



Spray Management Strategy 2018-23



This project has been funded by NSW Environmental Protection Authority

SOS Macquarie Valley Spray Management Strategy

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Introduction

The purpose of this document is to capture the agreed approach and outline the forward plan for SOS Macquarie to enable better spray practices in the Macquarie Valley. It is designed as a set of actions that will bring about practice change in the Macquarie Valley and go on to be used as a template for other irrigation valleys throughout agricultural areas of NSW.

This strategy captures:

Why we care

We want to see sustainable cropping and a safe community.

What we do

We engage with the agricultural community to increase awareness and change practice.

How we do it

Our activities are designed to engage and educate to bring about improvements in on-target application efficiency that will reduce spray drift.

The strategy addresses short, medium and long-term goals over a five-year period, with funding available in the first instance to address the short-term objectives.

Vision Statement

SOS Macquarie Valley exists to educate, inform and enable better pesticide spray practices in the Macquarie Valley to ensure sustainable cropping and a safe community.

Mission

To engage the agricultural community and encourage practice change that reduces the occurrence of off-target drift and enables safer spraying techniques in the Macquarie Valley.

Background

The SOS Macquarie Valley Association was formed early in 2018 after it became clear that off-target spray practices in the Macquarie Valley were becoming more frequent and damage to sensitive crops was increasing in frequency and area. The economic impact of off-target spraying and spray drift are felt throughout communities where cropping is undertaken. Individuals stand to lose potential earning from reduced yields and this has a flow-on effect to employment and regional prosperity.

The damage in the summer of 2017-18 occurred despite the cotton industry's annual campaign to warn growers and other farmers of the dangers of spray drift. While the weather plays a significant part in increasing the risks of spray drift, it is the duty of every farmer and spray contractor to understand the weather and establish the best times to spray and the right techniques to use to avoid damaging their own land or their neighbours' crops.

All growers recognise that weed control is important, however there is also a need for every grower and applicator to respecting each landholder's ability to earn an income from the land.

Following several reports of spray drift damage in the Warren region, a group of concerned people from the Macquarie Valley agriculture industry formed a committee to address the issue. Following a productive meeting with the NSW Environment Protection Authority (EPA), the group called a meeting of agronomists and chemical resellers in Dubbo in February 2018. Also attending the meeting were representatives from Cotton Australia, NSW Farmers, the EPA and NSW Department of Primary Industries.

After receiving overwhelming cross-industry support for the committee to continue on a course of action to raise awareness of the potential dangers of spraying chemicals and promote safe spraying in the Macquarie Valley, the Stop Off-Target Spraying group became an incorporated association, known as SOS Macquarie Valley Incorporated.



Objectives

- Stop all off-target spray drift in the Macquarie Valley, including that onto crops and vegetation.
- A cooperative process between key stakeholders, operating as a working group to manage an education campaign, in conjunction with the EPA.
- Reduced economic impact of spray drift on Macquarie Valley crops.
- Wider awareness of damage caused by spray drift on crops.
- Increased information demonstrating good management practices for chemical use.
- Support from the EPA and other partners in raising awareness of spray drift impacts.
- Increased cooperation between all growers and spray applicators.
- Ongoing dialogue with other valleys about the issue of spray drift.
- Opportunities to lobby for changes to labelling and other primary points of information about chemical usage and impacts.
- Increased access to relevant weather advice to support good decision making.
- Support for the farming community in finding alternatives to practices that impact on other properties and in making their spray practices more effective.

Committee structure

SOS Macquarie is made up of a diverse range of industry stakeholders. It includes agronomists, agribusiness managers, dryland and irrigation farmers as well as researchers and advisors to the agricultural industry.

Meetings are held periodically and run by a nominated chairperson. The association has a secretary and a treasurer with a bank account requiring two signatories for outgoing payments.

On formation in March 2018, committee members were:

Tony McAlary, chair	Penny Heuston
Jeff Noonan, secretary	Andrew Freeth
Andrew Brewer, treasurer	James Meers
David Klaare	Stewart Denston
Maurie Street	Brett Mawbey
Andrew Dickson	

Problem statement

Since the advent of GPS technology in tractors and the increased capacity in agricultural machinery—especially in spray boom engineering and the ever-growing need for increased efficiencies in agriculture—farming enterprises have the capability to operate around the clock. One consequence of 24 hour farming is that spraying crops and fallows can now be done at night when it is often more convenient for working in cooler conditions.

With larger enterprises now operating in the Macquarie Valley, much of the chemical spraying is carried out by sub-contractors whose focus is completing the task at hand on time and within budget, ahead of any ethical considerations and concern for the wellbeing of neighbouring crops.

Environmental conditions at night often create near-ground temperature inversions that can carry fine particles from spray equipment considerable distances from the intended target. In many cases, this off-target material finds its way onto neighbouring crops that are sensitive to volatile spray fines and they suffer damage and yield losses.

There are two main types of spray drift: direct drift and inversion drift.

Direct drift

Direct drift occurs when droplets are carried off the target area directly by air movement. This air movement is a result of true wind acting on the spray droplets between the time of leaving a spray nozzle and striking and adhering to a target. This wind carries the droplets away from the intended target area.

Inversion drift

Inversion drift occurs when a surface temperature inversion forms. This happens when the earth cools in the evening and cools the air immediately above to a lower temperature than the air at higher levels. This forms a pocket of relatively stable air, which can move or spread across significant distances. When spraying occurs in these conditions, spray droplets can get caught in this layer of air and remain suspended for some time before striking a target. Because of the time that droplets remain airborne, drift of this nature can carry very long distances of up to 70km.



Context

The important premise for the work of SOS Macquarie Valley is that:

- This campaign is **NOT** about cotton vs grain.
- This is **NOT** about one neighbour vs another.
- This **IS** about cooperation within the valley.
- This **IS** about doing things better for ourselves, our neighbours and our industry.

It has been agreed that nobody maliciously sets out to damage their neighbour's crops BUT...all applicators of pesticides—farmers, contractors, owners and managers—have a duty of care to keep their spray on their property or on the target crop.

There is also agreement among the committee that:

- The focus on any campaign needs to be on respecting your neighbours and their ability to earn a livelihood without unwanted outside impacts.
- Everyone appreciates that weed control and its timing is vitally important.
- Continuation on the same trajectory is not sustainable.
- The environment is an important consideration and can garner significant political clout.
- Banning or restricting certain chemicals will not rectify the underlying problem
- With current state of weed resistance the industry cannot afford to lose any chemicals

Options that have been considered by the committee include: training and education; promotion of new technology; improved awareness and industry engagement; research; and regulation (including via labelling, legislation and compliance/auditing).

Engagement plan

In the initial stages of the campaign, SOS Macquarie decided to engage directly with farmers in an informal manner at agreed locations, based on a reasonable geographical spread. Five locations were identified with dates determined according to presenter availability. The group engaged the services of independent trainer Mary O'Brien (known as The Spray Drift Girl), who is highly regarded in this field. Harry Pickering of Adama Australia also agreed to run sessions, based on Mary's content. Both were using the SprayWise 24 Hour Risk Profile (as developed by Bill Gordon – refer Appendix 1) as the basis for their key messaging.

More than 400 people attended these "Beer & Bangers" nights, which were promoted widely by the resellers and committee members and using social media. They were held at five locations (refer to flyer, Appendix 2) where there was regularly standing room only. The focus of the meetings was to ask:

1. Why is the damage occurring?
2. What can we do to try and reduce the occurrences of off target spray damage?

The main aim of the events was to:

- Encourage neighbourly cooperation and a sense of responsibility
- Improve the skill and competency within the region
- Demonstrate to regulators our region's intent and commitment to improve outcomes
- Garner the support of local growers
- Recognise and reward people for being involved through a register of attendance (held by the EPA to show their intent on gaining more information / undertaking training) and offering a discount on drift-reducing nozzles through Croplands.

Key ongoing components

Further to the initial awareness raising, there are four major components of the initial program, as agreed with the EPA.

1. **Management strategy:** Development of an overarching off-target spray management strategy for the Macquarie Valley, with short, medium and long-term goals.
2. **Engagement and education:** Connecting with growers to encourage conversations and interest in spray drift as a rural community issue. Working with agronomists and spray experts by establishing best practice spray techniques to ensure a consistent approach in providing advice to growers.
3. **Water quality study:** A study to determine the effect of water hardness and mineral content on the choice and application of chemicals. This will address short-term needs.
4. **Benchmark survey:** A survey of current spray equipment, behaviour, knowledge and decision making practices to determine baseline data for ongoing monitoring and to assess behaviour change.

Project goals

Short-term goals (2018-19 spray season)

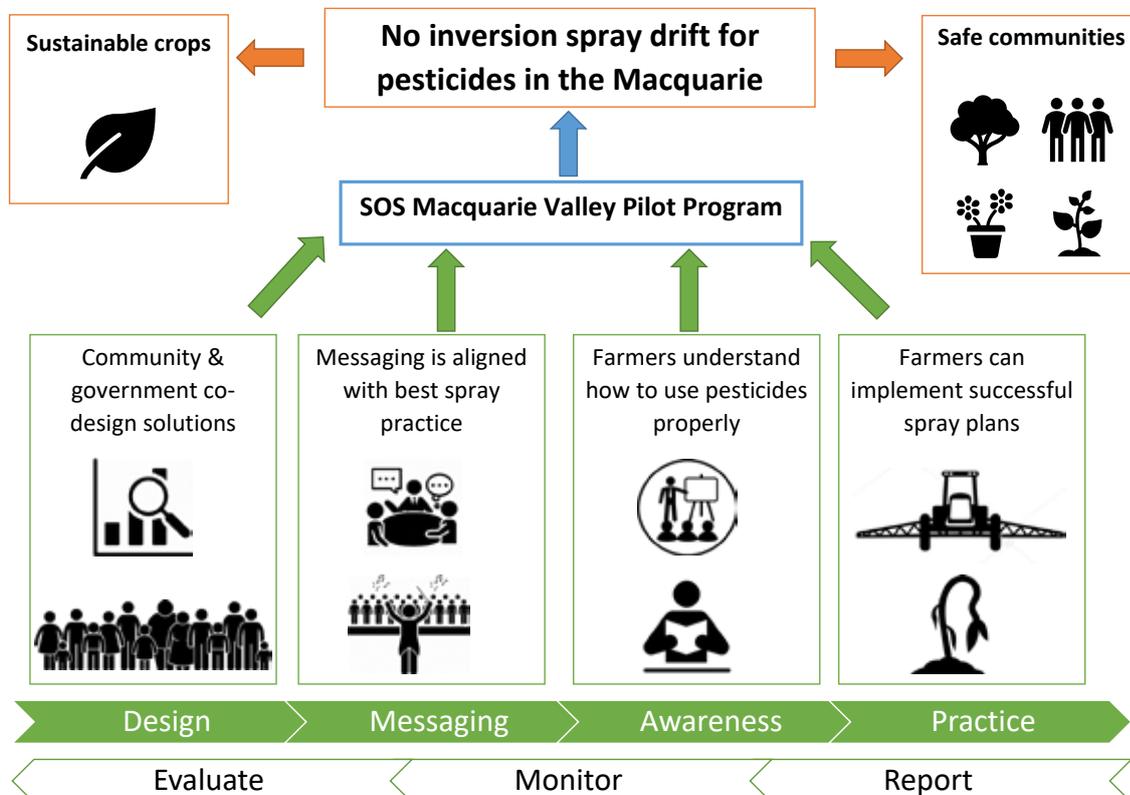
- Educate the wider farming community about the risks and impact of off-target spray drift.
- Raise awareness of risks associated with night spraying and surface temperature inversions.
- Promote good management practices for spraying.
- Demonstrate practical solutions to avoid spraying during inversions.
- Demonstrate appropriate set ups to suit weather and conditions.
- Provide advice on what weather conditions and set up are unsuitable for spraying.
- Establish benchmark data for current practices in spray equipment, knowledge and behaviour, taking into account current labelling requirements.
- Determine the effect of water hardness and mineral content on the choice and application of chemicals.
- Encourage use and uptake of CottonMap and BeeConnected by all producers in the Macquarie Valley.
- Encourage consistent advice from agronomists on best practice spray techniques.
- Identify local champions to promote best practice education messages.
- Consider introducing a system of SOS-endorsed advisors.

Medium-term goals (two years)

- Retain access to a variety of chemistries for pest control.
- Measure any change in spray practice and behaviour.
- Increase use of the Macquarie Valley inversion tower network and improve usage of network data.
- Distribute advice to support timing of chemical use, e.g. weather forecasts, expected inversions and unsuitable weather conditions.
- Develop a better understanding among growers and spray applicators across the valley of the use of adjuvants and their ability to influence drift.
- Encourage more reporting of instances of off-target spray drift to monitor and share information.
- Establish dialogue with other valleys where off-target spray drift is an issue.
- Improve access to and standards of training to ensure consistent messaging.
- Create opportunities that encourage a succession plan for existing spray educators.
- Encourage development of training that is meets accessible vocational education training funding requirements.
- Work with partner agencies to distribute joint messaging and distribution tactics.
- Promote concept of good stewardship within the industry.
- Work with EPA to have farmers maintain log books for random inspections.

Longer-term goals (five years)

- Continue dialogue with other valleys.
- Encourage alignment of policy direction within government agencies involved in addressing spray drift.
- Lobby for resources to address compliance and accreditation.
- Investigate use of technology to promote best practice.
- Advocate for consistent labelling.
- Ensure improved industry training.
- Address certification of applicators, based on best practice guidelines, with a focus on stewardship.
- Advocate for regulators to endorse worthy and effective training.
- Advocate for legislative changes to ensure only competent operators are allowed.
- Work with relevant partners to ensure a credible accreditation system is established.
- Create opportunities for continued professional development.



Key stakeholders

- All spray applicators in the Macquarie Valley
- Grain and cotton growers in the Macquarie Valley
- General farming community
- Agronomists and other advisors
- Rural supplies outlets
- NSW Environment Protection Authority
- NSW Department of Primary Industries
- Local Land Services
- Cotton Australia
- CRDC
- GRDC
- Grain Orana Alliance
- CropLife
- Macquarie Valley NSW Farmers
- Macquarie Valley Cotton Growers
- Groundsprayers Association
- Aerial Application Association
- Stock and station agents
- APVMA
- Advisers/trainers: Bill Gordon, Mary O'Brien, Harry Pickering, Craig Day
- Agricultural chemical manufacturers
- Media – Macquarie valley region

Key messages

- What we are doing now is not working well enough.
- Spray drift can cause major impacts on humans, animals, crops, pastures, bees and native vegetation.
- Instances of drift are increasing, as is publicity.
- Responsible farming involves respect - your actions should not impact on the environment and other farm businesses.
- Label instructions must be followed for application of all chemicals.
- Messaging regarding spray application should be clear, coordinated, consistent and aligned with best practice.
- When used at night, chemicals drift further than operators realise.
- Daytime spraying is the safest option.
- Technology is available that includes weather monitoring to help farmers determine the impact of spraying at certain times of day.
- Spray application tools are available to support spray applicators in good decision making, including CottonMap, BeeConnected and SprayWise decisions.
- Industry has a choice: clean up our act or have it done for us via chemical bans, regulations and litigation.



Action plan 2018-19

Goal	Activity	Timing	Audience
Recommending alternatives to night spraying	Promote the 24 Hour Spray Drift Risk Profile as a sticker, available from chemical resellers to attach to spray rigs	Ongoing from April 2018	Growers, applicators and resellers
Advisors' education Consistent advice on best practice techniques	Workshop for agronomists and advisors to demonstrate best practice spraying techniques and agree on a consistent approach to advising growers and applicators	June 2018	Agronomists and other advisors
	Develop spray management policy for Macquarie Valley as part of best practice workshop		
Advertise good management practices for chemical use	Develop a promotional campaign to cover a social media strategy, coupled with advertising in traditional media in the lead up to spring	July/Aug 2018	Cross industry interests, inc grower groups and applicators
Provide advice on how different weather conditions may impact on drift	Ongoing social media campaign, field day and workshop	As above	Applicators and advisors
Establish benchmark data for current practices in spray equipment and chemical use	Survey Macquarie Valley growers and applicators	Winter 2018	Committee and resellers
Determine the effect of water hardness and mineral content on the choice and application of chemicals	Engage consultant to undertake water quality study	Winter 2018	Committee
Educate the wider farming community about the risks and impact of chemical use	Applicators field day with high profile keynote speaker and experts	Sept 2018	Applicators and advisors
	Provide a subsidy for growers/applicators to upgrade to high quality spray nozzles	Summer 2018	Applicators
Work with EPA to have applicators maintain log books	Address compliance issues as part of field day and ongoing workshop schedule	Spring 2018	Applicators
Distribute advice to support timing of chemical use and investigate use of technology to promote best practice	Investigate use of technology (inc SMS alerts) to provide weather advice and expanding on current weather stations network	Summer 2018	Applicators and advisors
Continuing dialogue with other valleys	Liaise with EPA to develop joint meeting arrangements, starting with neighbouring valleys	Autumn 2019	Committee and EPA
Advocate for consistent labelling	Work with CropLife, Cotton Australia and EPA to lobby for changes via APVMA	Autumn 2019	Committee and EPA
Improved industry training	Investigate options to extend current accredited training and options for a voluntary accreditation or recognition scheme	Autumn 2019	Committee and EPA

Goal	Activity	Timing	Audience
Advocate for regulators to endorse worthy and effective training	Develop policy position	2019	Committee
Advocate for legislative changes to ensure only competent operators are allowed	Develop policy position	2019	Committee
Work with partner agencies to distribute joint messaging and distribution tactics, inc Cotton Australia, grain peak bodies, R&D corporations, NSW Farmers, government agencies	Ongoing consultation with key stakeholders	Ongoing	Committee
Develop a process for communicating with partners that commits parties to ongoing communication	Ongoing consultation with key stakeholders	Ongoing	Committee



Risks and contingencies

Issue	Audience	Likelihood	Impact	Response
Lack of awareness of issue and ongoing problem	Growers and applicators	Medium	High	Use all available communication channels to reach growers, inc media and personal information, as well as other field days and messaging by trusted professionals
Changing science	Applicators Advisors Trainers	Medium	High	Work with R&D bodies to gain access to latest knowledge Bring trainers together to agree on key messaging
Negative comments in the media about pesticides used for cropping	Media	Medium	Medium	Consistent key messages about shared responsibility and development of recommendations for best practice initiatives that show alternatives, rather than just spreading criticism Media training for committee members Agreed messaging between EPA and SOS on key issues
Unwillingness on part of applicators to change practices	Local growers Applicators associations (ground and aerial)	Medium	High	Use of peers and neighbours to spread messages Promotion of local champions as an alternate source of advice Development of recommendations for best practice initiatives that show alternatives, rather than just spreading criticism
Ability to reach contractors who are responsible for spraying at peak times	Spray contractors	High	High	Work with applicators associations to reinforce key messages Involve applicators associations in field days and other events

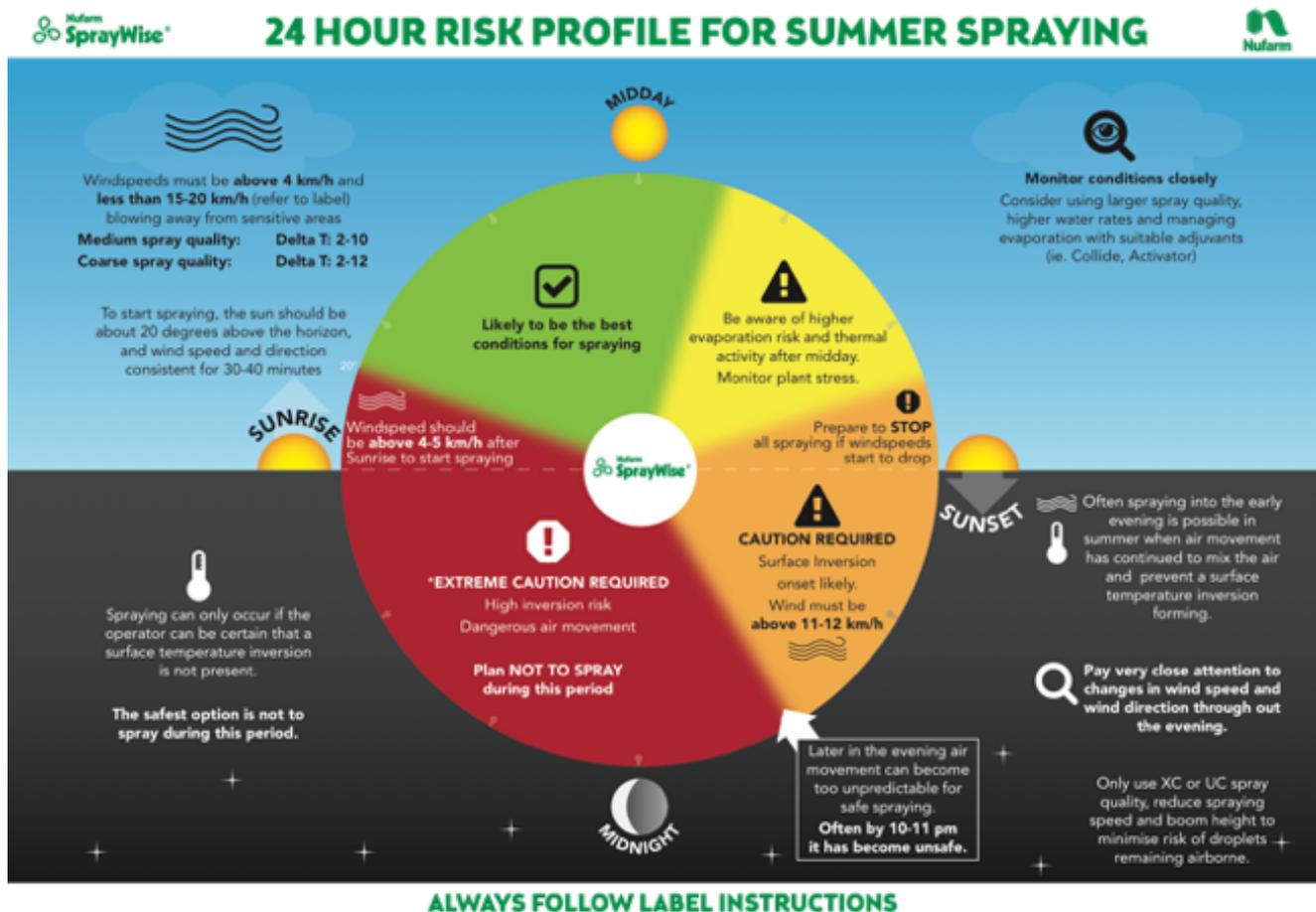
Issue	Audience	Likelihood	Impact	Response
Messaging conflicting with information distributed by other peak bodies	Peak bodies	Low	Medium	<p>Work in partnership with EPA, Cotton Australia, grains peak bodies, RDCs and chemical companies and other groups to ensure consistency and cooperation in delivering messages</p> <p>Establish relationships with R&D bodies to ensure advice of SOS reaches key advisory committees at broader level</p>
Variation in content between different agencies and training providers	Trainers Government agencies	Medium	Medium	<p>Bring trainers together to agree on key messaging before field day and advisors workshop</p> <p>Continue to develop relationships across agencies</p>
Reliance on social conscience to follow best practice	Growers and applicators	Medium	Low	<p>Committee to continue to focus on what it can achieve and the key sources of information to circulate appropriate advice for local community</p>
Lack of information at point of sale	Rural supplies distributors	Medium	Medium	<p>Cooperate with local suppliers and develop information sheets for distribution at point of sale</p>
Credibility of growers as a source of truth in best practice advice	General farming community	Low	Low	<p>Work with partner bodies to ensure information provided is from reputable sources</p> <p>Promote local champions who have had recent training</p> <p>Ensure agronomists and advisors are well versed</p> <p>Consider SOS accreditation for agronomists and advisors who attend training</p>
Lack of resources to regulate the issue, especially through log books	EPA	Medium	Medium	<p>Continue to discuss issues with EPA and lobby industry for other alternatives</p>

Issue	Audience	Likelihood	Impact	Response
Fear of inspections by EPA	Growers	Medium	Medium	<p>Ensure committee takes the lead and has respected parties and authorities in the industry delivery key messages and conduct survey programs</p> <p>Encourage recognition that reporting to the EPA is a positive and worthwhile activity</p>
Vested interests	Applicators Growers Chemical companies and resellers	Medium	Low	Committee to continue to focus on what it can achieve within the local community
Engaging with repeat offenders	Applicators EPA	High	Medium	Committee to continue to focus on what it can achieve within the local community in short term and work with EPA to address issues of compliance in longer term
Risk in relying on a few key trainers	Training providers Training bodies and funding providers	Low	Medium	<p>Ensure options available to back up trainers for workshop and field day</p> <p>Work with industry to develop succession plan for trainers in medium term</p> <p>Work with DPI to increase training options</p>

Appendices

Appendix 1:

24 Hour Drift Profile, as developed by Bill Gordon



Appendix 2:

Flyer used to promote the Beer & Bangers nights

Spray it right or lose the right...



**Concerned about
the future
availability of
current chemicals
used in agriculture?**

Join us to hear from the
"Spray Drift Girl" Mary O'Brien & Harry Pickering
followed by BBQ, drinks and discussion.

6 March @ 6pm	7 March @ 6pm	8 March @ 6pm	14 March @ 6pm	15 March @ 6pm
NEVERTIRE	COLLIE	MARTHAGUY	NARROMINE	ARMATREE
PUB	PUB	HALL	GOLF CLUB	PUB

- EFFECTIVE SPRAYING RECOMMENDATIONS
- LATEST TECHNOLOGY TO ASSIST IN DECISION MAKING
- WORKING TOGETHER TO RETAIN CURRENT CHEMICALS AVAILABLE
- MACQUARIE VALLEY CHEMICAL USER REGISTRATION

RSVP: sosmacquarievalley@gmail.com

ATTENDEES WILL RECEIVE 30% OFF CROPLANDS TEEJET NOZZLES.

This forum has been organised by Macquarie Valley chemical resellers,
the grain industry and the SOS (Stop Off-target Spraying) Committee.

SOS Committee: Tony McAlary, Jeff Noonan, Andrew Brewer, David Klaare, Maurie Street,
Penny Heuston, Andrew Freeth, Andrew Dickson, James Meers and Stewart Denston

It is time to be part of the change, rather than the alternative...

SOS Macquarie Valley Incorporated

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