



Spray Drift Update + Resources

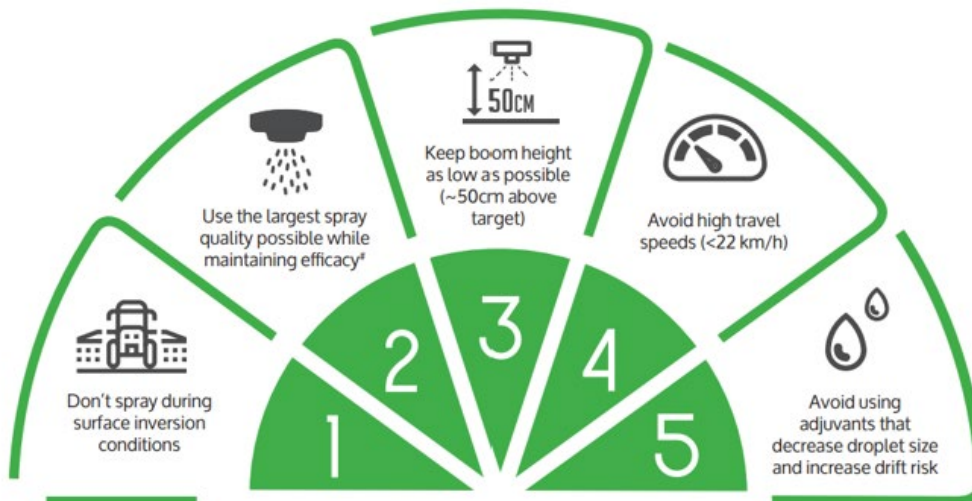
As of December 19, 2022, with thanks to CottonInfo Regional Extension Officers.

Spray drift has been reported in a number of cotton growing regions in the past few weeks. With harvest almost done and fallow sprays in the coming weeks it is critical we do what we can to prevent any further spray drift across all valleys.

- When we **Choose to Spray**, will determine where and how far the spray driftable fraction of our application will move
- The **Sprayer Set-up** will determine how much product will be left in the air.
- **Coarser Spray Qualities / Nozzles** will lower drift risk but can also impact efficacy
- Having a set of **Spray-Plans** for different paddock situations will enable efficient, safe and effective spraying.

Source: Harry Pickering, ADAMA, GRDC webinar: [The new inversion tower network and reducing spray drift risk](#)

The 5 Commandments According to SOS (Stop Off Target Spraying)



Observe label directions for minimum and maximum droplet size. Water rates may need to be modified with increased droplet sizes





Map crops on SataCrop

Thanks to all the growers who have marked their cotton crops onto SataCrop – <https://satacrop.com.au>. If you haven't done so, please get them up ASAP to help reduce off-target spray damage incidents.

There has already been a widespread drift event in the Macquarie, and reports now in the Gwydir and coupled with sales of 2,4D type product we really need to raise awareness of SataCrop and the location of sensitive crops.

To gain access to the SataCrop to add your fields, email info@pct.ag and provide the following details and PCT-agcloud will respond with login details.

A short video to show you how to use SataCrop and add your fields is available at: [SataCrop Video-How to add a field.](#)

If you have used SataCrop previously, all you need to do this season is re-colour code your fields, depending on what you have planted where.

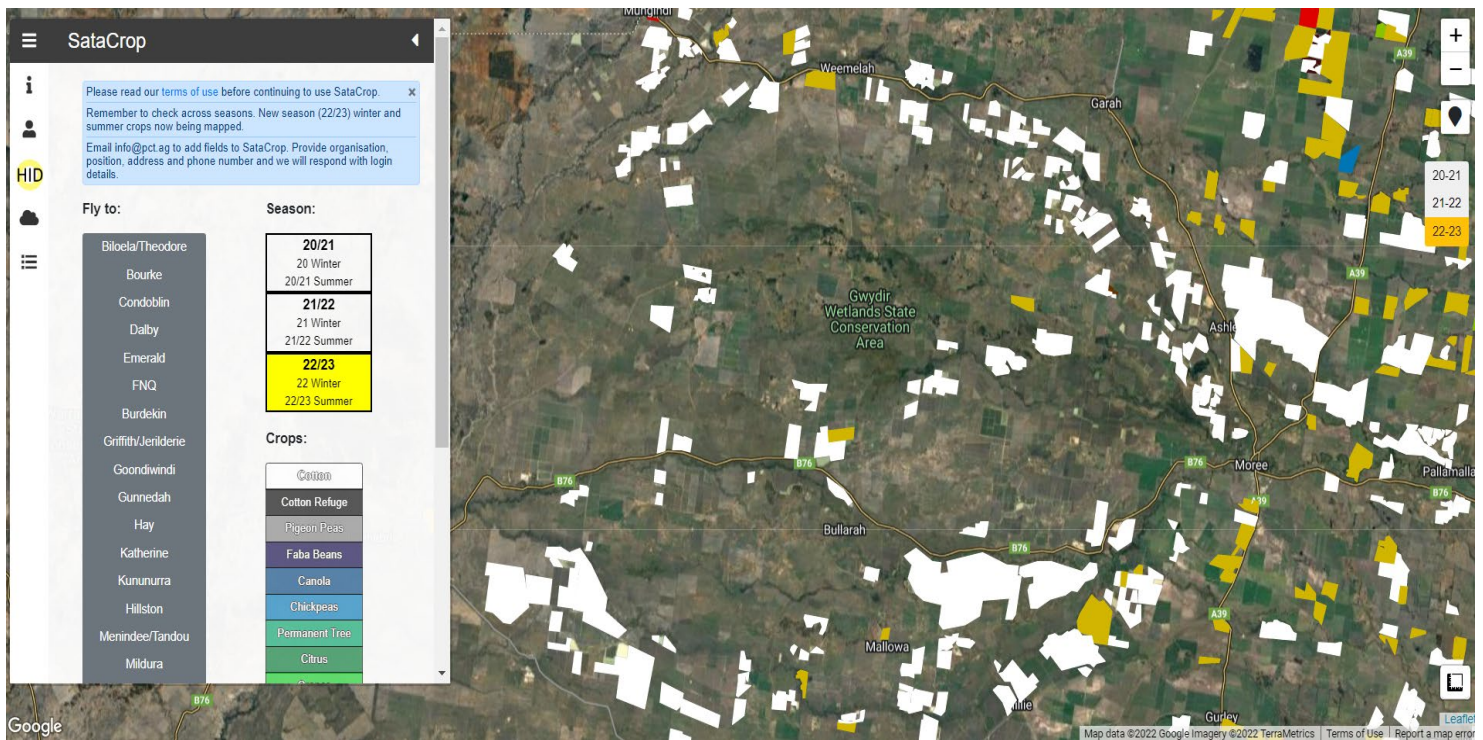


Figure 2: SataCrop Website



Notify your neighbours

It is good practice to discuss cropping intentions with neighbours prior to each season.

Ideally, notify your neighbours at least 24 hours in advance of spraying advising intended duration of spraying and products being used and who to contact if they have any concerns.

A Macquarie grower noted this to a CottonInfo REO in a previous season: *"We send out a "group message" to our neighbours with all our aerial spraying and request that the recipients respond YES that they have read and comprehended the message. For future 'group' message notifications about aerial spraying, we simply forward the previous message and update the details beforehand which saves retyping the entire message. Before the message goes out, I check if we have the Material Safety Data Sheet (MSDS) for that product, if not, Google and download it and familiarise myself with it in case a neighbour calls."*

WAND System

WAND (Weather and Networked Data) is a new technology that provides real time weather data about the presence or absence of hazardous temperature inversions.

This will take the guess work out of when you can and can't spray and potentially open more spraying hours with greater certainty. 100 inversion towers (10 m high, Profiling Automatic Weathers Stations (PAWS)) are currently being installed across the eastern Australian grain and cotton regions. The data is provided by the WAND app to your phone, iPad, or desktop.

If a hazardous inversion is present, you cannot spray. However, if a hazardous inversion is absent, you can consider spraying so long as and all other label recommendations are being met, i.e., wind speed, nozzles, application speed, boom height etc.



A short video about the WAND system is available here: GRDC Grains Research Update, online – The new inversion tower network and reducing spray drift risk
<https://www.youtube.com/watch?v=lgxQltTHIM>





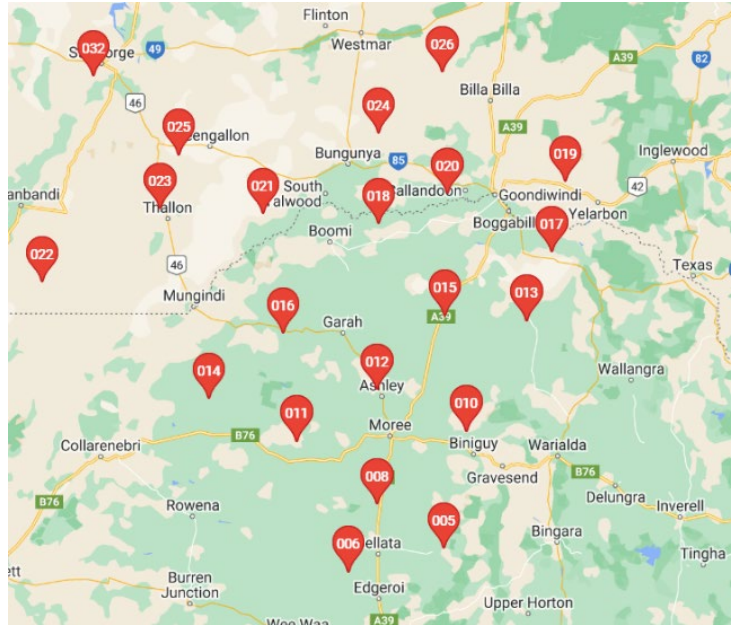
WAND is available to all farmers and spray contractors for free. To access the WAND app, go to [GoannaAg WAND website](#).

GRDC recently held a very good **webinar**: GRDC Grains Research Update, online – The new inversion tower network and reducing spray drift risk. The recording is available [here](#). The WAND system presentation by Gordon Cummings starts at 33 minutes.

What the research found?

Graeme Tepper's GRDC and CRDC funded research over the past 10 years has found the importance of measuring vertical wind turbulence as opposed to vertical temperature differences.

- Hazardous inversions occur when the atmosphere is strongly stable, and the intensity of turbulence is so weak that drift is not dispersed vertically.
- Recognised monitoring systems have sensors to measure the intensity of vertical turbulence.



Further WAND information:

<https://grdc.com.au/resources-and-publications/all-publications/factsheets/2022/hazardous-inversion>

<https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2022/07/spray-drift-hazard-warning-system>

SOS: Stop Off Target Spraying Groups

Spray drift continues to be a major issue across NSW. Despite pushing the key messages to reduce the risk of spray drift we have already seen several incidents. This is a concern for all of us.

[Stop off target spraying \(SOS NSW\)](#) is a grassroots organisation of like-minded people who are concerned about the potential issues our industry faces and the long-term implications. SOS NSW aims to advocate, educate, inform, and enable better pesticide spray practices in NSW to ensure sustainable cropping and a safe community. The group has the mission to engage the agricultural community and encourage practice change that reduces the occurrence of off-target spraying and safer spraying techniques.



SOS NSW is unique! It brings a range of growers, advisors, researchers, advocacy and training organisations and industries together to achieve better coordination and outcomes. I encourage you to get involved and be part of the conversation. To stay up to date with new technologies, products, and initiatives to improve your practice and your bottom line, SOS NSW E. or our local Gwydir SOS group:

A recent Crop Consultant Australia survey of 60 consultants across Australia where asked what could help reduce the incidence of spray drift and herbicide damage? Over 60 percent of responses suggested that continued education, better communication, and awareness was the best path forward.

It is the responsibility of all spray applicators to use all tools available to them to be aware of sensitive crops or areas nearby by talking to neighbours and spraying in the right conditions with attention to spray setup to minimise drift.

Videos to view + share

There are several videos that have been developed through CottonInfo that can assist with your own spray drift management and may be helpful to share with neighbours.

[Nozzle comparisons: spray quality and drift potential - YouTube](#)

- Compares spray nozzles and what is the best to use to reduce drift

[Impact of adjuvants on drift - YouTube](#)

- Talks about the use of a different selection of adjuvants and how they impact on drift

[How to decontaminate a spray-rig - YouTube](#)

- A helpful guide

[Early morning inversion: what happens to fine spray droplets - YouTube](#)

- Wind movement under inversion conditions – at daybreak but before sunrise

[Daytime conditions \(for spraying\): A demonstration of air movement after an inversion breaks - YouTube](#)

- This is a follow on from the previous video to show how the difference in the wind movement compared to the early daybreak.





Other spray drift resources

With thanks to Eric McKay (ICAN)

- [GRDC Spray Drift page](#)
- [Cotton Australia Spray Drift and Satacrop page](#)
- [GRDC Adjuvants booklet](#)
- [GRDC Hazardous Inversion Fact Sheet](#)
- [Weather essentials for pesticide application](#) (GRDC booklet)
- [Meteorological principles influencing pesticide application](#) (GRDC booklet)
- [CottonInfo playlist on pesticides and application](#) (YouTube)

Drift Prevention

What's in the pipeline? Plenty!

The Maverick Spray Advisory is being trialed on four trial sites in NSW, currently as a Proof-of-Concept (PoC) as part of a BRIL grant with CRDC as a stakeholder.

Maverick is due to be launched commercially by mid-2023 as an advanced app within LX's INCYT platform. We are working to offer a level of basic functionality to producers at minimal cost.

Important features of the full Maverick system include:

- In-cab view of the status of key environmental and machine variables that influence spray drift
- Dynamic forecasts and alerts when variables exceed preset limits (e.g., wind speed and direction)
- Automated mandatory record keeping and reporting (on an opt-in basis)
- Micro-content (e.g., short videos) - readily accessible, communicating best spray application practice
- Community networking functionality

For further information : <https://lx-group.com.au/lx-winners-of-brii-2021-grant-agricultural-spray-advisory/#Introduction-to-the-challenge>

SwarmFarms aims to reduce spray drift by eliminating the possibility of off label spray application through autonomy. This can be achieved by enabling robots to autonomously carry out pesticide applications that are compliant with label parameters.

To reduce spray applications though autonomy SwarmFarms are developing:





- Software to pull weather observations and forecasts from a variety of mobile and stationary weather sources including inversion towers.
- Decision making software that can machine read pesticide labels via a QR code and stop/start robot spray operation depending on weather conditions and proximity of sensitive areas downwind of the spray application.
- A dock and refill system to allow robots to refill products autonomously so they can continue working without human intervention, to achieve 100% of the available, safe spray window.
- Low power mode software to put robots into a deep sleep to save power and reduce emissions during times where spray conditions are not favourable.
- A path replanning system to allow the robot to move to an alternative location if weather changes causes sensitive areas to be located downwind of the application.
- Cloud based record keeping of weather and spray compliant data.

