paid for high-protein grain.

Dr Hunt said the second way to review nitrogen management was to calculate a long-term partial nitrogen balance for individual paddocks.

"Partial nitrogen balance is the sum of nitrogen inputs from fertiliser and legumes minus the amount of nitrogen that has

La Trobe University's James Hunt. Photo: Clarisa Collis

been exported in grain or hay," he said.

He pointed to a simple spreadsheet to calculate partial nitrogen balance on the Birchip Cropping Group website: https://www.bcg.org.au/understanding-crop-potential-and-calculating-nitrogen-to-improve-crop-biomass-workshop-recording.

A partial nitrogen balance will indicate whether soil organic nitrogen is in net deficit across the rotation, Dr Hunt said. "In stubble-retained systems, paddocks with a neutral to positive nitrogen balance are unlikely to be mining soil organic nitrogen, and under conservation farming practices soil organic matter will likely be maintained during crop production," he said. "Paddocks with a negative nitrogen balance are mining soil organic nitrogen and soil organic matter will be declining."

He said a high positive nitrogen balance (hundreds of kilograms per hectare of nitrogen) indicates chronic over-application of nitrogen and, while this might be building soil organic matter in stubble-retained systems, increased profitability might be achievable by reducing nitrogen rates.

Best practice

Dr Hunt said current best-practice nitrogen management involves:

- a pre-sowing soil test to measure mineral nitrogen;
- an estimate of in-season mineralisation supplied from the soil;
- an estimate of potential yield based on water use efficiency;
- an estimate of crop demand based on 40kg/ha of nitrogen for every tonne of grain for wheat or 80kg/ha of nitrogen for every tonne of canola;
- calculating fertiliser nitrogen required to make up the difference between nitrogen supplied from the soil and crop demand; or
- using an agricultural decision support tool such as Yield Prophet® that integrates all of these factors.

Soil Test

Dr Hunt said many businesses were not producing wheat that reached its water-limited yield potential, because soil testing and using tools such as Yield Prophet® were time-consuming, complex and considered too difficult, and consequently are not being used widely.

"However, I think the biggest issue when using these techniques is that it is impossible to predict spring rainfall and therefore impossible to predict crop nitrogen demand.

"I think people fear over-

A pre-sowing soil test is essential to determine how much nitrogen is available in the soil. Photo: Nicole Baxter

application of nitrogen and part of that is concern about losses and haying off. This is a powerful psychological consideration as the belief is 'I'm paying more to make less'. However, haying off is not as common as it used to be when crops were frequently grown in rotation with legume pastures."

Moving forward

Consequently, Dr Hunt is encouraging a shift in thinking to long-term nitrogen management. "Experiments by CSIRO's Dr John Kirkegaard and NSW Department of Primary Industries collaborators show that if nitrogen is over-applied, most carries over and remains in the soil, available to next season's crop."

Additionally, he said it was difficult to hay-off crops with modern agronomy. This was because:

- stubble retention immobilises nitrogen;
- most rotations are now crop dominant, which leaves less mineral nitrogen in the system compared to legume-based pastures;
- improved summer fallow management means more soil water is available;
- early sowing results in crops experiencing fewer hot and dry conditions later in the season; and
- modern varieties are heavily selected for grain size, so they are less likely to screen under high nitrogen availability.

Accordingly, Dr Hunt has developed the concept of the nitrogen bank, or N-bank, where enough nitrogen is supplied each year to maintain nitrogen at a level sufficient to achieve water-limited yield potential in most seasons. In practice, this means choosing an environmentally appropriate N-bank target dictated by annual rainfall and

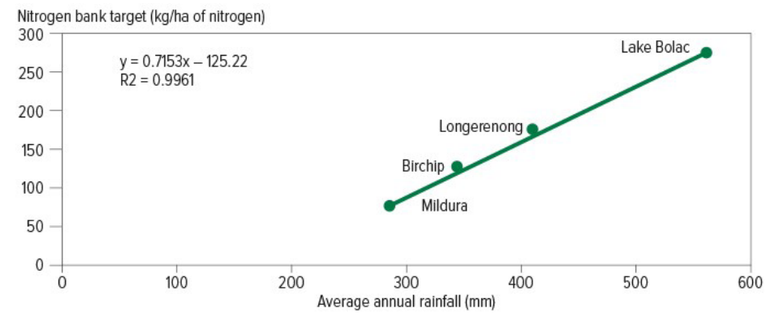

Figure 1: N-Bank target versus annual rainfall. Source: Elizabeth Meier, James Hunt and Zvi Hockman, 'Evaluation of nitrogen bank, a soil nitrogen management strategy for sustainably closing wheat yield gaps', Field Crops Research, 261, 2021.

potential yield for each crop location.

Dr Hunt said the N-bank targets for different environments can be derived from crop simulation and represent the most-profitable or least-risk and lowest-loss treatments over the long term.

For example, at Birchip, Victoria, where average yields are three to four tonnes a hectare, he said the target N-bank was simulated as 125kg/ha. In higher rainfall areas, such as Horsham, Victoria, he said the N-bank target would be higher – more like 175kg/ha.

In a 2021 paper published in Field Crops Research entitled 'Evaluation of nitrogen bank, a soil nitrogen management strategy for sustainably closing wheat yield gaps', Dr Hunt said the data showed there was a good relationship between annual rainfall and the optimal N-bank target for the four Victorian locations used for the simulation study (see Figure 1).

For the four different Victorian locations studied, he said the N-bank target = 0.7 x (average annual rainfall) minus 125.

"However, this method for calculating the N-bank target rate may not hold up for areas where rainfall is more summer-dominant," he said. "It may also not work in high loss systems and more research is needed to validate the calculation across a wider number of locations."

Soil testing essential

Once the N-bank target is known, Dr Hunt said, mineral nitrogen (nitrate and ammonium) needs to be measured using a soil test any time from March through to June. If done after June, he encouraged sampling the soil from the inter-row to avoid fertiliser that was applied at sowing.

Ideally, he said, soil cores should be one metre deep and segmented into different depths, with at least six cores taken per paddock or production zone. The six cores should be mixed carefully to provide one bulk sample, kept cool and sent to a laboratory as soon as possible after sampling.

"It is best not to include in-season mineralisation in the calculation for required nitrogen, because mineralisation is cancelled out by immobilisation in systems where organic matter is being maintained such as in stubble-retained systems with a neutral to positive nitrogen balance," he said.

"It is beneficial to soil sample high and low-yielding zones of paddocks independently to get a better picture of what is happening across the paddock. This sampling can also be extended to high and low protein zones for variable rate nitrogen applications."

Dr Hunt said some growers, such as Broden Holland from Young, NSW, were making variable-rate nitrogen applications for wheat based on protein maps from previous wheat crops. "Broden is reporting success at achieving higher yield and protein, lower protein variability and has avoided under and over fertilisation within paddocks," he said.

"But while protein maps are an effective way to inform how nitrogen is best allocated across a paddock, they can't help with estimating the base rate. Soil testing and the N-bank system is still necessary to achieve this."

Top-up nitrogen

If tested soil mineral nitrogen is below the N-bank target, Dr Hunt said to top up the bank with nitrogen fertiliser using best-practice application tactics. This is generally achieved by applying the most crop nitrogen during early stem elongation (July to early August).

He said the advantage of top-dressing during early stem elongation was there were less likely to be significant nitrogen losses. For example, if 70kg/ha of mineral nitrogen is measured in a paddock, and the N-bank target is 150kg/ha, he said 80kg/ha of fertiliser nitrogen needs to be applied using best practice to top up the supply. This is then repeated every year.

Concept tested

With investment from La Trobe University and the Mallee Catchment Management Authority, Dr Hunt, in collaboration with Birchip Cropping Group and CSIRO, established a long-term experiment at Curyo in north-western Victoria to test the N-bank concept.

The results showed an environmentally appropriate N-bank strategy and Yield Prophet® (matching nitrogen to seasonal yield potential), used similar amounts of nitrogen, were equally profitable and maintained the soil resource. This result was confirmed by simulation studies over many seasons. The experiment and simulation studies indicated that profit was maximised at neutral to slightly positive

CSIRO's Dr John Kirkegaard.
Photo: Nicole Baxter

nitrogen balances.

Dr Hunt said modelling had also shown the N-bank strategy works in southern NSW across a rainfall gradient from Griffith to Young in free-draining soils with at least 147mm of plant-available water capacity.

"The environmentally appropriate N-bank changes according to location, so the low-yielding site at Mildura meant there was a lower optimal target of 75kg/ha of nitrogen, at Birchip it was 125kg/ha. At Longerenong the target was 175kg/ha of nitrogen and at Lake Bolac, which is a high-yielding site, the target was 250 to 275kg/ha," he said.

"Nitrogen losses from the N-bank approach are no worse than they were from Yield Prophet®, but under both of those strategies the losses are higher than what you would see if you applied the national average fertiliser nitrogen rate of 45kg/ha per year."

Application tactics

CSIRO'S Dr John Kirkegaard said the N-bank approach was about a total nitrogen budget, which needs to be added to crops in the most appropriate way for any given location.

"If you're cropping on a soil where heavy rainfall events are likely, then the appropriate way for you to add nitrogen might be as smaller multiple applications during the season," he said.

"The N-bank just tells you the rough total to aim for and then you can decide the most appropriate tactical approach to apply urea on top of that to reduce avoidable losses."

NSW experiments

During the past three years, southern NSW farming systems experiments led by Dr Kirkegaard, in collaboration with the NSW DPI with GRDC investment, have used different crop sequences and nitrogen strategies that exemplify the concept of taking a longer-term view with nitrogen management. Dr Hunt said the experiments included two nitrogen targets for urea top-dressing decisions, with the first targeting decile-two conditions, which is conservative, and the second decile-seven conditions, more like the N-bank approach.

"The results, during the two-consecutive decile-one years of 2018 and 2019, demonstrated the decile-seven approach was less profitable in those years; however, the decile six 2020 season showed significant responses to carry-over nitrogen that had been applied in previous years," he said.

Dr Kirkegaard said the decile-seven strategy approach was often more profitable over the three-year sequence in the canola/wheat/barley sequence. While these results were encouraging, Dr Hunt said the research to test the N-bank concept had only been done at one site over three seasons.

"We don't know yet what the N-bank target should be in specific environments and need to better understand how much nitrogen is being lost and immobilised," he said. "We also don't know about the effects of how the N-bank strategy interacts with legumes."

Dr Kirkegaard said the big issue is that running nitrogen-deficient cropping systems while still running down soil organic matter requires a significant shift in the approach to nitrogen management to close yield gaps and maintain soil organic matter.

More information: James Hunt, 0428 636 391, j.hunt@latrobe.edu.au; John Kirkegaard, 0458 354 630, john.kirkegaard@csiro.au

Acknowledgments

This article was originally published in issue-152-May-June-2021 of the GRDC GroundCover publication and was re- published by the Mallee CMA with permission from GRDC. The long-term Curyo N-bank trial site is supported by the Mallee Catchment Management Authority, through funding from the Australian Government's National Landcare Program.

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GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

Farm planning for a safe and successful harvest season

By the Agriculture Practice Team

WorkSafe Victoria

Planning for a safe harvest is something you may not see the full benefit of, until something goes wrong.

For Simon Craig, Kooloonong farm manager, it was a header-front fire that could've been much worse. It highlighted to him how important it is to prioritise safety in farm planning.

'To avoid that situation now everyone on the farm has an app on their smartphone and if a fire happens, the person who needs help simply pushes one button on their phone and everyone can see where the fire is. We have a firefighting team in place now too,' said Simon.

Simon is sharing his experience as part of WorkSafe's agriculture campaign - It's never you, until it is – and encouraging others to keep improving their farm safety practices. Watch his full story at worksafe.vic.gov.au/lemac

With the harvest season upon us, you may be sitting on machinery for long hours and turn your mind to planning next year's production. Check out our tips from farmers like Simon to help set up for a safe and successful harvest every time.

How other farmers incorporate safety into their harvest season

Conversations with workers are invaluable

Stopping for a healthy meal together in the paddock can:

- reduce the risk of fatigue
- give workers an opportunity to speak up about safety concerns and chat with their team mates
- give employers a chance to see how everyone is coping with the pressures of harvest.

Simon Craig with inspector Wayne Humphries at Lemac Farm in Kooloonong

Vehicle maintenance

Having a system to regularly undertake and record vehicle maintenance that everyone can access throughout the year is a simple way to maintain a safe working environment. It also keeps your farm equipment operating effectively and helps prevent those stressful harvest breakdowns.

Fire plans

Everyone knowing what to do, and what their role is, if a fire starts is really important. It can reduce the risks to people's safety and property damage if a fire does occur, especially during harvest.

Harvest worker inductions

Often we have extra workers coming onto properties during harvest to help out. By establishing a positive safety culture with your regular workers throughout the year, training and information sharing becomes easier with new workers. Everyone can contribute and encourage new people to work as safely as possible.

While it can be unavoidable for people to work alone, putting systems in place to check in with workers can reduce the risks associated. Find more information at worksafe.vic.gov.au/working-alone-farms

Coronavirus (COVID-19) safety

The COVID-19 pandemic has changed the way farms operate and we know this hasn't been easy. Under even more challenging conditions it's important to protect workers, family and regional communities through safe work practices. For assistance with COVID-19 obligations and resources to help prepare a COVIDSafe plan, visit coronavirus.vic.gov.au/covidsafe-plan

Keeping safe in warm weather with the potential for long work hours in the sun, prioritise hydration and regular breaks to reduce the risk of fatigue and minimise the impact of the heat. Breaks help you freshen up and increase productivity, which we all know is important during the busy times. For more tips to prevent fatigue on the farm, visit worksafe.vic.gov.au/farmfatigue

How to get started: safety support available

WorkSafe, the Victorian Farmers Federation (VFF) and Partners in Ag all have safety support available to help farmers and farm workers.

OHS Essentials program

'You're getting advice and you're getting support and it steers you in the right direction because there are some things you just don't know, or don't see, or you're not aware of.' – Peter Lambert, a sheep and cereal farmer from far north-west Victoria, found the OHS Essentials program beneficial to their business.

You can also get free, confidential and personalised safety support from an agriculture industry expert, at a time that suits – learn more and sign up via worksafe.vic.gov.au/ohsessentials

Making Our Farms Safer

The VFF offers free farm safety consults to farmers across the state, along with farm safety walk and talks – find out more via vff.org.au/project/making-our-farms-safer

Partners in Ag workshops

'The workshop gave me an opportunity to hear of some other people's experiences and made me realise I was not alone in wanting to raise issues with my manager,' – workshop participant.

'The farm visit was great. Good to see there is more than one way to do things in regards to farm safety,' – workshop participant.

Following sessions in Warracknabeal and Longerenong, Partners in Ag are holding more workshops over the next few months. These workshops are aimed at farm workers, supervisors and managers and focus on:

- risks relevant to the farms in the area
- how to minimise risks
- using machinery safely
- tips to initiate safety discussions with workers and management.

Some workshops planned for 2021 have been postponed until 2022, so why not get in early and book a session for your workers, supervisors and managers.

The workshops are ideal for those who:

- are new to agriculture
- work seasonal/peak times
- need a safety refresher
- work in isolation
- work with heavy machinery.

Simon Jess has over 20 years' experience in workplace health and safety training, and structures the workshops in two segments.

Morning – classroom-style learning

Topics covered:

- resources available
- understanding weather conditions and emergency management
- looking after your health on-farm
- machinery safety
- occupational health and safety, and understanding good practice
- chemical safety
- road safety.

Afternoon - practical learning on-farm

Topics covered:

- workshop/shed safety
- farm safety - minimising risks and reducing harm
- driving and towing heavy machinery
- vehicle and equipment maintenance
- manual handling
- working with animals
- working in isolation
- risk assessments and safety checks - why they're needed and how to complete them.

Future workshops in 2022:

- Kaniva
- Wycheproof
- Bannockburn.

Call Katherine on 0409 527 041 to book in for a session and find out more via partnersinag.org.au

A visit to David Jochinke's farm in July as part of the Partners in Ag workshop

Disease resistance ratings and why they matter

By Luise Fanning

Project Officer, Grains Pathology Services, Agriculture Victoria

When it comes to managing crop diseases, plant disease resistance is the most effective tool available to growers. Disease resistance can help save time and money that would otherwise be spent on fungicide applications and can also help reduce the risk of yield loss and quality loss due to disease.

Figure 1: Wheat that is resistant (left) and very susceptible (right) to stripe rust. Photo: Luise Fanning (Agriculture Victoria)

To determine how well varieties perform against disease, researchers have developed disease ratings that make it easy to assess how resistant a variety will be to specific diseases. The ratings describe how much or how little disease the variety is likely to be able to cope with if the season is favourable for that specific disease.

The system works by rating varieties from resistant (R) through to very susceptible (VS). A variety rated 'R' will typically show no signs of disease, while those rated 'VS' can suffer large damage when the disease is present and growers are not encouraged to grow VS varieties due to the disease risk. A VS variety can also increase the disease risk for other local crops. Definitions have been assigned to each rating to make it easy to understand how much damage the disease can cause to a variety (see Table 1). These definitions can be used to provide a guide for how much disease control will be needed during the season and what variety is best suited to a particular cropping system. As an example, a wheat variety with good agronomic properties may be rated susceptible ('S') to stripe rust. By knowing a variety is more susceptible, it can be factored into a disease management plan to reduce the impact of the disease on yield and quality.

It is important to check variety ratings each year, as diseases can overcome the resistance in the plants through changes in the pathogen that causes the disease, or through the introduction of exotic strains. These are often first reported on a local scale but can become widespread within a few years. As a result, researchers are continuously assessing potential changes in disease resistance ratings so that growers can rely on their performance in the field.

Resistance ratings are developed independently through the National Variety Trials project with Grains Research and Development Corporation investment. Research organisations such as Agriculture Victoria work in collaboration across Australia assessing varieties in the field and glasshouses to provide up-to-date, reliable and robust resistance ratings. This also provides an opportunity for plant breeders to screen their varieties to stay one step in front of the changing diseases. Breeders are constantly on the lookout for new sources of genetic resistance that can be incorporated into future varieties.

Variety ratings should be checked on an annual basis and disease management plans updated to accommodate any rating changes. There are circumstances where growers have been caught out thinking they had grown a moderately resistant ('MR') variety, but the rating had changed that year to a 'VS' variety. This has led to significant yield loss as the crops were checked less frequently, which led to fewer and delayed fungicide applications.

At the end of the day, disease resistance is one of the best tools available to growers to reduce the impact of disease.

Disease Rating	Symbol	Cereal resistance rating	Pulse resistance rating	Canolda blackleg resistance rating
Resistant	R	Disease symptoms uncommon. Disease management not required.	No symptoms visible. No fungicides are required.	R rated cultivars are unlikely to gain a yield response from fungicide application
Moderately Resistant	MR	Disease symptoms may be observed, but generally no management will be required.	The disease may be visible but will not cause significant plant damage or loss. However, under high disease pressure conditions fungicide applications may be required e.g. to prevent seed staining.	MR cultivars are unlikely to gain a yield response from fungicide application under normal disease pressure. However, they may respond to fungicides if sown under high disease pressure
Moderately Susceptible	MS	In seasons conducive to disease, symptoms will be detected during crop inspections. Crop losses of 15 per cent or more can occur in severe cases.	Disease symptoms are moderate to severe and will cause yield and seed quality loss in the absence of fungicides in conducive seasons, but not complete crop loss.	MS cultivars are highly likely to respond to fungicides if sown under moderate to high disease pressure.
Susceptible	S	Disease symptoms easily found in crop. Management required to reduce disease. Expect yield loss of 15-50 per cent without management. Monitor crops regularly.	The disease is severe and will cause significant yield and seed quality loss, including complete crop loss in the absence of fungicides, in conducive conditions.	Not recommended for Australian canola production.
Very Susceptible	VS	Disease symptoms easily found during crop inspections. Not recommended if the disease is common in an area, as there can be total crop loss.	This variety in areas where disease is a very high risk. Large yield and seed quality losses, including complete crop loss can be expected without control.	Not recommended for Australian canola production.

Table 1: A summary of some variety ratings and their associated definitions. For full resistance rating descriptions visit https://nvt.grdc.com.au/resources/disease-rating-definitions

Further information

Resistance Ratings - Field Crop Diseases Victoria (extensionaus.com.au)

Victorian cereal disease guide
Victorian pulse disease guide
Blackleg Management Guide

AGRICULTURE VICTORIA

Starting a safety conversation: How to be safe on farms

By Deb Banks

Regional media communications, Department of Jobs, Precincts and Regions

Farmers are great at looking after their livestock or produce, land, and machinery, but often put their own health and safety at risk.

People working in agriculture make up about 14 per cent of workplace fatalities, despite the industry only employing about two per cent of Victoria's workforce.

Farms are homes where we live but they are also workplaces; so now is the time to prioritise safety for yourself, your family and employees and visitors to your farm.

Starting a safety conversation is about having honest conversations about safety and recognising that putting safety first is good for business.

Farm safety is more than making sure the gate is shut, or putting on a seatbelt, it's about building trust and developing a culture where everyone on the farm, including employees and family, feel confident to ask questions and raise concerns.

A good place to start is with a farm Safety Plan that can focus on topics like a safety induction, farm rules, safety policies and safe work procedures. Developing a plan will reduce risk and help secure the future of your farm business.

There is support available to help you build a plan and consider what you and your farm business need. The Victorian Farmers Federation's Making Our Farms Safer advisors can provide free occupational health and safety advice including developing a safety plan for your farm.

The farm safety advisors have a broad range of experience and provide free and confidential advice to Victorian farmers to improve safety in the most practical way. Advisors can help create a safety plan and provide resources and safety policies that are suited to the needs of your business.

For more information visit the Victorian Farmers Federation website: Making our Farms Safer or contact an advisor directly – John Darcy 0432 156 223 or Richard Versteegen 0499 772 472. Making our Farms Safer is also on Facebook and Twitter.

The Making our Farms Safer project for all Victorian farmers is being delivered by the Victorian Farmers Federation. The project is funded through Smarter, Safer Farms, a $20 million Victorian Government commitment to improve safety and skills outcomes for Victorian farmers.

AGRICULTURE VICTORIA

Farm safety adviser Richard Versteegen during a recent farm visit. Photo Victorian Farmers Federation

Farm safety adviser John Dacey meeting clients to discuss their safety plan

The Mallee Corner Post

A series of technical sessions to support farmers in the Mallee with information and advice

Mallee farmers are invited to join monthly discussion sessions with the Agriculture Victoria team to discuss local farm management issues.

The Mallee Corner Post is a series of 30-minute informal discussion sessions held via phone and/or Zoom, to support farmers in the Mallee with information and advice.

Mallee farmers can participate in morning or evening sessions, to discuss local livestock management issues as well as grazing and land management considerations.

You'll also have the opportunity to discuss points of interest with other farmers and individual follow-up discussions can be provided.

For further information and to register for Zoom please contact: Erica Schelfhorst 0429 807 689 erica.schelfhorst@agriculture.vic.gov.au

Darryl Pearl 0417 432 711 darryl.pearl@agriculture.vic.gov.au

DETAILS

14 December
9.30 am and 7.30 pm
The sessions will run for 30 minutes (or longer depending on discussion)

Phone Call: 03 7018 2005

OR

Zoom link:
https://us06web.zoom.us/j/88164825993

Conference ID: 881 6482 5993
Passcode: 206886

Date	Time	Topic	Specialist
14 December	AM & PM	Open forum	

Restoring the Victorian Murray Floodplain

By Mallee CMA

The Victorian Murray Floodplain Restoration Project (VMFRP) will get much needed water back onto nine high-value floodplains along the Murray River. Without this water, these iconic landscapes will continue to decline – along with the many native trees, animals and plants that depend on them.

The VMFRP is a partnership between:

- Lower Murray Water
- Goulburn Murray Water
- Mallee Catchment Management Authority

Nyah-Vinifera (Photo: Mallee Catchment Management Authority)

- North Central Catchment Management Authority
- Parks Victoria
- Department of Environment, Land, Water and Planning.

The floodplains along the Murray River have evolved to periodically receive water. Historically, the river would spill onto the floodplains as often as eight out of every ten years, creating rich, lush landscapes full of life.

As our towns, cities, agriculture and industries have grown over time, we have changed the way the river flows to suit our purposes by using weirs and dams.

While this has benefited regional communities and economies, water no longer flows naturally as it once did and the Murray River can no longer water these floodplains often enough to keep them healthy. Floods occur much less often and for a shorter time.

The works and infrastructure will help get water back onto parts of these floodplains and hold it there long enough for the floodplain plants and animals to benefit.

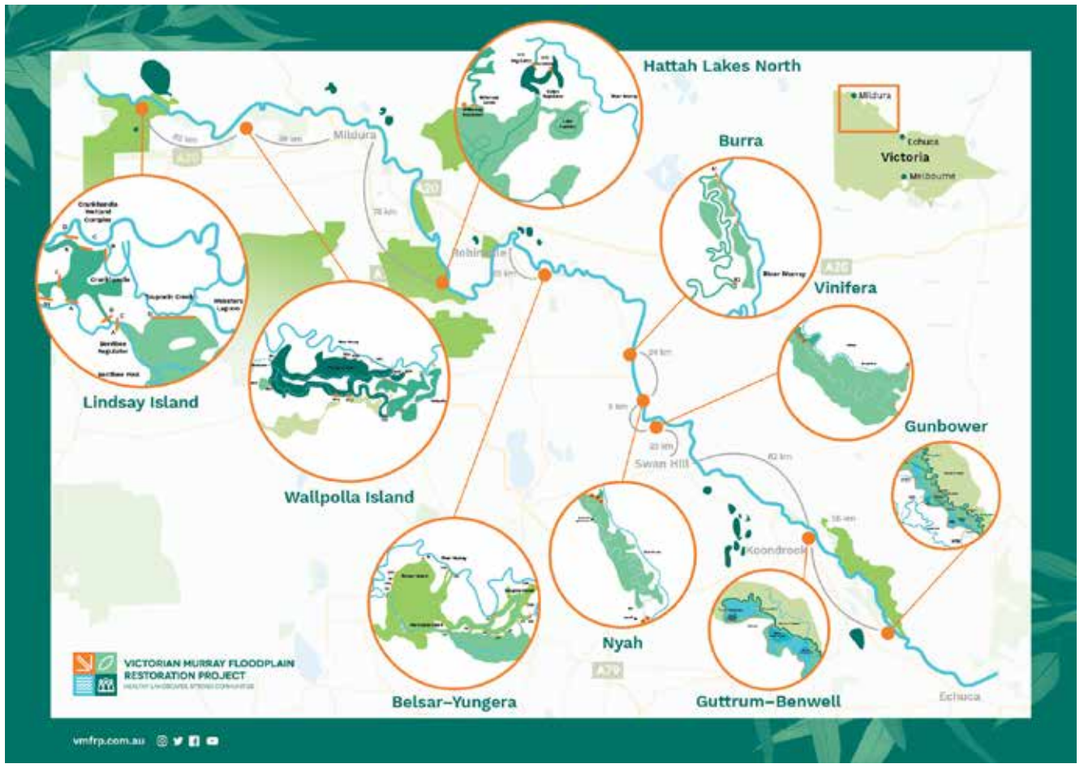
This water delivered to the floodplains will bring new life, improve the condition of vegetation and provide habitat for native animals like fish, birds, frogs and turtles.

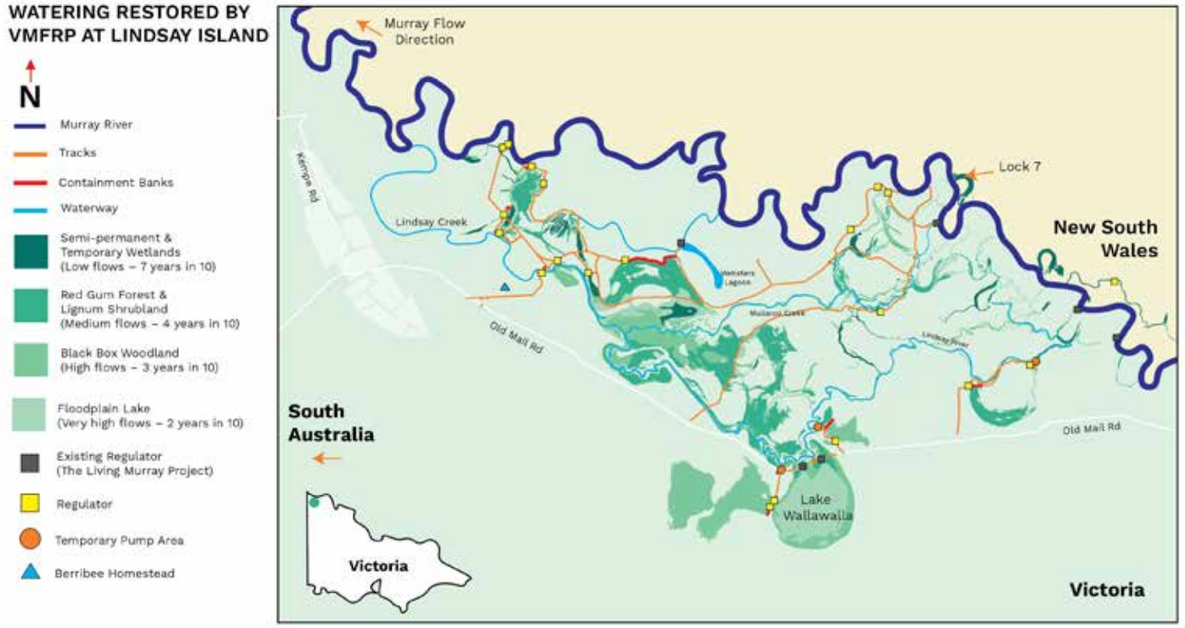
The VMFRP will deliver these benefits by either providing new ways to get water on to floodplains or by holding it there for longer – or both. To achieve this, VMFRP will use infrastructure such as flow regulators, channels and containment banks to water the floodplains.

VMFRP's infrastructure will also allow the water to be released back into the Murray River once it's done its job. These 'works' will help to directly deliver the right amount of water at the right times to help our most valuable floodplains and the many species that depend on them.

It will help these nine ecologically significant floodplains to survive and cope with dry conditions and drought, so they can continue to be enjoyed by future generations.

In a drying climate, flooding is predicted to be further reduced over time, but we can keep these areas of floodplain in good condition with far less water than natural floods. The floodplain plants and animals will have healthy refuges to live in while new ecosystems establish, and regional communities will have beautiful natural landscapes to visit.
VMFRPs infrastructure will not affect the passage of natural floods, so water will still flow freely and soak the floodplains.





These works will also bring substantial financial investment into the region while they are being built, creating jobs and helping local economies, and into the future by attracting tourism dollars for generations to come.

Healthy floodplains will ensure that regional communities will still have beautiful places alive with the sounds of birds and frogs to camp, swim, fish and more around our mighty Murray River and its floodplains.

Floodplain in Focus – Lindsay

Location: 75 km west of Mildura. Part of the Chowilla floodplain in the Murray-Sunset National Park.

Landscape: Large floodplain complex with nationally important wetlands, streams, and red gum, black box and Lignum communities.

Threatened animal species*:

- Giles' Planigale
- Growling Grass Frog
- Beaked Gecko
- Carpet Python
- Eastern Hooded Scaly-foot
- Red-naped Snake
- De Vis' Banded Snake
- Samphire Skink
- Broad-shelled Turtle
- South-eastern Long-eared Bat
- 21 birds including the Regent Parrot, Painted Honeyeater, Musk Ducks and the Intermediate Egret
- Murray Cod
- Silver Perch
- Murray-Darling Rainbowfish
- Unspecked Hardyhead
- Freshwater Catfish

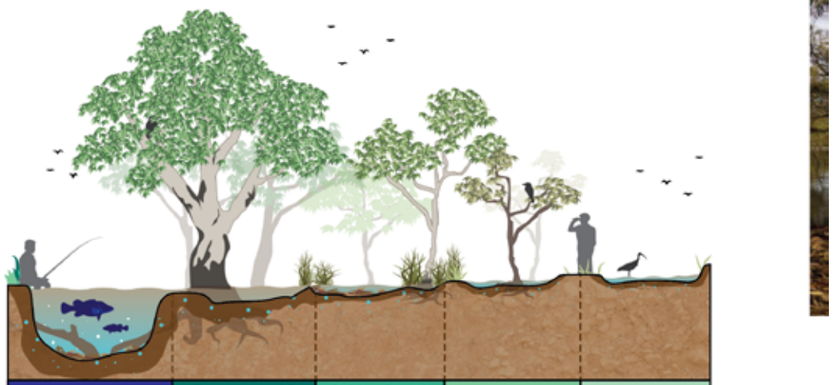
Before river regulation - building dams and weirs on the rivers, as diversions of water for towns, businesses and agriculture – river water flowed freely along the rivers and regularly moved out over the floodplains.

Under pre-regulation flow conditions, the ***River-Redgums*** and ***Lignum*** at Lindsay Island previously received flood water lasting more than four years in every ten, or around 44 years in 100.

The longest time the River-Redgum floodplains were dry, in severe drought, was five years or less, which wasn't often at all.

Under current environmental water entitlement conditions, with all the dams and weirs in place, water diversions and people living in the catchments, floods of at least one month long dropped to a third of what they used to be - from over four every ten years under natural conditions to around one and a half every ten years (about 14 in 100 years). That makes life very hard for plants and animals that need water to live,

*While many of the threatened species that rely on a floodplain at Lindsay aren't fully aquatic, they still rely on floods to provide healthy habitat and food sources.



Murray River	Semi-permanent & Temporary Wetland	Red Gum Forest & Lignum Shrubland	Black Box Woodland	Alluvial Plain
River flows (ML/d)	60,000	80,000	100,000	120,000+
Pre-regulation flows				
Frequency of flow events (years)	68 in 100	44 in 100	28 in 100	21 in 100
Longest interval between events (years)	2.8	4.4	10.4	12.4
Current flows (with environmental water entitlements)				
Frequency of flow events (years)	38 in 100	17 in 100	11 in 100	6 in 100
Longest interval between events (years)	5.2	18	21.5	23.5
Flows with VMFRP works*				
Frequency of flow events (years)	60 in 100	40 in 100	30 in 100	20 in 100
Longest interval between events (years)	2.8	4.4	10.4	12.4

* The VMFRP sites can reduce the longest interval between floods to less than or equal to the maximum pre-regulation interval, depending on ecological thresholds and site condition.

grow and breed.

Critically, it also meant a huge increase in the time between floods, when the floodplain has no water, and the river also missed out on the big influx of carbon (food) and other nutrients from the floodplain.

The River-Redgum and Lignum on the floodplains, and all the other plants and animals that live there, would get no water for periods of up to 18 years.

This dry period – twice as long as the millennium drought – is too long for floodplain trees and animals to survive. This would see massive and widespread death of trees, understory vegetation, birds and frogs.

The big water bird breeding events where Lignum and trees are surrounded by water for months could be 18 years apart – and birds just do not live that long. Flooding would be much less frequent, so habitat is less healthy, and breeding opportunities are fewer.

It's not only water-dependant animals that struggle – it's also the bush birds. No floods mean poor or absent habitat.

Water recovered under the Basin Plan is very effective for the river channel and low-lying floodplain areas, but cannot do much for higher on the floodplains. It provides only small benefits to areas such as River-Redgums and Lignum on Lindsay Island, and not enough to keep the ecosystem healthy. There would need to be two or three extra floods in 100 years, bringing the average up to around 1.7 in ten years (17 in 100 years) - well under half what occurred under natural conditions, and the longest dry periods would be between 10 and 18 years. This is still too long for floodplain plants and animals to persist.

The Black-box have it even worse, being higher on the floodplain, further from the river.

Under pre-regulation flow conditions, Blackbox would have been flooded around 28 times in 100 years –a quarter to a third of

all years. With river regulation, that dropped to around less than 1 every ten years (9 floods in 100 years) about a third of what occurred naturally. The water recovery from the Basin Plan adds around one more flood every 100 years. Black-box is just too high on the floodplain for Basin Plan water to reach.

And like the Redgum and Lignum floodplain, the dry periods are greatly extended.

Under natural conditions, the longest dry period was ten years. But with river regulation, this increases to 21 years – far too long for the ecosystems to survive and thrive. This means substantial tree death, no recruitment of new trees, and no flowering.

All the animal's dependant on flowering or on good quality habitat will not survive under river regulation conditions.

The VMFRP can restore flooding patterns with the help of environmental infrastructure.

The VMFRP will deliver healthy areas that can protect populations of floodplain plants and animals. These act as source population for areas to recover, and may be the last place of refuge for threatened species of the floodplains.

Is the answer returning the Murray River to pre-regulation flows?

No, because the Murray River is a working river that sustains more than two million people.

To get water back up onto the Murray floodplains, we would need to recreate floods using huge releases of environmental water.

The aim is to top up and extend naturally occurring floods so they can get up onto the floodplain.
To achieve the necessary high flood flows, coordinated releases of very large volumes would need to be made from several upstream dams and tributaries together over several weeks or months. The releases from the dams take weeks to travel downstream to where it's needed, making coordination tricky. Releasing environmental water on top of a flood means there's no leeway if there are rain events, and consequential high river flows in the Murray Darling Basin. Given once the water is released it is not controllable, this poses huge risks for towns, roads and other infrastructure (including farms).

The risks are not just at the mid and lower Victorian Murray where we need to water the floodplains, but upstream in the tributaries like the Goulburn and Campaspe and upper Murray which would be running at full capacity to deliver the environmental water.

And of course – not all the floodplains are now natural, many have been cleared for other uses like farming, housing, and roads - putting valuable water on these alienated floodplains is pointless for the environment. Another issue is getting enough water - recovering enough environmental water to re-create these floods would inevitably impact livelihoods in regional communities.

Infrastructure such as pumps, regulators and containment banks deliver environmental water onto the floodplain and retain it so it can reach and nurture the floodplains, without flooding upstream communities.

The success of "The Living Murray" Project at Hattah Lakes has shown how infrastructure can help deliver great environmental benefits, now it's time to extend what has been proven to work.

The VMFRP is a rescue mission to save our floodplains. The Project aims to return a more natural flooding regime across more than 14,000 hectares of high ecological value Murray River floodplain by removing constraints that stop water flowing into creeks and building infrastructure to deliver water the floodplain and hold water there for longer before returning it to the river.

This water will help our floodplains to survive and cope with future dry conditions and drought, to ensure they can continue to be enjoyed by future generations.
Doing nothing is not an option.

VMFRP Studies and

Monitoring
Scoping requirements for the Project have been developed by the Department of Environment, Land, Water and Planning (DELWP) and set out the matters to be investigated and documented.

The VMFRP are now preparing two Environmental Effects Statements (One for central sites, and the western sites).

The Team are also preparing a further two Environmental Reports (One for central sites, and for the eastern sites).

For more detail, visit the website. www.vmfrp.com.au

Capturing Community

Insights
Community consultation plays an important role in shaping the Victorian Murray Floodplain Restoration Projects.

The Team welcome all feedback and suggestions as the Project moves through the formal environmental and cultural assessment process.

The VMFRP Team are also continuing to engage with the community in a variety of formats including pop up kiosks, at markets, online webinars and newsletters. To subscribe to our newsletter visit our website.

For more information, visit www.vmfrp.com.au

Mallee Wetlands spring to life

By Leesa Merrett

Manager Communications, Mallee Catchment Management Authority

After months of planning the first spring delivery of water for the environment has commenced in the Mallee.

The Mallee wetlands are home to some very unique animals and are a haven for waterbirds. It's vital to maintain and improve the condition of the plants and trees within the wetlands to ensure they can continue to provide food and shelter for many threatened and rare animals.

The spring watering in the Mallee will benefit a broad area, including wetlands within Merbein Common, Lower Murray Wetlands, local floodplains to support the significant flora and fauna at the sites and the Wimmera Mallee Wetlands. The Living Murray Icon sites Hattah Lakes, Lindsay, Wallpolla and Mulcra islands are also benefiting from watering during spring.

With over 730 kilometres of Murray River frontage within the Mallee Catchment Management Authority (Mallee CMA) region, 22 wetlands on the river floodplain will receive water during spring 2021, with the aim to complete all water deliveries by the start of summer 2021.

Mallee CMA CEO Jenny Collins commented; *"The delivery of water for the environment is important for the whole community, we must ensure a balance so our community and environment can prosper through its delivery. The rivers, wetlands and the natural landscapes within the Mallee provide many benefits for our region through recreation, eco-tourism, economic and cultural benefits. By working with our community and stakeholders to inform Mallee CMA's planning and delivery we can ensure water for the environment is delivered with a wide range of benefits for our community".*

Jenny added; *"Water is being delivered to important wetlands and floodplains around the region – places that represent the uniqueness of the Mallee and that support the threatened plants and animals that can be found there".*

A significant watering event commenced in October 2021, at the Ramsar listed Hattah-Kulkyne National Park, building on the autumn delivery earlier this year. This provides great outcomes for the environment and the community through both recreational and ecological benefits. All of the 18 lakes at Hattah will receive water during spring, allowing full inundation of the wetlands, creeks and floodplains.

The lakes support many threatened and rare native species and ensuring they receive water means the area remains a place the whole community can enjoy. Kayakers, campers, bird watchers, anglers and walkers are all reaping the benefits, along with the lakes and floodplains in the National Park at Hattah.
Another site to receive water is Lake Hawthorn, a shallow lake near Mildura that provides critical habitat and food for migratory birds. The Lake provides the ideal environment for growing plankton, one of the key food sources for migratory birds, as thousands of birds visit this wetland each year from as far away as Siberia.
At the iconic Lindsay-Mulcra Wallpolla islands increased flows are being provided for fish, and low-level floodplain inundation to improve plant condition and provide bird feeding and breeding habitat. In addition to providing water for environmental benefit, delivery of water to the wetlands also supports cultural, social and economic value.

The wetlands and tributaries receiving environmental water in spring, within the Lindsay-Mulcra-Wallpolla Icon Site, have been prioritised based on their environmental condition, recommended frequency of watering, ecological, cultural and social values and feedback received from stakeholders and the local community.

Lake Wallawalla will continue to receive flows through spring, the site is significant for its Black box and Red Gum communities on the fringe of the lake. Located within the beautiful Murray-Sunset National Park approximately 100 kilometres from Mildura, Lake Wallawalla is an internationally important wetland. When inundated, this highly productive site supports a number of vegetation species listed as rare or threatened and provides a haven for a large range of water birds by providing a mosaic of feeding habitats and supporting breeding events.

The flows are authorised by the Victorian Environmental Water Holder in line with its Seasonal Watering Plan 2021-22, which is available for download from http://vewh.vic.gov.au/watering-program/seasonal-watering-plan For a full list of sites, interactive map and further information about the environmental water delivery visit our website www.malleecma.com.au

During the watering, access to National Parks may be affected, to learn more about impacted tracks visit, Parks Victoria, for updated information prior to visiting the area. www.parks.vic.gov.au

Keep up to date with the latest information about the delivery of water for the environment and other important programs follow our social media.

Nesting Swans on Lake Kramen 2021. Hattah National Park. Photo Mallee CMA

Protecting the Malleefowl and its habitat

By Jennifer McCamley

Mallee Catchment Management Authority

Introduction

The Malleefowl is a much-loved bird of our region. Nationally listed under the Environment and Protection Biodiversity Act 1999 (EPBC Act) as vulnerable, its populations continue to decline. Much of its habitat has been cleared or degraded by stock, rabbit and goat grazing. A ground-dwelling and ground-nesting bird, it is vulnerable to predation by introduced predators, particularly foxes. While the larger Mallee public land blocks are population strongholds for the species, there are numerous small to medium-sized fragments of public and private land which contain significant populations of Malleefowl. Under the Australian Government's National Landcare Program, the Mallee Catchment Management Authority (CMA) has received funding for five years (June 2018 - June 2023) to protect priority Malleefowl habitat from the detrimental effects of grazing by introduced herbivores and reduce predation by foxes on the species.

The Mallee CMA is taking an integrated approach to Malleefowl habitat protection and is working with a range of partners to deliver targeted rabbit, goat and fox control programs. Guided by research and a study commissioned in 2014 by the Victorian Malleefowl Recovery Group (VMRG), the Mallee CMA and its delivery partners have selected four high priority areas in state forests, managed by the Department of Environment, Land, Water and Planning (DELWP), and one private area, a covenanted land block adjoining Hattah-Kulkyne National Park, to undertake on-ground works to reduce grazing pressure by introduced herbivores. Fox control is being undertaken in Annuello Flora and Fauna Reserve, and the Mallee CMA is partnering with the National Malleefowl Recovery Group (NMRG) and the VMRG to further understand the effect of fox predation on Malleefowl populations.

Effects of grazing on Malleefowl habitat

The National Malleefowl Recovery Plan identifies the reduction of grazing pressure as a key objective (Objective 2), and specifies the need to exclude stock and remove goats from reserves, and reduce rabbit numbers in or near Malleefowl habitat (Benshemesh 2007). Grazing by these introduced herbivores can greatly degrade Malleefowl habitat, and impacts on both food availability for the Malleefowl and its susceptibility to predation. Malleefowl are generalist feeders and, while their diet is spatially and seasonally variable, it typically includes seeds, flowers and fruits of shrubs, herbs and invertebrates. Grazing can remove these understorey plants and decrease leaf litter cover, reducing invertebrate abundance and diversity. A diversity of food shrubs, rather than an abundance of any one shrub species is thought to be critical to ensuring the continuity of food during drought periods for the Malleefowl (Benshemesh 2007).

Importantly, grazing also impedes the natural regeneration of many Mallee plant species, and may cause long-term modification of the vegetation structure and floral diversity of Malleefowl habitat. When the understorey is reduced or eliminated, Malleefowl habitat becomes more open, potentially making the species more vulnerable to predation. The soil disturbance caused by stock and introduced herbivores can destroy groundcover and the soil crust, leading to severe erosion and the further degradation of habitat. An abundance of leaf litter is also required for mound-building and breeding.

Reducing the impact of rabbits on native vegetation

A targeted rabbit control program began in 2018 and since then over 15,000 hectares of Malleefowl habitat has been protected from rabbit grazing. The aim of the rabbit control programs is to reduce rabbit abundance to < 1 rabbit per hectare. Research has shown rabbit density above this level, and the associated browsing pressure, seriously decreases the ability of native species to regenerate. The Mallee CMA is working with DELWP to reduce rabbit numbers in Berrook, Yaapeet, Wathe and Bronzewing State Forests. A large block of private, covenanted land with prime Malleefowl habitat which adjoins Hattah-Kulkyne National Park is also being managed for rabbits. Rabbit infestation is also a problem on roadsides. As well as destroying the vegetation in these roadside remnants, these rabbit populations act as source populations which can disperse into adjoining public land and private land. The Mallee CMA has partnered with Mildura Rural City Council and Yarriambiack Shire Council to control rabbits along the roadsides adjoining the public and private land blocks where large-scale rabbit control is being undertaken.

A total of 1,996 rabbit warrens have been destroyed between June 2018 and June 2021 and the control program has been successful in reducing rabbit numbers, with average rabbit abundance being < 0.5 rabbits per hectare across the control areas.

Reducing the impact of goats in state forests

Grazing by feral goats is a particular concern in parks, state forests and reserves, and other public land areas of the Mallee. Feral goats are able to browse on a larger number of plant species and persist longer in any location than sheep or kangaroos (Gillespie 2017). The Mallee CMA is working with DELWP to reduce goat abundance in three state forest areas. An area of 12,175 hectares has been controlled for goats since 2019, with 381 goats trapped in this period. Three annual goat trapping events have been undertaken in Berrook and Bronzewing State Forests. (Trapping in the Paradise Flora and Fauna Reserve occurred in 2019 only.) Six permanent traps have been installed in these forests, with additional mobile traps being selectively deployed. Private landholders adjoining these two forests have also shown an interest in working cooperatively to reduce goat numbers. In early 2021, an in-kind mobile trap was set up at a watering point on a property adjacent to Bronzewing capturing five goats. In the same year, landholders adjoining Bronzewing trapped a further 100 goats, and those adjoining Berrook State Forest trapped 106 goats.

Malleefowl Photo: David Sickerdick and Dept of Environment, Land, Water and Planning (DELWP)

'Camera trap monitoring' is one of the techniques used to assess the effectiveness of the annual trapping program in reducing goat numbers in the parks. Camera data from mid-2021 indicated a 16 per cent reduction in goat presence in Berrook State Forest and an 11 per cent reduction in goat presence in Bronzewing State Forest since the trapping program began.

Fencing to protect wildlife corridors from stock grazing

Fragmentation of Malleefowl habitat is a major threat to the species' ongoing viability. Successive clearing of habitat has left many smaller areas of public land with Malleefowl populations disconnected from the larger public land blocks with core populations. Wildlife corridors can be vital in reducing the isolation of fragmented populations by linking fragmented habitat and facilitating the movement of Malleefowl between suitable habitat patches. Working with DELWP and private land managers, the Mallee CMA has installed over 12 kilometers of stock-exclusion fencing which is protecting over 2,000 hectares of wildlife corridors linking the Berrook State Forest to the Murray Sunset National Park, and the Yaapeet State Forest to Wyperfeld National Park from the effects of stock grazing.

Fox baiting and the Adaptive Management Predator Experiment (AMPE)

Predation by foxes is thought to be a factor in the continuing decline of Malleefowl populations. Strategic fox control

A ripped rabbit warren in Bronzewing State Forest Photo: Courtesy DELWP

works are being undertaken in 14,957 hectares at Annuello Flora and Fauna Reserve, an important reserve for Malleefowl populations. The fox baiting is intensive, with baits being laid every 250 metres along 58 kilometres of roads and tracks, as foxes regularly use these to travel throughout their home ranges. A total of 2,367 baits have been laid in five baiting events between April 2019 and April 2021, with an estimated mortality of 1,124 foxes.

The fox control works at Annuello form part of the National Adaptive Management Predator Experiment (AMPE) project, which is coordinated by the National Malleefowl Recovery Team. AMPE's aim is to investigate the effects of fox predation on Malleefowl breeding success, and assess the effectivity of intensive fox baiting strategies in reducing fox abundance.

A successful partnership was established with the National Malleefowl Recovery Group (NMRG) and the Victorian Malleefowl Recovery Group (VMRG) to establish the two AMPE sites in the Mallee: the 'treatment' site at Annuello where intensive fox baiting is being undertaken, and a 'control' site at Wandown Flora and Fauna Reserve where no baiting is being undertaken. In tandem with the fox baiting, activity at Malleefowl mounds is being monitored annually by the VMRG. The Project is an important national-scale experiment which will substantially improve our understanding of the relation between fox predation and Malleefowl population dynamics.

References

Benshemesh, J. (2007) National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia.

Gillespie, C. (2017) 'Feral Goat impacts in the Murray Mallee' Available at: https://www.malleefutures.org.au/post/2017/12/20 [Accessed 17 September 2021]

Further Information

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Acknowledgements

This project is supported by the Mallee Catchment Management Authority, through funding from the Australian Government's National Landcare Program.

Rural Aid hires new Counsellor in Mildura

By Ashleigh Whittaker

Media Communications Officer, Rural Aid LTD

Australia's leading rural charity has committed to further improving the mental health of Mallee farmers and their families, through the recent hiring of Counsellor Rod Galvin.

Rural Aid counsellors offer free, confidential support to farmers and their families.

Rural Aid's Mental Health and Wellbeing Team prefer to visit farmers on their properties, and often find themselves having long 'cuppas' around the kitchen table.

Rod Galvin lives in Mildura and has been working with Rural Aid since August 2021.

Rod's friends and family had been urging him to become a counsellor for years, but ultimately it was a Landline episode on male suicide rates that prompted Rod to become a counsellor.

"For me, the episode and statistics really hurt! It was clear that men are doing it so tough that they don't know where to turn," Rod said.

Rod believes his own experience overcoming challenges helps him relate to others. Rod freely shares his lived experiences of overcoming severe depression in his teens; divorce and remarriage; and the death of his parents.

Rural Aid's counsellors are trained to help their communities with a range of services, from early intervention and health promotion, right through to treatment using evidence-based interventions.

Rural Aid encourages farmers to register at www.ruralaid.org.au or by calling 1300 327 627.

New Mildura based Rural Aid Councillor, Rod Gavin

Aid's community programs help create more sustainable and resilient rural communities by building stronger futures for all Australian farmers.

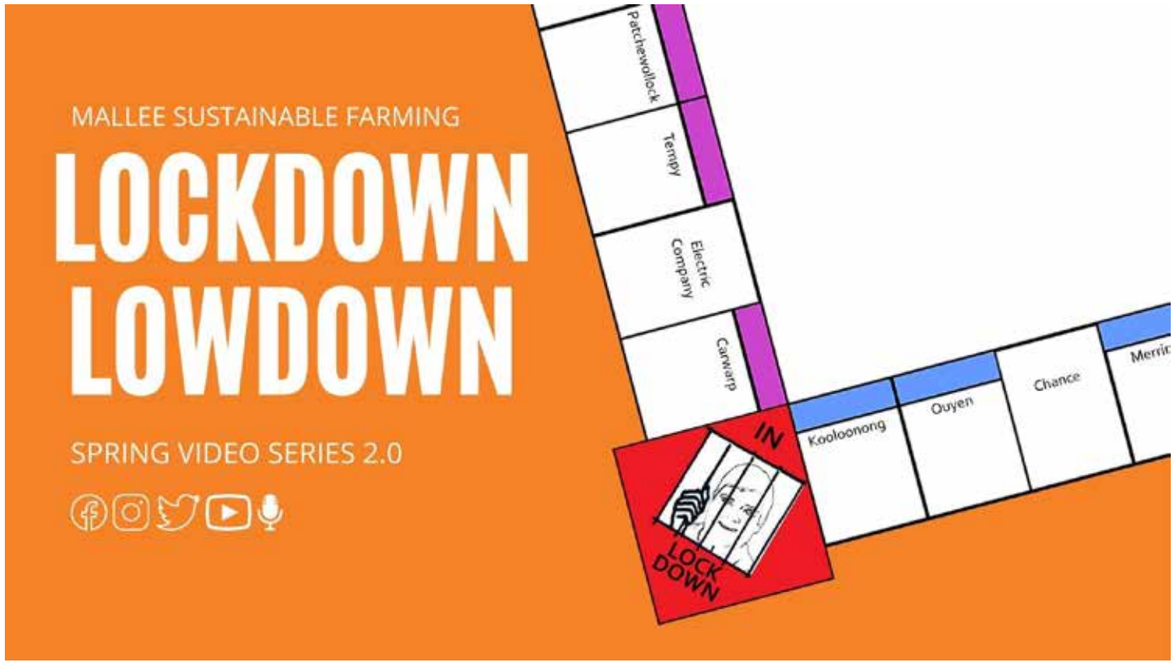
ABOUT RURAL AID

Rural Aid is Australia's leading rural charity. We provide critical support to farmers affected by natural disaster through financial, wellbeing and fodder assistance. Rural

Mallee Sustainable Farming Virtual Field Days "Vic Lowdown Spring Video Series 2.0"

By Glen Sutherland

Mallee Catchment Management Authority



There is no doubt that COVID-19 has necessitated a major re-think of how service providers, researchers and farmer grower groups set about delivering agricultural extension services to farmers. Traditionally there was a substantial reliance on the popular in-person field days, seasonal crop walks and research trial site and in-house workshops and seminars, all focused on presenting the latest agricultural research and development information.

In response to the challenge of COVID-19 Mallee Sustainable Farming (MSF) last season produced the 'Victorian Lockdown Lowdown Video Series, focusing on their research trials, results and findings undertaken in the Victorian Mallee region as part of MSF's ongoing cropping research programs and projects. This was the first time in the region that virtual field days were delivered and the series proved to be popular and was well supported by the farming community.

Fast forward to this current season and once again MSF is continuing to build on topics covered by the Lockdown Lowdown virtual field day video platform.

First cab off the rank in the new series is Michael Moodie from Frontier Farming Systems providing an introduction and overview of the Tempy pulses on sandy soils where ripped and un-ripped plots have been established to compare the deep ripping response in a variety of pulse crops. This trial has been established as part of the new Grains Research and Development Corporation (GRDC) Grain Legume Production project.

The next Lockdown Lowdown video will feature Kooloonong farmer Alistair Murdoch, discussing paddock scale deep ripping across a range of soil types, with a range of pulse crops.

The MSF Lockdown Lowdown virtual field day Tempy Pulses on Sandy Soils video production was supported by the Mallee Catchment Management Authority through funding from the Australian Government's National Landcare Program.

To view the full first series and videos from the second series as they are released, head on line to:
MFS Lockdown Lowdown Series

Acknowledgements
This project is supported by Mallee Sustainable Farming, through funding from the Australian Government's National Landcare Program.

Agronomist Rob Sonogan busy filming part of a new virtual field day on Mallee seeps and soaks management. Photo Frontier Farming Systems.

Frosty conditions allow vital BCG frost work to advance

By Janine Batters

Media and Communications Coordinator, Birchip Cropping Group

BCG's Frost Trial has been a focus for Birchip Cropping Group's (BCG) research team, with recent frosts allowing for data to be collected. The trial is looking at the economics of grazing, grain production and salvage hay production to paint a picture of the financial outcomes of different frost management decisions.

BCG researcher Genevieve Clarke is leading the work, jointly funded by The Yitpi Foundation and Hugh DT Williamson and is optimistic about the results of this year's trial: "We've had 20 days where the temperature dropped below zero at canopy height as of 16 September. While the data is not yet available the impact of frost is clearly visible on emerged heads in early sown spring wheat and ungrazed plots."

The bottom section of this wheat exhibits frost damage due to this section being at a vulnerable stage when frost occurred.

This wheat has been frosted while still in the sheath.

The team have been undertaking flowering assessments to capture flowering dates and

how grazing might hold back development, pushing things into a lower-risk frost window: “What we are seeing so far is that recovery from late grazing has been quite good considering seasonal conditions. We are seeing a delay in flowering from grazing but are predicting the loss of the primary tiller due to grazing late may impact yield given the dry seasonal conditions,” Genevieve said.

Genevieve led a discussion regarding the trial at BCG Members’ Field Day this month with 90 farmers in attendance, enjoying the opportunity to walk through the trial and see first-hand the visual difference between treatments. *“Being able to show growers these trials are an important and enjoyable part of our research and extension efforts. By engaging with growers, it increases the reach and longevity of our research.”*

When heads are further advanced and filling, BCG will undertake frost induced sterility assessments to determine the level of impact on grain development across the treatments, adding further value to the research.

For more information on this trial contact BCG Research and Extension Officer Genevieve Clarke on 0422 988 088.

Business program an opportunity for Mallee farmers

By Kit Duncan-Jones

Agriculture Victoria

Agriculture Victoria is offering an exciting new program for livestock, grain and mixed farmers in the Mallee region.

Project Leader Kit Duncan-Jones said the program is designed to provide farmers with the opportunity to refresh and develop new skills to strengthen their businesses to withstand future challenges.

“We’re looking ahead to 2022 with the intention of rolling it out in February next year.”

“Participants will be supported by Agriculture Victoria staff and a professional Farm Management Consultant to develop a strategic plan for their farm business.”

“The program will be delivered through a series of interactive workshops and provide farmers with practical information and tools to better manage risk and make informed decisions for their farm business,” Mr Duncan-Jones said.

Topics covered in the program include:

- Identifying and managing emerging risks
- Business planning and financial management
- Succession planning and people management
- Seasonal outlooks, managing soils and farm water for the future.

Participants will have access to a Farm Business Resilience Resource Library during and after the program, including program worksheets, presentation materials, videos, podcasts, eLearns and useful websites.

To register your interest in participating in the program, please complete this short survey: https://forms.office.com/r/xt9rby0SEH

For more information, contact Kit Duncan-Jones on 0427 749 466 or kit.duncan-jones@agriculture.vic.gov.au

The Farm Business Resilience program is jointly funded by the Australian Government and Victorian Government through the Future Drought Fund.

Further information about the program and the Future Drought Fund can also be found on the Agriculture Victoria website at: https://agriculture.vic.gov.au/farm-management/managing-for-and-during-drought/dry-season-support/future-drought-fund

Making our farms safer places to live and work

By Deb Banks

Regional media and communications, Department of Jobs,Precincts and Regions

Fencing; helping separate the kids from the risks. Photo Agriculture Victoria

A 7000-hectare grain and sheep property in north-west Victoria has received a grant as part of the Farm Safety Rebate Scheme, backed by the Victorian Government's commitment to improve safety, health and wellbeing outcomes for Victorian farmers and their families.

Farmers Jess and Steven Millar own a property between Sea Lake and Ouyen. The Millar's received a $5000 rebate and invested almost $7000 of their own funds to ensure the safety of their children on the farm.

The family installed a 1.6 metre metal fence around their house to reduce the risk of children accessing the busy farm driveway, getting into the machinery sheds or playing around the silos.

This created an enclosed backyard and play space for the children.

"Enclosing the yard around the house is so important as the farmyard is on our backdoor," Ms Millar said.

"The farm driveway at the side of the house is used by trucks, machinery and work utes constantly and it was a huge worry when the kids were playing outside."

Ms Millar said farm safety was a high priority on the property.

"We're all responsible for ensuring safety issues are identified and addressed but solutions need to be practical, easy to implement, efficient and cost effective," she said.

"Installing this fence ticked all those boxes and the peace of mind we have knowing that the kids can't climb over or wriggle under it has made a huge difference."

If you would like more information about improving safety for yourself, your workers, your family, and visitors to the farm contact one of the following organisations:

- Kidsafe Victoria has resources including the Farm Safety Checklist and a Parent's Guide to Kidsafe Farms, phone (03) 9036 2306 for more information.
- Making our Farms Safer Safety Advisors may be able to help identify safety equipment and infrastructure that would be beneficial for your farm, phone John Darcy 0432 156 223 or Richard Versteegen 0499 772 472 for more information.
- WorkSafe Victoria provides agriculture safety information in addition to the OHS Essentials program - a free workplace safety consultation service, delivered by independent occupational health and safety (OHS) experts. The service is a great way to receive free, independent and personalised advice to manage safety at your workplace. Phone 1800 136 089 for more information.

The Farm Safety Rebate Scheme is a key component of Smarter, Safer Farms, a $20 million Victorian Government commitment to improve safety outcomes for Victorian farmers. For more information about Smarter Safer Farms contact Rachel Jacobson, rachel.jacobson@agriculture.vic.gov.au

AGRICULTURE VICTORIA

La Nina and Implications for Dryland Farming

By Glen Sutherland

Mallee Catchment Management Authority

Wetter than average seasons present increases in both opportunities and risks. Photo Mallee CMA

Current weather prediction modelling (as at October 2021) indicates a higher than average chance of a La Nina event happening over the spring and summer of 2021-22. La Nina weather patterns often result in above average spring and summer rainfall for the Eastern states of Australia including the Mallee. This was very evident in the 300 ml plus rainfall events that occurred in the spring and summer of 2010 -11. Higher than average summer rainfall also accompanied the short sharp La Nina event that occurred over the spring and summer of 2015-16. Summer rainfall is universally welcomed by dryland farmers as it can result in an excellent source of stored sub-soil moisture that can be utilised to great effect by the next winter crop. However, summer rainfall also results in challenges, not least of which is the increased chance of cropping and environmental weed infestations, one of the worst in the Mallee being Skeleton weed (*Chondrilla juncea*). In 2016 the early summer rainfall events experienced in some parts of the Mallee resulted in a sudden and dramatic increase in the presence of skeleton weed and that experience certainly highlights the need to recognise that under the right conditions, skeleton weed may again become a major agricultural weed this season.

Historically skeleton weed was considered the worst invasive

agricultural weed in the Mallee. Thought to have been accidently introduced in the 1920's around Wagga Wagga, it took little time to become established across the eastern grain growing regions, eventually spreading to all parts of Australia. What made it such an issue is its ability to directly compete with crops by robbing available nitrogen (which it loves) and moisture, being a very deep-rooted perennial. At flowering, skeleton weed produces a mass of tall, wiry stems which cause havoc with harvesters and cultivation equipment. In combination these issues threatened the very viability of some farming areas for grain production in late 60s and early 70s, particularly in the deep sandy soils of the Mallee, which provided an ideal environment for the weeds deep rooting habit. Coupled with this is the ability of the weed to effectively spread through cultivation as the plant readily shoots from cut root sections.

Skelton weed infestation of legumes. Photo Mallee CMA

Legumes are becoming increasingly popular as cereal break crops, including for brome and rye grass control and to increase available nitrogen, their use also brings the need to consider strategies to deal with skeleton weed, particularly where late maturing legumes like lupins are being utilised as once the weed is established, effective control methods, without significant crop loss, is non-existent.

The best advice for the control of skeleton weed is early detection and treatment. Like most weeds, the window of opportunity for effective control is very limited. During and after harvest keep an eye out for rosette stage growth, which is easy to detect, particular after summer rainfall events. Considerations should include avoiding planting legumes in those known areas of previous heavy infestations, particularly where short crop rotations have precluded the use of some post-emergent herbicides, due to potential residue issues.

More information about controlling summer weeds, in general, can be viewed at the Grains Research and Development Corporation (GRDC) web site. A valuable resource available there includes the GRDC 'A reference manual for grain growers and advisers in the southern and western grains regions of Australia.'

Sources

- https://csiropedia.csiro.au/skeleton-weed-biocontrol/
- http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/publications/management/central-west

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Australian Government

National Landcare Program

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This publication is supported by the Mallee Catchment Management Authority (CMA), through funding from the Australian Government's National Landcare Program.