

Accurate placement with the least off target losses while achieving effective coverage from the spray application are the most critical objectives when applying any pesticide. It is important to have your spray equipment accurately set up and regularly calibrated. In the case of herbicides, significant costs can result from poor application, ranging from reduced weed control from under-dosing and associated increased resistance development risk, MRL exceedance and extended plant-back impact on future crop choice. There is also the very serious risk of drift impacting adjacent crops, pasture and the environment. These risks can all be avoided by implementing a spray plan that ensures the boom spray is set up optimally for each situation before proceeding to fill up the spray tank and, being prepared to either stop or adjust should weather conditions change during the application process.

Before starting, always ensure the sprayer has been thoroughly cleaned, using a suitable tank cleaner as directed. Defer to the most rigorous cleanout procedure if tank mixing with a partner product, or if uncertain of what may have been in the sprayer before you commence the next application.

In the case of Overwatch[®] eXL Granules, the most important sprayer set-up considerations and recommended spray conditions during application are:

✓ Nozzles

Never apply Overwatch[®] eXL Granules with a nozzle set up that produces a spray quality finer than COARSE, even with a knockdown herbicide. When choosing a COARSE spray quality, only use nozzles that deliver this spray quality across at least a 2 bar span within their optimum operating pressure range and use it at the lowest pressure that still delivers at least a COARSE spray quality (e.g. Agrotop Airmix 025 operated at 3 bar). Low pressure air-induction nozzles have an optimum operating range between 3 and 4 bar while high pressure air-induction nozzles should not be used below 3.5 (preferably 4) bar. If you are targeting a VERY COARSE or coarser spray quality, do not try to achieve this by operating nozzles at pressures beneath their optimum operating range. Instead, use a more appropriate sized and rated nozzle that delivers coarser spray qualities within its optimum pressure range. If not mixing with a knockdown herbicide, Overwatch[®] eXL Granules can be effectively applied with an ULTRA-COARSE spray quality (e.g. Teejet TTI 02-04 nozzles operated between 4 and 5 bar). These nozzle set up recommendations are designed to produce a COARSE spray droplet size and are unique not to Overwatch[®] eXL Granules, they also apply to most pre-emergent herbicides available today (Refer to other herbicide label instructions for specific requirements).



✓ Filters

All nozzle manufacturers recommend a 50 mesh filter for all single orifice nozzles of size 02 or larger. With Overwatch[®] eXL Granules in-line and nozzle filters NO FINER than 50 mesh are REQUIRED. This 50 mesh requirement is not unique to Overwatch[®] eXL Granules, several other key herbicides used in broadacre cropping also have this requirement (Refer to other herbicide label instructions for specific requirements).

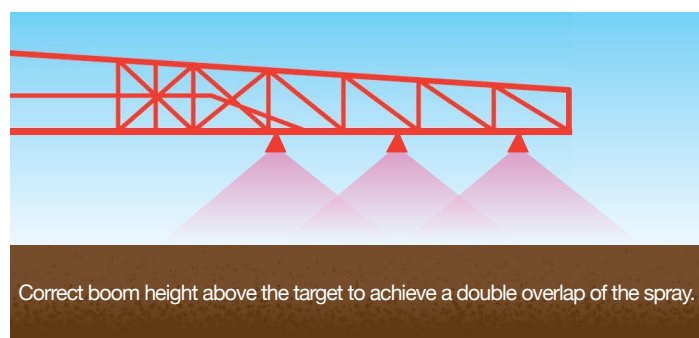
Images courtesy of Teejet*

✓ Boom Height

In general, always apply chemicals with the lowest boom height that still delivers double spray fan overlap.

When applying Overwatch[®] eXL Granules with a COARSE spray quality, aim for a boom height of 0.5m above the target. If equipment limitations or productivity concerns prevent using a 0.5m boom height, then compensate for the increased off-target movement risk a higher boom presents by using at least a VERY COARSE spray quality at 0.75m or an ULTRA COARSE spray quality at 1m.

The optimum set up to achieve the lowest off-target movement risk is with a boom height of 0.5m above the target with an ULTRA-COARSE spray quality.



✓ Spraying Speed

Excessive travel speed increases boom bounce and affects the turbulence behind the sprayer, increasing the opportunity for fine droplets to drift off target. For this reason, a maximum travel speed of 20 km/hr, but preferably 16 km/hr is advised. Where a knockdown herbicide has been included in the spray mix, slowing down will also improve efficacy of this herbicide on emerged weeds by ensuring the spray hits the target weeds more effectively.



✓ **Water Volume**

Apply with a minimum spray application volume of 80 L/ha to bare soil or in light standing stubble and 100 L/ha in heavy stubble situations. Consider including a drift reducing adjuvant such as On Coarse® DRA* in the tank mix (at label rates) to further minimise fine droplet production and enhance soil deposition in standing stubble. Coarser spray droplets are more likely to reach the soil in standing stubble and will be far less prone to drift.

*On Coarse® DRA (drift-reducing agent) is an additive used to mitigate the risk of spray drift, which occurs when small droplets are carried by the wind away from the intended target area. On Coarse® DRA modifies the physical characteristics of spray droplets, by increasing their size, to reduce drift potential. By promoting larger droplets, it helps ensure that the spray remains on target, minimising off-target movement and the associated risks to neighbouring crops, non-target vegetation, and the environment.



✓ **Wind speed**

As spraying large blocks can take several hours and weather conditions will change over time, monitor wind speed and direction at least every 20 minutes.

Be alert for calmer weather conditions in what otherwise may appear to be good spraying conditions. The wind may pick up from a different direction, taking airborne fine droplets in an unintended direction. Do not apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.



✓ **Inversion**

Be alert for the signs of an inversion forming. Stop spraying immediately if the wind suddenly dies in the afternoon, trailing dust is not dissipating readily, or you feel the ground cooler than the air just above it. Commencing spraying in good conditions does not mean those conditions will continue until you finish spraying the tank load. DO NOT commence spraying before the inversion has broken in the morning (constant wind speed above 5 km/hr).

A temperature inversion is when a layer of warm air is trapped between two cooler layers. This 'warm' layer prevents upward movement from the cool surface layer, creating very stable conditions. If a spray application were to occur during a temperature inversion, small droplets (fines) released from the boom spray can be 'trapped' in the warm layer of air and from there, travel anything from tens of metres to several kilometres before falling to the ground.



Dust caught in an inversion layer

For more information on hazardous surface temperature inversions download the GRDC Hazardous Inversion factsheet: https://grdc.com.au/_data/assets/pdf_file/0033/579390/GRDC_FS_HazardInversion_2022_new_4pp.pdf



Additional resources:

Spray application manual:

https://grdc.com.au/_data/assets/pdf_file/0025/234835/GRDC-GrowNotes_spray-manual-opener_2024.pdf



Preventing off target spray drift:

<https://www.youtube.com/watch?v=MnhvLTHyWcl&t=58s>



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