

UNFS UPDATE



Upper North Farming Systems Newsletter

September 2016

Spring Crop Walk Season Is Here

Ruth Sommerville

Crop Walks, Sticky Beak Tours, Ag Bureau Tours and Field Days are on across the district and further afield as Spring has arrived and we try to get all the trials on show and workshops held prior to the start of Hay and Harvest. It's hard at this time of year not to get a little blasé about all the events that are on. Review what the topics are and make the most of the opportunities to learn from the trials that are in your back yard and your neighbours that are trying a few new things just down the road.

UNFS has two crop walks in September; Eastern Crop Walk - Tuesday the 13th and Western Crop Walk/Nelshaby Ag Bureau Sticky Beak Day - Wednesday the 14th, & a Sheep Workshop on the 27th.

The Eastern Crop Walk will visit the Time of Sowing Trial to run through 5 wheat varieties at 3 times of sowing, incl. new variety RAC2341. There has been significant frost events at this site with interesting results to inspect. The tag along tour will then head south to the Over-dependence on Agrochemicals Trial, comparing barley varieties and seeding rates to assess competition & grass survival & seed set.

The group will then head to Jim Higgins property to launch the "Carbon Project" case studies and inspect work based on the principals of improving cover and condition and its effect on soil condition and carbon levels. Then back to the Booleroo Hotel for two presentations, Improving Fox Baiting Success with Luke Gabell, Natural Resources NRM and Grain Marketing with Lachlan Allen, Graincorp. The hotel kitchen will be open for those wishing to stay for a meal & catch up after the day.

Nelshaby Ag Bureau Sticky Beak Day/UNFS Western Crop Walk is always a great day out, with a broad range of topics covered and plenty to see. This year the roaming tour will start at Warnertown at 8.30am and will include stops and discussion on Hay cutting, Russian Wheat Aphid, Grain Marketing, Spading work, Legumes including chickpeas and lentils and a Seeder Comparison. Contact Barry Mudge for more details and to ensure a seat on the bus.

UNFS "Business of Sheep and Weaner Management" Workshop is on Tuesday September 27th with Hamish Dickson. Funded by Making More From Sheep, this day will focus on topics identified at last years Sheep Workshop held at Don Bottrals. Topics include benchmarking and profit drivers in your sheep enterprise and maximizing production potential through effective weaner management. Details to come. If you would be interested in providing the venue for this workshop please get in touch.

Also don't forget that the NVT trial sites are available for inspection, Wheat between Booleroo and Willowie, Lentils, Faba Beans and Field Peas at Laura and Oats and Barley at Crystal Brook. www.nvtonline.com.au for more details. There is also a SAGIT funded vetch variety trial at Morchard that you can visit, call Gilmore Catford for more details.

This is just a snapshot of what is on offer within our region, with some great events also being held at Minnipa and Hart this month. Hope to see you at one of our events this Spring!

Also In This Issue

- Grazing management & pasture utilisation Case Studies
- UNFS Spring Crop Walk
- Rabobank Commodity Highlights
- Nuffield Australia National Conference
- Spray Drift in Operator's Hands
- Fleabane Control
- Viterra Grower Meeting
- Feral Pigs
- Landscape Approach to Invasive Species Management
- Hart and Minnipa Field Days
- Reptile habitats in Farming Environments
- Feather Hunting
- Water Affecting Activities

Feral Pigs an emerging problem

Southern Flinders and Upper North of S.A.

As you may be aware, there have been a number of feral pig sightings in the district recently. This is a regional issue for all landholders.

FACTS ABOUT FERAL PIGS

Pigs can move up to 65km in one day, however they largely reside in one area with occasional long distance dispersal movements driven by seasonal availability of high quality food, water and shelter.

They are opportunistic feeders eating both animals and plants (e.g. earthworms, carcasses, live animals, bird eggs and green vegetation).

Pigs normally breed twice a year (at no defined time) but can breed year round if conditions are favourable. The average litter size is 5-8. Young are weaned at 2-3 months and can breed from 7-12 months of age. Adult size 40 > 200kg. Group size 3-10, (> 50 around waters).

IMPACT OF FERAL PIGS

Feral pigs can cause physical damage to structures and environmental destruction, as well as spreading disease and internal parasites which can affect people, livestock, horses, dogs and other animals.

Two significant diseases that pigs can spread are leptospirosis and swine fever.

WHAT CAN YOU DO?

Natural Resources Northern would like to hear from anyone who has seen a feral pig (alive or dead) on their property or evidence of feral pig damage. By providing timely details of sightings of pigs and the damage they do, Natural Resources can build a picture of the current problem and begin to move forward.

Details Natural Resources are interested in:

- ◆ Location: where was the animal seen? Section number, hundred, GPS or map reference
- ◆ Description of the animal: colour, sex, approximate weight
- ◆ How many pigs were in the group?

Information provided will assist Natural Resources Northern and Yorke staff and landowners in preventing feral pig numbers from building and becoming problematic.

Report feral pig sightings

Northern and Yorke Region

Luke Gabell,
Community Ranger
Natural Resources Northern and Yorke
Southern Flinders/Upper North District
17 Second Street, Orroroo
P (08) 8658 1086
M 0488 314 491
E luke.gabell@sa.gov.au
naturalresources.sa.gov.au/northernandyorke

For information on feral pig management and control techniques, visit pestsmart.org.au/pest-animal-species/feral-pig/

Feral pigs are declared under the Natural Resources Management Act 2004 (South Australia). It is an offence to release pigs. Anyone wanting to keep pigs must comply with instructions from the Natural Resources Management authority.



Image: Peter M. Heise-Pavlov

GPSA Grower Priorities Survey is now LIVE!

GPSA conducts an annual survey of South Australian growers to determine issues they are experiencing in the industry and how they rate as a priority for their business.

It is anonymous and only takes five minutes to complete however it will help GPSA to better advocate for growers and develop policy and submissions on your behalf.

YOU COULD ALSO BE IN THE RUNNING TO WIN A KESTREL 3500DT METER!

[Click here](#) to complete the survey or call the office on 1300 734 884 to be posted a copy.





Upper North Farming Systems 2016 Eastern Spring Crop Walk



Tuesday 13th of September

Booleroo Centre District

2.30pm to 6.30pm.



2.30PM - Wheat time of sowing trial, 1/2km south of Booleroo Centre on the Appila Rd

3.30PM - Barley seeding rate and weed competition trial, 15km South of Booleroo, off the Appila Rd (head west on the road south of the old crop sequencing trial site)

4.30PM - Managing grazing land to improve soil condition & carbon levels; Case Study Site Visit - Jim Higgins Property - Meet near Flinders Machinery.

5.30-6.30PM - Improving Fox Baiting Success, Luke Gabell, NYNRM and Grain Marketing Update from Lachlan Allen, Graincorp - Booleroo Centre Hotel

Admission: All welcome. Free for UNFS Members. \$10 for non-members. The kitchen at the Booleroo Centre Hotel will be open for meals after the event, please book directly with the Hotel, meals and drinks at own cost.

Contact: Ruth Sommerville: 0401042223, unfs@outlook.com

www.facebook.com/UpperNorthFarmingSystems



Government of South Australia
Northern and Yorke Natural
Resources Management Board

RURAL SOLUTIONS SA



Australian Government
Department of Agriculture
and Water Resources

There are many hard to kill weeds, including flaxleaf fleabane, however one approach delivers consistent success – spray small weeds and use the double knock technique.

At the end of grain harvest in the southern and western regions flaxleaf fleabane will be establishing and growing strong root systems ready to take up any soil moisture available over summer. Flaxleaf fleabane plants feature hairy leaf surfaces, thick cuticle and few stomata, a combination that affords the weed a natural tolerance to herbicide.



Fleabane seedlings germinate throughout the spring and summer, making the timing of control very difficult.

In South Australia fleabane seeds start germinating in late winter to late spring, but initial seedling growth rate is very slow. With suitable spray conditions being few and far between over summer, fleabane is able to establish and take advantage of any small falls of rain to produce up to 120 thousand viable light fluffy seeds per plant that disperse on the wind and in runoff water over summer and autumn.

Weeds researcher Ben Fleet from the University of Adelaide says the timing and staggered germination of fleabane, coupled with the need to treat plants when they are small, is a combination that makes the weed very difficult to control with herbicides.

“All flaxleaf plants have a natural tolerance to herbicides but they are much more susceptible to herbicide control when the plants are young, less than a month old,” he said. “While rosette stage plants can be easily killed with lower rates of glyphosate, once stem elongation begins a far greater dose is likely to be required to achieve similar results.”

“In NSW and Queensland, glyphosate resistance has been identified in flaxleaf fleabane populations, indicating that while glyphosate has proven an effective tool on fleabane, increasing resistance will mean this herbicide will be less effective in the future.”

In summer fallow, herbicide control trials at Bute and Pinnaroo in South Australia, robust rates of glyphosate provided the greatest level of control. Use of paraquat in a double knock herbicide strategy helped to achieve high levels of control, but only when the first herbicide application was capable of providing at least 60 per cent control in its own right.

“Controlling fleabane in summer conserved 45 mm and 71 mm of soil moisture at the Bute and Pinnaroo sites respectively, as measured in April,” said Mr Fleet.

Flaxleaf fleabane, melons, sow thistle, windmill grass and feathertop Rhodes grass have all been associated more with the northern region but in fact they are all weeds that perform well in zero and minimum tillage systems. As these practices are becoming more common in the south and west, so the associated weeds are becoming more of a problem, particularly in years with mild, wet spring and autumn conditions.

Aside from herbicide controls, don't underestimate the value of strong crop competition. Fleabane thrives along crop borders and in gaps that may appear within the crop.

“The mix of weeds present in a summer fallow varies dramatically between seasons in the southern region as these weeds respond to the prevailing seasonal conditions,” he said. “A few years ago, the combination of wet springs and good summer rainfall led to serious infestations of fleabane on many farms in South Australia. Then the subsequent run of dry spring and summers led to a decline in fleabane populations on farms to the point that researchers had difficulty in finding suitable trial sites.”

Mr Fleet emphasised that the efficacy of glyphosate on fleabane varied considerably in different seasons. “For example, glyphosate alone applied at 2 L/ha provided a modest 55% weed kill in 2012 but gave 97% control in 2014. In all seasons a double-knock of paraquat after glyphosate treatment ensured a higher weed kill,” he said.

Productive Grazing Strategies for the Upper North

Jim Higgins

The change in Jim's farming system has been driven by a need for farm profitability and improved risk management. His interest in livestock, led him to improve his grazing management and pasture utilisation rather than re invest in cropping machinery.

The farm business consists of 5 blocks including arable cropping areas at Booleroo Centre, Morchard and Willowie and pastoral grazing at Hammond. The Booleroo Centre block has a cropping and grazing history of more than one hundred and thirty years. Like most properties in the district livestock were continuously grazing at relatively low stock density for most of the year. Prior to 2007, wheat was the main crop sown followed by either barley or a self-regenerating medic pastures. From 2008 to 2012 cropping intensity was increased on the Booleroo Centre property to improve profitability with a rotation of wheat, barley and vetch.

The sheep flock consists mainly of merino ewes mated to White Suffock rams and a small self-replacing merino flock with additional ewes bought in as required.

In 2011, Jim realised the maintenance requirements of cropping machinery were increasing and the equipment wasn't suited to his future needs. When he investigated upgrading his air-seeder, tractor and harvester he found even the cost of second hand machinery was difficult to justify given his relatively small crop area.

Making the Change



In January, 2012 Jim decided to reduce his cropping area and intensively graze sheep on his Booleroo Centre block, this change would be complimented by his other properties where he would continue with a mix of grazing and cropping. This provided the opportunity to investigate the effects of changing management on soil carbon stocks.

The actions Jim identified to increase livestock carrying capacity and improve grazing management included; sowing 'improved' pastures, improving farm layout, and upgrading the farm water supply and delivery system.

Implementation

Jim fenced the Booleroo Centre block into five paddocks of approximately 30 hectares, which are a reasonable size for cropping and enable adequate stocking densities for grazing. Jim also built a new confinement feedlot in 2012. With the capacity to hold 1,500 adult sheep or 1,600 lambs. This feedlot is now an integral part of his system and he uses it for both finishing lambs for sale, and as a risk management tool for maintaining condition of his breeding ewes and other stock.

With more intensive grazing management Jim realised he needed to increase pasture productivity and he has found sowing the majority of paddocks each year significantly increases available feed.

When to graze pastures has been a challenge for Jim, grazing too early reduces pasture growth and productivity but grazing too late results in trampling and wastage. Jim recollects a quote from his father, "pasture any higher than 5 cm is only good for one thing – photographs!"

Summary

Jim has struggled to change his mind set from being a grain producer to thinking as a grazier. "Once that was settled, I think that after 4 years I have managed to achieve most of my desired outcomes." The system is versatile and the flexibility has enable Jim to make the most of opportunities such as purchasing additional stock in seasons with a good start and excess pasture growth. "This system has led to increased profit and other producers may benefit from this but will need to consider their situation". Significant increases in soil carbon have not been observed in the short term, but with increased ground cover and reduced tillage soil carbon stocks are expected to improve.

Find out more by visiting Jim's property on Tuesday 13th September 2016 as part of UNFS Crop Walk; with the launch of his case study and others about managing soil carbon.

MINNIPA AGRICULTURAL CENTRE Annual Field Day

SOUTH
AUSTRALIAN
RESEARCH &
DEVELOPMENT
INSTITUTE
PIRSA

Wednesday 7 September

8:45am for 9am start

Guest speakers:

Nigel Wilhelm (SARDI) – nutrition myth busting

Michael Nash (SARDI) – Russian Wheat Aphid update, beneficial insect species, what's happening with snail research?

Come along and see a wide variety of trials and farm scale demonstrations:

- Improving medics
- Herbicide efficacy in retained stubbles
- Row spacing
- Sowing rate
- Double strip SOA
- Controlled traffic
- Fluid delivery systems and disease management
- Row direction
- Canola risk management (time of sowing)
- Pulses and canola varieties
- Stubble management
- Wheat & barley phenology
- NVT wheat & barley
- Mariano Cossani, new Senior Research Officer
- Oats for hay
- Barley grass management
- Early sown Trojan (Mace, Scepter, Trojan)
- Lentils

EPARF Sponsors



Supporting Organisations



Refreshments available
Lunch available to purchase

Entry: EPARF members
Free, \$10 non-members

Contact for more
information:
Naomi Scholz 86806233



Hart Field Day 2016

September 20th

International Year of Pulses

Author & chef Simon Bryant *(pictured)*

'Eat what you grow' – it really is easy to cook with pulses

International guest speaker

Bert Vandenberg

Canadian pulse researcher

Lunch time guest speaker

Peter Wilson

Pulse Australia chairman

Plus the broad range of cereal, oilseed, herbicide, variety and agronomy trials you expect.



www.hartfieldsite.org.au

Monthly Commodity Highlights:

Grains & Oilseeds: We expect to see wheat basis levels remain under pressure as a large Australian wheat crop struggles to compete for export business in a highly competitive global market.

Beef: While prices have hit record levels, the general feeling is that levels are unsustainable and should start to decline as some heavier cattle flow into the market in spring.

Sheepmeat: Prices appear to have started the normal season decline into spring, after not quite reaching record levels, with the ESTLI down to AUc 5.96/kg cwt on 18 August.

Wool: The Australian wool market has had a mixed start to the 2016/17 season. As trading opened in August after the three-week recess, the EMI has pulled back marginally below AUc 1,300/Kg.

VIEW REPORT



Rabobank

Case Study: Rotational grazing has proven a clear winner for Avonmore Farm in the Southern Flinders Ranges of South Australia.

Lachlan Smart says “managing grazing pressure and rotating livestock to maintain pastures above “Coke Can” height throughout the season is the key to increased plant cover, improved pasture productivity and pasture diversity. Leading to greater farm profitability.”

The 1,600 hectare Avonmore property is located near Wirrabara and has an annual rainfall of four hundred millimetres. A key feature of the property is the 1,000 hectares of Hill grazing country.

Lachlan began Rotational Grazing in 2004 on part of the property, with the aim to improve pasture production, financial viability and soil cover. Livestock numbers were initially reduced to allow hill country to recover from years of set stocking and over grazing.

Lachlan says “the hill country responded quickly to the reduced grazing pressure, with increased growth and denser stands of grasses in the first two years.” Lachlan observed problems with cape weed, flat thistles and salvation jane diminished as a result of increased soil plant cover and greater competition from grasses. This was achieved by managing livestock numbers and grazing intervals. The hills country is mainly grazed in winter and early spring. With only brief periods of light grazing during the summer / autumn and late spring period to maximise seed set and optimise plant cover. Timely removal of livestock has a significant impact on which grasses set seed and future pasture composition and productivity, for example if pastures are over grazed in the September / October period, barley grass will become the dominant species. Grey Box, Blue Gum and Sugar Gum are regenerating under Rotational Grazing practices. Small fenced off tree areas are used as a control area to compare, evaluate and fine tune the affect grazing has on plant diversity and regeneration.

The autumn feed gap is managed by lambing the ewes in a confined area. Hay and grain is tested for feed quality to prepare feed rations that assist with optimising livestock production and profitability. Knowing the feed value of grain and hay can reduce the grain ration by up to three hundred grams per “dry sheep equivalent” per day. A one hundred and ten percent lambing rate is achieved by lambing ewes in these conditions. A two bin feed cart with weigh scales ensures grain rations are fed accurately. Hay is fed separately at the rate of one kilogram per head per day.

Livestock specialist Daniel Schuppan assists Lachlan with preparing property feed budgets and Grazing Plans. Both Daniel and Lachlan have worked with farmers to demonstrate and share their experience and knowledge of Rotational Grazing practices, assisted by Anne Brown from Greening Australia, sharing her vast knowledge of native plants and their management in mixed farming systems.

A self replacing merino flock of seventeen hundred ewes are run. Twelve hundred of the ewes are mated to merinos. Five hundred of the merino ewes are mated to produce crossbred lambs. Five hundred merino ewe hoggets are retained annually as replacement ewes. Lachy’s aim is to build the self replacing merino flock to two thousand ewes when pastures fully recover from the Bangor Fire.

Sheep are released on pastures when there is adequate plant cover and growth. Usually in mid-winter.

Four hundred hectares of the six hundred hectares of arable land is sown with Crops using No Till, Stubble Retention techniques. Sheep are grazed on stubbles following harvest.

The remaining two hundred hectares of arable land is sown to vetch and oats for grazing. Average arable paddock size is around forty hectares, and temporary electric fencing is used to divide these paddocks into fifteen hectare grazing areas, which are stocked at one hundred “dry sheep equivalents” per hectare during the winter and spring period. In a tight spring, lambs are sold “unfinished” as this is more profitable than handfeeding lambs to finish them.

A range of techniques are used to ensure livestock have access to water when grazing the temporary fifteen hectare areas. These include a horse shoe configuration providing access to dams, water yards and only grazing certain areas during wet periods. Lachy says when small dams are dry on the Avonmore property this is often an indicator livestock shouldn’t be grazing those areas.

Livestock numbers were gradually increased as the density of native grass populations and the bulk of feed in the hill country continued to increase, and rotational grazing techniques were further refined.

Continuing Story...

Livestock numbers were twenty five percent higher, and pastures and livestock were in much better condition in 2013, than in the years prior to 2003, when set stocking grazing techniques were used.

Lachlan's experience and knowledge of rotational grazing has been invaluable in optimising the recovery of the Avonmore property from the Bangor Fire. Measures used to reduce grazing pressure after the Bangor Fire included; agistment of livestock, use of confined feeding areas to maintain livestock condition, and sowing of vetch and oat pastures. Once pasture growth was sufficient, livestock were re-introduced on areas affected by the Bangor fire and temporary electric fencing was used to control grazing pressure and protect sensitive areas from overgrazing, by rotating livestock at short intervals.

Despite the loss of their native grass "hay stack / feed buffer" and the need to retain older sheep, due to the loss of four hundred and ninety ewe hoggets in the Bangor Fire, Avonmore cut ten more bales of wool in 2015 than in previous years by optimising the recovery and efficient utilisation of native and improved pastures. In autumn 2015 the majority of pasture on Avonmore was above "Coke Can" height, with over eighty percent ground cover, enabling the optimum recovery of native species and pasture productivity.

Plant cover, native grass populations and livestock productivity and profitability is continuing to increase as a result of attention to detail and a strong commitment to maintaining optimum plant cover levels and regeneration of native plant species.

Lachlan achieved his aim to have the whole of the pastures on the Avonmore Property above Coke Can height and at one hundred percent ground cover in the 2016 autumn period.

Australian Government funding, and support from Northern and Yorke Regional Landcare Facilitator Michael Richards, has assisted with offsetting the cost of establishing grazing demonstration sites on the Avonmore property and extending experiences and project findings.

Short Survey to share your Farming Views

James Cook University are aiming to reach a diverse range of Australian farmers across a variety of industries in order to gain an informed picture of farmer views around changing climate and challenges this may pose to farming practices.



They are inviting you to share this study link with your networks so that we might hear some responses from South Australian farmers. The survey is anonymous and no individual will be personally identified in the dataset. The information gathered would be presented in research publications, reports, and at conferences, and could be used to inform policy, planning, interventions, and future research.

The survey is run online and takes about 15-20 minutes to complete. To participate click here <http://www.surveygizmo.com/s3/2133155/Impacts-of-climate-change-on-farmer-work-practices>



Nuffield Australia National Conference

Hurry—Registrations close Monday 5th September

The Nuffield Australia National Conference brings together over 300 primary producers from a wide cross section of industries and regions from Australia and overseas. These are industry leaders and influencers with a thirst for new technology and innovation. This year it will be held in Adelaide, South Australia, from Wednesday, 14th September to Friday 16th September.

At the conference, there will more than 25 Scholars that will present their research project findings and overview of their scholarship experience. Some of the topics include:

- ♦ “How farmers can manage urban encroachment, unfavourable public perception and legislative change”
- ♦ “How rural communities can secure the information, infrastructure and representation required to be competitive in a world market”
- ♦ “An investigation of the implications of collecting 'big' data on farm”

Regional Tour

The conference will be followed by a two-day regional tour to Kangaroo Island where you can meet the people who grow your food, not just the people who serve it.

The third largest island in Australia, it is separated from SA by a 15 kilometre stretch of ocean named Backstairs Passage. Today Kangaroo Island is home to 4,500 people connected to its rich heritage and natural environment. Industries include fisheries, sheepmeat and wool, beef, pigs, crops, vineyards, horticulture, and even olives and figs. The two-day program is exciting and created to demonstrate the island's lifestyle, personable people and diverse primary industries.

The Program

Wednesday, 14 September: Welcome Cocktail Reception at Mercure Grosvenor Hotel, Adelaide

Thursday, 15 September: Conference day one at Adelaide Convention Centre, North Terrace

Thursday, 15 September: Awards Dinner at Adelaide Oval, War Memorial Drive

Friday, 16 September: Conference day two at Adelaide Convention Centre, North Terrace

Friday, 16 September: Friday Night Reunion Party

Saturday 17 - Monday 19 September: Regional Tour of Kangaroo Island

Key Note Speaker

The Honorable Ian McLachlan, AO This year, the George Wilson Oration will be delivered at the 2016 Nuffield Australia Awards Dinner by The Honorable Ian McLachlan, AO. Mr McLachlan is an Australian landowner, former first-class cricketer, and former member of the Australian House of

Representatives.

Other speakers include:

- ♦ Tim Hunt -General Manager of Rabobank's Food and Agribusiness Research and Advisory (FAR) division across Australia and New Zealand.
- ♦ Tobias Marchand - Senior Bayer Representative and Managing Director Bayer CropScience Pty Ltd
- ♦ Dr Allan Green—Deputy Chief of CSIRO Plant Industry

Investment

Welcome Cocktail Reception \$105 per person

Thursday Conference day \$165 per person

Friday Conference day \$165 per person

Awards Gala Dinner \$165 per person

Friday Night Reunion Party \$75 per person

Two-day Regional Tour to Kangaroo Island \$695 per person

Conference package - includes Cocktail Reception, Thursday and Friday conference days, and the Awards Dinner - \$580 per person

Please note all prices are inclusive of GST.

A minimum of five one-day conference registration bookings will incur a special rate of \$135 per person.

To pay via EFT or Cheque please use EFTPAY as the PROMO CODE on checkout and an invoice will be sent to you for payment.

Conference registrations will close on Monday 5th September 2016.

Note: The two-day tour to Kangaroo Island will depart Adelaide on Saturday morning. Participants will return on the 8.30am ferry on Monday morning, arriving back into Adelaide by 12pm.

Accommodation

Note: Accommodation bookings will close Wednesday 31st August 2016.

Accommodation has been arranged for all participants at the Mercure Grosvenor Hotel in Adelaide. Rates are as follows:

Budget Double Room: \$120 per night

Standard Double Room: \$160 per night

Superior Double Room: \$175 per night

Superior Twin Share Room (two single beds) \$87.50 per person per night

Brochure ▼

Book Now ▶

Contact Details:

Erin Haddrill

Conference Coordinator

Mobile: 0409 228591

Email: erinhaddrill@gmail.com



Spray drift is in operator's hands

Author: Bill Gordon



Key messages

Spray operators need to be able to change their set-up and operating parameters for different situations. Things that the spray operator has direct control over, and therefore the ability to change, include:

- ♦ tank mix, incl. product choice & formulation;
- ♦ nozzles and operating pressure;
- ♦ spraying speed;
- ♦ boom height; and
- ♦ deciding when to spray and when to stop.

Spray operators can change their set-up and operating parameters to improve spray coverage and minimise spray drift

Almost every pass of a spray rig over a paddock can result in a small amount of the applied product remaining in the air after the spray has been released from the nozzles.

When the weather conditions are suitable for spraying, the majority of this airborne product will usually dilute and settle back to the ground within a few hundred metres from where it was released.

The distance required before such dilution occurs increases if too much of the product remains in the air through poor nozzle choice, booms set too high, spraying at high speeds or spraying under the wrong conditions.

The spray operator can reduce this off-target movement of spray – which can damage sensitive areas or crops – through decisions such as: sprayer set-up, operating parameters, tank mix, and when they start and stop spraying.

These factors, which can be changed by the operator to reduce the potential for off-target movement of product, are often referred to as drift-management strategies. Product labels refer to some of these strategies and others have been proposed for inclusion on future labels.

Spray quality

Spray quality (droplet size) is one of the simplest factors the spray operator can change to have a large effect on drift potential.

Operators should always try to select the coarsest spray quality that will provide an appropriate level of control for the tank mix used. Operators should check product labels for the recommended spray quality.

In many situations where weeds are of reasonable size and the product being applied is well translocated, coarse spray qualities (or coarser) could be used without seeing a reduction in efficacy.

However, moving to very large droplet sizes, such as an extremely coarse (XC) spray quality, can create situations where efficacy is reduced.

These include:

- ♦ using contact-type products;
- ♦ using low application volumes;
- ♦ targeting very small weeds;
- ♦ spraying into heavy stubbles or dense crop canopies; and
- ♦ spraying at higher speeds.

If spray operators intend to use a coarser spray quality than recommended on the label, they should seek trial



A WeedSeeker® selectively spot-spraying 'green' targets. Target-selectable sprayers can reduce drift potential by reducing the amount of active ingredient sprayed over a paddock.
PHOTO: McIntosh Distribution

Continuing Story...

data to support this use. If data is not available, operators should spray small test strips to compare the larger spray droplet sizes to their regular nozzle set-up and carefully evaluate the control obtained. Farm advisers or agronomists can assist in evaluating the efficacy.

Boom height

Boom height above the target is critical to ensuring an even overlap of nozzle spray patterns.

For most broadacre spraying, the aim is to achieve a double overlap of the spray patterns from each nozzle. Double overlap occurs when the outer edge of the spray patterns arrive at the target area in alignment with the adjacent nozzle.

Wider fan angles can allow for lower boom heights, but the trade-off will be an increase in drift-prone droplets produced compared with fans of the same type and orifice size.

Increasing the boom height above what is required to achieve the overlap will increase the amount of chemical that remains in the air, because the smaller drift-prone droplets lose their downward velocity very quickly.

Research has shown that when using the same nozzle type at the same pressure, increasing boom height from 50 centimetres to a height of 70cm above the target can increase the amount of drift-prone droplets by as much as four times. An increase in boom height from 50cm to higher than 100cm can result in a 10-fold increase in the amount of drift-prone droplets from some nozzles.

The amount of increase in drift potential is related to the size of the droplets, their initial velocity and the rate at which they slow down.

Product and formulation choice

The choice of active ingredient and formulation can influence the droplet sizes produced by a nozzle, as well as the level of damage that may occur.

An operator can reduce drift or potential damage by:

substituting the product: in some situations an alternative active ingredient may have a lower impact on sensitive areas – for example, using 2-methyl-4-chlorophenoxyacetic acid (MCPA) in place of 2,4-D where it will provide an appropriate level of control on the target weeds; and

selecting a different formulation type: for example, choosing a salt-based product in place of an ester-based formulation, or choosing an emulsion-type formulation over an aqueous concentrate.

Product labels with downwind buffers or no-spray zones provide a useful basis for comparing products to see which present a lower risk to a sensitive area.

Rate of product used

Robust product rates are important for control and to minimise resistance. However, the rate of product can also influence the level of damage that may occur if the product moves away from the target area.

The rate of product applied per hectare can influence:

- ◆ the total amount of the active ingredient available to move off target;
- ◆ the concentration of the active ingredient within each droplet;
- ◆ and the concentration of adjuvants and additives within the spray solution that can affect droplet size and drift potential.

Higher product rates increase the amount of active ingredient released into the environment. When more active ingredient is released, a greater buffer distance downwind is required for sufficient dilution and reduced concentration of deposited droplets.

The total volume of spray product should be adjusted accordingly. If water rates are not increased, droplets will contain a higher concentration of active ingredient and can cause increased damage if they land on a sensitive area or crop.



Ensuring that booms are stable and height control systems can maintain boom height is critical to obtaining good spray coverage and for reducing drift.
PHOTO: Graham Betts

Continuing Story...

Lowering water rates has a similar effect on droplet concentration as increasing product rates, as this produces more concentrated droplets.

Increasing the concentration of the active ingredients also increases the concentration of other additives in the spray solution.

When products have a high surfactant loading, increasing the rate of product can also increase the number of drift-prone droplets produced.

In other situations, where the product is formulated as an emulsion, increasing the rate of active ingredient may have little effect on droplet size or may actually reduce the number of drift-prone droplets.

It is important to evaluate the impact that changes in rate or additions to the tank mix may have on droplet size. Spray operators should carefully assess claims made by manufacturers and decision-making tools.

Adjuvant choice and tank-mix partners

The addition of some adjuvants and other products to the tank mix can change the spray quality in ways the spray operator may not anticipate.

Adding wetters and spreaders that reduce surface tension will generally produce smaller droplets, whereas the addition of oils and products that increase viscosity will generally increase the droplet size. However, not all nozzles will respond this way.

To understand how the addition of an adjuvant or other products will affect droplet size it is important to understand the terminology used to describe nozzle outputs (see [Spray speak droplet and drift terminology](#)) and use this to evaluate the information supplied by product manufacturers. All claims about droplet size or drift reduction should be supported by statements on the Australian Pesticides and Veterinary Medicines Authority-approved label.

Sprayer design

Some spraying systems have the potential to reduce the amount of spray drift produced, provided they are operated correctly and during appropriate conditions.

In general terms, systems that increase productivity during favourable conditions for spraying can help reduce the risk of product moving away from the target area.

Increasing boom width, provided height is maintained, can increase the number of hectares sprayed per hour. This can be a positive outcome when the weather conditions are good, but can also have negative consequences when conditions are poor.

Spraying systems have been shown to reduce the potential for spray drift in different ways.

Shielded or shrouded sprayers: shielded and shrouded sprayers can reduce spray drift by preventing droplets from becoming airborne. Many designs can reduce spray drift by more than 90 per cent, provided they are operated at appropriate speeds and the shield is maintained close to the ground.

Target-selectable sprayers: target-selectable sprayers, such as the WeedSeeker® and the WEEDit®, are selective spot sprayers that use cameras to detect and target-spray weeds. Usually the weed cover in a paddock will not be more than about 30 per cent, so this can reduce the total amount of active ingredient released over an area, which can reduce the potential for spray drift during favourable conditions.

Air-assisted sprayers: well-designed and operated air-assisted sprayers can help constrain droplets within the airstream, reducing the potential for smaller droplets to become airborne. In many European countries, air-assisted sprayers can legally operate nearer to sensitive areas than



Continuing Story...

conventional booms. However, if they are not correctly operated (such as using finer droplets and high air speeds when there is little or no crop canopy to catch the droplets) they can increase the amount of drift produced compared to a conventional boom sprayer.

Vegetative barriers and hedges

Vegetative barriers are areas of vegetation deliberately planted by the landholder to intercept and filter airborne droplets.

Generally, one or two rows of an appropriate species can intercept up to 70 per cent of the airborne droplets, which may reduce the distance required of a downwind buffer.

To be fully effective, these buffers need to be designed to allow for air movement through the foliage and have leaf types that are effective at catching small droplets.



A Hardy Twin Force air-assisted boom sprayer. Air assistance can be used to constrain and transport droplets to the target, reducing the number of small droplets that can become airborne.

PHOTO: Bill Gordon

More information:

Bill Gordon,
0429 976 565, bill.gordon@bigpond.com

Night movement of machinery permits Applications now open through EzyReg

Primary producers wanting to move machinery at night can now apply for a permit.

The new permit system enables farmers to move agricultural vehicles and combinations up to the following sizes:

- ♦ Zone 3 (Adelaide Hills and some Zone 4 councils): up to 3.7 metres wide and 19m long
- ♦ Zone 4 (Country SA): up to 4m wide and 25m long

The night movement permit includes several requirements in terms of pilots, lighting and complying with existing machinery movement conditions of which farmers need to be aware.

The change is a result of the *90-Day Change @ SA Improving Road Transport for the Agriculture Industry Project* - a partnership between Primary Producers SA, PIRSA and the Department of Planning, Transport and Infrastructure.

The [Primary Producers SA fact sheet](#) outlines what farmers need to do to move machinery at night and how to apply. It is a two-page summary in easy-to-understand terms about what's required.



Crops and cows, rocks and logs – what habitat do reptiles need in the farming landscape?

Author: Thea O'Loughlin—Long Term Ecology -June 24, 2016

Ask any seven year old to find you a skink, they'd probably start turning over rocks. Quiz any landholder about where to find a snake, and they'd likely point at their woodpile. While it seems to be common knowledge about where to find certain reptiles, ecological research is just catching up in defining the habitat requirements for many species.

Recently, our team classified the niche requirements for nearly forty species of reptiles in the temperate Box Gum Grassy Woodlands of south eastern Australia. It's estimated that less than 4% of these [critically endangered](#) woodlands remain. The majority are found as fragments on private property undertaking primary production (ie. farms). These woodlands provide habitat for [over fifty reptile species](#). Reptiles make up a vital component on the farm, providing both predator and prey roles. It's important to understand specific habitat requirements for reptile species in order to determine if they could be affected by traditional farm practices in these areas.

Over ten years the team made 4,287 observations of 52 species in the woodlands, which ranged from Brown Snakes to Rainbow Skinks, Legless Lizards to Geckos. Of these species, 39 could be broken into six distinct guilds based on the similarity of habitats they used. Broadly, these guilds were; log-dwelling, surface rock-dwelling, bark dwelling, tree/log dwelling, outcrop dwelling and terrestrial (i.e. leaf litter and open ground).

As may have been predicted, Blue-tongue Skink was found to be log-dwelling, Iridescent Litter-skink was found to be litter-dwelling, and three species of snake were deemed to be associated with surface rock. Many of us would not be surprised too that the majority of gecko species were found under bark. Determining the niche requirements for individual species gives insight into their ecology, whether they are specialist in their needs for habitat, or more general, and so help determine what farm activities might impact these species.

Furthermore, exploring the specialized needs of groups of reptiles can help us pinpoint which are most affected by human induced practices. A closer look revealed that 80% of all species belonged to guilds associated with old growth aspects of woodlands on farms. Old growth characteristics include fallen timber and large old trees as well as non-renewable habitats such as bush rock and rocky outcrops.

While 'bush rock' sounds like something that typically belts out of regional pubs on a Friday night, in this case it refers to lightly embedded surface rock. Under traditional farm practices bush rock is often collected up on a property, or displaced by cattle. Bush rock is non-renewable, meaning once it's gone, it may never be replaced. We found that seven specialist species of reptile were associated with bush rock or rocky outcrop habitats and so the loss of these areas from a farm would impact these species in particular.

Similar to bush rock, fallen timber is often tidied up on a property – it may be piled up and burnt, or taken for firewood. Once removed, large fallen logs can take decades to build up again at levels that can support reptiles. Our study found that five specialist species were linked to large mature tree and fallen timber habitats. Removing timber (standing or fallen) for firewood would impact these species negatively – meaning local populations of these timber utilizing species could disappear and, due to woodland patch isolation, not repopulate years later once timber levels build up again.

A large number of landholders are improving the condition and extent of Box Gum Grassy Woodland on their properties through a variety of measures, such as reducing grazing intensity and replanting native species. Many are able to do this with the assistance of state and federal agri-environment incentive schemes such as the [Environmental Stewardship Program](#).

Continuing Story...



Boulenger's Skink is the most abundant reptile species in grassy woodlands and is associated with rocks, logs, and litter.

Photo: Damian Michael

The reduction in grazing, and increase of vegetation cover through planting can assist some tree or semi-tree dwelling reptiles. However, grazing management alone is not enough. This is because programs rarely fund farmers to retain both old growth and non-renewable resources. Without incentives and policies, few landholders have the ability (or requirement) to protect these critical habitat areas. Future programs and policy are needed that preserve bush rock, rocky outcrops, fallen timber and large trees in order to improve reptile biodiversity on our farms.

Based on article:

Michael, D. R., Kay, G.M., Crane, M., Florance, D., MacGregor, C., Okada, S., McBurney, L., Blair, D., and Lindenmayer, D. B. (2015). "Ecological niche breadth and microhabitat guild structure in temperate Australian reptiles: Implications for natural resource management in endangered grassy woodland ecosystems." *Austral Ecology*

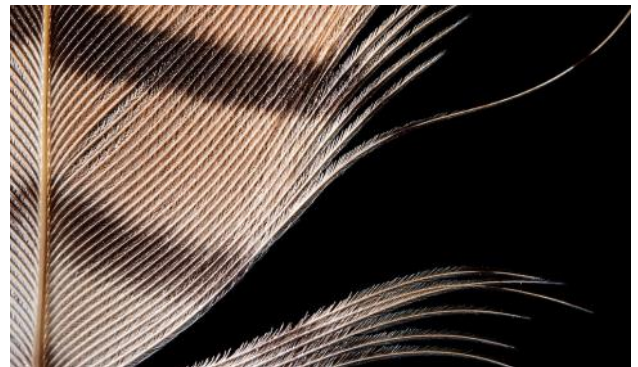
Researchers need you to collect feathers

Source: Georgie Meredith—Australian Geographic—June 22, 2016

Researchers are asking members of the public to collect and send in waterbird feathers to be analysed, in order to collect crucial information about the nutritional ecology and habitats of birds.

Feathers collected by citizen scientists will be analysed using special nuclear science techniques, such as mass spectrometry and high resolution X-ray fluorescence.

The project, run by the Australian Nuclear Science and Technology Organisation and the University of New South Wales, is an Australian-first and provides a new, non-invasive method for tracking waterbirds without the need for their capture.



Plumed whistling duck feather from Lake Lenore, Queensland. (Image: Nick Cubbin/UNSW)

"I have always worked on waterbirds during breeding events, when thousands of birds all come to a single wetland to breed. But the big question has always been where do they come from and where do they go? So this project aims to fill this knowledge gap," said Kate Brandis, lead researcher from UNSW's Centre for Ecosystem Science.

Wetlands in decline

Wetland habitats are critical for Australia's waterbirds, however they are under threat from reduced river flows and flooding, drought, climate change and land-use changes. These environments provide essential nesting, feeding and roosting habitat, and without them waterbirds can't breed.

"Since European settlement we have lost about 50 per cent of Australia's wetlands through land-use changes, river regulation and land reclamation. And as we lose wetland habitats we have fewer places for waterbirds and as a result our waterbird populations are in decline," said Kate.

"This project aims to find out about the movements of waterbirds and which wetlands they are using so that there can be better wetland and water management to help our waterbirds."

How you can get involved

All you need to do is visit your local wetland environment (or travel to a new one!) and collect any feathers you may find on the ground or in the water. Put them in an envelope that includes the details of where they were collected (this is really important), and what type of bird (in known, if not that's OK). "We've had feathers collected by school kids, retirees, families, tour groups, grey nomads, scientists, and wetland managers," said Kate.

For more information, visit www.ansto.gov.au/feathermap

Water affecting activities

Source:: Yakka, Enews—May 2016

Water affecting activities are activities that can potentially have adverse impacts on the health and condition of water resources, other water users and ecosystems that depend on water resources.

Management of water affecting activities is needed to protect our natural systems and water dependent ecosystems, maintain water quality and minimise impacts on other water users.

Activities requiring a permit include, but are not limited to:

- Dams or structures to collect or divert water
- Building of structures, obstructing or depositing materials
- Excavating material from a watercourse
- Destroying vegetation in a watercourse
- Draining or discharging water into a watercourse
- Wells and bores



Landholders, property managers, local governments, industry and organisations must lodge permit applications with the Northern & Yorke Natural Resources Management Board (the Board). Apply for your permit at least two months before you intend to undertake the activity.

Permits are usually valid for one year from date of issue.

Undertaking a water affecting activity without a permit or breach of the permit conditions is an offence under the NRM act.

[Click here](#) for more information about water affecting activities and your permit obligations.



Viterra grower meeting

3:30pm -Wednesday, September 28th

Melrose Complex

BBQ tea to follow.

Come along and discuss segregations for the upcoming harvest. Freight rates are also on the agenda.

For more information contact **Tony Jarvis 0427 586 035**



Upcoming Events Calendar

September

- 4-9 World Merino Insight, Adelaide, [All Occasions Group](#) 08 8125 2200
- 7 MAC Field Day, Minnipa Agricultural Centre, **Naomi Scholz** 0428 540 670
- 12-13 PA Symposium, Toowoomba, [SPAA](#) 0437 422 000
- 13 **UNFS Eastern Spring Crop Walk; Ruth Sommerville**
- 14 **UNFS/Nelshaby Ag Bureau Western Sticky Beak Day; Barry Mudge**
- 14 BCG Main Field Day, Warmur, [BCG](#) 03 5492 2787
- 14-16 2016 Nuffield Australia National Conference, Adelaide, [Nicola Raymond](#) 0406 761 798
- 16 SAGIT Tour of UNFS activities
- 17 Livestock SA Update, AGM & Cattle Producers Forum, Hahndorf [Ag Communicators](#) 0419 783 430
- 16-17 Riverland Field Days, Barmera, [Tim Grieger](#) 0409 099 122
- 18 Fat Farmers at City-Bay Fun Run, Adelaide [Sally Fisher](#) 0410 473 167
- 18-20 13th International Symposium on Pre-Harvest Sprouting in Cereals, Perth, [Murdoch Uni](#)
- 20 Hart Field Day, **Sandy Kimber** 0427 423 154
- 21-23 National Landcare Conference, Melbourne, Landcare Australia
- 27 **UNFS Business of Sheep & Weaner Management Workshop with Hamish Dickson**
- 28 **UNFS Strategic Board Meeting, Booleroo Centre 7PM**
- 28 **Viterra Grower Meeting, Melrose Complex, Tony Jarvis** 0427 586 035
- 29 MNHRZ Main Field Day, Tarlee [Tom Robinson](#) 0400 291 219

October

- 12 **UNFS Operations Committee Meeting, Booleroo Centre 7PM**
- 18 Hart Spring Twilight Walk, **Sandy Kimber** 0427 423 154
- 27 MNHRZ Twilight Field Day, Tarlee [Tom Robinson](#) 0400 291 219

December

- 4 - 8 7th International Nitrogen Initiative Conference, Melbourne, [Conference Design](#) 03 6231 2999

February

- TBC UNFS Integrated Weed Management Workshop

Disclaimer: The UNFS Update has been prepared in good faith on the basis of information available at the date of publication without any independent verification. Upper North Farming Systems (UNFS) does not guarantee or warrant the accuracy, reliability, completeness or currency of the information in this publication nor its usefulness in achieving any purpose. Readers are responsible for assessing the relevance and accuracy of the content of this publication. UNFS will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on information in this publication.



Upper North Farming Systems

Contact Details



Strategic Board Members

Barry Mudge Chairman - Nelshaby
theoaks5@bigpond.com
0417 826 790

Matt McCallum Vice Chairman - Booleroo/Willowie
matthewmcag@bigpond.com
0438 895 167

Joe Koch Financial Officer - Booleroo Centre
kochy260@hotmail.com
0428 672 161

Jim Kuerschner Board Member - Orroroo/Black Rock
jimkuerschner@bigpond.com
0427 516 038

Chris Crouch Board Member - Nelshaby
crouch_19@hotmail.com
0438848311

Ian Ellery Equipment Officer - Morchard
elleryprops@hotmail.com
0400 272 206

Matt Foulis Project Development Officer - Willowie/
Wilmington
matt@northernag.com.au
0428 515 489

Patrick Redden Extension Review Officer - Clare/Jamestown
PRedden@ruraldirections.com
0400036568

Andrew Kitto Board Member and Gladstone Hub Rep -
Gladstone
ajmkkitto@bigpond.com
0409866223

Matt Nottle—Committee Member
matt.nottle@hotmail.com
0428810811

Kym Fromm - Public Officer - Non-Committee Member -
Orroroo
fromms@bigpond.com
0409 495 783

Operations Committee Members

Booleroo
Tyson Christophersen
tysonchrisso7@gmail.com
0407 040 602

Industry Representatives
Michael Richards
michael.yp@bigpond.com
0427 547 052

Jamestown
Luke Clark
clarkforestview@bigpond.com
0429840564

Ladies on the Land
Jess Koch
Jesica.breezyhill@outlook.com
0419982125

Melrose
Caleb Girdham
cjgirdham01@bigpond.com
0429338841

Morchard/Orroroo/Pekina/Black Rock
Gilmore Catford
catclub8@bigpond.com
0400865994

Nelshaby
Jono Mudge

Wilmington
Todd Carey
tcarey37@hotmail.com
0488113591

New Farmers - vacant

Executive Officer and Project Manager

Ruth Sommerville
Rufous and Co
PO Box 16, Spalding 5454
rufousandco@yahoo.com.au
M: 0401 042 223

Administration and Finance Officer

Mary Timms
C/O UNFS, PO Box 323,
Jamestown, 5419
E: angledool4@bigpond.com
M: 0428 580 583