Australian Government

Australian Grape and Wine Authority

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

A generic approach to improving spray coverage



FINAL REPORT to

AUSTRALIAN GRAPE AND WINE AUTHORITY

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Abbreviations/ Nomenclature

APVMA	Australian Pesticides and Veterinary Medicines Authority
C.O.C.	Crop oil concentrate
D	droplet diameter (µm)
$D_{v0.X}$	droplet diameter (µm) at which 0.X fraction of the total spray volume is contained in droplets with smaller diameter.
$D_{v0.5}$	volume median diameter (vmd): the droplet diameter at which half of the total spray volume is contained in droplets with smaller diameter (µm)
min	minute
mL	millilitre
NWPPA	National Working Party on Pesticide Applications
Q	flow rate (mL/min)
Relative Span	indicator of the spread of droplet sizes relative to the $D_{v0.5}$. Calculated by: relative span = $(D_{v0.9} - D_{v0.1}) / D_{v0.5}$
sec.	second
spray angle	angle of spray sheet discharging from nozzle
TWG	Technical Working Group
V<Y	Cumulative spray volume fraction (%) contained in droplet diameter size classes under diameter Y (µm)
µm	micrometre

Abstract

Studies were conducted in wind tunnels and vineyards to show the performance of various factors that affect spray coverage on different canopy regions and losses through runoff and drift. These factors included different combinations of nozzles, adjuvants, electrostatic charging, recapture systems, air targeting, barrier vegetation and netting. The best system for any given application will depend on the target. For example, for herbicide applications, coarser sprays can be achieved using the droplet size data, whereas for foliar-applied sprays, the finer sprays can be optimally directed to their target including inner canopy areas using lateral air or radial air with deflector air at the top. Recapture-recycling sprayers offer an additional benefit to those listed above in that the small amount of spray that misses the target is caught and can be reused, reducing losses to almost zero. Electrostatically-charged sprays offer excellent coverage on all leaf surfaces but can drift under adverse conditions due to the very small size of the droplets. Barriers are very effective at capturing most drift, so electrostatic sprays may be safer where there are barriers downwind of the vineyard.

The data from this project support new national regulations that will offer applicators greater choice to achieve smaller no-spray buffers than they would otherwise have had, with previous regulatory reliance on the U.S. AgDRIFT model. By introducing an Australian reference sprayer, this project provided a bridge for comparison of all Australian sprayer performance data, through this project and any future research, to gain credit in the upcoming new national drift regulatory scheme. The droplet size and drift potential data from the wind tunnel are provided in a format ready for loading into a novel spray calculator coverage and drift performance App following the finalisation of this scheme, which is expected by the end of 2017.

The research showed that canopy wall area-based calibration is superior to ground area-based calibration.

Simple tools are available for the assessment of spray performance in vineyards, such as fluorescent tracer dyes and image analysis. Appropriate resolution of at least 4800 DPI is required for the latter.

1. Summary

A series of studies was conducted, under controlled conditions in wind tunnels and in vineyards in South Australia, Victoria and Queensland, to evaluate the factors that affect spray fate within and outside vineyards. The project occurred immediately after the Australian government opened the opportunity through a National Working Party on Pesticide Applications which included representation from multiple agricultural industry sectors, for its new spray drift management scheme and no-spray buffer zone approach to be modified based on drift mitigation systems.

The regulatory approach prior to this research was based on use of the AgDRIFT model curves on vineyards as well as supplemental data from overseas. The first step of the research in the current project was to establish the same drift reference curve as that used in AgDRIFT, using the most common type of vineyard sprayer. Based on a wine industry survey, this was found to be the axial fan airblast sprayer. The project then proceeded to show how simple modifications such as adding a tower at the top of such a sprayer to deflect any airborne spray above the canopy back down to the canopy

could prevent it from becoming airborne drift. The research then proceeded to show how targeted air using converging and horizontal lateral airflow reduced drift compared to the radial 'up and out' air direction from the reference sprayer. Some of these sprayers are designed to spray many rows concurrently which improves productivity and allows applicators to apply sprays while weather conditions are conducive to avoiding drift. A novel system that recaptures any spray that misses the canopy target and recycles it for reuse later in the vineyard was perhaps the strongest performer in terms of both drift reduction and improved canopy penetration and coverage. Novel systems that add an electrostatic charge to the spray produced enhanced coverage but did not reduce airborne drift because the droplet size was very small and therefore likely to remain airborne for longer distances. The addition of high volume and high velocity air with electrostatics did not perform as well as expected and may require further optimisation of the air component for better targeting to the canopy.

The project has provided important data to support a proposed new drift management scheme at the national level and has also met the requirement of the proposed scheme that any technology or system designed to reduce spray drift must not decrease spray coverage and efficacy potential. Such an impact could require the use of even greater amounts of chemicals and problems associated with performance reduction such as greater pest, disease and weed problems and resistance to certain active ingredients. The research was therefore focussed on collecting data on total spray fate, and drift (airborne and deposition) was only one part of the mass balance. Spray coverage on different canopy regions and leaf surfaces was measured, with particular emphasis on difficult-to-reach inner canopy areas and the underside of leaves. Spray losses to the ground through runoff and sedimentation were also measured. In general, greater air turbulence, higher pressure and electrostatically-charged small droplets resulted in better canopy penetration.

The value of barriers such as hedges and netting in reducing drift exposure in their wake was demonstrated through field studies with vegetative buffers and netting of different mesh sizes.

The research showed the effect of a wide range of adjuvants and nozzles on the droplet size and drift potential of sprays used in vineyards for both herbicide work and foliar-applied sprays. The data from this research are presented in an App-ready format that can be loaded into a spray calculator when the APVMA has completed its regulatory reform for spray drift and the contents of such an App are known. A prototype App is available for herbicides that links droplet size and tank mix physical property data with the same model used in AgDRIFT and a spray coverage model to show spray performance for coverage and spreading on leaves as well as reductions in no-spray buffer zone sizes. This App also includes an option to load wind tunnel drift potential data and run the drift assessments. The APVMA has indicated that the draft regulations on drift will be released for national review in September 2017 so the final format for the App is expected by the end of 2017 after the completion of this review.

The research showed that calibration techniques based on canopy wall area are superior to ground area-based calibration because it considers the size of the crop as well as row spacing.

Techniques are provided that can be used by any grower or applicator to assess coverage performance for spraying their crop, using image analysis with cards and/or visual assessments of dye coverage on foliage.

2. Introduction and Background

The application of pesticides and other crop protection and production chemicals to vineyards usually involves the emission of liquid sprays of the chemicals, adjuvants and carrier (usually water) through nozzles on the outlet ducts of the sprayer. The spray is usually carried to the target by high velocity, high volume air but some sprayers use high pressure to impart high exit velocities on the droplets which can carry them toward the target. The target varies throughout the growth season and according the pest being treated. In early spring, buds form discrete targets on the vines. Soon thereafter, leaves emerge and gradually the canopy fills to form a more dense and less penetrable target. Finally, fruit forms and at this point the canopy is usually the most dense. The canopy becomes dormant in winter as the foliage falls and the annual growth cycle recommences.

The droplet size spectrum formed during pesticide application is one of the most important factors affecting the on- and off-target deposition of the spray (Hewitt, 1997). One of the major variables affecting droplet size is the application procedure (sprayer speed; nozzle type, size, angle and set-up; liquid pressure and flow rate). Also of importance are the physical properties of the spray tank mix, particularly the surface tension and viscosity (Hewitt and Hermansky, 1997). In vertical spraying, as with vine crops, the sprayer air should be targeted and appropriately matched to the target which as noted above changes through the growth season and the year. Most vineyard spraying is done with relatively fine sprays for foliage coverage and coarser sprays for weed control.

This report discusses the evaluation of a range of application systems (sprayers and nozzles) for effective coverage on vineyards. The research included conventional sprayers as well as novel systems that use additional energy inputs such as electrohydrodynamic charges to help attract the droplets to the foliage at lower application volume rates. The research explored the impact of factors such as air targeting, spray recapture and recycling, tank mix adjuvants and electrostatics on improving overall spray coverage on the target while reducing losses to the ground through runoff and airborne drift.

The research was designed to support a concurrent national effort to establish baseline curves on technologies that can help reduce spray drift exposure to non-target sensitive areas, through a Technical Working Group of the National Working Party on Pesticide Applications. To this end, the researchers measured total spray fate within and beyond the canopy (mass balance) and evaluated ways of catching any airborne drift through barrier vegetation (e.g. hedges) and artificial netting. The research linked with the spray drift model used by the regulatory authorities (AgDRIFT) to show how the size of no-spray buffer zones could be reduced through using better spray technologies and/or barrier structures.

The project was guided and supported by a reference group including representatives of industry and academia/research. The industry groups provided access to vineyards and equipment as well as advising on the research and reviewing the results. The approach to the work was to screen various factors such as nozzles and adjuvants in the controlled conditions of a wind tunnel at The University of Queensland, Gatton, and

then to test the best performing systems in the field using vineyards in Mildura (VIC), Langhorne Creek (SA) and Stanthorpe (QLD).

3. Project Aims and Performance Targets

- Measure droplet size spectra in a wind tunnel for spray application scenarios in vineyard spraying with a range of nozzles, spray pressures and tank mixes that include adjuvants. Provide the data to AGWA in an App-ready format
- Measure spray fate in vineyard applications using different spraying systems to assess the factors of air targeting, electrostatics, recapture/recycle spraying, adjuvants and tower sprayers, and compare total mass balance fate of the spray against a standard reference sprayer which is the most common type used, i.e. an axial fan airblast sprayer
- Assess spray calibration for dose adjustment based on distance/height (e.g. L of spray per m height of canopy per m distance of the row) as well as application volume rate (e.g. L/ha of spray)
- Assess the value of artificial and vegetative barriers (hedges and netting) to catch spray drift and thereby reduce the size of no-spray buffer zones required to protect sensitive areas from pesticide exposure
- Extend the research through Best Management Practice factsheet and newsletter type documents and workshops.

4. Methods

Wind Tunnel Droplet Size Measurement

Prior to testing in the field, factors such as nozzles and adjuvants were screened in the wind tunnel where conditions could be controlled. The wind tunnel test system was comprised of the following components:

1. Sympatec HELOS Vario Laser diffraction particle size analyser for measuring the droplet size spectra.
2. 20L mixing containers for test substances.
3. 20 L pressurised containers for delivery of test substances to nozzles. Containers were connected to pressurised air for liquid displacement to the nozzle tip at the required pressure.
4. Liquid delivery system: Spraying Systems nozzle body and various nozzle tips used in airblast spraying and in herbicide application in vineyards.
5. Calibrated pressure gauges for measuring pressures up to 15 bar covering pressures used in field application systems.
6. Axial fan straight-through blower wind tunnel.
7. Air temperature in the wind tunnel during all tests was 23-26°C. Relative humidity was 38-52%. The liquid temperature for all tests was within 2°C of the air temperature. The wind tunnel speed was set to various speeds between ~5 and 70 m/s to represent the air speed for ground applications and various vineyard spraying systems. The vineyard sprayer speeds were based on a review of existing data for axial fan and tangential fan sprayers.

After mixing and thorough stirring, the test substances were transferred to pressurised stainless steel containers for the spray characterisation. Before each spray run the container was inverted several times to thoroughly mix the contents. All samples were labelled, and the containers were washed thoroughly prior to changing the test substance.

Spray solutions were displaced from spray tanks using compressed air. Liquid pressure was measured at the nozzle tip using a pressure gauge connected by a capillary tube to the nozzle tip. Liquid pressure was controlled by adjusting the air pressure.

A Sympatec HELOS Vario laser diffraction particle size analyser was used to characterise the drop size spectra. All measurements were made using an R7 lens which measured droplets in the size range 0.5 to 3500 µm. Data and results were obtained using model independent analysis and Sympatec Windox 7 software.

Model Independent Analysis is the usual analysis method used by other liquid spray researchers (e.g. the Spray Drift Task Force, Hewitt, 1994).

Droplets contained in the spray clouds produced by the nozzles in the present study were not spatially uniform. Droplet size varied across the spray plume (larger droplets tended to occur at the edge of the plume, and smaller droplets in the centre). It was therefore important to ensure that a cross-sectional average spray sample was obtained at a given axial location that was representative of the spray plume under evaluation (Dodge, 1988; Snyder et al. 1989). Cross-section averages were obtained in this study by traversing the nozzle vertically down across the laser beam while spraying.

In addition to entire volumetric and cumulative volumetric droplet size spectra, the $D_{v0.5}$ value was calculated. The $D_{v0.5}$, or volume median diameter, is the droplet diameter (µm) at which 50 % of the total spray volume is contained in droplets with larger and smaller diameter. These values were calculated by the particle size analyser in compliance with ASTM Standard E799-87 (ASTM, 1987).

In this study, there was interest in the spray volume contained in relatively small droplets, i.e. those with diameter between 0.5 and 105 or 141 µm. While giving excellent coverage on foliage in the vineyards, this also represents the smallest droplets in the spray, which might present more of an exposure risk for spray drift than larger droplets would tend to pose. These values as indicators of relative spray drift potential are derived from section A7.1 of the following U.S. EPA drift reduction technology measurement protocol:

U.S. EPA Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops. Available at www.epa.gov/pesticides.

Additional droplet size statistics were also provided by the Sympatec instrument software such as the $D_{v0.1}$ and $D_{v0.9}$ which represent the droplet diameters at which 0.1 and 0.9 of the spray volume is contained in smaller droplets. The $D_{v0.1}$

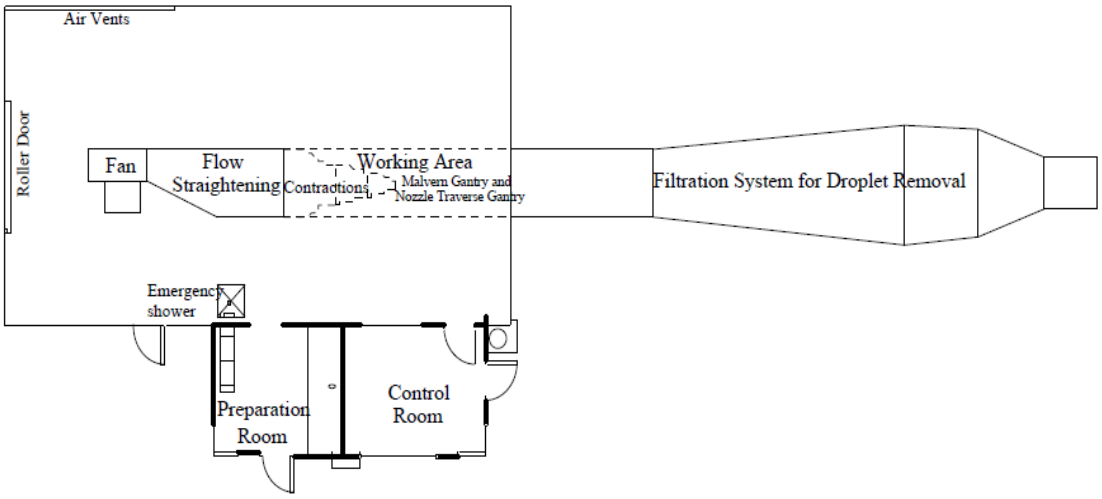
is often considered as good indicator of the driftable fraction of the spray while the $D_{v0.9}$ represents larger droplets which are few in number but large in diameter.

The following diagrams and photographs illustrate the wind tunnel that was used for these measurements.









Wind Tunnel Spray Drift Measurement

Spray drift potential was measured in the wind tunnel at the University of Queensland using a 1.75 m x 1.75 m (W x H) working section. The protocol for this followed the requirements of the APVMA in Australia and the following international standard:

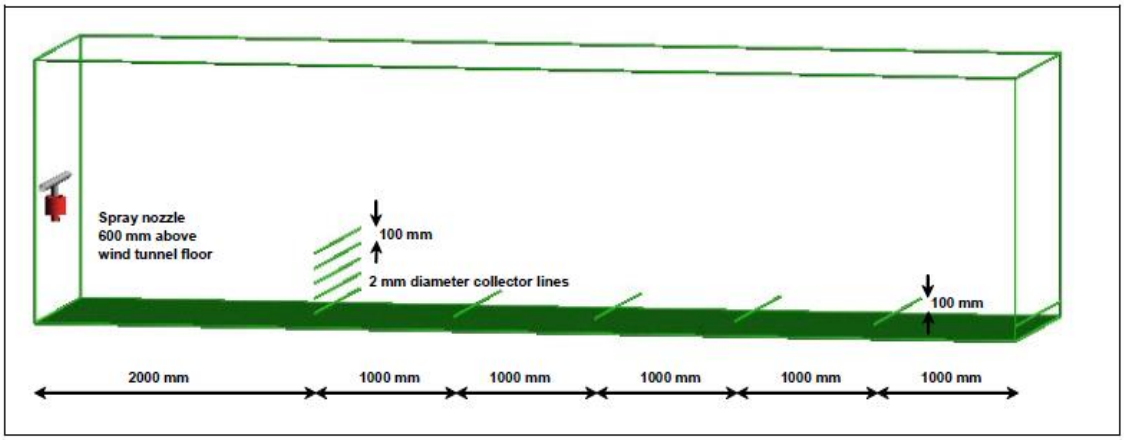
ISO 22856: Equipment for Crop Protection – Laboratory Drift Methods Measurements.

A hollow cone nozzle (TX1) was placed 2 m upwind of an array of monofilament lines which were used to capture the airborne drift flux for each application scenario. The monofilament lines comprised 2 mm diameter polythene tubing. There were five lines of collectors at 0.1 m intervals from 0.1 to 0.6 m above the floor of the wind tunnel. The nozzle was mounted at a height of 0.6 m. The tank mixes comprised different adjuvants which were being tested for their ability to reduce spray drift, selected from the chemistry types that could be used in vineyard spraying in Australia, as follows:

- Nonyl phenol surfactant (Agral) at 0.1% v/v
- Nonionic surfactant (Chemwet) at 0.1% v/v
- Nonionic surfactant (Vitiwet) at 0.1% v/v
- Organosilicone (Pulse) at 0.1% v/v
- Organosilicone (Brushwet) at 0.1% v/v
- Lecithin (Designer) at 0.1% v/v
- Lecithin (DuWett) at 0.225% v/v
- Modified seed oil (Hasten) at 0.1% v/v
- Esterified seed oil (Kwicken) at 0.225% v/v
- Invert suspension (Interlock) at 0.225% v/v
- Guar gum (Deadsure) at 0.1% v/v

The tank mixes included 0.4 g/L Pyranine 10G fluorescent tracer dye. The wind tunnel air speed was set to 2 m/s. Following spray application of 10 s at a pressure of 7 bar, the wind tunnel was operated for 5 minutes to allow the spray to completely deposit and dry. Samples were then collected into Ziplok® bags and labelled before being placed in a dark freezer. The samples were then washed with 50 mL of a 10% v/v/ ethanol:deionised water mixture and 5 mL samples of each rinsate were processed using a Shimadzu multispectral fluorometer. The relative amounts of Pyranine 10G in each sample were measured and compared to determine the drift potential of each tank mix.

The following diagram shows the schematic of the wind tunnel testing of drift potential.



Field Study Spray Deposition and Flux Sampling

The field studies were conducted at vineyards owned by Treasury Wine Estates, Vinland Estates, Savina Lane Wines and Accolade Wines in Mildura, VIC, Langhorne Creek, SA and Stanthorpe, QLD. Row spacing was approximately 2.75 m in each location. The canopy varied throughout the season and between locations. Canopies were measured as shown below.





Spray applications were made to at least four rows of vines for each trial because previous research by the Spray Drift Task Force showed that this is the optimum sampling area (Hewitt, 2001). The following sprayers were tested in the field studies, selected in order to cover the main variables of interest (i.e. reference sprayer with same drift deposition profile as the reference in the AgDRIFT model used for regulations by the APVMA, conventional axial fan sprayer with radial upwards and side diverging trajectories of droplets, rotary fan sprayers with air targeted inwards toward canopy as converging air, multi-row tube sprayers with air directed from each side toward the canopy, electrohydrodynamic charging of droplets under high pressure, and alternatively with low pressure and supplemental air):

- Reference axial fan sprayer for comparison against AgDRIFT model: Croplands Cropliner
- Axial fan airblast sprayer manufactured by Interlink
- Modified axial fan airblast sprayer with tower for redirecting drift back down toward the canopy: Cropliner with upper air deflectors
- Rotary fan sprayer manufactured by Interlink
- Multi-SARDI fan sprayer: Croplands Quantum Mist
- Electrostatic high pressure sprayer (no air assistance): ESS
- Electrostatic low pressure sprayer with air assistance: Martignani/ Spot-on
- Recapture/ recycle sprayer: FMR

The following photographs show some of these sprayers in the field studies.



Cropliner axial fan airblast sprayer spraying radially (source: Croplands)



Interlink Rotary Fan Sprayer targeting canopy from side and above



Multi-row tube sprayer from Interlink spraying canopy from side



FMR Recapture/recycle sprayer spraying canopy from side and recycling



ESS electrostatic system using high pressure, targeting from side and above



Martignani and On-Target sprayers with electrostatics and air-assistance spraying canopy from side

The spray mixture comprised tap water with 0.4 g/L Pyranine 10G fluorescent tracer dye.

Each field site was prepared prior to spray applications by mowing the surrounding grass or clearing the vegetation/bare ground. Sample sites for each sample station were marked with flags, numbered according to their distance downwind of the spray application. Most applications were made with the wind running perpendicular to the vine rows as required by the U.S. Environmental Protection Agency and Spray Drift Task Force guidelines on drift studies (Hewitt, 2001 and EPA regulations 840.1200 'Spray Drift Test Guidelines: Spray Drift Field Deposition'). However, additional runs were made with the wind running down the vine rows in order to compare the deposition rates against the standard perpendicular wind direction scenarios.

The sampling of spray fate involved the use of internationally accepted sampling systems with known high collection efficiency and easy extraction of the spray tracer (Hewitt et al. 2001). The aim of the sampling was to assess the total spray fate for mass balance closure with the applied material being accounted for as each of the following:

1. On Target Coverage: Spraying in vineyards is intended to deposit droplets of spray on all canopy surfaces, usually to the point of first runoff which for the Very Fine to Fine sprays used in this research requires at least 650 droplets/cm². Deposition was sampled within the canopy at the top, middle and lower canopy regions as well as inner and outer areas with the inner areas being closest to the trunk of the vine and therefore most difficult to reach. Coverage on upper and lower leaf surfaces was of interest because some pests may occur on one or other of these – for example many insect pests prefer the lower leaf surface.
2. Airborne Drift: Airborne drift just beyond the downwind edge of the spray block indicates the amount of spray that is wasted and can cause exposure concerns to bystanders and sensitive areas downwind of the application. Airborne drift was sampled as a vertical profile of flux (mass of sprayed material per cm² per second) from the ground to a height of approximately 16 m.
3. Deposition Drift: When airborne drift deposits at ground level, it can cause exposure risks to aquatic and terrestrial sensitive areas. Deposition drift was sampled according to international standards as in the Spray Drift Task Force studies (Hewitt et al. 2001).
4. Loss to Ground Below Vines: When the application volume rate is too high, or spray is targeted excessively to the outer canopy regions, spray coverage locally may be too high with excess spray subsequently dripping from the leaves onto the ground as runoff. In some cases, spray may completely miss the canopy and land directly on the ground. Previous research has suggested that in most tree and vine crop applications, this is a high loss and wastage of the applied chemical (40-70%). Losses to the ground within the spray block were assessed.

Downwind drift deposition stations were located at distances of 0, 1, 2, 4, 8, 16, 32 and 64 m with 0 m being the edge of the vine crop. Downwind locations were bare ground or very low grass, which represents a reasonable worst-case scenario for spray drift. Flat cards of Mylar were positioned at each distance. There were five rows of Mylar cards separated by 5-10 m. This level of replication (five samples per distance) exceeds the minimum three replicates used by most other studies (e.g. Hewitt et al. 2001).

Airborne flux stations were located 4 m downwind of the spray block. Vertical towers were erected for sampling airborne flux on monofilament lines (2 mm diameter cotton string) with a known collection efficiency exceeding 100% for the Very Fine to Fine droplet size of the sprays in these studies. The vertically-mounted strings were pre-marked to show the height above ground in 1 m intervals. A pulley system was used to raise the strings up the towers. There were three towers providing replicate data for each application. The towers are shown in the following photographs.





Spray loss to the ground within the canopy was measured using petri dishes under the vines and in the middle of the vine rows. All samples were replicated three times per distance across the vine row and at three distances along the rows.

Field laser measurement systems were also deployed for spray sampling including a novel Drop Counter (Billericay Farm Services) and phase-Doppler system (Artium) which were developed and used for and during this research.

Some visual checks of the spray coverage were also made with water sensitive cards and with Kromokote card for which the spray mix also included a black food grade dye.

The meteorological conditions during the field applications were monitored using a weather station fitted with a cup anemometer and wind vane to measure wind speed and direction, along with temperature and relative humidity probes at 2 m above ground. All sampling was done as 1 minute averages of 10 second measurements.

The spray tanks were filled with the spray mix for each application and the application volume rate was determined by timing the sprayer speed per 100 m distance and assessing the start and finish volume of liquid in the spray tank.

Following each application, all samples were collected within 30 minutes and placed in Ziplok® bags which were placed in dark cold coolers and transferred to a dark freezer. All samples were labelled.

The following international standards were followed for these field studies:

ISO Standard 22866: Equipment for Crop Protection: Methods for the Field Measurement of Spray Drift.

ASABE Standard S561 Procedure for Measuring Drift Deposits from Ground, Orchard and Aerial Sprayers.

All samples were processed according to the same procedure as used in the Wind Tunnel Spray Drift Measurement sample analyses with the only difference being that a Turner field fluorometer was used instead of the laboratory instrument used for the wind tunnel work. The advantage of the Turner instrument is its portability and prior work has shown that the data agree between the two instruments. The advantage of the Shimadzu (laboratory) instrument is that being a multi-spectral system it can readily measure any tracer whereas the Turner instrument was only equipped with the filters for peak emission and transmission wavelengths that are calibrated for the Pyranine 10G dye used in this study.

Barrier Vegetation and Netting for Reduction of Spray Drift Exposure

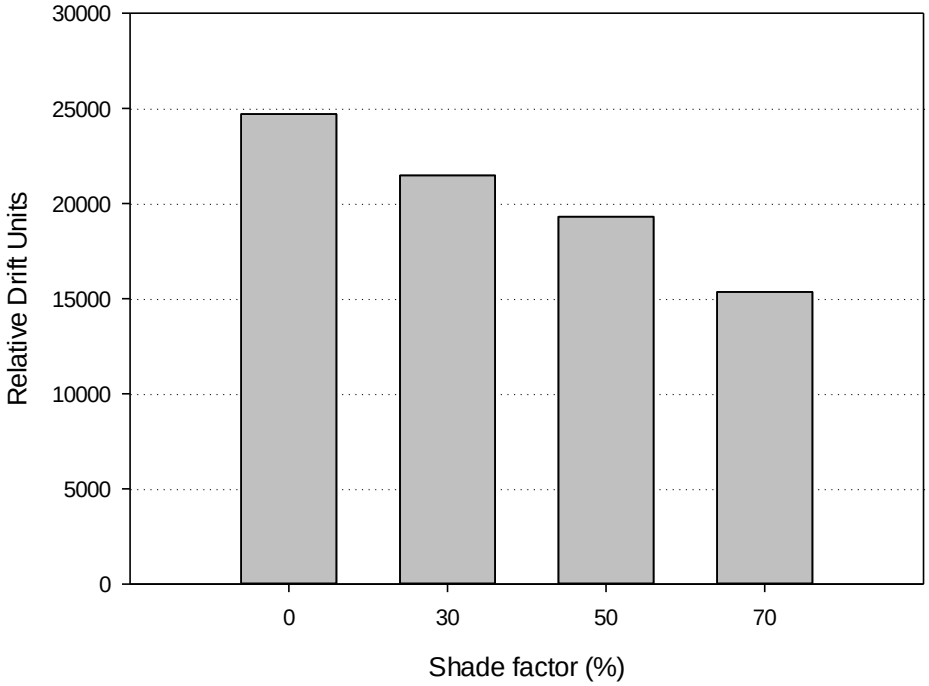
The ability of barrier netting and vegetation to reduce spray drift exposure downwind of an application of spray to a vineyard was assessed in field studies. This research also evaluated whether an electrostatically-charged spray would tend to drift less than a non-charged spray by being attracted to a barrier which could then prevent spray drift exposure beyond the property boundary.

The field study involved spray applications of charged and non-charged sprays in vineyards with hedges or netting downwind. Netting mesh sizes providing porosity of 30, 50, 70 and 100% (i.e. netting densities of 70, 50 and 30 as well as no netting respectively) were included in the tests. The netting was purchased from Netpro in Stanthorpe, representing netting that would often be used by

orchards and vineyards for utilities such as crop protection from wind, birds and separation of urban-rural land uses.

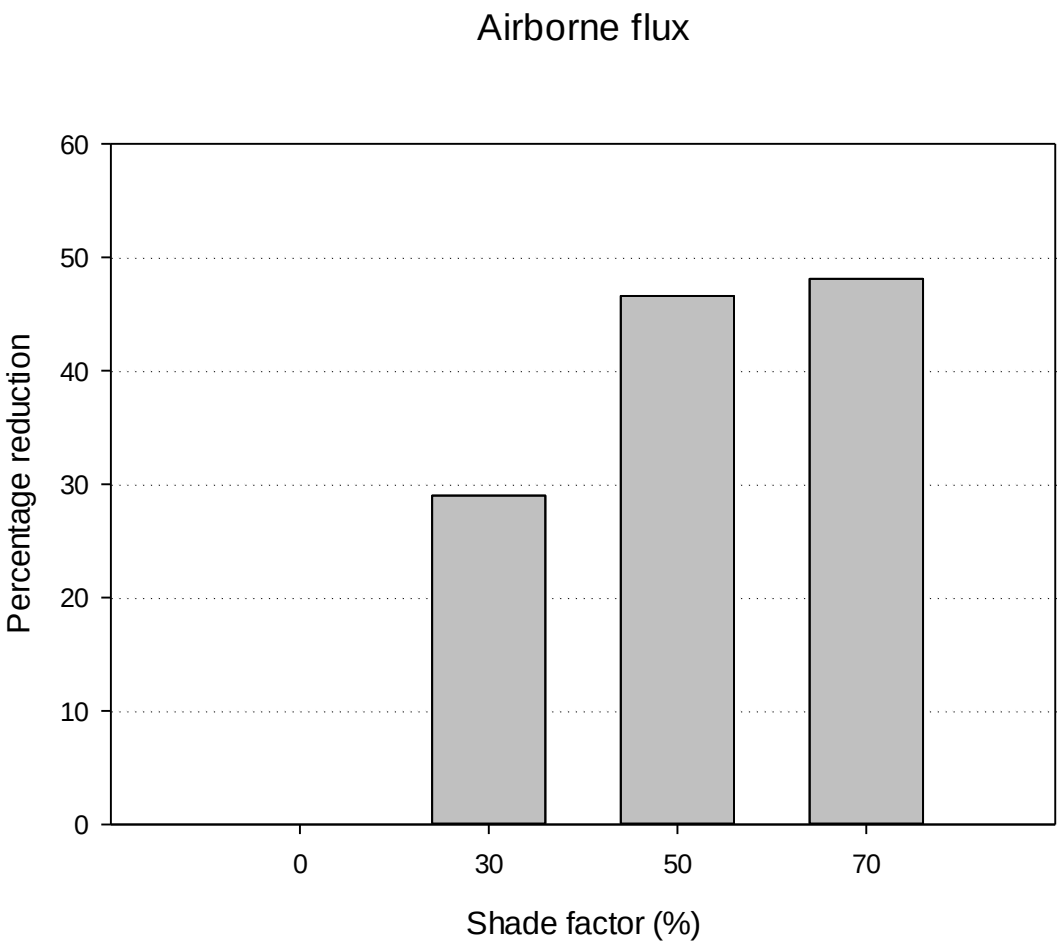
The downwind drift sampling included the same Mylar and monofilament systems that were used in the previous studies and the sampling approaches, weather station and other study details were the same.

All samples were processed according to the same procedure as used in the Wind Tunnel Spray Drift Measurement sample analyses.



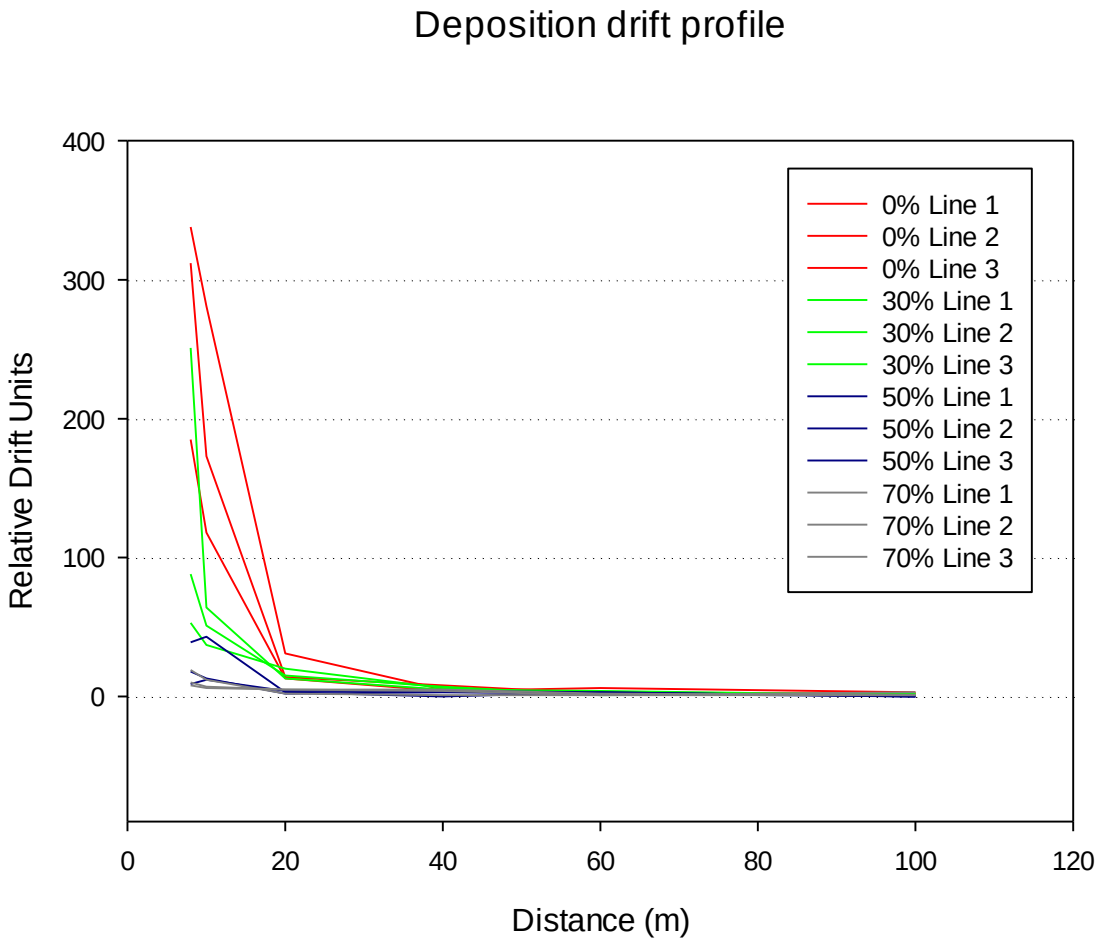
Relative deposition drift for the four shade factors integrated over the seven sampling distances (6m, 8m, 10m, 20m, 40m, 60m, 100m). The amount of drift decreased as shade factor (shade cloth density) increased.

The graph above shows that shade cloth was effective at intercepting the spray cloud with a progressively greater reduction in deposition drift as the density of the shade cloth increased (and became less porous).



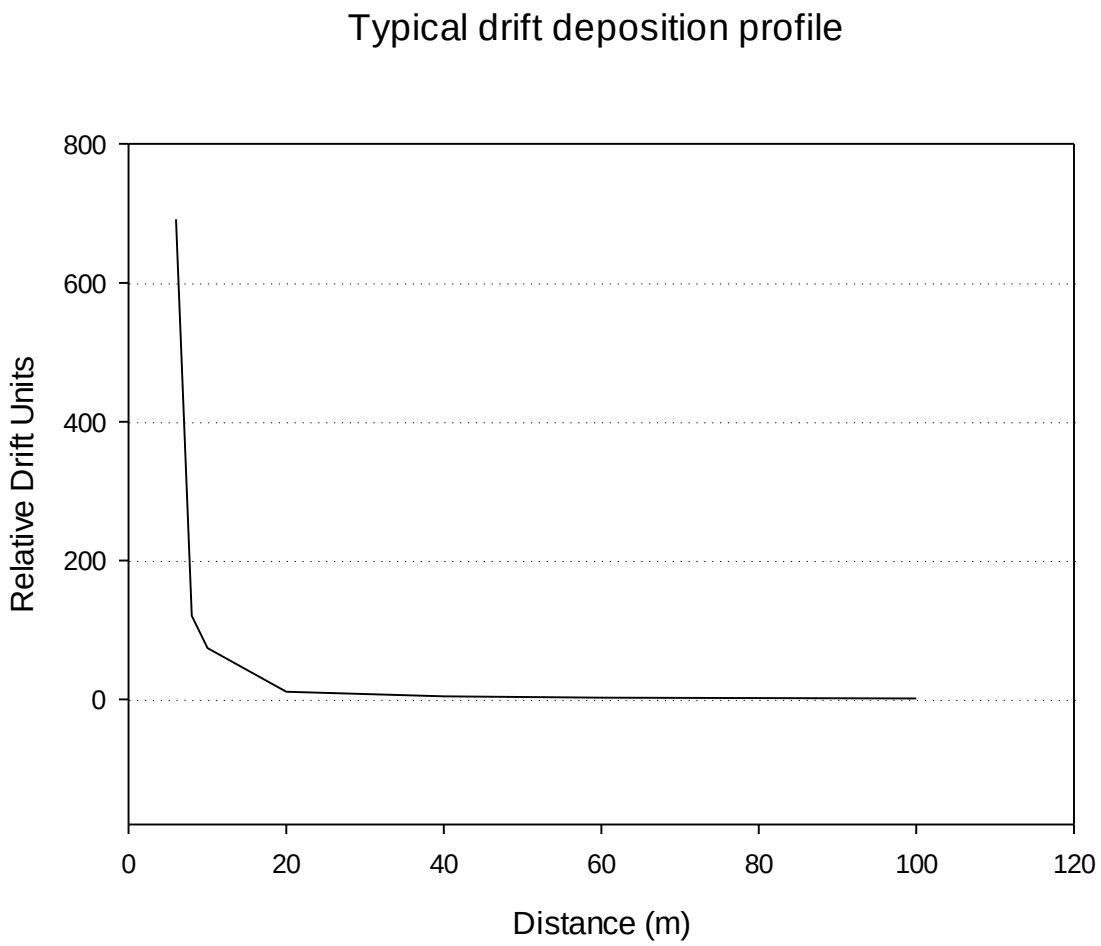
Percentage reduction in airborne drift flux for the four shade factors (0%, 30%, 50% and 70%). There was a larger reduction in airborne flux between the 30% and 50% shade factors than between the 50% and 70% factors.

The graph above shows that the 50% shade factor cloth was nearly as efficient as the 70% cloth in arresting and filtering airborne drift flux. When using shade cloth, it probably needs to be remembered that the higher the cloth density (the lower the porosity), the greater the wind resistance and forces on the structures that support the shade cloth. Lower shade factors are also more economical.

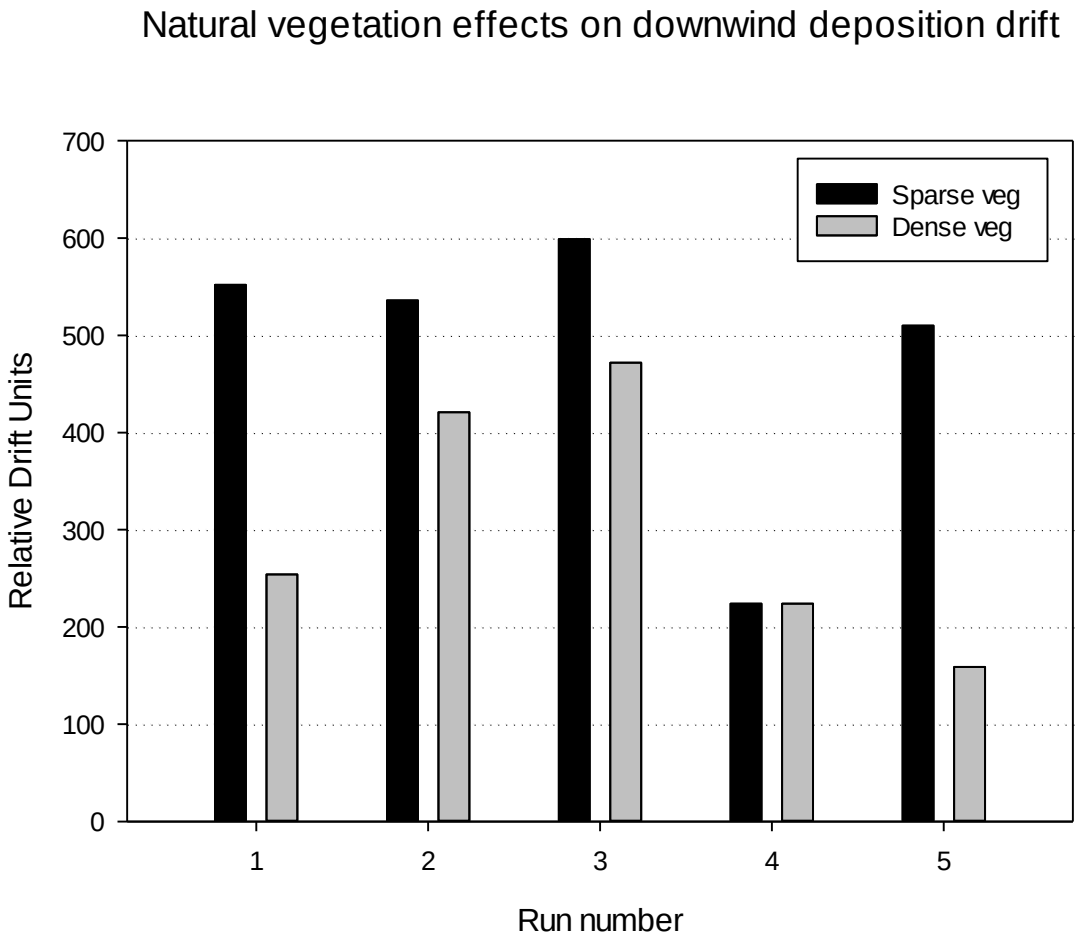


Behind each of the four shade factors there were three Mylar collection lines with sampling points at 8m, 10m, 20m, 40m, 60m and 100m. An 'in-swath' sampling point was located at a distance of 6 m.

The graph above shows that most deposition drift was recorded within the first 20 metres. Drift was highest for the 0% followed by the 30% then the 50% and lastly the 70% shade factors, respectively.

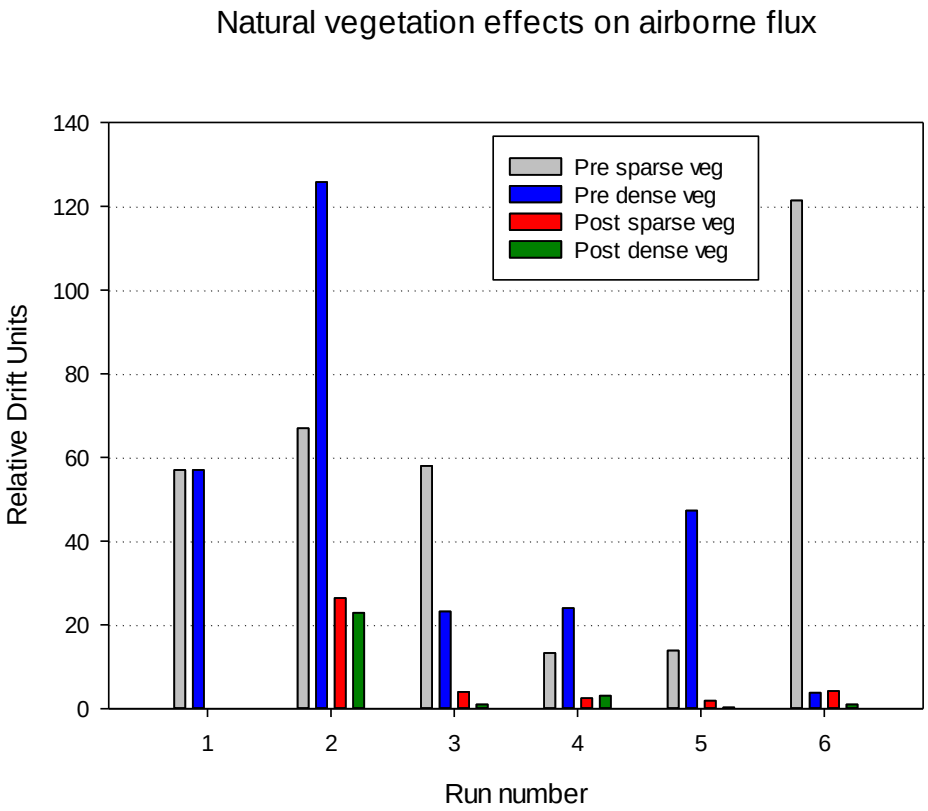


This graph with a single curve shows the typical deposition drift profile for this study.



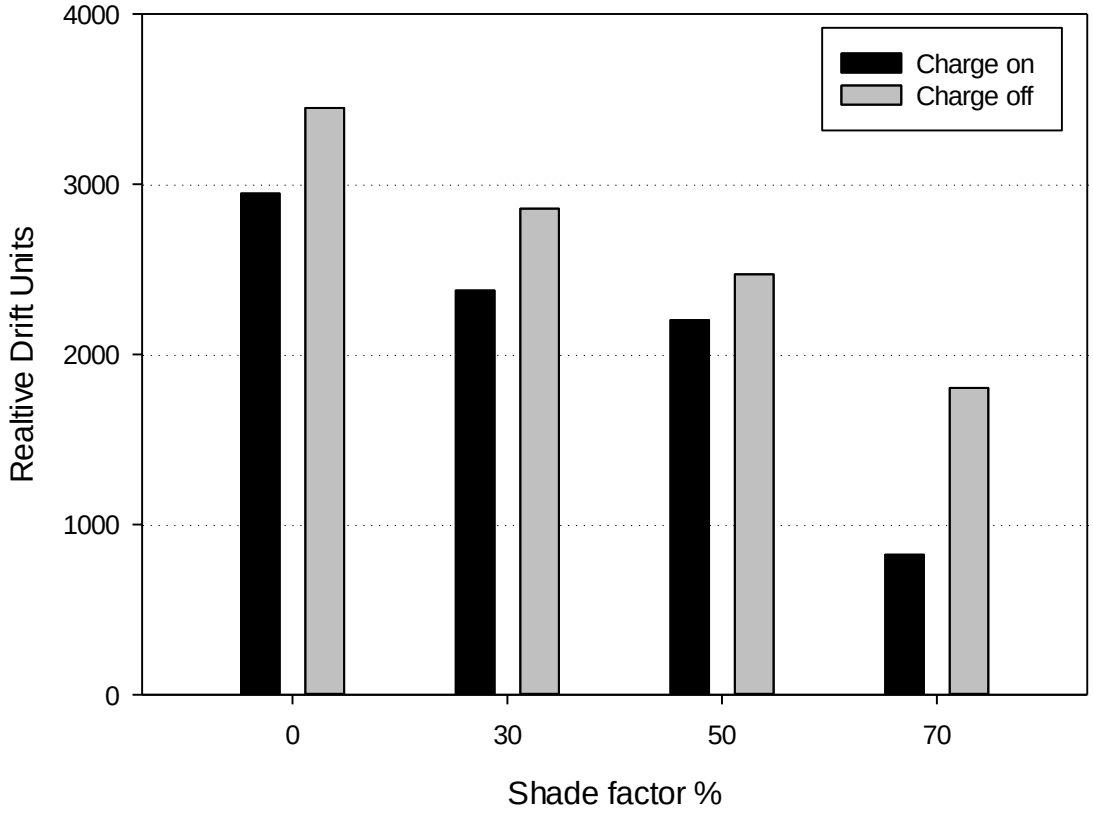
Naturally occurring vegetation is also very effective in reducing deposition drift.

The graph above shows that natural vegetation also works well at reducing spray deposition drift. The dark bars represent sparser or less dense foliage whilst the lighter bars represent denser foliage. The denser vegetation was more effective at intercepting and filtering the spray drift in four out of the five treatment runs.



Natural vegetation is also very effective at reducing airborne flux.

The green and red bars in the graph above represent the amount of airborne flux that was detected after the two levels of vegetative barrier. The grey and blue bars represent the fraction of airborne flux before being intercepted by the vegetation. Both levels of vegetation (sparse and dense) were very effective at filtering and reducing the amount of airborne flux.



The graph above shows the electrostatic charge effect. The 'charge on' condition improved the capture efficiency of the shade cloth and also possibly attracted more of the drift cloud to the ground surface.

Spray Application Volume Rate Calibration Model Evaluation and Droplet Density Coverage Techniques

Tests were conducted to compare two popular approaches to spray application volume rate optimisation in vineyards:

1) area-based (L of spray per ha); and
2) distance and height based (L of spray per 100 m row length per m height of canopy).

This work built on previous work by Geoff Furness into optimised dosing of almond and other crops. The spray mix included a bright, visual fluorescent tracer dye which fluoresces as a bright yellow image under ultraviolet light (Saturn Yellow). Following application of spray calibrated by the area-based and canopy leaf wall area-based approaches, leaves were harvested from top, middle and bottom canopy areas as well as inner and outer regions. Ten leaves were harvested from each sampling location for each of the application rate sites. They were analysed in a dark room under ultraviolet light illumination and scored for coverage densities on upper and lower leaf surfaces using a rating scheme previous developed by Geoff Furness. The leaf is considered as being four coverage regions and these are ranked from highest to lowest coverage based on the number of droplets per square centimetre. This is a subjective,

visual assessment, so the same operators assessed all the leaves within a comparison batch. As part of this general objective, an assessment of alternative approaches to spray coverage was made using Kromokote cards (glossy white photographic paper) and a blue/black food grade dye. Images were processed using scanners of different pixel resolution densities to show the data quality for each.

This work differed from the rest of the deposition research in that the other tests were conducted using 'wash off' techniques whereby the quantity of spray is assessed for each sample including using a novel leaf washer with a syringe on tubes to sample spray from upper and lower leaf surfaces. The calibration and coverage technique aspect of the work provided qualitative data in that it could underestimate cases where two droplets deposit on the same part of the imaged surface. However, while quantitative techniques are available to scientists equipped with specialised sampling systems such as leaf washers and analytical laboratories, qualitative techniques such as the use of water sensitive cards, Kromokote cards and fluorescent dyes for leaf coverage assessments can be made by anyone, at a relatively low cost. Equipment setup and calibration as well as verification of spray performance in the field is an important step for any applicator and the intent of this research was to bridge between different sampling systems available to different people.

The picture below shows an example of a leaf with fluorescent tracer dye following spray application in Langhorne Creek under observation by ultraviolet light.



5. Results and Discussion

Droplet Size Spectra and Drift Potential from Wind Tunnel Measurements

There were >300 droplet size measurements for a range of nozzles, active ingredients, adjuvants, spray pressures and air velocities.

The droplet size raw data are included in Appendix 5 in an App-ready format that can be incorporated into a spray calculator after the APVMA issues its final spray drift management policy. This is currently expected to be around late 2017.

The proposed spray calculator for this research would be based on one previously developed through another project linked with the National Working Party on Pesticide Applications, funded by the Grains Research and Development Corporation (GRDC). This was designed to meet the APVMA requirement that nozzle and tank mix-related data for drift management be in the form of droplet size data and/or drift flux data from wind tunnel research and that any technology proposed for a buffer zone size reduction must demonstrate the buffer zone for the specific regulatory acceptable limit of toxicity for the pesticide being applied, as well as show that there will be good coverage and therefore efficacy potential. The spray calculator links decades of research conducted at the University of Queensland on these factors into a single tool. Following finalisation of the APVMA drift policy in late 2017, the data from this project will be incorporated into this calculator. Screenshots below show examples of the current calculator for the assessment of a herbicide application where the nozzle and tank mix are first selected from the database within the calculator and then in the second screen the full droplet size spectrum is shown along with key droplet size parameters such as volume median diameter and 'Fines'. The next screen shows the drift potential for this specific spray, modelled using the regulatory-acceptable model AGDISP (the engine of AgDRIFT) under user-specific meteorological and spray release height conditions. The toxicity value for the pesticide is entered and the buffer zone is calculated. The next screen shows the potential coverage of the spray based on the droplet size spectrum, adjuvant spread factors and target leaf characteristics. The final screen shows the drift potential measured in the wind tunnel from which the buffer zone can also be derived by inputting the values displayed into the WTDISP (Wind Tunnel Dispersal) model developed by the U.S. Environmental Protection Agency and UQ. The use of such wind tunnel drift potential data is one option of the proposed APVMA regulatory policy on drift reduction technology evaluations.

GRDC
Grains Research & Development Corporation
Your GRDC working with you

Australian Ground Spray Calculator

The University Of Queensland
The Centre for Pesticide Application and Safety
"...for a safer environment"

Nozzle Manufacturer	Teejet
Nozzle Type	AIXR
Nozzle Orifice	2
Pressure (bar)	3
Spray Angle (°)	110
Pesticide	2% Roundup Attack
Adjuvant	No adjuvant
Spray speed (km/hr)	5
Spray rate L/ha	190

Application rate
Enter any value between 5 and 30

Reset

Select options with droplet size and wind tunnel drift data

Spray Quality
Coarse
Drift Potential
Moderate - High
Fines
4.4 %
Potential Coverage
551 drops/cm²
Spray Coverage
Excellent

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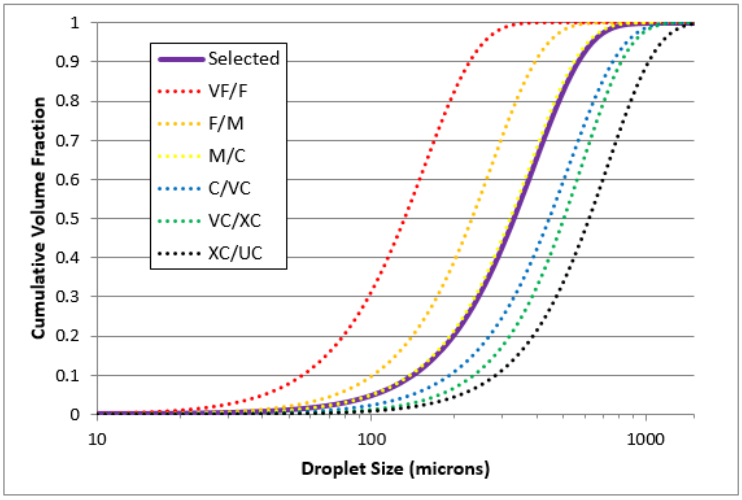
Australian Ground Spray Calculator

The University Of Queensland
The Centre for Pesticide Application and Safety
"...for a safer environment"

Selected Options

Manufacturer	Teejet
Nozzle	AIXR
Orifice	2
Pressure (bar)	3
Spray Angle	110
Pesticide	2% Roundup Attack
Adjuvant	No adjuvant

Spray Quality	Coarse	
Dv10	142	microns
VMD	333	microns
Dv90	562	microns
Fines	4.4	%
Drift Potential	Moderate - High	



GRDC
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Australian Ground Spray Calculator

The University Of Queensland
The Centre for Pesticide Application and Safety
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Surface	Leaf
Leaf Input	Basic
Leaf Type	Broadleaf
Leaf Size	Medium
Leaf Wettability	Moderate
Surface Tension	Low

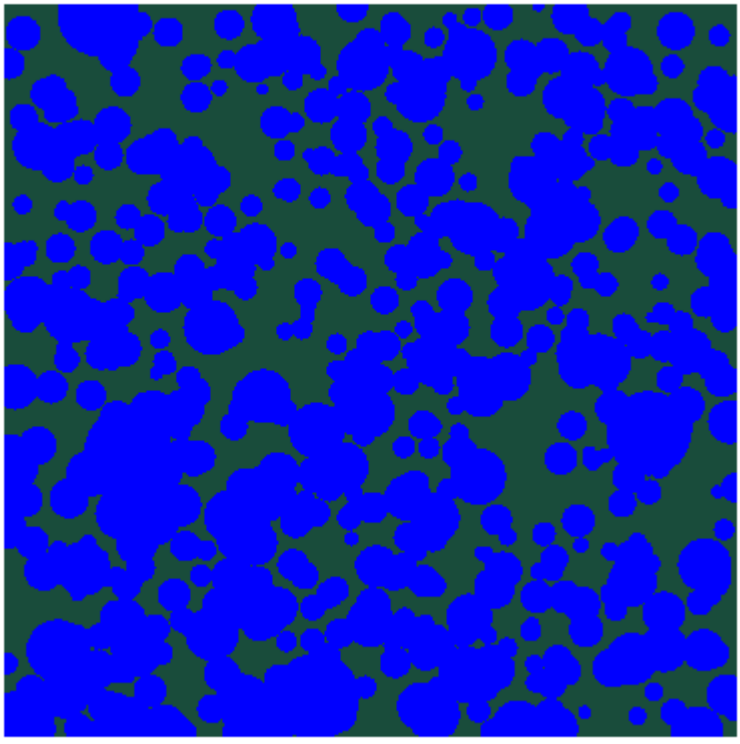
Show simulated coverage

K-crit = 100

33 (mN/m)

Surface tension
Select from list

Spray_Coverage



Spray Coverage = 655 drops/sq.cm

Area Coverage = 58.5 %

GRDC Grains Research & Development Corporation

Your GRDC working with you

Australian Ground Spray Calculator

AGDISP

THE UNIVERSITY OF QUEENSLAND

The Centre for Pesticide Application and Safety

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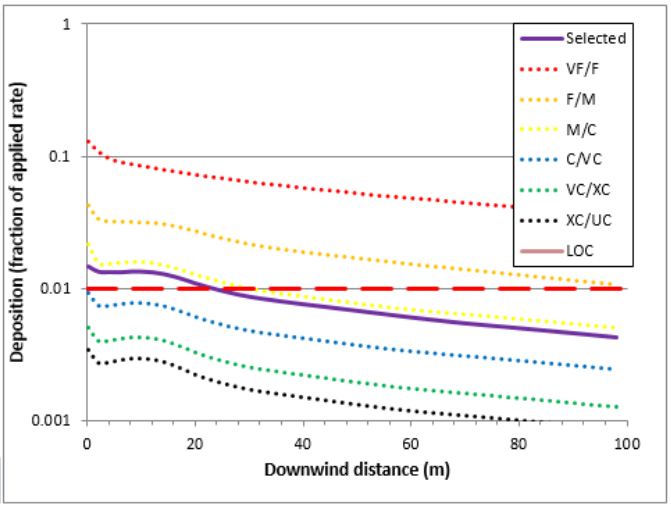
Selected Options

Manufacturer	Teejet
Nozzle	AIXR
Orifice	2
Pressure (bar)	3
Spray Angle	110
Pesticide	2% Roundup Attack
Adjuvant	No adjuvant

AGDISP Variable Inputs

Wind Speed	3	m/s
Temperature	25	°C
Rel Humidity	50	%
Release Height	0.6	m
LOC	0.01	

Setback 24 m



NOTE: APVMA have not yet endorsed setback distance risk assessment and policy, so although this distance is based on the best available mode the buffer assessment policy of APVMA is not yet aligned with this Spray Calculator

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Your GRDC working with you

Australian Ground Spray Calculator

THE UNIVERSITY OF QUEENSLAND

The Centre for Pesticide Application and Safety

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Selected Options

Manufacturer	Teejet
Nozzle	AIXR
Orifice	2
Pressure (bar)	3
Spray Angle	110
Pesticide	2% Roundup Attack
Adjuvant	No adjuvant

Airborne drift 2m downwind 2.82 %

Temperature	28	°C
Relative Humidity	38	%

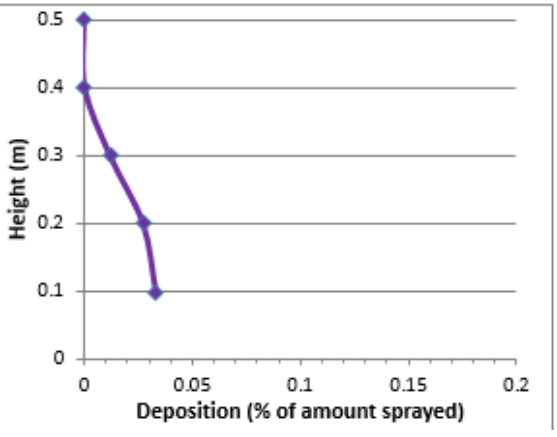
WTDISP input values

Height m	Flux L/min/cm²
0.1	4.62E-05
0.2	3.81E-05
0.3	1.69E-05
0.4	6.08E-07
0.5	0.00E+00

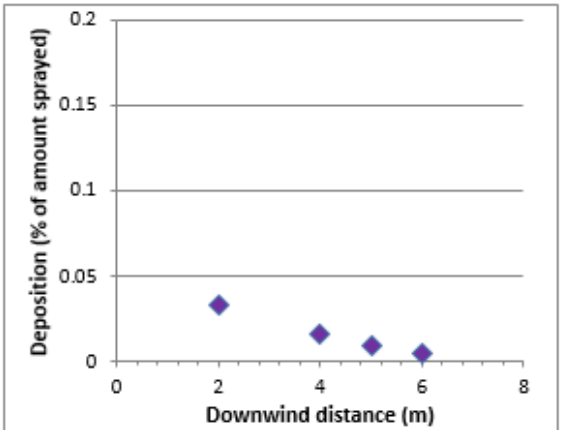
Select Wind Speed

Wind Speed 2 s

Deposit on string positioned 2m downwind from nozzle



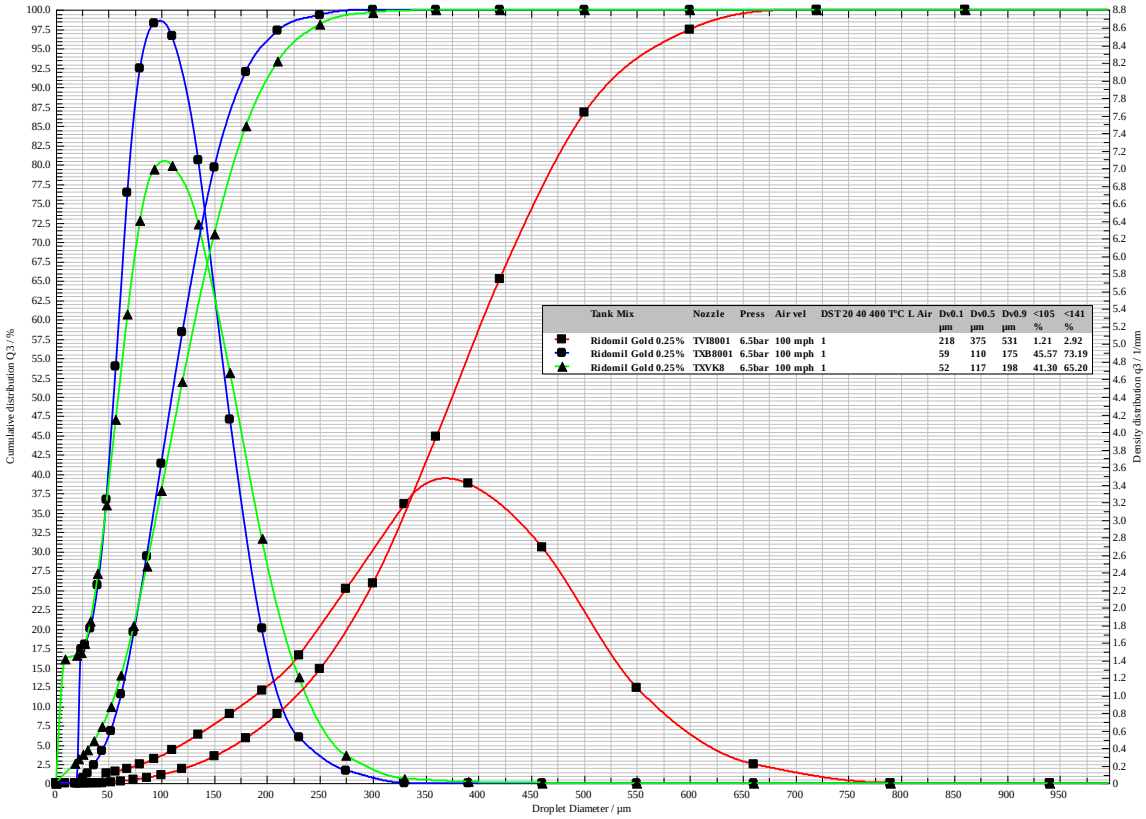
Deposit on string positioned 0.1 m above tunnel floor



Trends in the droplet size data are discussed in the following sections, with examples of some of the data sets.

Nozzle Effects on Sprays Applied to Foliage

The following figure shows the cumulative volumetric droplet size spectra for a tank mix comprising 0.25% v/v Ridomil Gold® applied through three different nozzles with a similar flow rating at a pressure of 6.5 bar and an airstream velocity of 44 m/s which is typical for mid-sized axial fan airblast sprayers. The effect of nozzle on droplet size was very large with the TVI nozzle producing approximately 1% spray volume in droplets smaller than 105 µm compared to approximately 46 and 41% for the TX and TXVC nozzles respectively. All of these nozzles are marketed for airblast sprayers. In general, finer sprays produce a higher risk of spray drift.

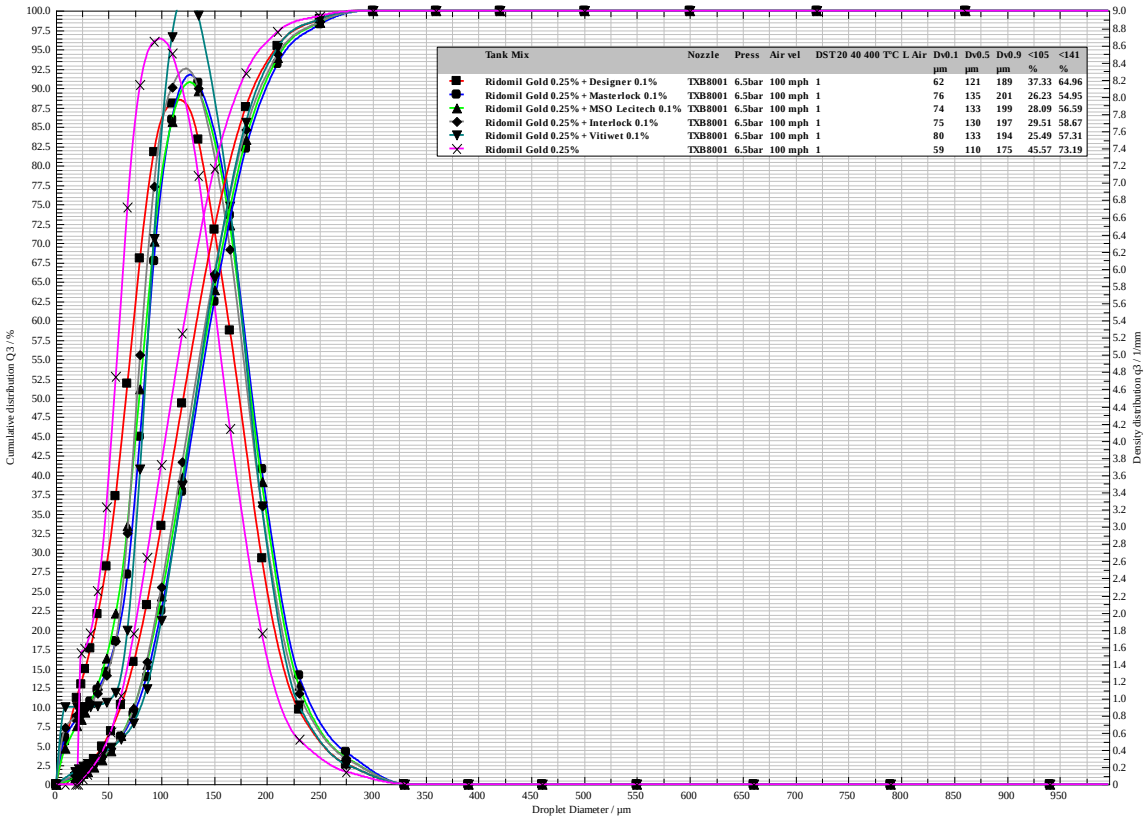


Tank Mix Effects on Foliar-Applied Sprays

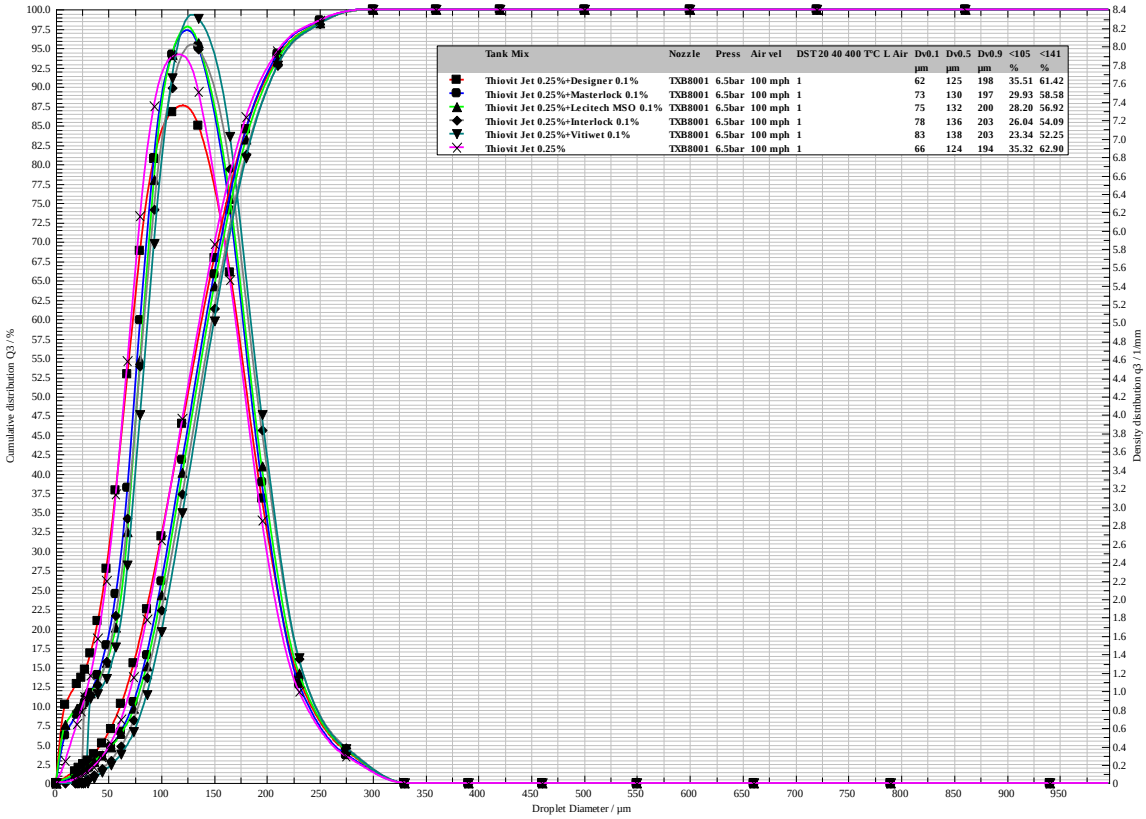
The following figure shows the effect of adjuvants on the droplet size spectra for the same active ingredient product as the previous example (Ridomil Gold®) from a TX nozzle. The adjuvants represent several different chemistry types, as follows:

- Lecithin (Designer®)
- Modified seed oil + Lecithin (MSO Lecitech®)
- Invert emulsion (Masterlock®)
- Nonionic surfactant (Vitiwet®)
- Invert suspension (Interlock®)

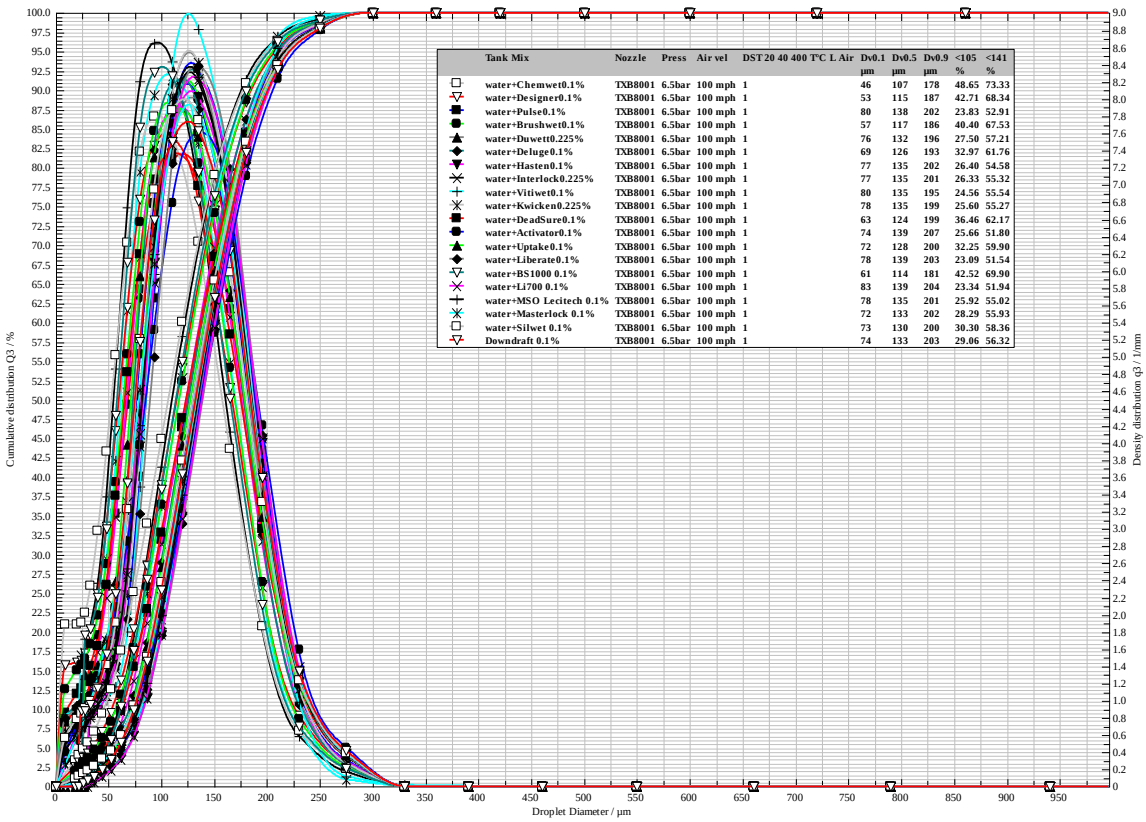
The adjuvants all coarsened the sprays and the greatest reduction in small droplets that may be considered as ‘driftable Fines’ was for Vitiwet, which reduced the spray volume contained in droplets <105 µm from 46% to 25%.



A different active ingredient product, Thiovit Jet, produced sprays that were coarser than Ridomil Gold (35% ‘Fines’ compared to 46% for Ridomil Gold) and in this case the effect of the Vitiwet was to reduce the ‘Fines’ to 23% as shown below.

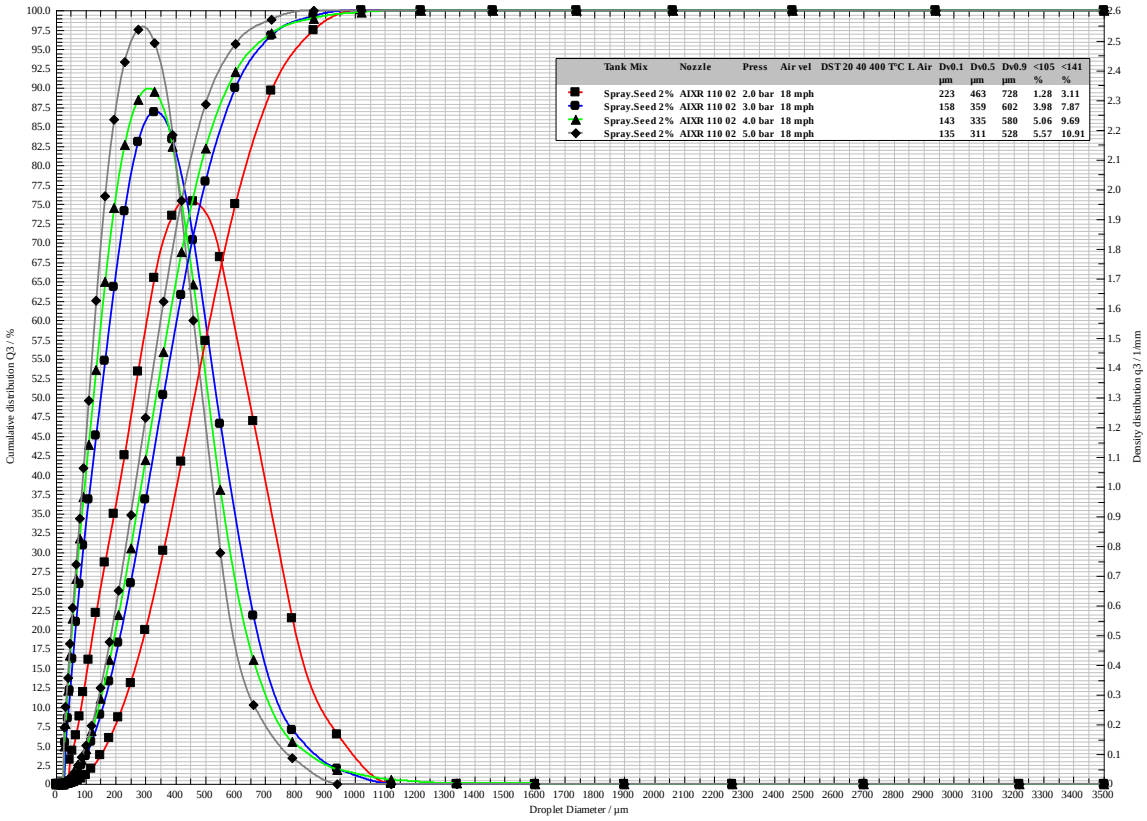


Droplet size measurements with a larger range of adjuvants with the same nozzle scenario revealed a greater than two-fold range of ‘Fines’ depending on the adjuvant as shown below.

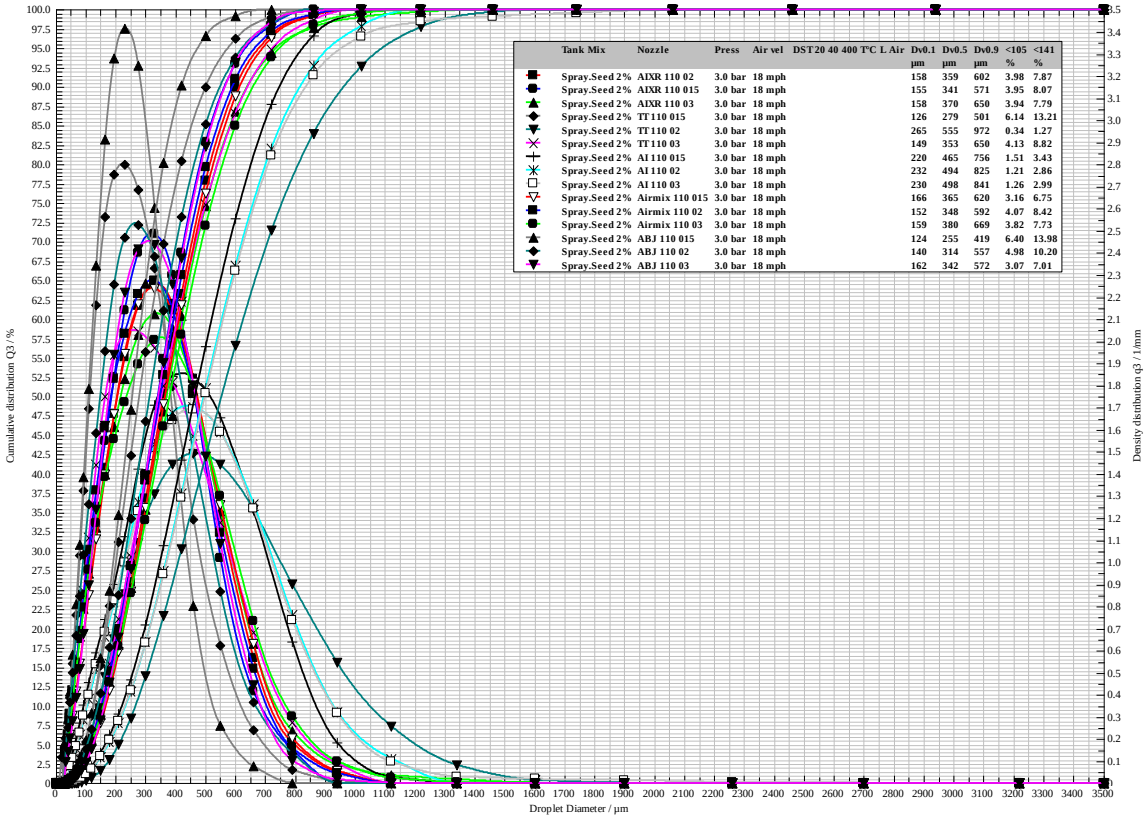


Herbicide Sprays

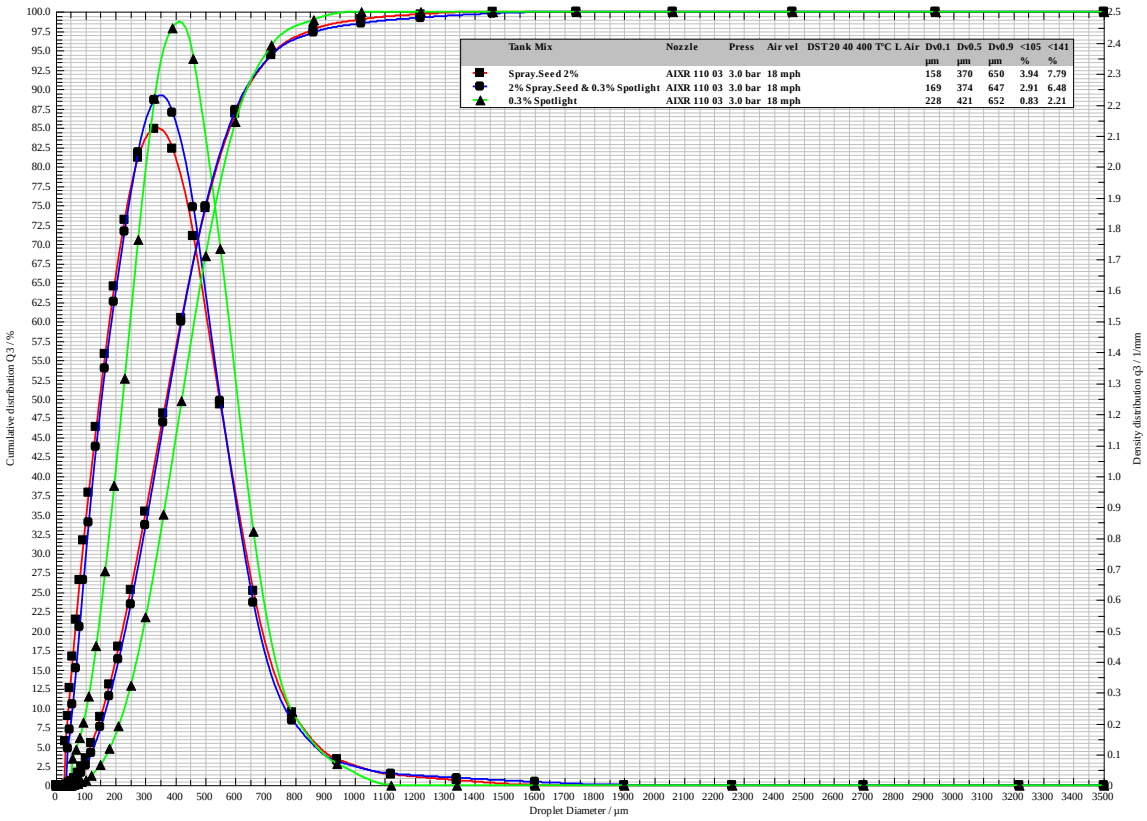
Tests with SpraySeed® herbicide showed that with an AIXR nozzle at 3 bar pressure, the ‘Fines’ represented approximately 1% of the spray by volume. However, the ‘Fines’ increased as the spray pressure increased, reaching almost 6% with a spray pressure of 5 bar. These data are shown on the following figure.



Data collected for a wide range of herbicide nozzles showed that ‘Fines’ varied between 0.3% and 6.4% as shown below.

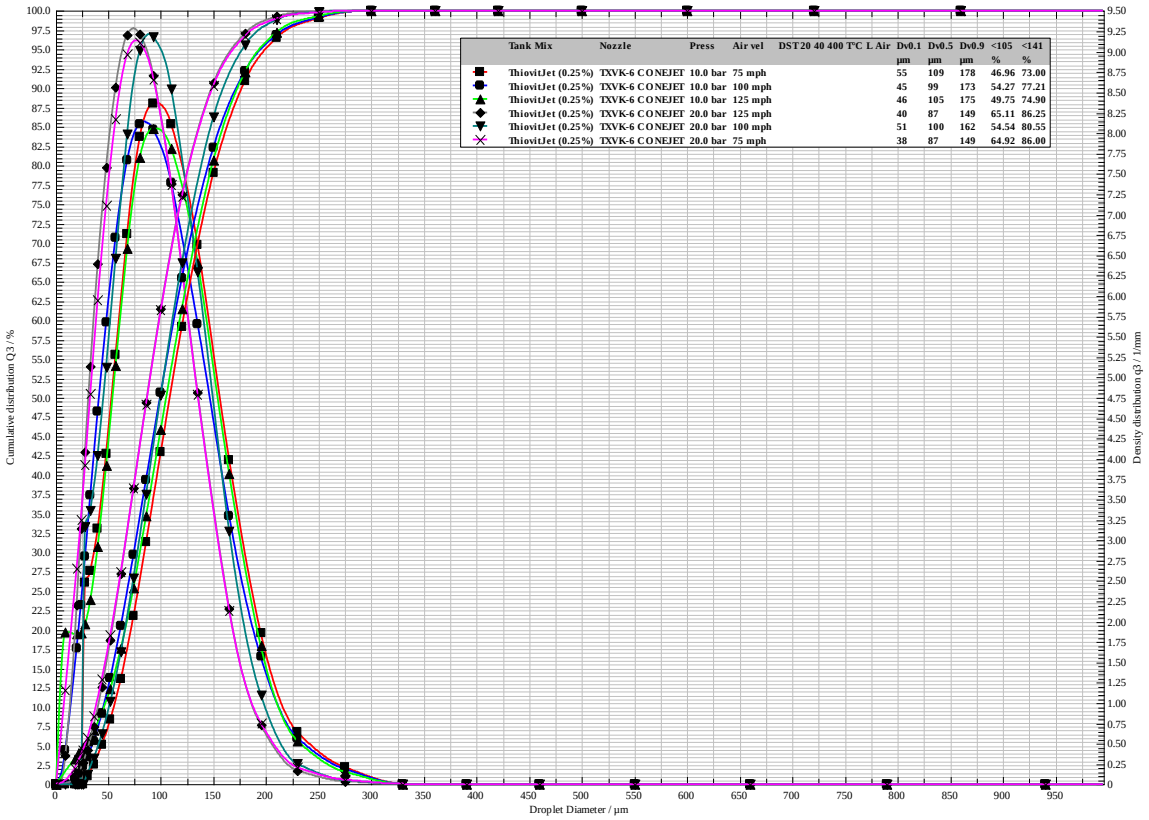


The herbicide Spotlight® produced less than 1% ‘Fines’ when using an AIXR nozzle at 3 bar pressure, and was capable of reducing the ‘Fines’ from tank mixes containing SpraySeed® from approximately 4% to 3% as shown below.



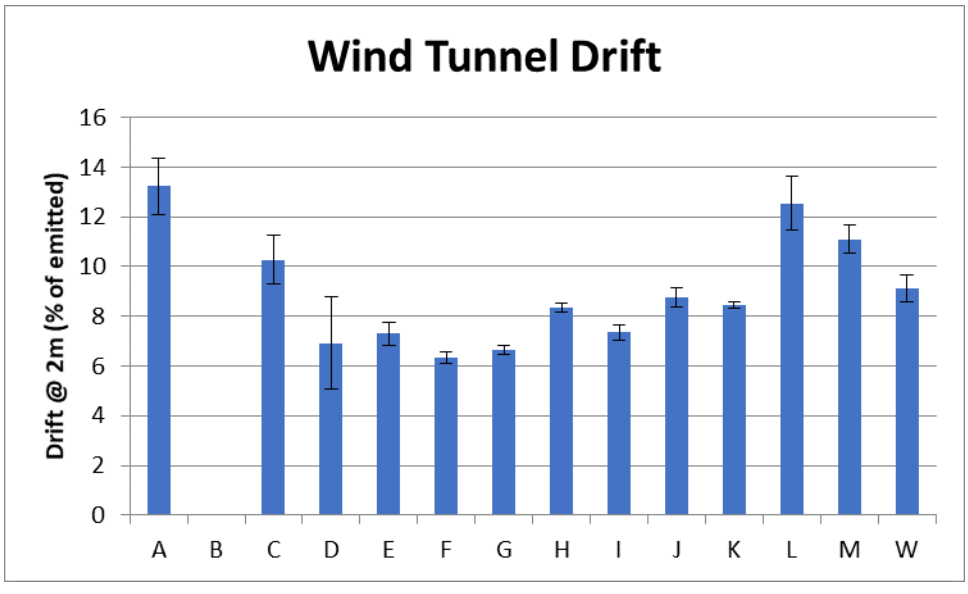
Effect of Spray Pressure for Foliar-Applied Sprays

When the spray pressure was increased, there was a general decrease in droplet size due to higher shear as shown in the following figure.



Effect of Adjuvant on Drift Potential

The spray drift potential values measured on monofilament lines in the wind tunnel are shown below. The magnitude of differences in drift potential was smaller than expected.



A. Agral 0.1%
B. Blank control sample
C. Designer 0.1%
D. Pulse 0.1%
E. Brushwet 0.1%
F. DuWett 0.225%
G. Deluge 0.1%
H. Hasten 0.1%
I. Interlock 0.225%
J. Vitiwet 0.1%
K. Kwicken 0.225%
L. Chemwet 0.1%
M. Paraffin Oil 0.1%
W. Water no adjuvant

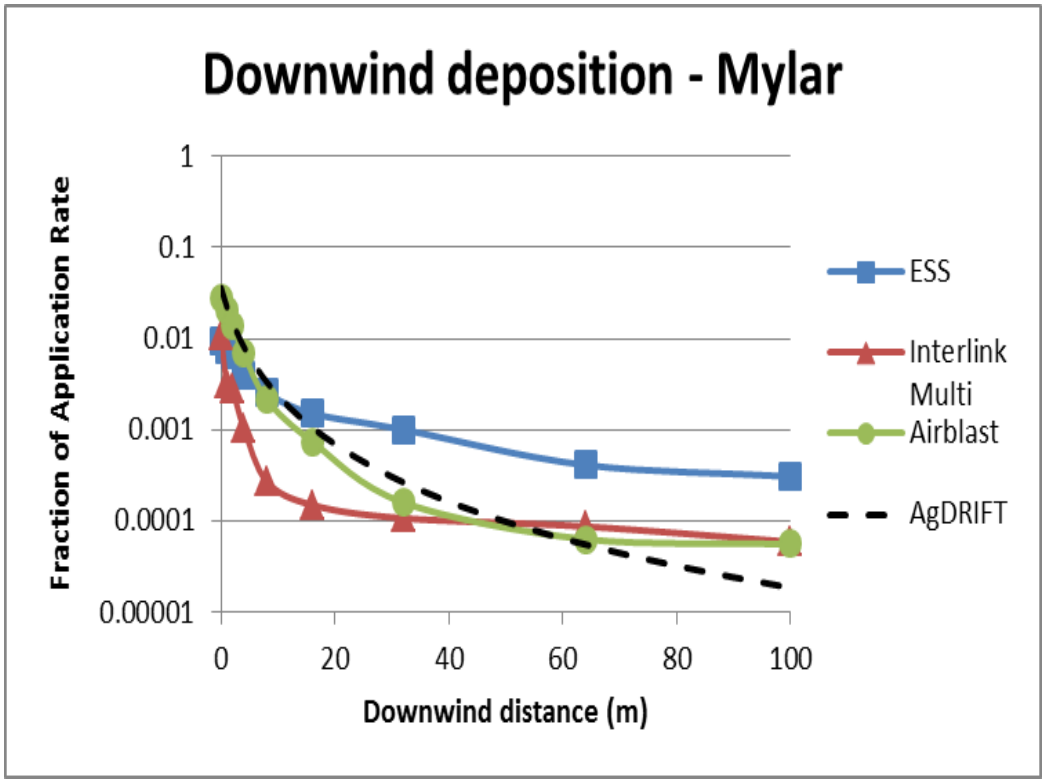
Field Studies

Establishment of Baseline Reference Sprayer to Bridge to AgDRIFT

A primary objective and context for the research conducted in this project was to demonstrate that spray drift can be reduced through improved application practices, systems and technologies as well as appropriate landscape features and barriers/buffers. In order to bridge this research to the regulatory model, AgDRIFT, which is used by the APVMA to assess spray drift exposure risk for pesticide applications, it was important to use a reference sprayer that both linked with the AgDRIFT model spray deposition curve for vineyard spraying and was of a type commonly used in Australian vineyard spraying. A survey conducted by Wine Australia immediately prior to the commencement of this research project showed that the axial fan airblast sprayer which sprays radially was the most common vineyard sprayer in Australia.

The following graph shows the mean deposition for the axial fan airblast sprayer (green curve) closely following that of the reference sprayer for vineyard spray drift exposure used in AgDRIFT. By comparison, two other spraying systems are also shown – one with higher overall deposition drift and one with lower overall deposition drift than the reference sprayer.

The close agreement between the airblast sprayer in this study and the AgDRIFT deposition curve supports the use of the data from this project in refining the size of any no-spray buffer zones in Australian vineyards.

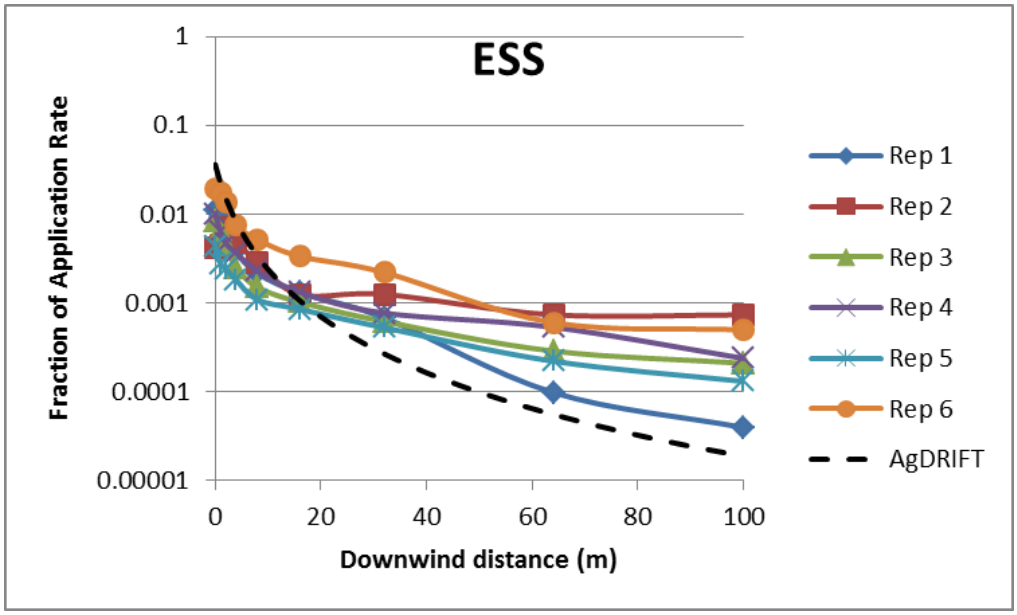


Comparison in Deposition Drift between Different Sprayers

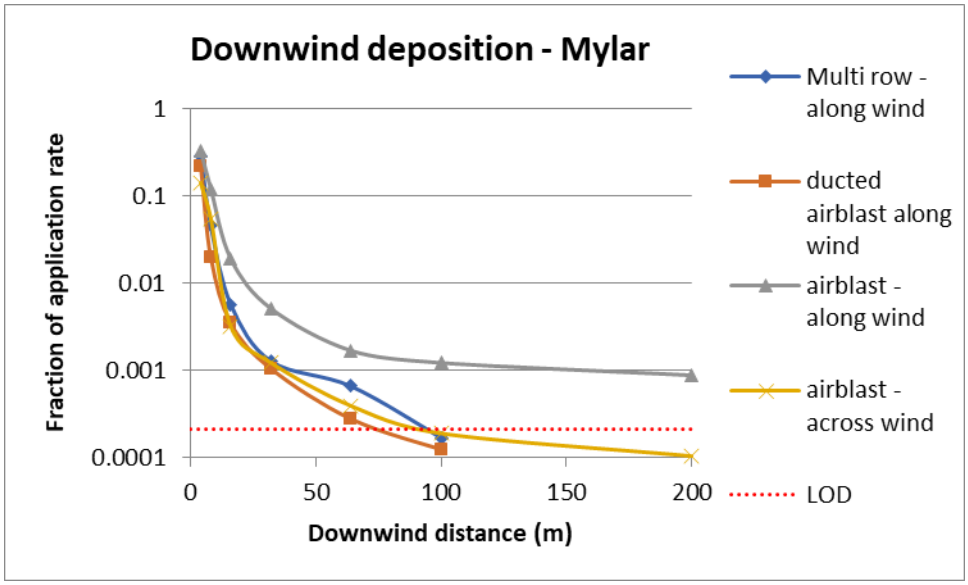
In field trials under hot, dry conditions in Cullulleraine, VIC, there was high drift for the ESS electrostatic sprays as shown below. By comparison, drift from the axial fan airblast sprayer was similar for the first 8 m downwind of the vineyard and then lower, while drift from the Interlink multi-row sprayer was lower at all distances by approximately an order of magnitude. The impact of this difference is that for a pesticide with a commonly-occurring regulatory acceptable limit of exposure to non-target sensitive areas of 0.001 of the application rate, the no-spray buffer zone for the ESS sprayer would be 30 m compared to 20 m for the baseline case (axial fan airblast sprayer or AgDRIFT assessment curve) but only 4 m for the Interlink multi-row sprayer. An 80% reduction in buffer zones is indicative that this sprayer can be considered to be a drift reduction technology under these conditions.

It is important to note that these data cannot alone dictate how the APVMA will assess drift reduction technologies because risk assessment is usually based on percentiles of data or model-derived values. For this reason, the project has included both fieldwork and modelling. Risk assessment based on field data often considers the 90 or 95% percentile among all field data for a given technique. The graph below shows the data from each of six replicate field trials with the ESS sprayer and while the values cover approximately one order of magnitude, all exceed the current AgDRIFT model deposition curve at distances beyond 20 m, suggesting that this system would not be considered to be an effective drift reduction technology under the hot, dry conditions of these studies (~36ºC, 30% relative humidity). It is recommended that additional tests be considered under conditions that are less conducive to high evaporation losses of the 50 µm diameter droplets produced by this sprayer such as temperatures closer to 25 ºC

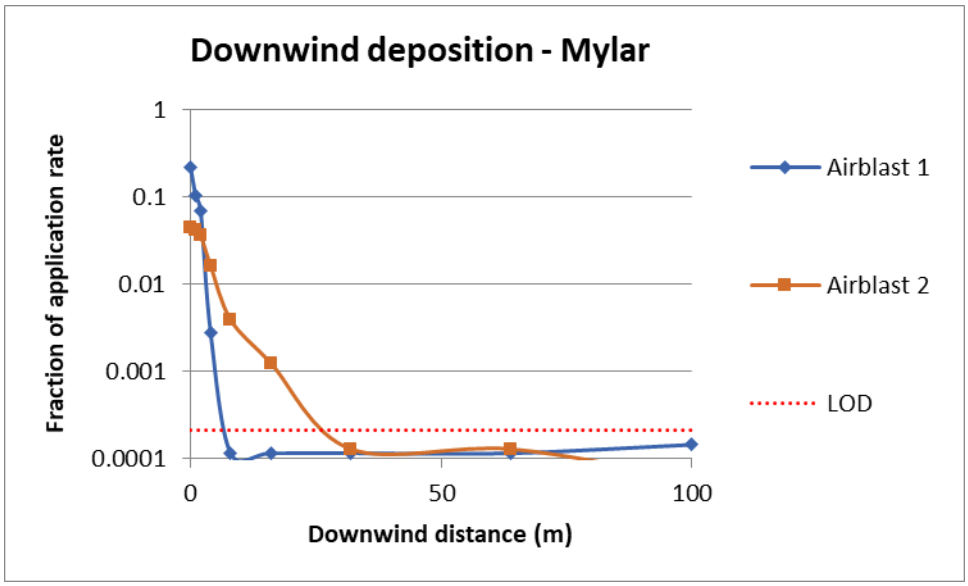
or with anti-evaporant adjuvants. Testing all sprayers under a wide range of conditions and tank mixes was not part of the scope of this research so such work could be conducted by manufacturers of equipment following the protocols from these studies.



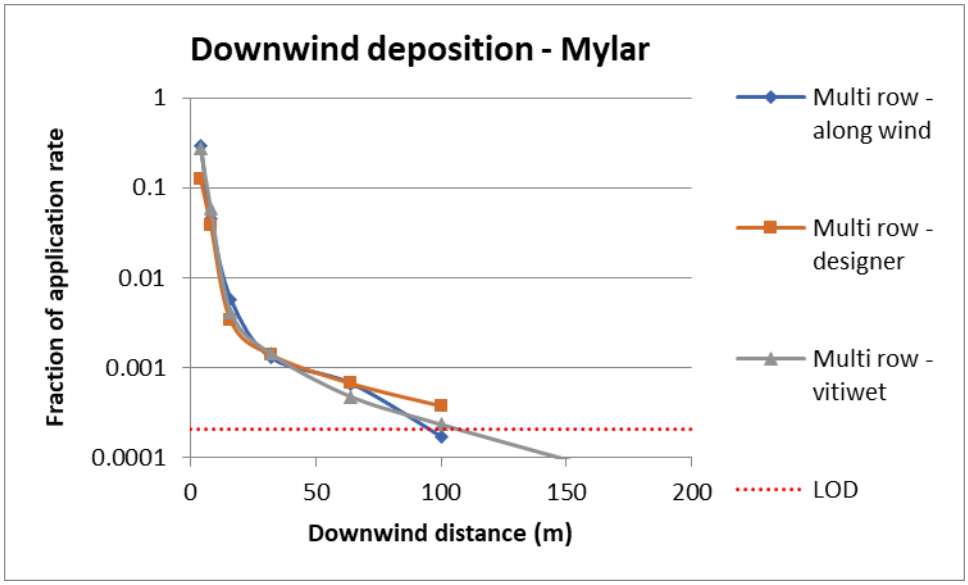
In the field tests comparing the effect of wind direction relative to the vine row planting on spray deposition drift, the exposure risk to drift was an order of magnitude higher for the scenario where the wind was blowing along the rows (i.e. parallel with the row direction) when spraying with the airblast sprayer than when the wind was across (perpendicular to) the rows, as shown below. This is because the rows act like wind tunnels, focussing the spray drift and reducing any lateral dispersion or dilution of the drift. It should be noted that wind direction cannot currently be considered as a candidate drift reduction option for buffer zone size reduction because data are currently based on the 'across wind' setup according to international and regulatory field study protocols and standards. The findings of the present study are in agreement with previous research by Allan Felsot (personal communication) who found 88% higher drift exposure to areas downwind of apple orchards sprayed with the wind parallel to (i.e. along) rather than perpendicular to (i.e. across) the rows.



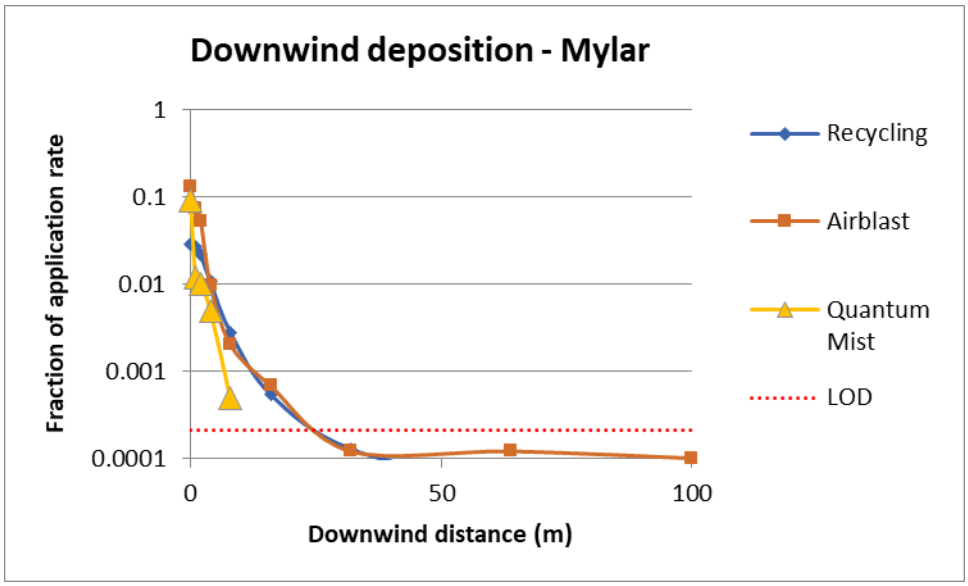
The effect of wind speed on drift was shown in tests with the reference axial fan airblast sprayer in tests with wind speeds of 5.7 and 7.5 m/s referred to in the following figure as Airblast 1 and Airblast 2 respectively. The higher wind speed resulted in greater deposition drift to distances of 32 m downwind. The size of the no-spray buffer zone to protect a non-target sensitive area from adverse exposure above the regulatory acceptable limit of 0.001 of the application rate would be approximately three times higher in the higher of these two wind speeds. This shows the importance of not spraying on windy days.



The adjuvants Designer and Vitiwet did not cause a decrease in the spray drift deposition, suggesting that they are not effective for drift management as shown below.

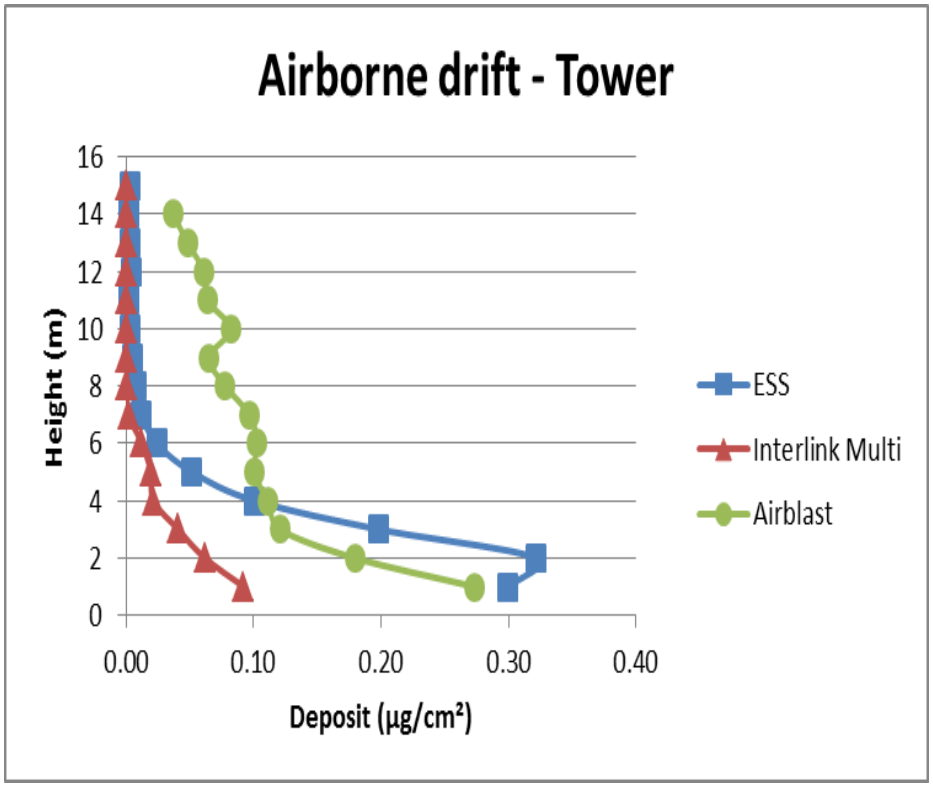


The Quantum Mist rotary (SARDI) fan sprayer was effective at reducing the spray drift deposition relative to the airblast and recapture/recycling sprayer as shown below. These data suggest that the no-spray buffer zone for a pesticide with toxicity of 0.001 regulatory acceptable limit as a fraction of the application rate would be approximately half that of the other two sprayers.



Comparison in Airborne Drift Flux between Different Sprayers

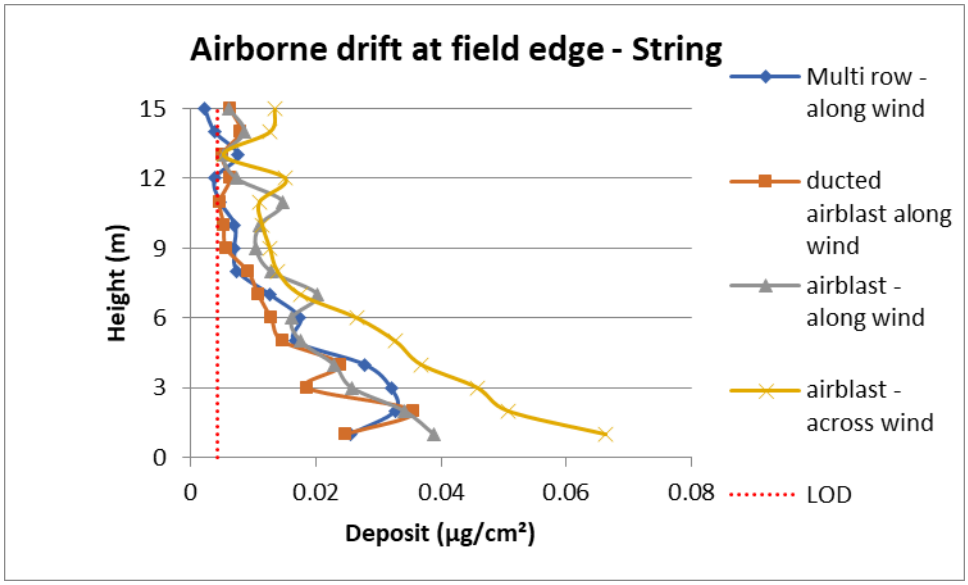
In the first field studies conducted for this project, the conditions at the vineyard in Cullulleraine, VIC were very hot and dry which provided a challenge for the very fine droplet size from the ESS electrostatic sprayer. Despite this challenge, the airborne drift, while relatively high, was also relatively close to the ground which would tend to avoid long-range transport. At heights above 6 m, the airborne drift from this sprayer was nominal and only slightly higher than from the low drift performing Interlink multi-row fan sprayer. By comparison, the airborne drift from the axial fan airblast sprayer was relatively high at all sampling heights as shown below.



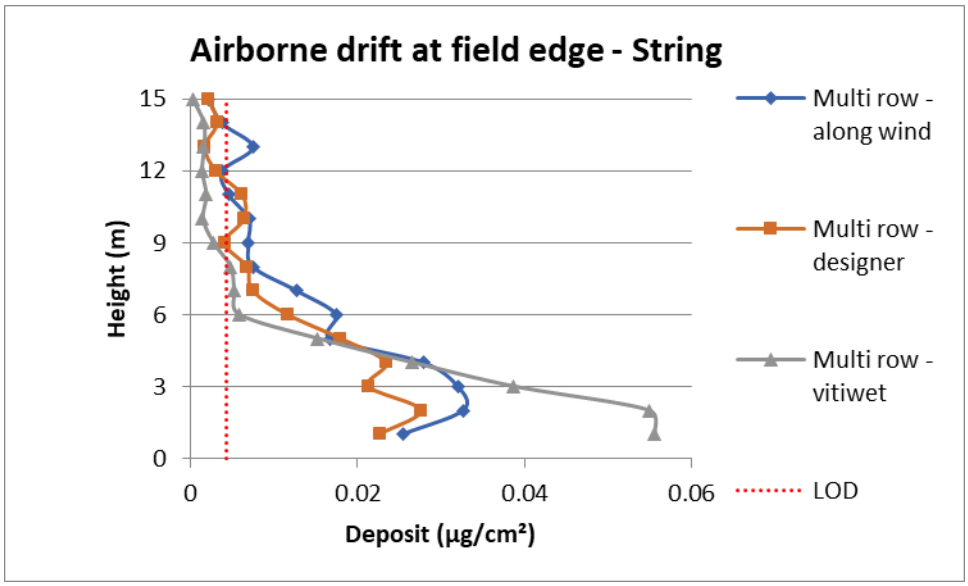
The following table shows the large reduction in both the airborne drift and the deposition drift from the Interlink multi-row sprayer in the studies under hot dry conditions in Cullulleraine.

Sprayer	Drift (% of total volume sprayed)	
	Tower (Airborne, field edge)	Mylar (ground deposit to 100m)
ESS	2.2	0.9
Interlink Multi	0.8	0.3
Airblast	5.5	1.3

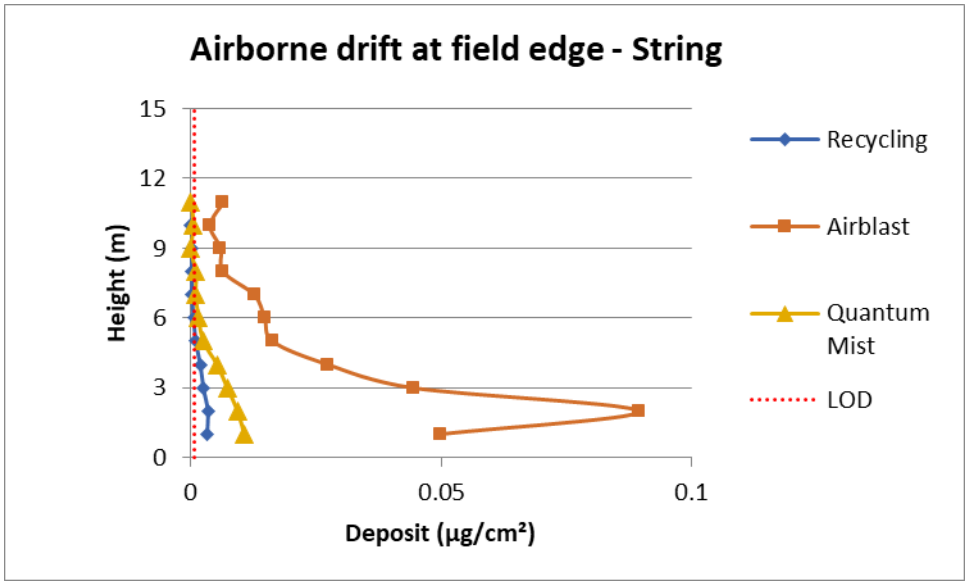
It is interesting that in subsequent studies under cooler conditions in Langhorne Creek (22ºC compared to 36ºC in Cullulleraine), the drift was almost the same for the Interlink multi-row and the axial fan airblast sprayers as shown below.



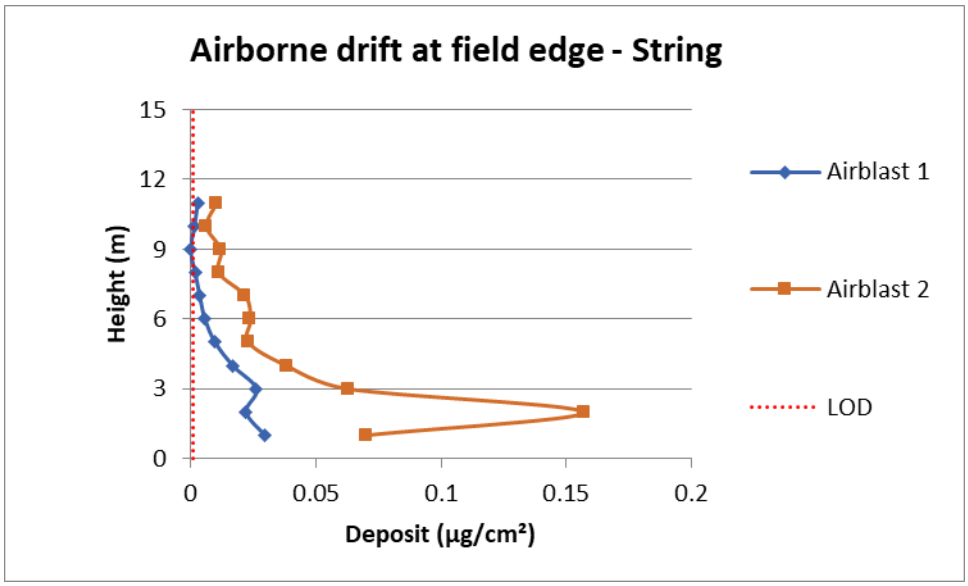
The adjuvants did not offer a large reduction in airborne drift under such conditions as shown below but might perform better under hotter conditions if they offer benefits of evaporation retardation.



The recapture/recycling sprayer was effective at capturing airborne spray that didn't deposit on the canopy and thereby reducing airborne drift as shown below. Through improved targeting of the spray towards the canopy, both this and the Quantum Mist sprayer were effective at reducing airborne drift by up to an order of magnitude compared to the axial fan airblast reference sprayer.

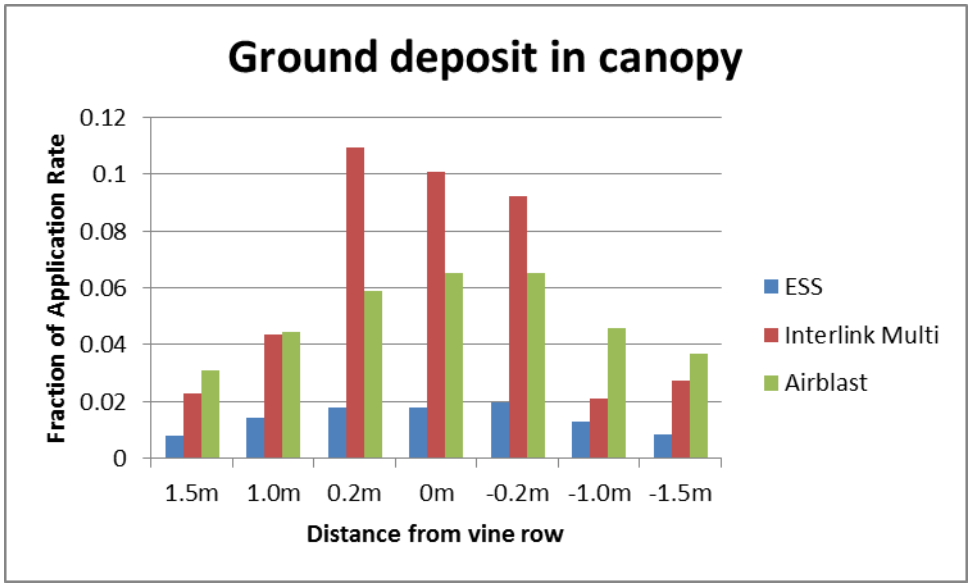


Under high wind speed conditions (7.5 m/s compared to 5.7 m/s for the 'Airblast 2' and 'Airblast 1' scenarios below), the airborne drift from the axial fan airblast sprayer increased by a factor of approximately two.

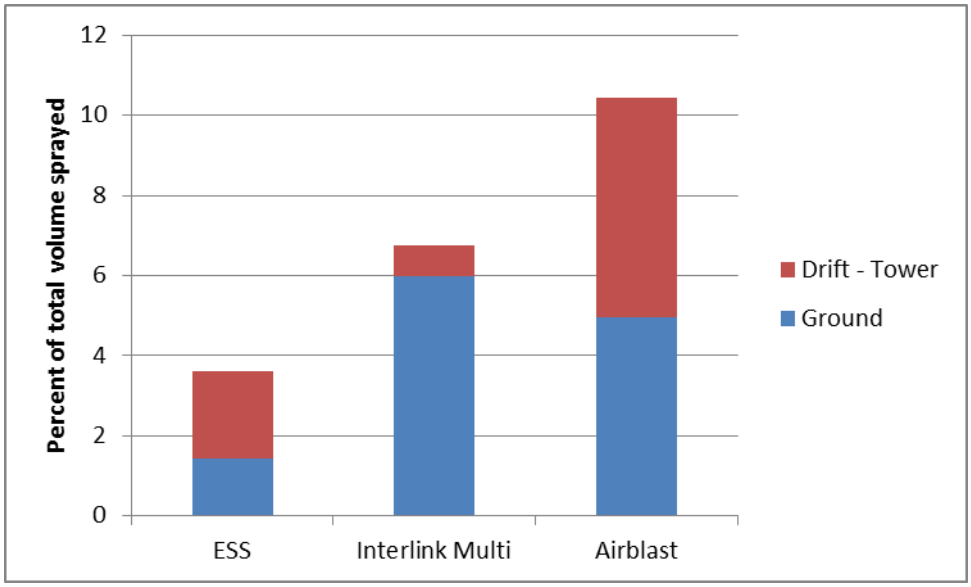


Comparison in Loss to Ground between Different Sprayers

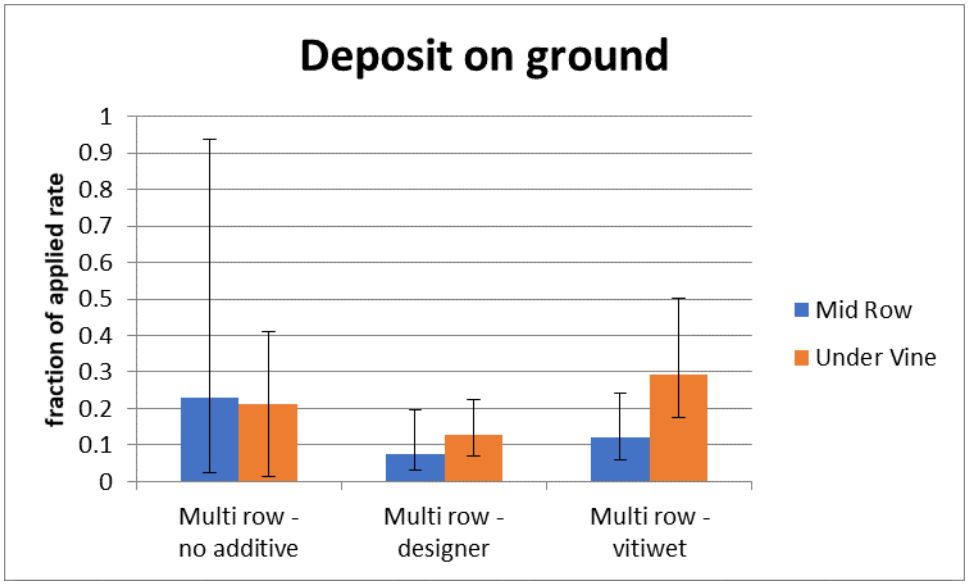
The ESS electrostatic sprayer produced very small droplets with diameters of ~50 µm. The small size of these droplets meant that if they didn't deposit on the canopy then the major loss pathway was as airborne drift, as shown in other sections of this report. The figure below shows the lower mean loss to the ground at all distances across the canopy (0m being the centre of the row and + and – distances either side) for the ESS sprayer and the higher losses in the middle of the rows from the Interlink multi-row sprayer which was due to the larger droplet size from this system.

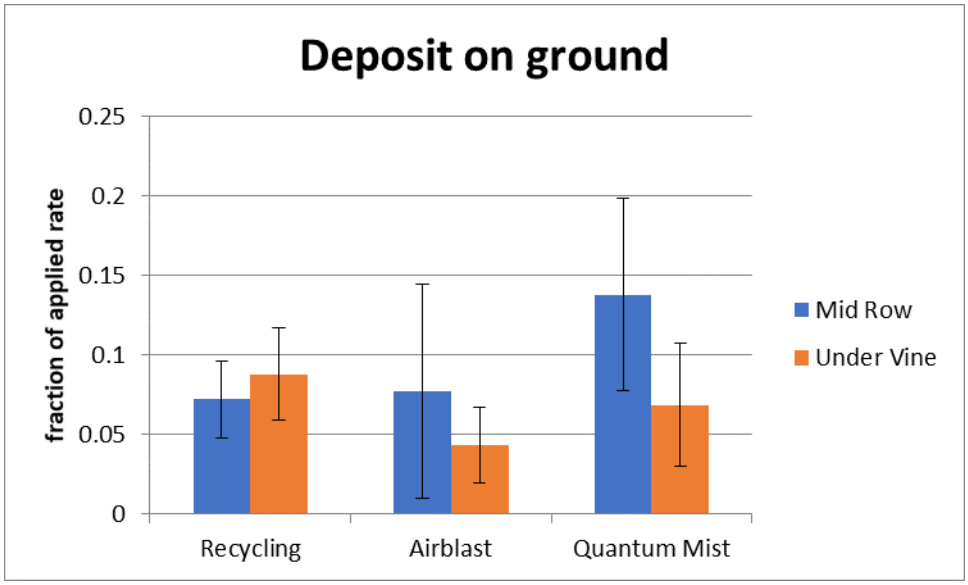


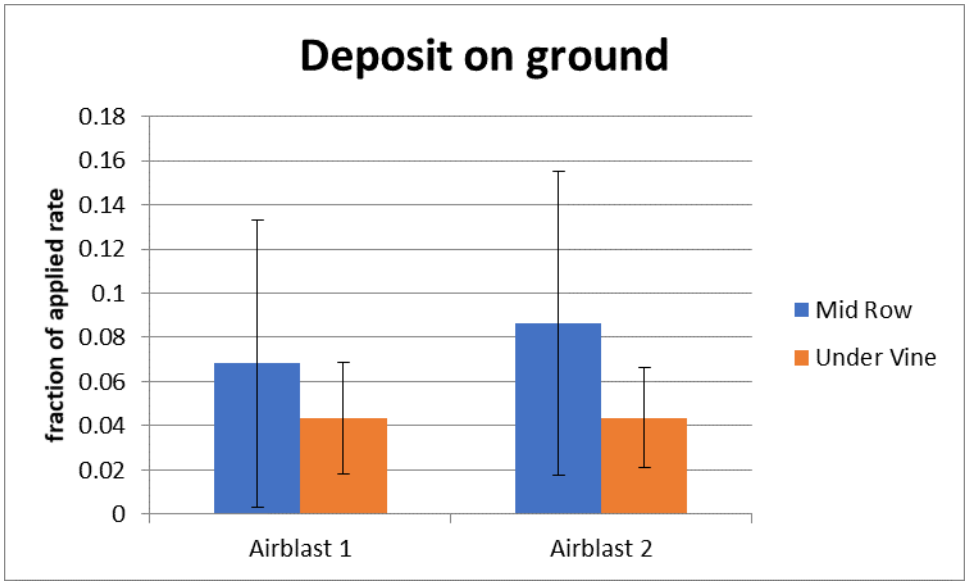
When these sprayers are compared for total loss pathways in the figure below, it is evident that the overall losses are higher from the axial fan airblast sprayer and while airborne drift is relatively high for the ESS compared to the Interlink multi-row sprayer, losses to the ground within the canopy are relatively low for the ESS.



The following graphs show the losses of spray to the ground in the rows for the other scenarios discussed in previous sections of this report. The trends are as expected with no large effects for the other sprayers or the tank mix adjuvants,

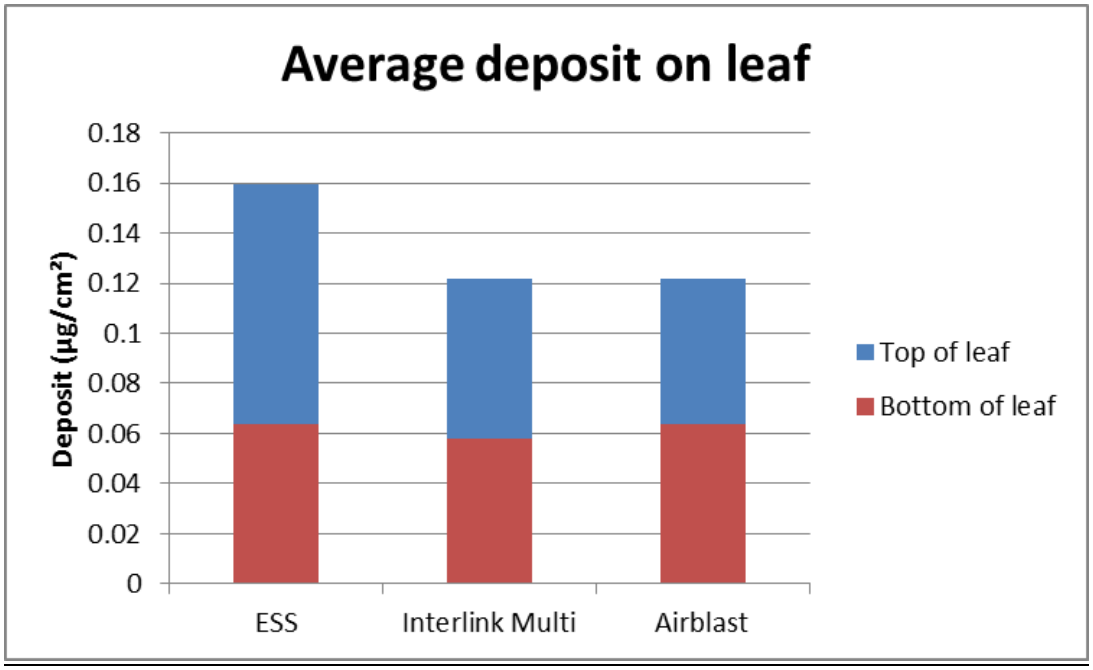

Deposit on ground
fraction of applied rate
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Multi row - no additive
Multi row - designer
Multi row - vitiwet
Mid Row
Under Vine

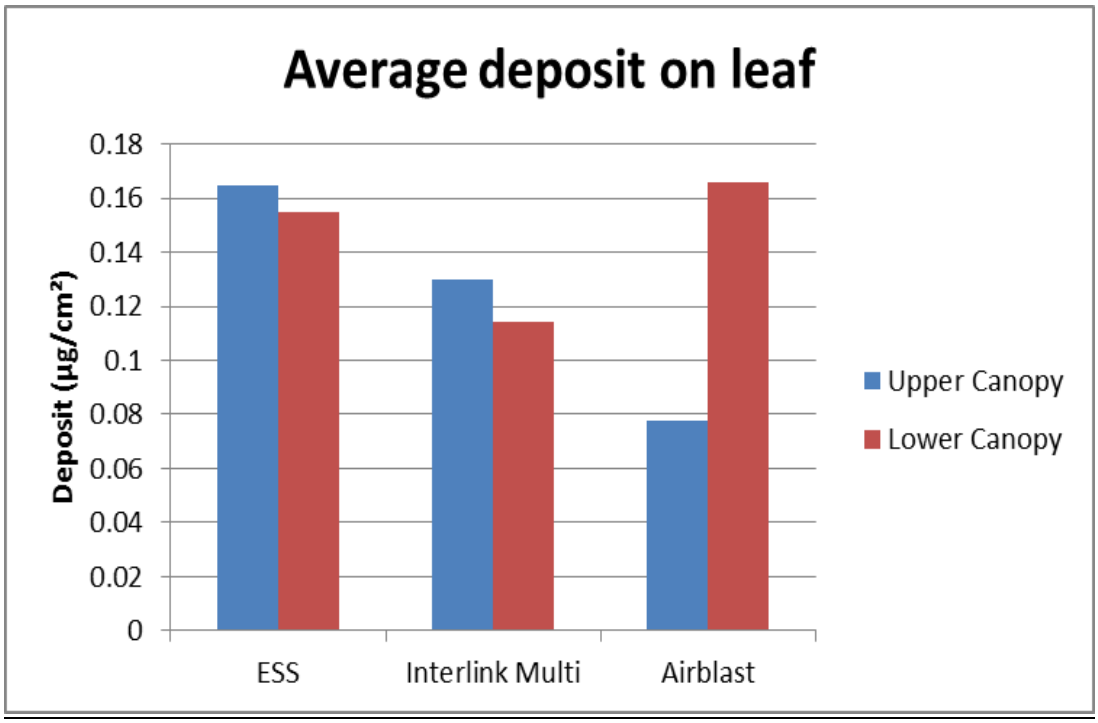

Deposit on ground
fraction of applied rate
0.25
0.2
0.15
0.1
0.05
0
Recycling
Airblast
Quantum Mist
Mid Row
Under Vine


Deposit on ground
fraction of applied rate
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Airblast 1
Airblast 2
Mid Row
Under Vine

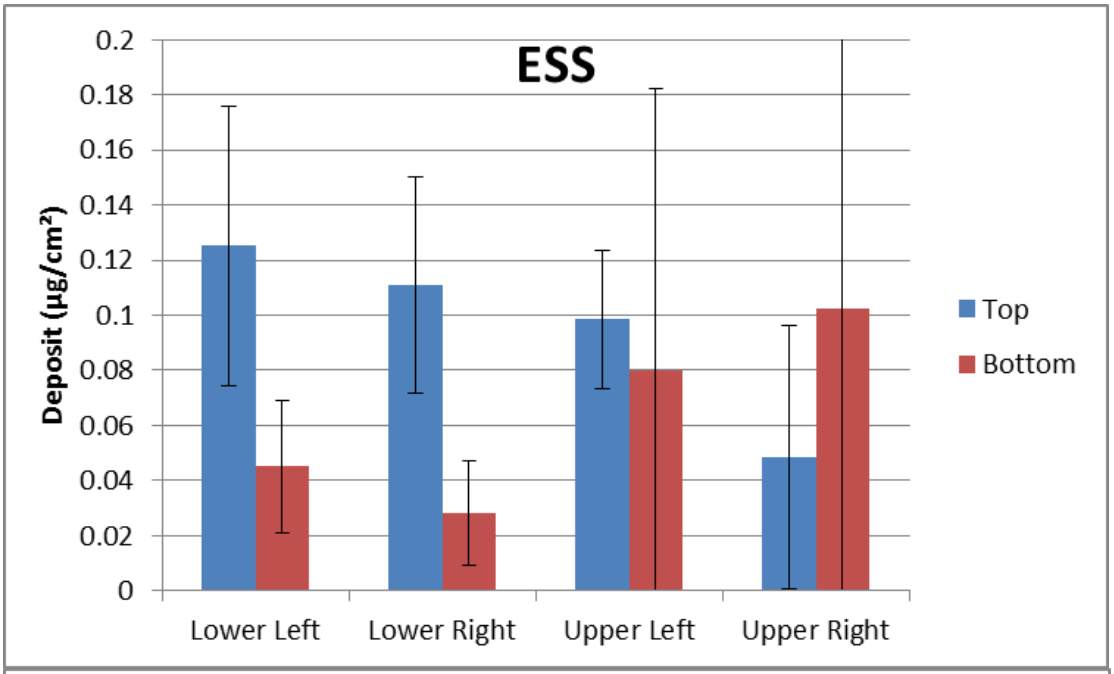
Comparison in Coverage on Canopy between Different Sprayers

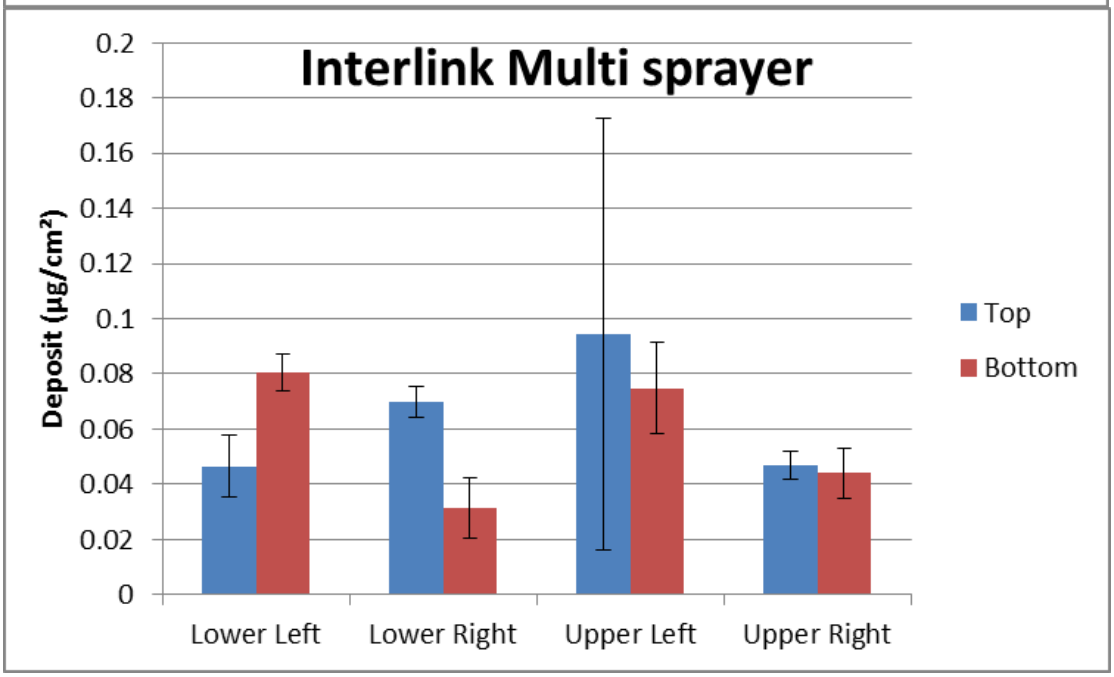
The following two figures show that in the field studies in Cullulleraine, VIC, the ESS electrostatic sprayer provided the greatest coverage on the foliage with uniformity between the upper and lower canopy. By comparison, the axial fan airblast sprayer failed to achieve good coverage at the top of the canopy because its spray was released closer to the ground than the ESS and Interlink multi-row sprayers which both achieved good coverage throughout the canopy by releasing the spray from above and from the side of the vines.

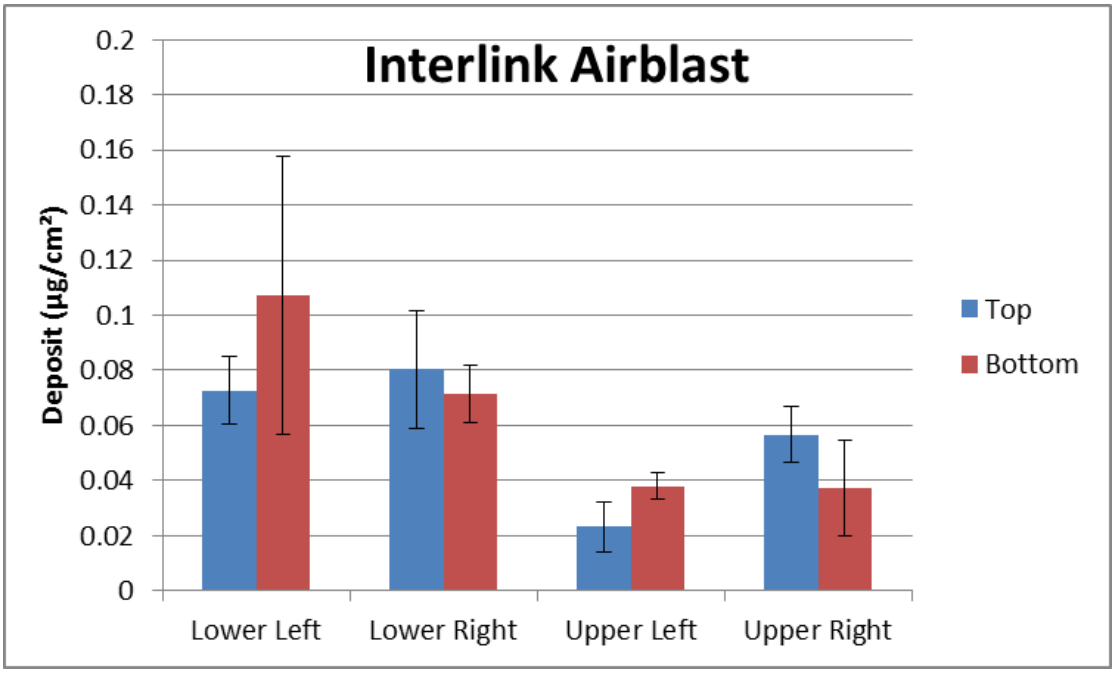




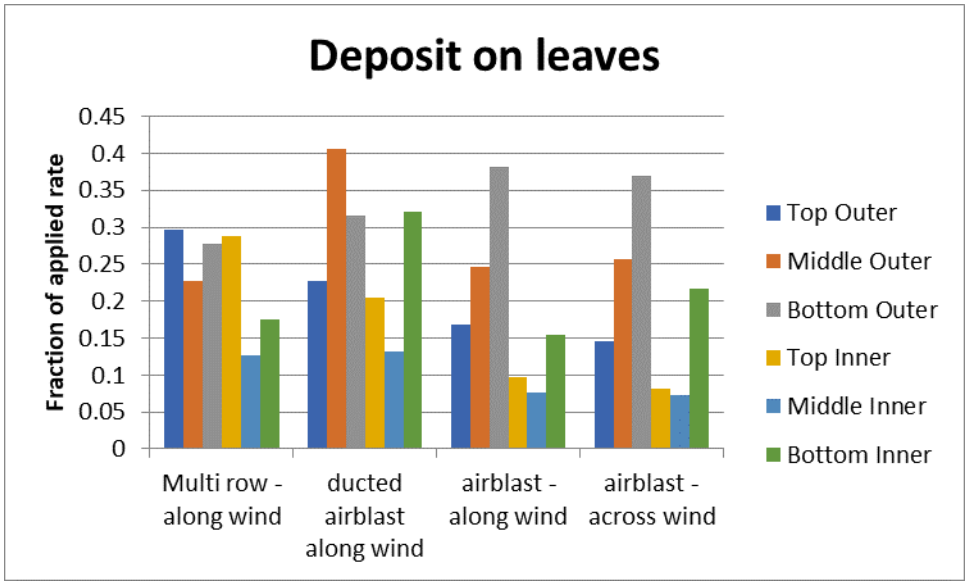
The following three graphs show the data in more detail for partitioning of the spray in the canopy.

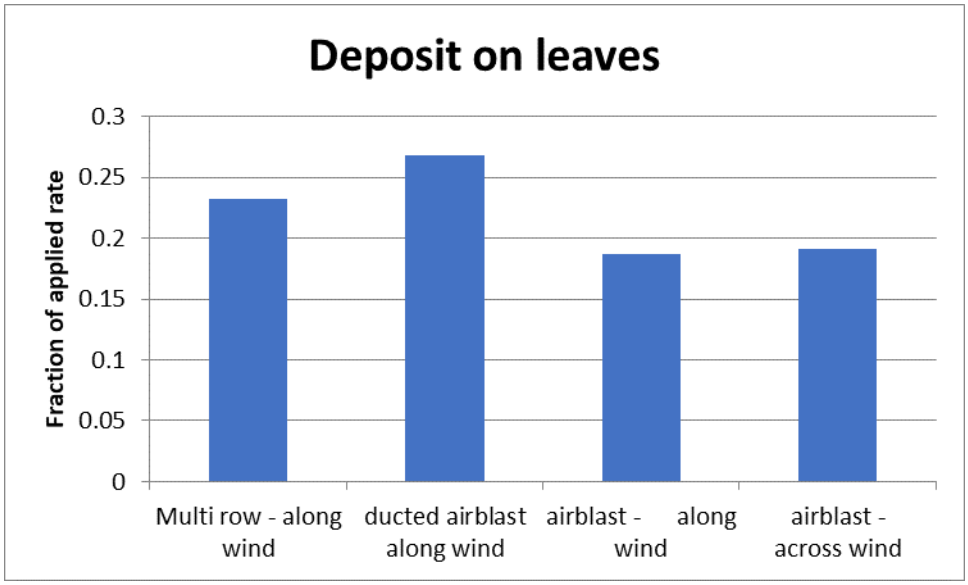

ESS
Deposit (µg/cm²)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Lower Left
Lower Right
Upper Left
Upper Right
Top
Bottom


Interlink Multi sprayer
Deposit (µg/cm²)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Lower Left
Lower Right
Upper Left
Upper Right
Top
Bottom

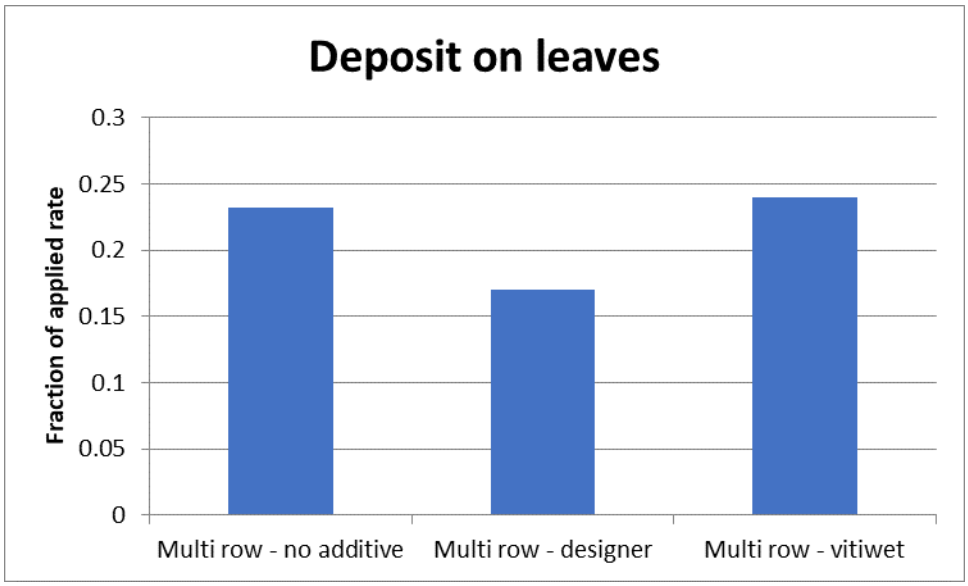


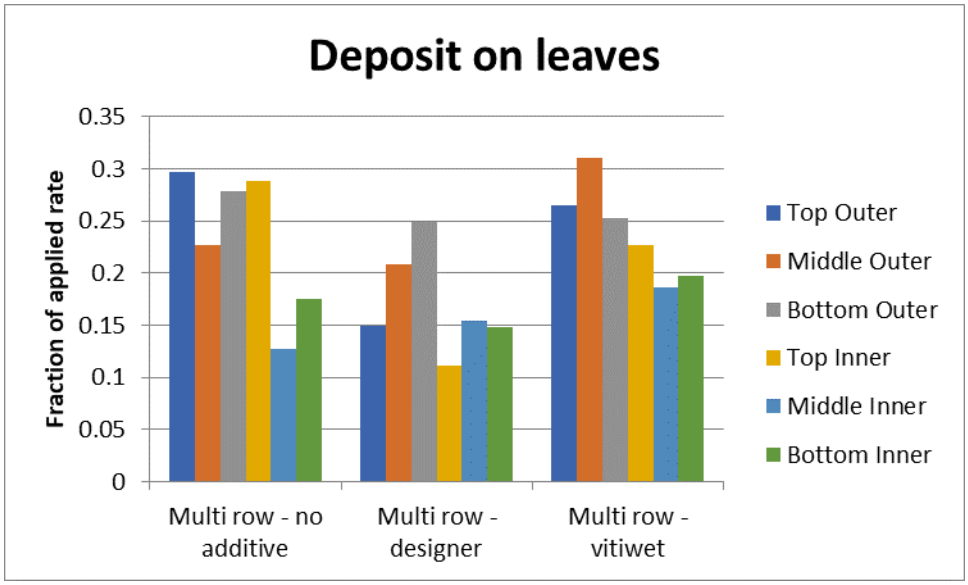
In field trials at Langhorne Creek, SA, the addition of an upper air deflector (tower) to help push any spray that left the top of the vineyard proved its value at improving the spray deposition at the upper, middle and lower, innermost canopy region as shown in the two figures below. This study also explored the effect of wind direction relative to the row planting direction and the data suggest that this had little effect on deposition rates within the canopy. The effect on drift is discussed in the section on drift data. One trend that is clear is that overall spray deposition was better with the addition of the relatively simple upper air duct to the axial fan airblast sprayer.



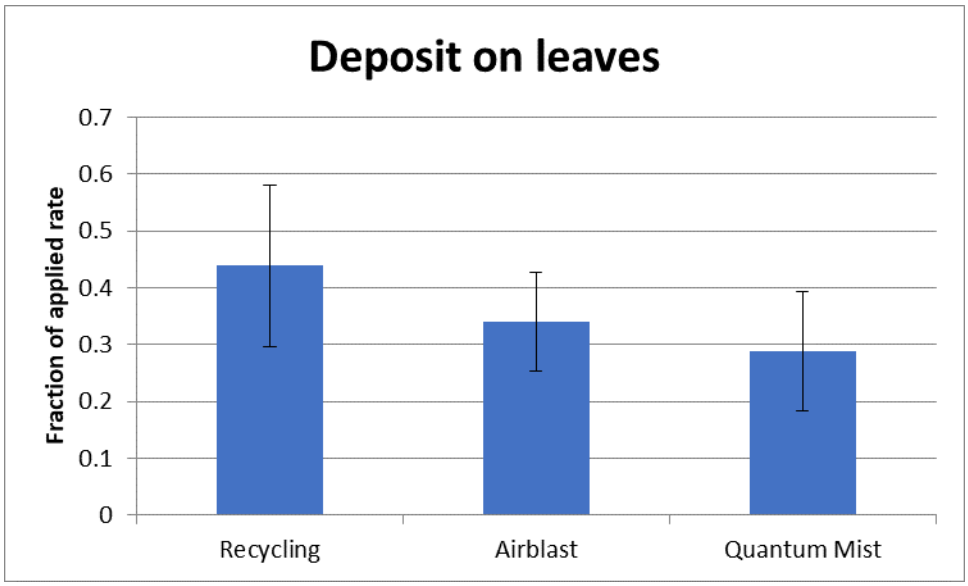


Field studies to compare adjuvant effects on spray deposition showed that adjuvants did not produce an improvement in spray coverage as shown in the two figures below.

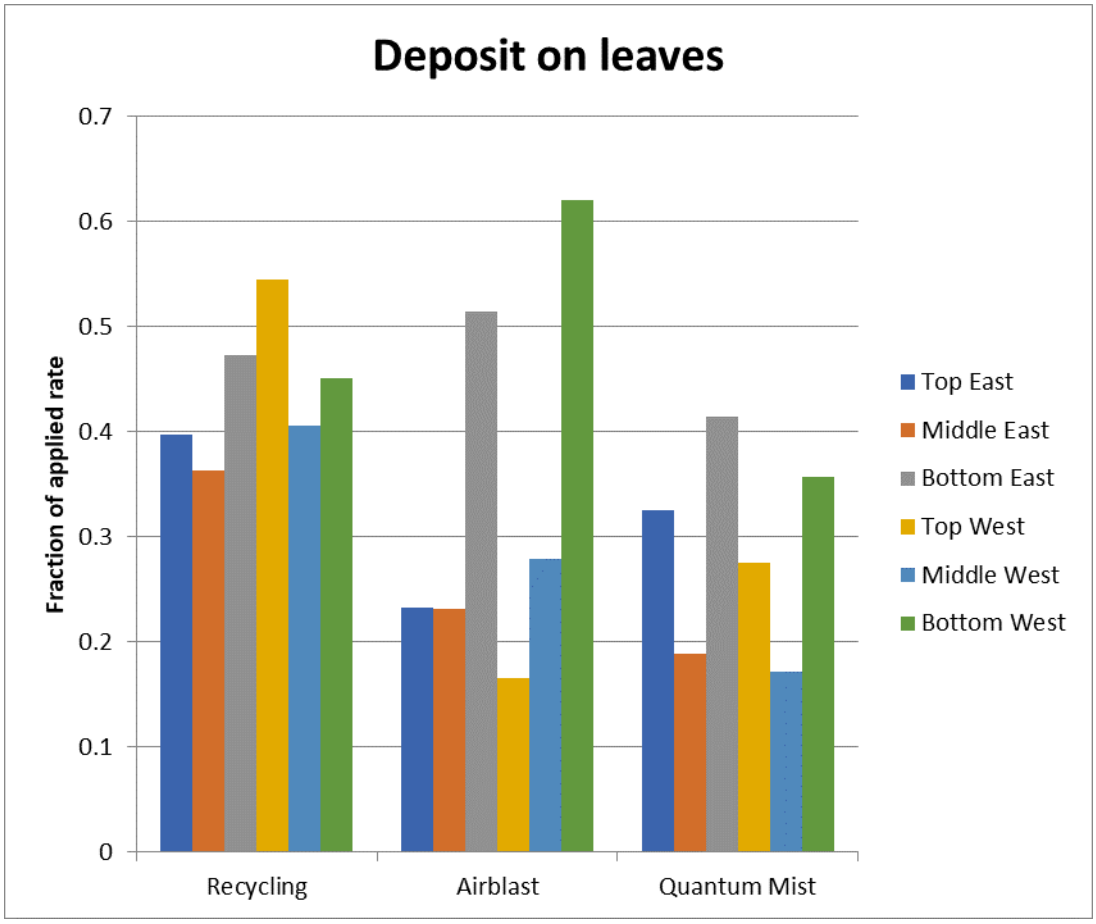




In field trials at Langhorne Creek, SA, the FMR recapture/recycling sprayer provided the highest overall spray coverage on foliage and the coverage from the Quantum Mist was the lowest as shown below. The better performance of the recapture/recycling sprayer was due mainly to its continuous vertical line source of spray compared to the discrete multi-point source of the Quantum Mist.



The partitioning of the spray deposit in the various canopy regions is shown below. The recapture/recycling sprayer provided the greatest uniformity of coverage and the axial fan airblast sprayer with its radial air discharge deposited most of the spray on the lower canopy with inferior coverage at middle and top canopy foliage.


Deposit on leaves
Fraction of applied rate
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Recycling
Airblast
Quantum Mist
Top East
Middle East
Bottom East
Top West
Middle West
Bottom West

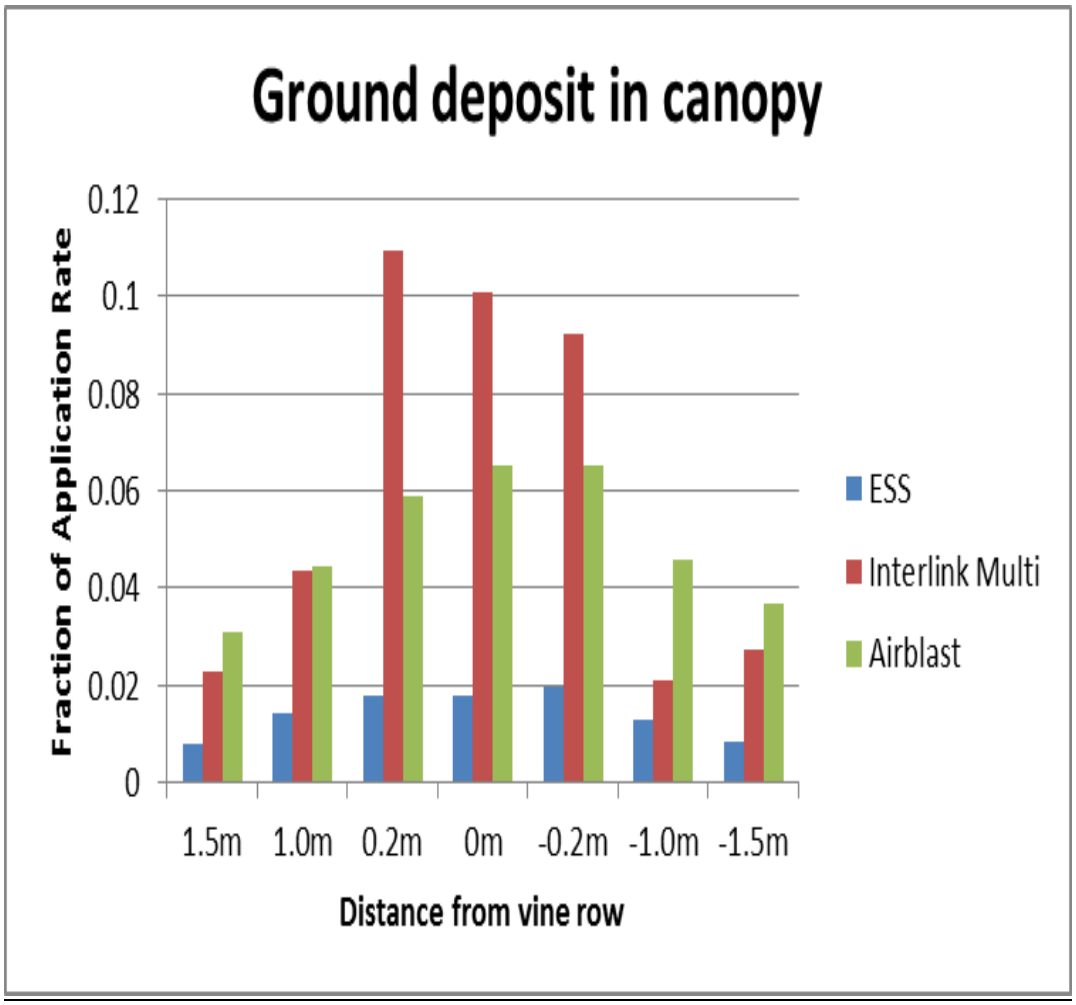
Barriers for Spray Drift Reduction

The field studies in Stanthorpe assessing barrier structures for drift exposure mitigation showed that there was a reduction in both airborne drift and deposition drift as the weave density (or shade factor) of the cloth increased.

The data from these studies are being used to validate a model that can link with spray drift management decision support tools for vineyards as part of work under the Technical Working Group of the National Working Party on Pesticide Applications, led by Gary Dorr at the APVMA.

Comparison in Loss to Ground between Different Sprayers

The figure below shows that the Interlink multi-row sprayer experienced the greatest loss of spray to the ground below the canopy while the ESS sprayer had the lowest losses. This is due to the finer droplet size from the latter which tended to impact foliage efficiently and remain on the leaves due to electrostatic attraction.



Spray Application Volume Rate Calibration Model Evaluation and Droplet Density Coverage Techniques

The wine grapes were assessed as being medium density. There were two canopies and physical data collection of the canopies showed they were 0.5 and 1.2 m high in foliage extent (designated here as being small and large canopies respectively). The width was approximately the same as the height in each case. The row spacing was 2.75 m and the rows were running North-South at Wolf Blass Vineyard in Langhorne Creek, SA. The sprayer for these tests was the Interlink multi-row tube sprayer.

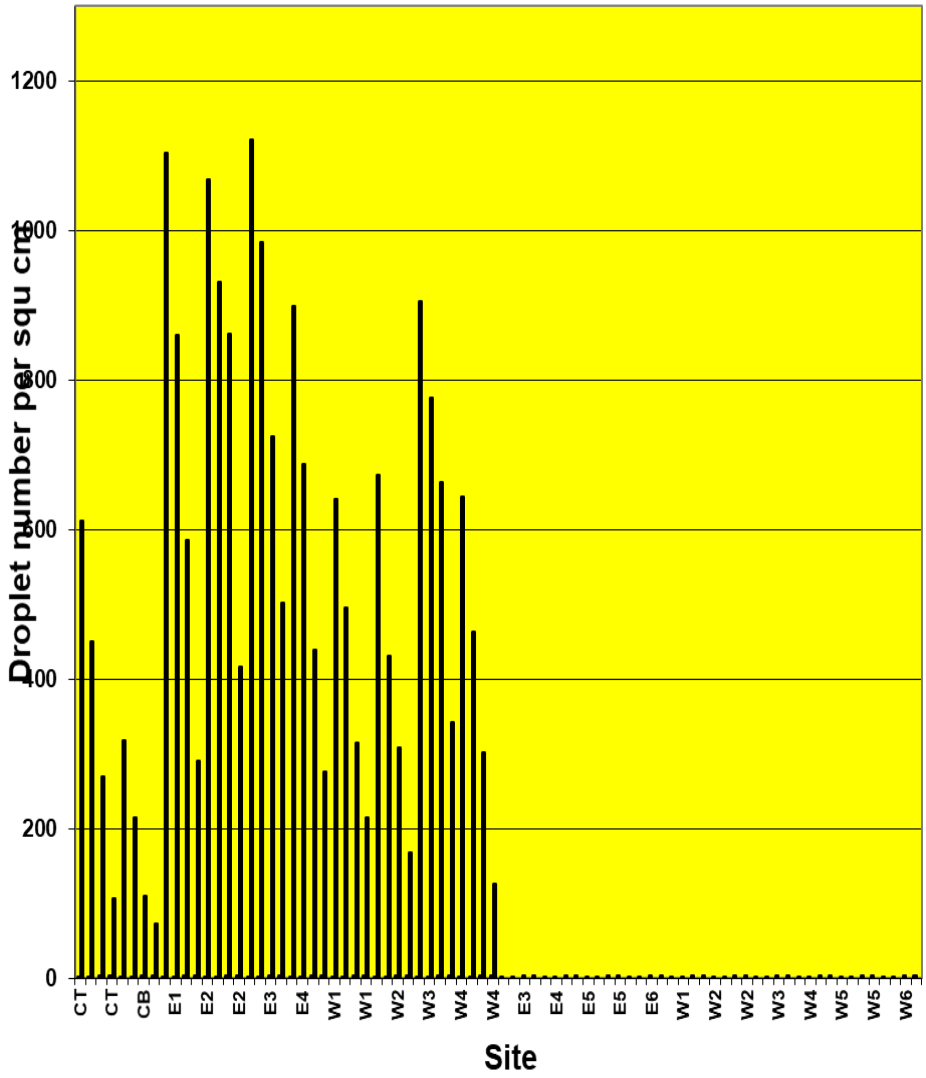
The ground area-based calibration was 350 L/ha with a 9 km/h sprayer speed using 16 orifice size 02 nozzles. The equivalent canopy wall area application for this would be 8.02 L/100m/m for the large canopy and 19.25 L/100m/m for the small canopy.

The canopy wall area-based calibration for the large canopy was 9.625 L/100m/m at a driving speed of 8 km/h, which equates to 420 L/ha for this vineyard. For the small canopy, the same rate of 9.625 L/100m/m equates to 175 L/ha.

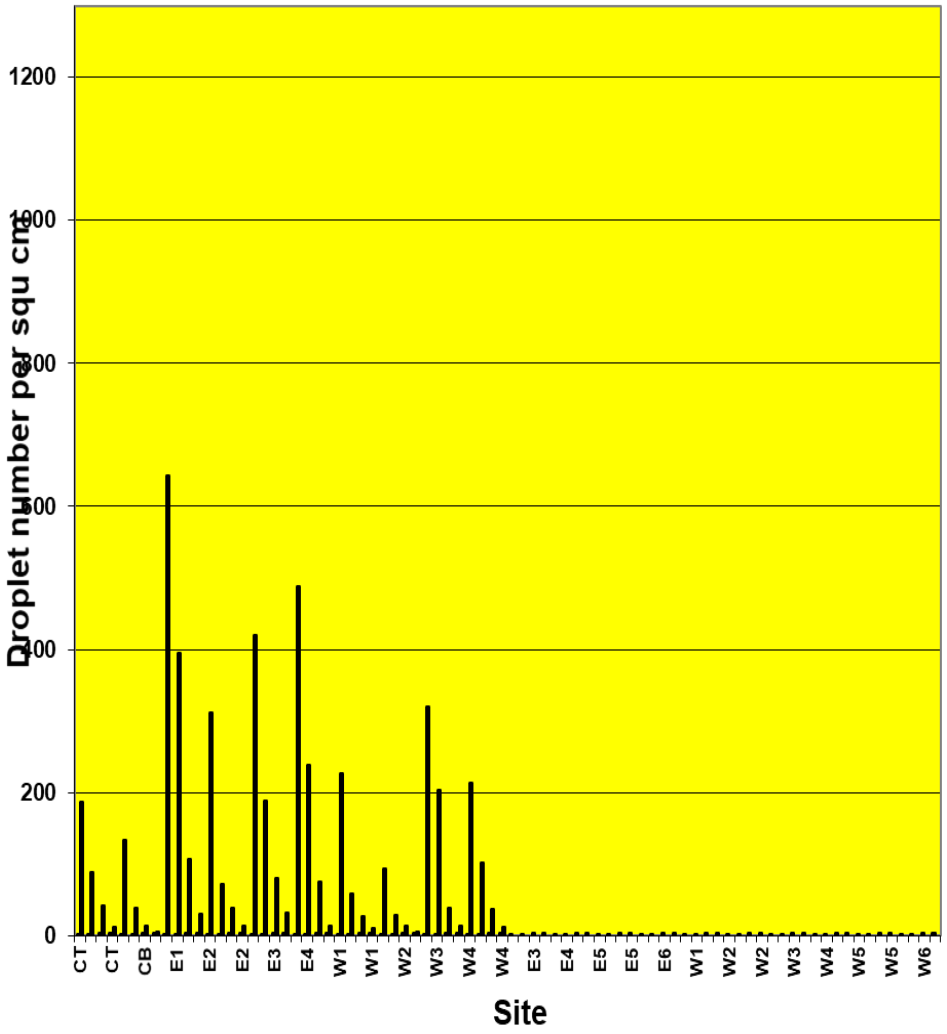
The following graphs show the spray coverage rankings on leaves based on visual assessments of the coverage on a leaf viewed as four sections, ranked from highest to lowest coverage per leaf. The graphs cover the large and small canopies by both upper and lower leaf surface deposition, and the ground area versus canopy wall area calibration systems.

The graphs should be read as follows. For large canopies, many leaf locations can be sampled, so there were 10 sample locations (and 10 replicate leaves per location). These are, in order from left to right, CT (centre of the vine, near the trunk, at the top), CB (centre bottom) and E1 to E4 which are samples from the east side of the row numbered 1 to 4 from top to bottom of the canopy. Similarly, W1 to W4 are samples from the west side of the row numbered 1 to 4 from top to bottom. For small canopies, few leaf locations can be sampled so there were only three: Centre, East and West. The interpretation in the context of the Very Fine to Fine sprays applied through these sprayers is that good application approaching the point of first runoff will require 650 drops/cm² on each leaf surface. Therefore, the coverage is deemed good if the y axis values are all 650 or greater. With 4 bars of data per leaf, it would be ideal if all 4 bars were ≥650 drops/cm² because where any bar is lower than that value for a given leaf location, the interpretation is that the coverage was variably lower than optimum for most pesticides.

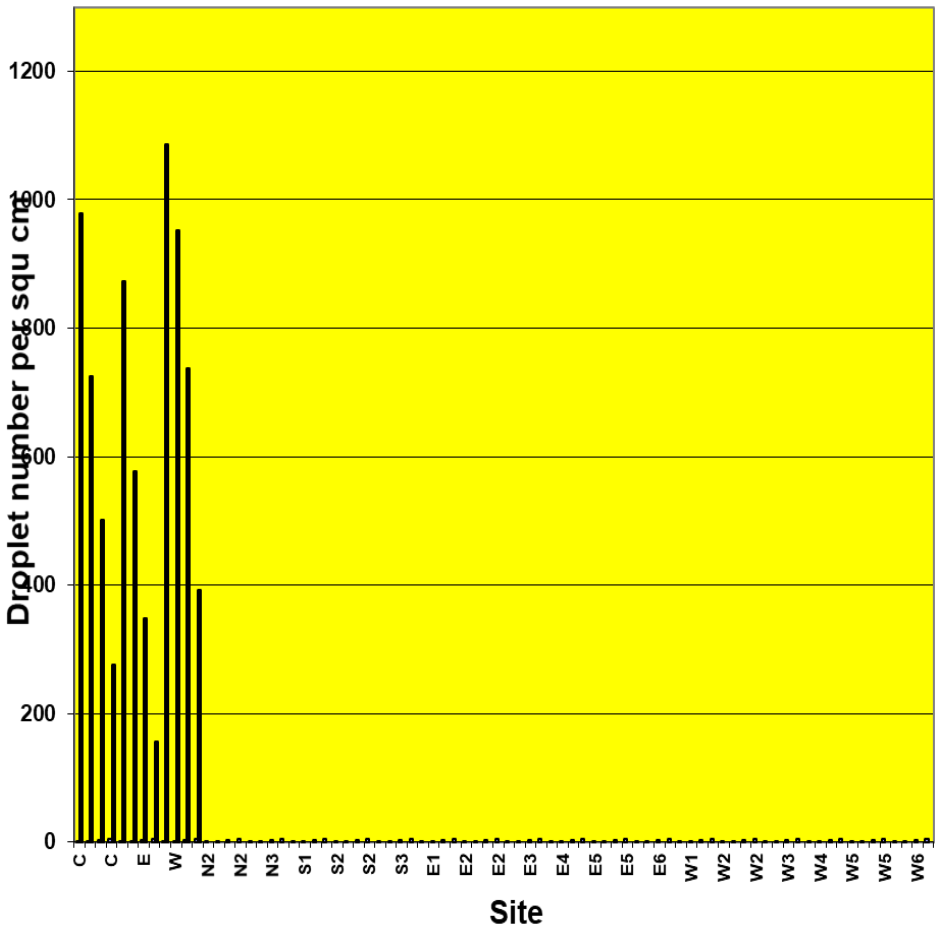
350 L/ha, Large Canopy, Upper Leaf Surface



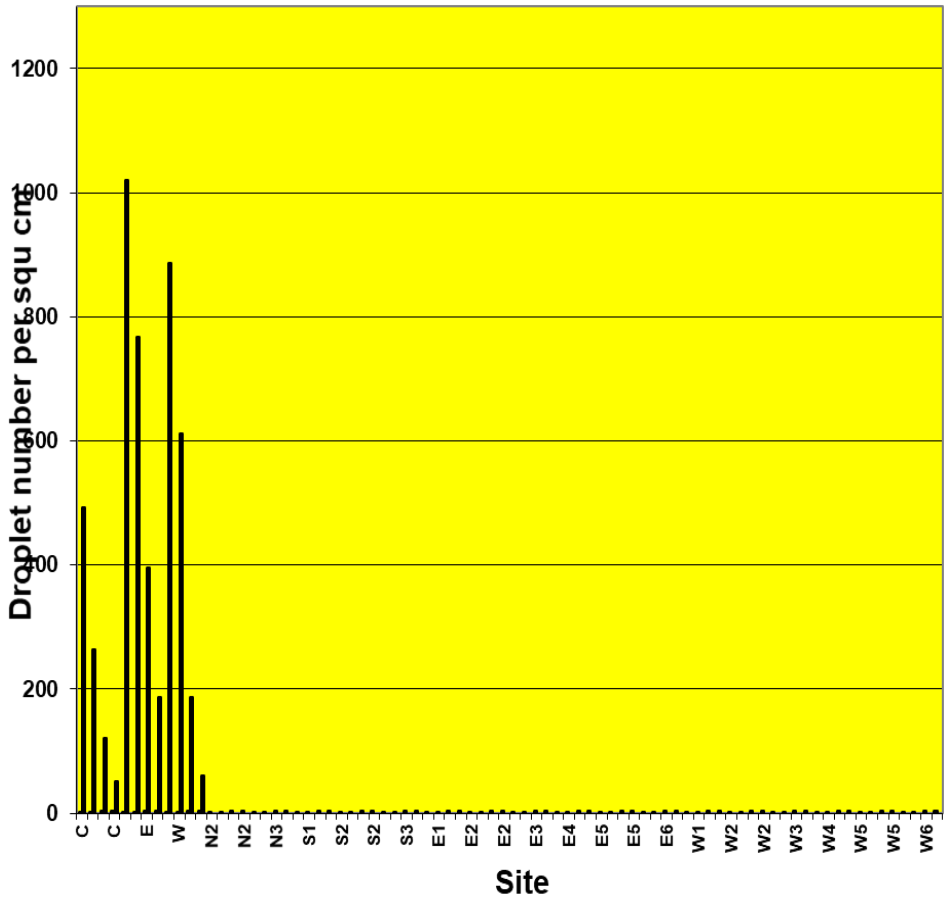
350 L/ha, Large Canopy, Lower Leaf Surface



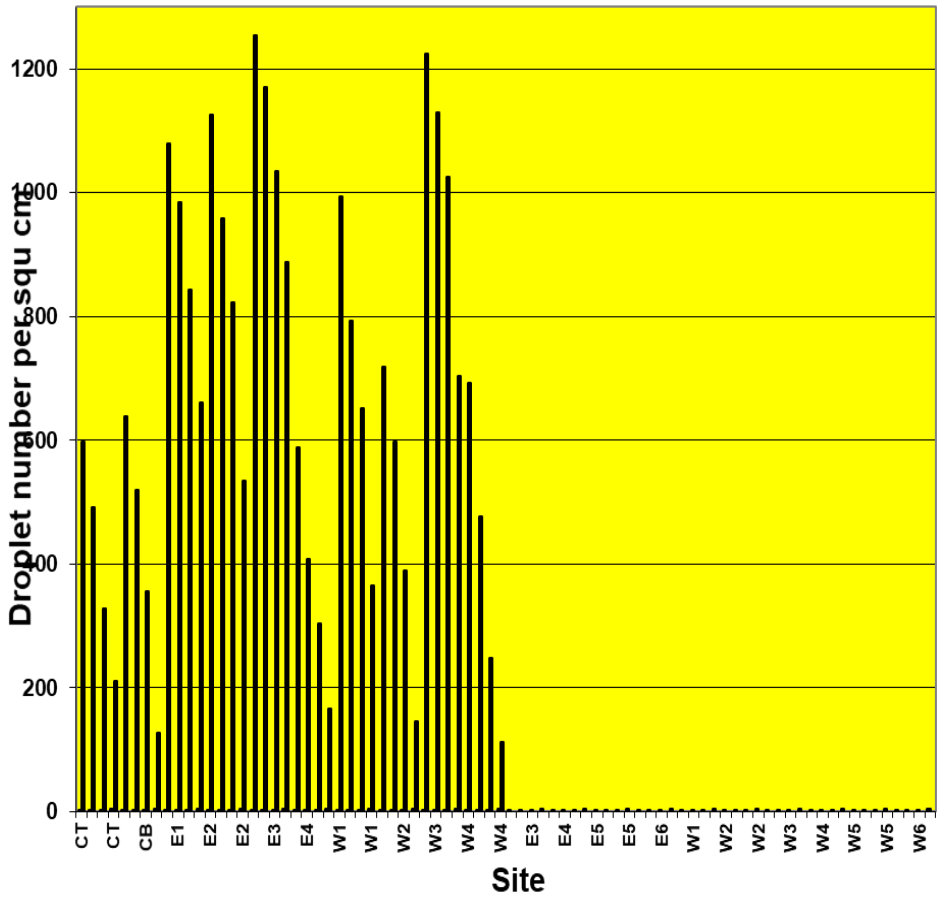
350 L/ha, Small Canopy, ULS



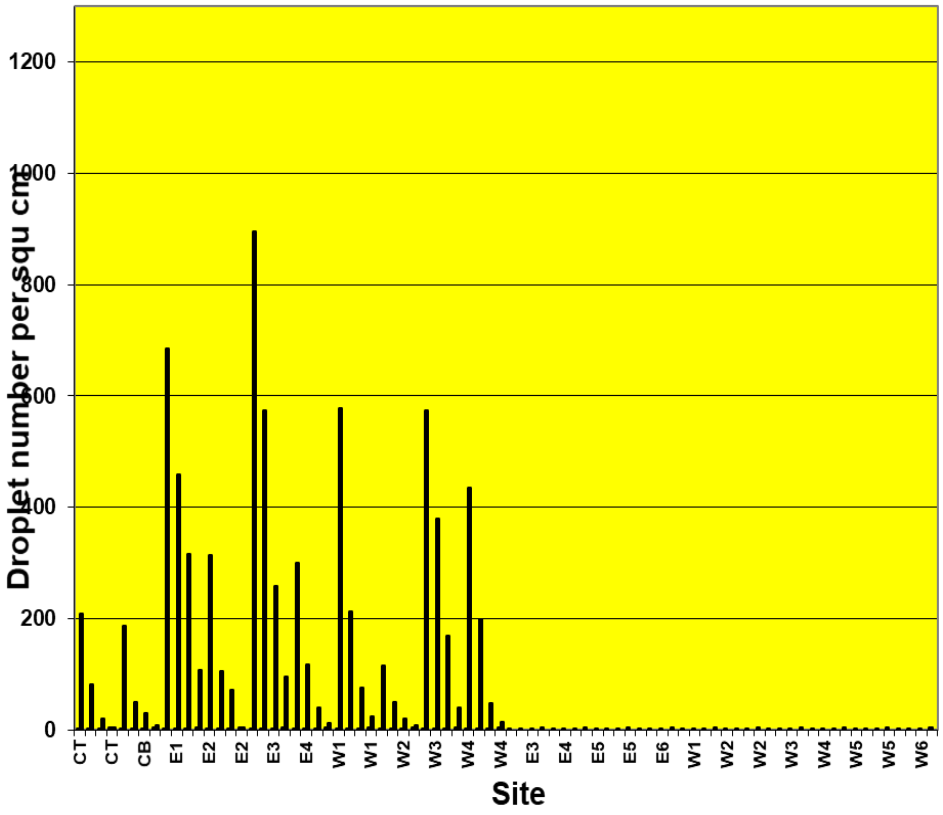
350 L/ha, Small Canopy, LLS



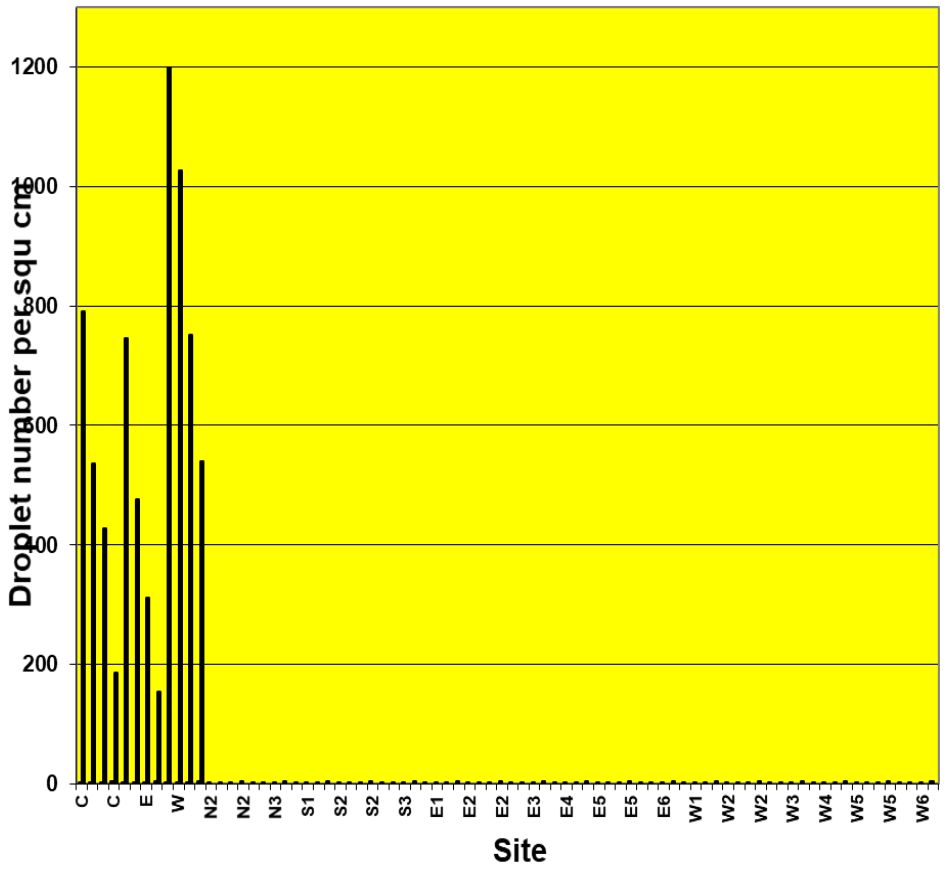
9.625 L/100m/m, Large Canopy, ULS

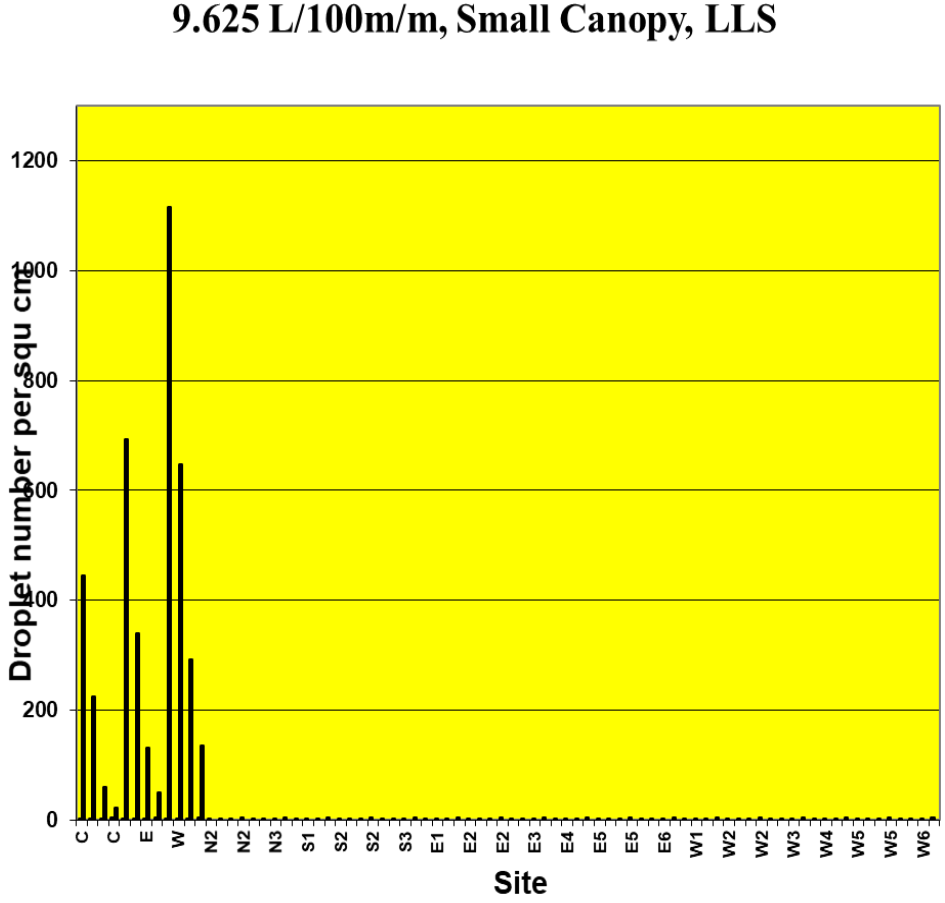


9.625 L/100m/m, Large Canopy, LLS



9.625 L/100m/m, Small Canopy, ULS





The mean coverage over the whole canopy using each calibration approach is as follows for each scenario (ULS and LLS are Upper and Lower Leaf Surface respectively):

9.625 L/100m/m; Large Canopy
ULS 0.659 µL/cm^2
LLS 0.197 µL/cm^2
Total 0.856 µL/cm^2

9.625 L/100m/m; Small Canopy
ULS 0.596 µL/cm^2
LLS 0.346 µL/cm^2
Total 0.942 µL/cm^2

350 L/ha: Large Canopy
ULS 0.534 µL/cm^2
LLS 0.126 µL/cm^2
Total 0.66 µL/cm^2

350 L/ha: Small Canopy
ULS 0.633 µL/cm^2
LLS 0.420 µL/cm^2
Total 1.053 µL/cm^2

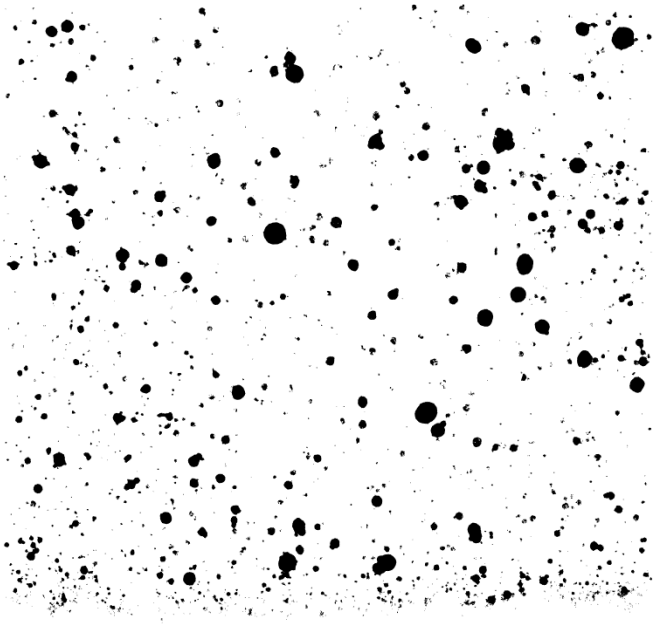
This shows that using canopy wall area as a calibration system for spraying, the coverage is high and similar for both large and small canopies whereas using area based calibration resulted in under-dosing the large canopy and over-dosing the small canopy. The recommendation is to always use canopy wall area for spray application rate decision-making.

The quantitative assessment of the Kromokote cards showed that the choice of scanning system or image analysis (versus the human eye) is critical for fully counting the droplets of spray. This research was conducted using two sprayers. The ESS sprayer produced ultra Fine droplets with diameter ~50 µm while the Interlink multi-fan sprayer produced Fine droplets with diameter ~150 µm. The ability of the human eye or scanners to detect the aerosol sized droplets from the ESS is limited.

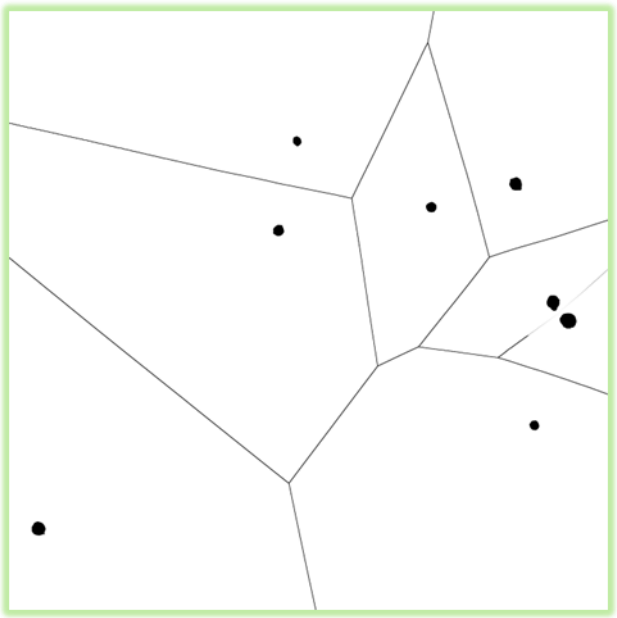
The human eye would see an image similar to the one below for the blue/black food dye in a 2 cm^2 area (image enlarged below but still difficult to see).



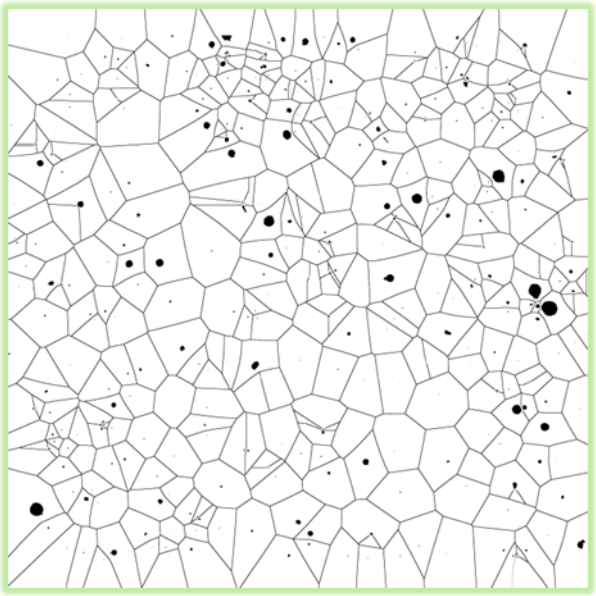
The same image viewed with a 4800 DPI resolution scanner will appear as below.



High resolution image analysis is an excellent tool for correctly assessing spray coverage of small droplets in canopy areas that are difficult to reach with spray, or the areas of minimum coverage. The following image is a 100 DPI scan of the card. The spray coverage is 0.26%.



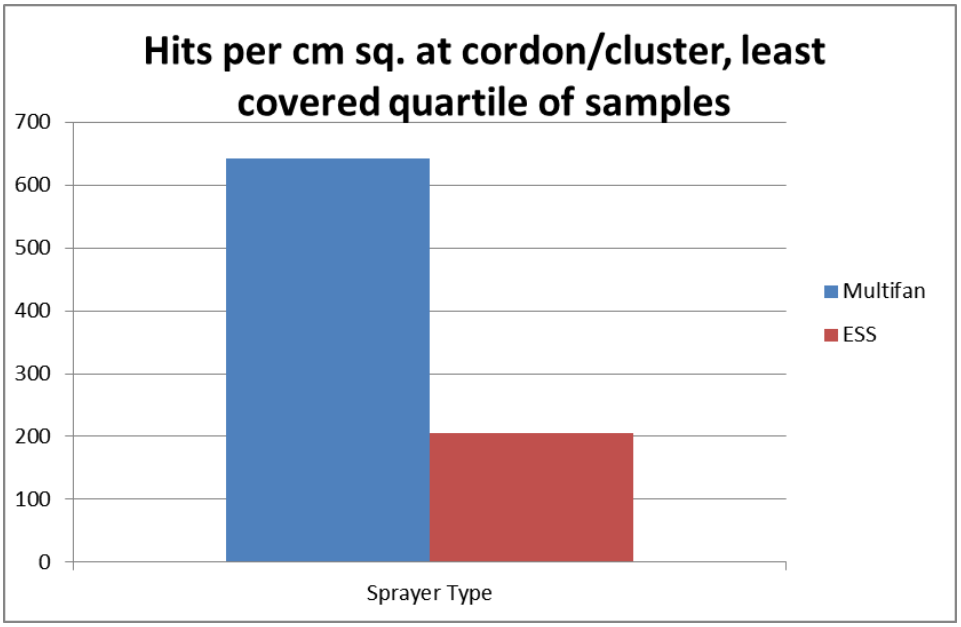
The image below is the same card scanned at 4800 DPI. Coverage is 0.76%. A vector map showing the spatial distribution of droplets and the distance to the nearest droplet has been overlaid on the droplets. This shows the area each droplet would have to have influence over to be effective. While they are both the same cards, the 100 DPI image is deceptive in that it leaves the viewer thinking that the coverage was quite poor, which is not in fact the case, as is shown by the higher resolution scan. Even though there is low overall coverage, the distribution of residue is highly uniform. In this case the application was using ULV equipment, so each droplet would be highly potent.



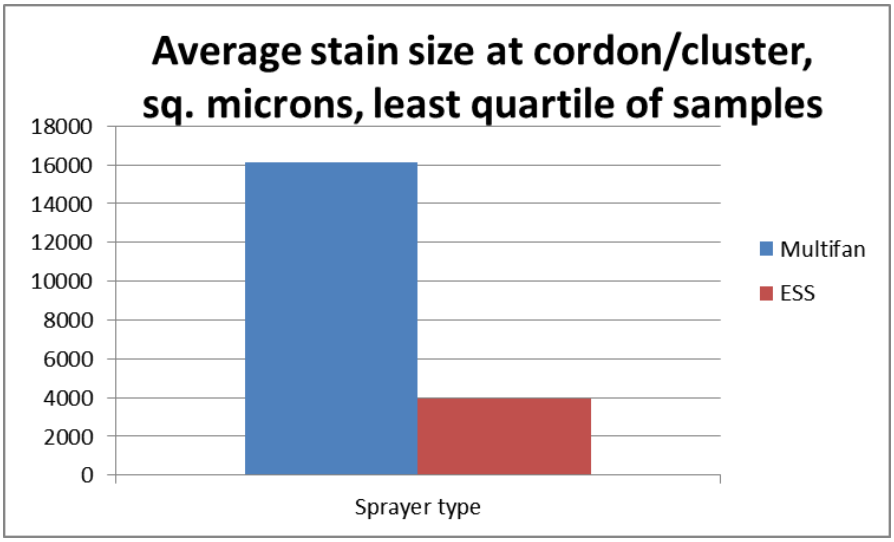
Low volume and ULV sprayers typically spray droplets smaller than 150 µm. Even at 600 DPI, typically considered to be 'high resolution', the average droplet would only be a little over two pixels wide, which is difficult to distinguish. Furthermore, the sub-150 µm droplets are normally the ones that penetrate a deep canopy. Understanding how they act in a deep canopy is critical to understanding how the sprayer is likely to impact efficacy. The table below shows that image analysis in the typical ranges results in missing 70-98% of the droplets and 15 to >60 % of the actual area covered.

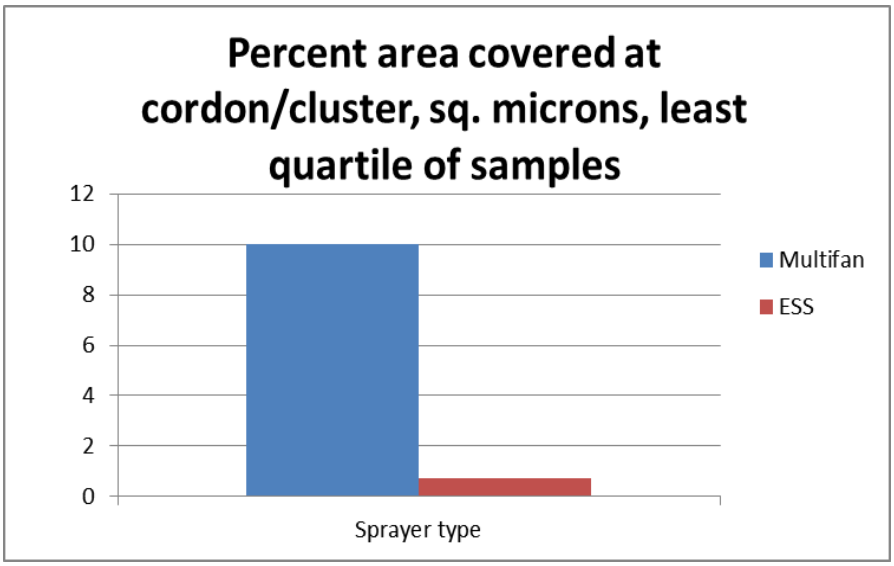
Image resolution, DPI	1 pixel, microns diameter	Microns^2 per pixel	Measured hits	**Hits missed**	Total area covered	Average stain area	percent area covered	**Estimated coverage missed**
4800	5.3	28.0	528	**0%**	2896419	5485.643	0.724	0.0%
2400	10.6	112.0	377	**29%**	2888749	7662.464	0.723	0.1%
600	42.3	1792.1	158	**70%**	2750371	17407.41	0.688	5.0%
300	84.7	7168.4	68	**87%**	2437950	35852.2	0.61	15.7%
200	127.0	16129.0	53	**90%**	2308642	43559.28	0.577	20.3%
100	254.0	64516.0	8	**98%**	1048571	131071.4	0.262	63.8%

Comparing the ESS and Interlink multi-fan sprayers, the following droplet densities were recorded. At first impression, the ESS appears to be inferior to the multi-fan sprayer. However, the application volume rate for the ESS was 90 L/ha whereas the application volume rate for the Interlink multi-fan sprayer was 400 L/ha. When viewing graphs of quantitative coverage from wash-off, the data are already normalised for rate because the dye rate was set to equal the pesticide application rate. However, when viewing images of droplet coverage as number densities on leaves or cards, we must interpret the data in terms of equivalent active ingredient coverage. In this case, the ESS values should be multiplied by 4.44 for a truer comparison.

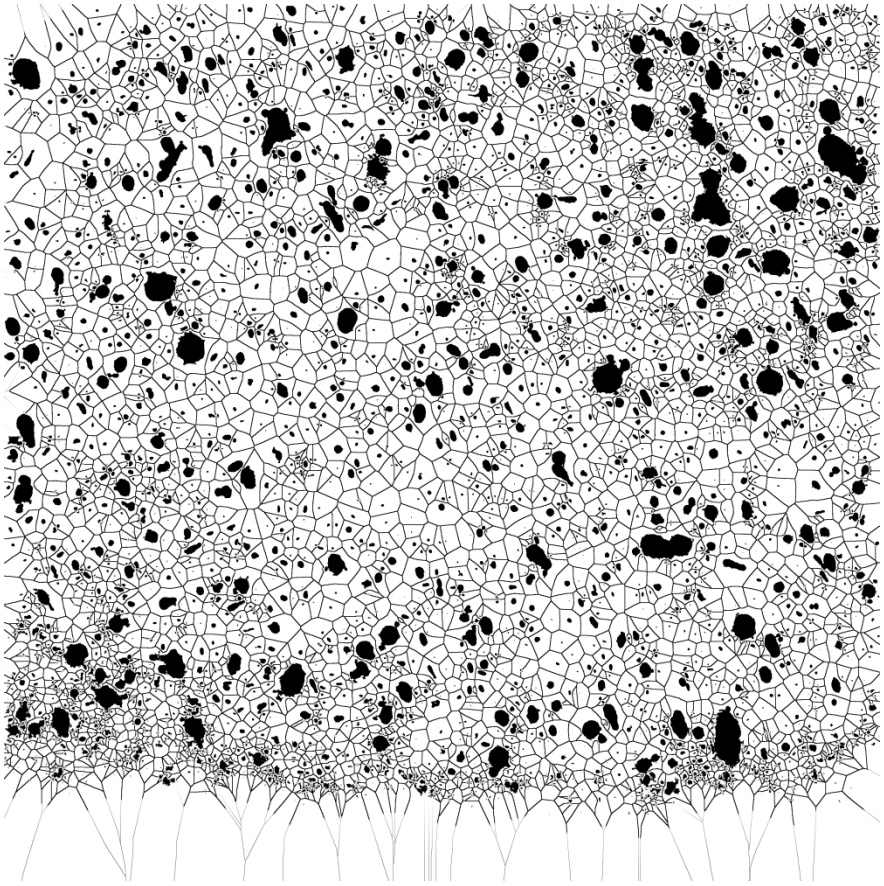


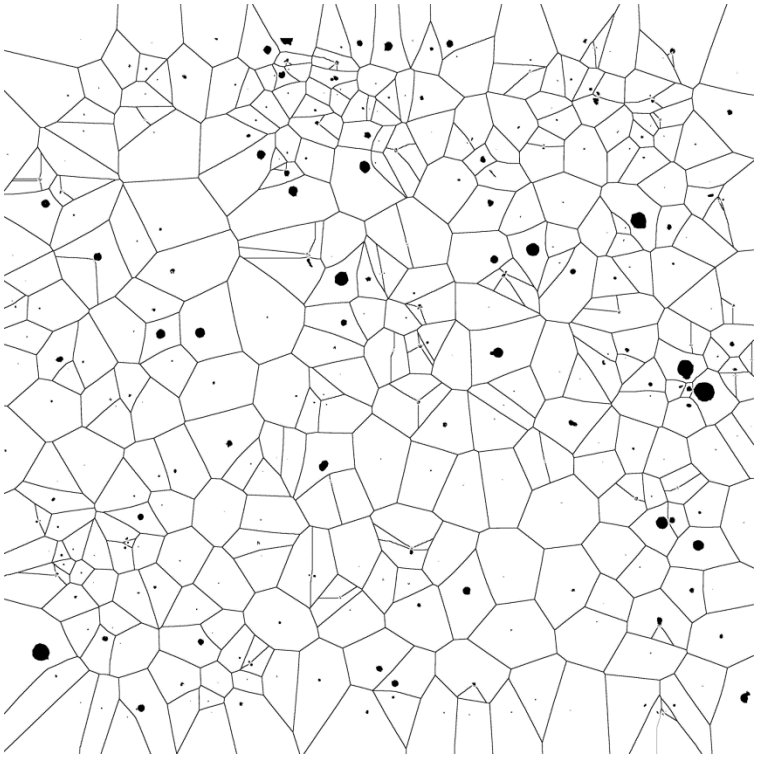
The data are also shown in the following two graphs for the areas of minimum coverage as average stain size and percentage area covered.





Both sprayers, in their areas of minimum performance for coverage, still achieved >100 drops/cm² which is excellent coverage. The images below show these areas of minimum coverage for the Interlink multi-fan sprayer and the ESS sprayer, respectively, at 4800 DPI image resolution. Again, the ESS data should be viewed in the context that the water carrier volume rate was less than one quarter that of all the conventional sprayers used in the research of this project.





6. Conclusions

The droplet size data showed that the selection of nozzle has a large impact on droplet size. At the relatively high spray pressures used for vineyard spraying of fungicides, insecticides and other foliage-targeted sprays, the effect of air velocity and spray pressure are relatively low compared to the effect of the nozzle type. Tank mix composition and adjuvants also had a relatively small effect on droplet size. However, for herbicide applications, the effect of spray pressure and tank mix composition was relatively large with the sprays tending to become finer for higher pressures and for most tank mixes other than water.

A spray calculator is planned with these data linked to models that calculate the size of no-spray buffer zones and the theoretical spray coverage based on deposition, spreading and collection efficiency of different types of leaf. However, the spray calculator cannot be completed until the APVMA issues its final regulatory scheme plan for spray drift because any assessments of performance require compliance with that scheme. The project team has worked closely with APVMA, the NWPPA and TWG on development of the national spray drift regulatory scheme. We will work with the APVMA to complete the appropriate tool for spray calculator assessments. There is total continuity in the direction of this process because the staff member who previously worked on the spray calculators at UQ currently manages spray drift policy technical work with the APVMA.

The effect of adjuvants on spray performance was small, both in the wind tunnel and the field. Based on this research, adjuvants are not likely to be considered as drift reduction technologies for foliar-targeted sprays in viticulture although they will probably be considered as options for drift management in vineyard herbicide applications.

A range of spraying systems was evaluated in vineyards. The results are complex in that ‘one size does not fit all’ because different pests and diseases as well as different pesticides will be conducive to different parameters for spray optimisation. Decision-making will also vary through the growth season as the canopy density and structure change and under different meteorological conditions. Concerns about spray drift will vary widely depending on the toxicity of the chemical(s) being applied and the nature and location of non-target sensitive areas.

The reference sprayer for this research was an axial fan airblast sprayer and its performance for coverage and losses to the ground and in drift was relatively poor; however, a simple modification by adding a tower to deflect the air down as well as the normal radial upwards and lateral discharge, provided a large improvement in its performance. Overall, the recapture/recycle spraying system was an excellent system for minimising spray losses to the environment and ground beneath the vines while also assuring good coverage on the canopy at all regions due to its targeted air. The electrostatic spraying systems achieved good spray coverage but posed a relatively high risk of spray drift under the hot conditions in which they were tested. The multi-fan sprayers also used targeted air to direct the spray to inner canopy areas that can be difficult to reach in summer.

Barriers can be effective for preventing spray drift from leaving the vineyard property. Natural barriers such as hedges and vegetative buffers are one option while netting can be placed downwind of an application area to also catch drift. Porosity for all barrier types should be in the order of 50% for good performance.

Canopy leaf wall area was superior to ground area-based calibration schemes for optimised spraying of the appropriate application volume rate to large and small canopies.

High-tech equipment such as lasers and fluorometers, vertical towers and laboratory analytical techniques were employed for data collection and analysis but simpler systems can provide robust data when used properly and in context. For example, image analysis of deposition on cards (water sensitive paper or glossy white cards for sprays containing dark coloured food grade dyes) should be conducted using scanners with a high resolution of at least 4800 DPI to detect the small droplets in many sprays. A rating scheme of fluorescent droplet coverage for leaves viewed under ultraviolet light illumination provides valuable information supporting decisions on whether coverage is good in all canopy regions, with a visual image of coverage on upper and lower leaf surfaces and at least 650 drops/cm^2 being appropriate for high coverage approaching the first point of runoff for most airblast foliage applied sprays.

7. Recommendations

Sprays should be matched to the canopy both in terms of application volume rate and with respect to the air direction. Avoid spraying above the top of the canopy. Older axial fan airblast sprayers can be modified with deflectors to force the spray back down if it escapes above the top of the canopy.

Spraying inwards from the side and using converging airflow to create turbulence improves spray performance compared to radial spraying up and outwards from the ground.

Electrostatically charged droplets can give good coverage on all leaf surfaces but may be more prone to drift under unfavourable conditions.

Canopy wall area is preferred for calibration of the application rate, as ground area-based calibration can over-dose on small canopies and under-dose on large canopies.

Always verify sprayer performance when using new approaches. Simple techniques can provide powerful data for decision support such as using fluorescent dyes and rating coverage on leaves using ultraviolet light illumination and the use of water sensitive papers or glossy white cards with a dark coloured dye. Appropriate image analysis for detection of small droplets requires a resolution of at least 4800 DPI.

Many factors affect spray drift. Drift tends to be higher in higher wind speeds, when the wind is blowing along the rows rather than perpendicular to the rows, when using smaller droplets and when allowing the spray to travel further than the target foliage (e.g. above the top of the canopy or through several rows of vines). So-called drift control adjuvants are not a ‘magic bullet’ to make droplets drift-proof. Where drift occurs, natural and artificial barriers can be effective at reducing its magnitude to the downwind side of the barrier.

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Appendix 1: Communication

Stakeholder meetings – reference group face-to-face and on video conference call.

Workshops for growers in Stanthorpe, Griffith and pending in Tasmania (January 2018).

Presentations at meetings of the National Working Party on Pesticide Applications in Canberra.

Meetings twice per year with Technical Working Group (APVMA, Plant Health Australia, Environment Agency, PIRSA, Dept of Environment, GRDC, UQ) to ensure the drift reduction technologies fit within proposed regulatory scheme at the national level as well as in SA.

Fact sheet on pesticide application in viticulture.

Articles in Wine Australia's *RD&E News*.

Appendix 2: Intellectual Property

There is no new IP in this project because the sprayers, nozzles and adjuvants that were tested were commercially available, the droplet size data and study results are published, having been presented to grower meetings and stakeholder meetings.

Appendix 3: References

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Appendix 5: Raw Data

AGWA,1,3,,,water,TXVK8,6.5bar,100 mph, 58.99, 126.85,207.69, 32.14, 87.40

AGWA,1,4,,,water,TXVK8,6.5bar,100 mph, 59.65, 126.82,206.41, 31.99, 87.83

AGWA,1,5,,,water,TXVK8,6.5bar,100 mph, 60.60, 128.27,208.11, 31.19, 87.18

AGWA,1,6,,,water,TVI8001,6.5bar,100 mph, 201.40, 389.42,583.55, 1.50, 9.83

AGWA,1,10,,,water,TVI8001,6.5bar,100 mph, 192.37, 381.93,586.63, 1.74, 11.01

AGWA,1,11,,,water,TVI8001,6.5bar,100 mph, 194.98, 384.91,592.68, 1.61, 10.65

AGWA,1,12,,,water,TXB8001,6.5bar,100 mph, 59.43, 110.38,176.81, 41.26, 94.99

AGWA,1,13,,,water,TXB8001,6.5bar,100 mph, 60.96, 111.96,177.75, 39.92, 94.83

AGWA,1,15,,,water,TXB8001,6.5bar,100 mph, 57.90, 110.55,177.37, 41.27, 94.87

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AGWA,1,18,,,water+Agral0.1%,TXB8001,6.5bar,100 mph, 62.49, 116.68,180.17, 36.21, 94.60

AGWA,1,19,,,water+Agral0.1%,TXB8001,6.5bar,100 mph, 63.37, 114.80,180.87, 37.57, 94.06

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AGWA,1,21,,,water+Agral0.1%,TXVK8,6.5bar,100 mph, 68.06, 132.40,211.35, 27.87, 86.09

AGWA,1,22,,,water+Agral0.1%,TXVK8,6.5bar,100 mph, 59.66, 129.16,210.29, 30.97, 86.42

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AGWA,1,26,,,water+Agral0.1%,TVI8001,6.5bar,100 mph, 230.61, 421.53,621.51, 0.87, 6.71

AGWA,1,28,,,water+Chemwet0.1%,TVI8001,6.5bar,100 mph, 182.15, 350.23,544.60, 1.76, 12.87

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AGWA,1,56,,,water+Pulse0.1%,TVI8001,6.5bar,100 mph, 205.59, 375.58,571.69, 1.15, 9.32

AGWA,1,57,,,water+Pulse0.1%,TVI8001,6.5bar,100 mph, 209.07, 372.56,560.36, 1.06, 8.92

AGWA,1,58,,,water+Pulse0.1%,TVI8001,6.5bar,100 mph, 203.53, 370.63,549.66, 1.18, 9.56

AGWA,1,59,,,water+Brushwet0.1%,TVI8001,6.5bar,100 mph, 207.24, 393.01,594.41, 1.37, 9.18

AGWA,1,60,,,water+Brushwet0.1%,TVI8001,6.5bar,100 mph, 202.36, 389.34,587.56, 1.49, 9.72

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AGWA,1,64,,,water+Brushwet0.1%,TXB8001,6.5bar,100 mph, 59.43, 114.62,184.60, 38.32, 93.43

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AGWA,1,69,,,water+Duwett0.225%,TXVK8,6.5bar,100 mph, 86.50, 147.00,220.39, 16.60, 82.98

AGWA,1,70,,,water+Duwett0.225%,TXVK8,6.5bar,100 mph, 84.66, 148.26,221.92, 16.59, 82.41

AGWA,1,71,,,water+Duwett0.225%,TXVK8,6.5bar,100 mph, 84.53, 147.41,214.19, 16.75, 83.97

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AGWA,1,78,,,water+Duwett0.225%,TXB8001,6.5bar,100 mph, 75.93, 132.42,196.08, 23.48, 91.32

AGWA,1,79,,,water+Duwett0.225%,TXB8001,6.5bar,100 mph, 75.81, 133.05,197.51, 23.30, 90.86

AGWA,1,82,,,water+Deluge0.1%,TXB8001,6.5bar,100 mph, 70.96, 126.42,192.84, 28.25, 92.07

AGWA,1,83,,,water+Deluge0.1%,TXB8001,6.5bar,100 mph, 69.21, 126.07,193.13, 28.89, 92.01

AGWA,1,84,,,water+Deluge0.1%,TXB8001,6.5bar,100 mph, 71.37, 128.32,194.83, 27.21, 91.60

AGWA,1,87,,,water+Deluge0.1%,TXVK8,6.5bar,100 mph, 78.17, 142.52,214.00, 20.30, 84.60

AGWA,1,88,,,water+Deluge0.1%,TXVK8,6.5bar,100 mph, 73.31, 140.24,211.45, 22.53, 85.28

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AGWA,1,92,,,water+Deluge0.1%,TVI8001,6.5bar,100 mph, 198.35, 377.94,556.89, 1.54, 10.21

AGWA,1,93,,,water+Hasten0.1%,TVI8001,6.5bar,100 mph, 229.46, 392.89,563.66, 0.93, 6.86

AGWA,1,94,,,water+Hasten0.1%,TVI8001,6.5bar,100 mph, 232.19, 397.70,569.07, 0.90, 6.62

AGWA,1,95,,,water+Hasten0.1%,TVI8001,6.5bar,100 mph, 230.00, 393.29,563.50, 0.94, 6.84

AGWA,1,96,,,water+Hasten0.1%,TXB8001,6.5bar,100 mph, 79.30, 137.15,203.07, 20.66, 88.81

AGWA,1,97,,,water+Hasten0.1%,TXB8001,6.5bar,100 mph, 76.55, 135.29,202.32, 22.62, 89.13

AGWA,1,98,,,water+Hasten0.1%,TXB8001,6.5bar,100 mph, 77.79, 136.20,202.74, 21.79, 88.95

AGWA,1,99,,,water+Hasten0.1%,TXVK8,6.5bar,100 mph, 89.73, 150.42,221.81, 14.81, 81.89

AGWA,1,100,,,water+Hasten0.1%,TXVK8,6.5bar,100 mph, 89.17, 153.44,224.28, 14.21, 80.76

AGWA,1,101,,,water+Hasten0.1%,TXVK8,6.5bar,100 mph, 90.27, 150.63,221.54, 14.52, 81.94

AGWA,1,103,,,water+Interlock0.225%,TXVK8,6.5bar,100 mph, 90.33, 151.20,220.89, 14.26, 81.98

AGWA,1,104,,,water+Interlock0.225%,TXVK8,6.5bar,100 mph, 91.61, 152.28,223.00, 13.64, 81.37

AGWA,1,105,,,water+Interlock0.225%,TXVK8,6.5bar,100 mph, 91.23, 152.79,222.49, 13.60, 81.35

AGWA,1,106,,,water+Interlock0.225%,TVI8001,6.5bar,100 mph, 222.52, 379.85,546.54, 0.94, 7.39

AGWA,1,108,,,water+Interlock0.225%,TVI8001,6.5bar,100 mph, 220.80, 376.96,539.02, 0.98, 7.59

AGWA,1,109,,,water+Interlock0.225%,TVI8001,6.5bar,100 mph, 221.16, 380.35,551.28, 1.00, 7.58

AGWA,1,111,,,water+Interlock0.225%,TXB8001,6.5bar,100 mph, 76.60, 132.71,198.76, 23.42, 90.42

AGWA,1,112,,,water+Interlock0.225%,TXB8001,6.5bar,100 mph, 77.39, 134.52,200.61, 22.41, 89.78

AGWA,1,113,,,water+Interlock0.225%,TXB8001,6.5bar,100 mph, 78.46, 135.40,200.23, 21.40, 89.91

AGWA,1,115,,,water+Vitiwet0.1%,TXB8001,6.5bar,100 mph, 78.34, 135.71,202.88, 21.59, 88.93

AGWA,1,117,,,water+Vitiwet0.1%,TXB8001,6.5bar,100 mph, 80.04, 134.72,195.04, 20.41, 91.80

AGWA,1,119,,,water+Vitiwet0.1%,TXB8001,6.5bar,100 mph, 76.88, 133.88,196.54, 21.83, 91.21

AGWA,1,120,,,water+Vitiwet0.1%,TXVK8,6.5bar,100 mph, 91.43, 153.04,223.58, 13.08, 81.44

AGWA,1,121,,,water+Vitiwet0.1%,TXVK8,6.5bar,100 mph, 90.40, 151.84,221.08, 13.59, 82.17

AGWA,1,122,,,water+Vitiwet0.1%,TXVK8,6.5bar,100 mph, 92.99, 151.58,220.13, 12.88, 82.43

AGWA,1,123,,,water+Vitiwet0.1%,TVI8001,6.5bar,100 mph, 200.76, 360.96,531.15, 2.61, 9.92

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AGWA,1,125,,,water+Vitiwet0.1%,TVI8001,6.5bar,100 mph, 201.96, 364.09,529.37, 2.56, 9.79

AGWA,1,126,,,water+Kwicken0.225%,TVI8001,6.5bar,100 mph, 214.93, 367.74,534.08, 0.94, 8.17

AGWA,1,127,,,water+Kwicken0.225%,TVI8001,6.5bar,100 mph, 213.45, 365.80,536.04, 0.96, 8.35

AGWA,1,128,,,water+Kwicken0.225%,TVI8001,6.5bar,100 mph, 215.47, 370.06,534.77, 1.02, 8.14

AGWA,1,129,,,water+Kwicken0.225%,TXB8001,6.5bar,100 mph, 78.21, 134.73,198.75, 21.60, 90.46

AGWA,1,130,,,water+Kwicken0.225%,TXB8001,6.5bar,100 mph, 78.14, 134.74,198.63, 21.63, 90.50

AGWA,1,131,,,water+Kwicken0.225%,TXB8001,6.5bar,100 mph, 78.05, 134.10,198.73, 21.93, 90.45

AGWA,1,132,,,water+Kwicken0.225%,TXVK8,6.5bar,100 mph, 89.82, 154.09,224.48, 13.85, 80.59

AGWA,1,134,,,water+Kwicken0.225%,TXVK8,6.5bar,100 mph, 91.90, 153.75,227.40, 13.12, 80.23

AGWA,1,135,,,water+Kwicken0.225%,TXVK8,6.5bar,100 mph, 88.51, 153.17,222.81, 14.54, 81.01

AGWA,1,136,,,water+DeadSure0.1%,TXVK8,6.5bar,100 mph, 71.38, 139.82,225.69, 23.98, 82.41

AGWA,1,138,,,water+DeadSure0.1%,TXVK8,6.5bar,100 mph, 66.68, 137.02,223.66, 26.81, 83.03

AGWA,1,139,,,water+DeadSure0.1%,TXVK8,6.5bar,100 mph, 68.88, 138.45,224.28, 25.57, 82.78

AGWA,1,140,,,water+DeadSure0.1%,TVI8001,6.5bar,100 mph, 207.93, 401.31,578.79, 1.49, 9.16

AGWA,1,141,,,water+DeadSure0.1%,TVI8001,6.5bar,100 mph, 217.83, 397.46,573.80, 1.20, 8.01

AGWA,1,142,,,water+DeadSure0.1%,TVI8001,6.5bar,100 mph, 217.60, 405.42,593.58, 1.21, 8.06

AGWA,1,143,,,water+DeadSure0.1%,TXB8001,6.5bar,100 mph, 62.61, 123.57,199.35, 32.77, 90.19

AGWA,1,144,,,water+DeadSure0.1%,TXB8001,6.5bar,100 mph, 59.78, 120.71,195.75, 34.57, 91.18

AGWA,1,145,,,water+DeadSure0.1%,TXB8001,6.5bar,100 mph, 60.97, 118.90,192.46, 35.38, 91.96

AGWA,1,146,,,water+Activator0.1%,TXB8001,6.5bar,100 mph, 78.86, 138.34,207.51, 21.55, 86.92

AGWA,1,147,,,water+Activator0.1%,TXB8001,6.5bar,100 mph, 73.70, 138.64,206.59, 22.27, 87.23

AGWA,1,148,,,water+Activator0.1%,TXB8001,6.5bar,100 mph, 74.89, 138.94,205.30, 21.49, 87.76

AGWA,1,149,,,water+Activator0.1%,TVXK8,6.5bar,100 mph, 88.76, 153.37,223.96, 14.33, 80.83

AGWA,1,150,,,water+Activator0.1%,TVXK8,6.5bar,100 mph, 86.22, 154.05,226.39, 15.23, 79.94

AGWA,1,151,,,water+Activator0.1%,TVXK8,6.5bar,100 mph, 87.70, 153.21,222.66, 14.80, 80.96

AGWA,1,150,,,water+Activator0.1%,TVI8001,6.5bar,100 mph, 218.67, 381.97,545.79, 1.05, 7.83

AGWA,1,151,,,water+Activator0.1%,TVI8001,6.5bar,100 mph, 215.35, 377.75,537.33, 1.15, 8.22

AGWA,1,152,,,water+Activator0.1%,TVI8001,6.5bar,100 mph, 217.23, 379.78,539.93, 1.08, 7.97

AGWA,1,154,,,water+Uptake0.1%,TVI8001,6.5bar,100 mph, 224.25, 404.01,593.18, 0.96, 7.24

AGWA,1,155,,,water+Uptake0.1%,TVI8001,6.5bar,100 mph, 217.77, 400.09,587.21, 1.07, 7.93

AGWA,1,156,,,water+Uptake0.1%,TVI8001,6.5bar,100 mph, 220.06, 404.50,590.08, 1.05, 7.71

AGWA,1,157,,,water+Uptake0.1%,TXB8001,6.5bar,100 mph, 64.83, 120.03,192.53, 34.06, 91.95

AGWA,1,158,,,water+Uptake0.1%,TXB8001,6.5bar,100 mph, 71.60, 127.90,199.78, 28.33, 90.07

AGWA,1,159,,,water+Uptake0.1%,TXB8001,6.5bar,100 mph, 67.09, 124.68,195.96, 30.54, 91.17

AGWA,1,162,,,water+Uptake0.1%,TXVK8,6.5bar,100 mph, 74.75, 142.16,222.89, 22.38, 82.70

AGWA,1,163,,,water+Uptake0.1%,TXVK8,6.5bar,100 mph, 75.55, 142.03,221.30, 22.03, 83.05

AGWA,1,164,,,water+Uptake0.1%,TXVK8,6.5bar,100 mph, 77.90, 144.63,220.53, 19.91, 82.94

AGWA,1,165,,,water+Liberate0.1%,TXVK8,6.5bar,100 mph, 94.81, 156.07,227.65, 12.01, 79.45

AGWA,1,166,,,water+Liberate0.1%,TXVK8,6.5bar,100 mph, 89.44, 157.29,229.50, 13.56, 78.50

AGWA,1,167,,,water+Liberate0.1%,TXVK8,6.5bar,100 mph, 89.66, 155.18,226.58, 13.82, 79.77

AGWA,1,164,,,water+Liberate0.1%,TVI8001,6.5bar,100 mph, 213.55, 361.57,507.43, 1.12, 8.43

AGWA,1,165,,,water+Liberate0.1%,TVI8001,6.5bar,100 mph, 214.42, 362.50,505.89, 1.08, 8.31

AGWA,1,166,,,water+Liberate0.1%,TVI8001,6.5bar,100 mph, 215.16, 366.14,524.15, 1.05, 8.22

AGWA,1,167,,,water+Liberate0.1%,TXB8001,6.5bar,100 mph, 75.64, 133.67,197.87, 22.52, 90.75

AGWA,1,169,,,water+Liberate0.1%,TXB8001,6.5bar,100 mph, 78.21, 139.16,202.99, 19.46, 88.78

AGWA,1,170,,,water+Liberate0.1%,TXB8001,6.5bar,100 mph, 80.31, 137.65,201.88, 19.83, 89.27

AGWA,1,172,,,water+BS1000 0.1%,TXB8001,6.5bar,100 mph, 61.65, 116.38,184.38, 36.89, 93.80

AGWA,1,173,,,water+BS1000 0.1%,TXB8001,6.5bar,100 mph, 61.41, 114.06,180.65, 38.39, 94.09

AGWA,1,174,,,water+BS1000 0.1%,TXB8001,6.5bar,100 mph, 58.99, 112.80,180.51, 39.61, 94.07

AGWA,1,175,,,water+BS1000 0.1%,TXVK8,6.5bar,100 mph, 63.43, 127.20,206.08, 30.60, 88.02

AGWA,1,177,,,water+BS1000 0.1%,TXVK8,6.5bar,100 mph, 57.93, 124.90,205.12, 33.08, 88.34

AGWA,1,178,,,water+BS1000 0.1%,TXVK8,6.5bar,100 mph, 64.06, 128.56,204.00, 29.54, 88.65

AGWA,1,179,,,water+BS1000 0.1%,TVI8001,6.5bar,100 mph, 180.99, 341.35,515.63, 1.78, 13.16

AGWA,1,182,,,water+BS1000 0.1%,TVI8001,6.5bar,100 mph, 177.60, 350.08,547.31, 1.97, 13.56

AGWA,1,183,,,water+BS1000 0.1%,TVI8001,6.5bar,100 mph, 179.12, 346.66,536.30, 1.86, 13.42

AGWA,1,187,,,water+Li700 0.1%,TVI8001,6.5bar,100 mph, 222.48, 376.51,539.57, 0.91, 7.37

AGWA,1,188,,,water+Li700 0.1%,TVI8001,6.5bar,100 mph, 221.04, 378.00,537.77, 0.93, 7.55

AGWA,1,189,,,water+Li700 0.1%,TVI8001,6.5bar,100 mph, 226.39, 382.31,549.51, 0.94, 7.04

AGWA,1,190,,,water+Li700 0.1%,TXB8001,6.5bar,100 mph, 79.20, 135.99,200.47, 20.68, 89.83

AGWA,1,191,,,water+Li700 0.1%,TXB8001,6.5bar,100 mph, 82.68, 138.64,203.75, 19.57, 88.48

AGWA,1,192,,,water+Li700 0.1%,TXB8001,6.5bar,100 mph, 82.08, 139.50,204.97, 18.83, 87.98

AGWA,1,193,,,water+Li700 0.1%,TXVK8,6.5bar,100 mph, 87.55, 155.20,229.37, 14.77, 78.97

AGWA,1,194,,,water+Li700 0.1%,TXVK8,6.5bar,100 mph, 86.40, 155.09,229.68, 15.21, 78.82

AGWA,1,195,,,water+Li700 0.1%,TXVK8,6.5bar,100 mph, 87.29, 154.36,228.77, 15.07, 79.32

AGWA,1,196,,,water+MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 86.84, 152.60,227.25, 15.56, 80.07

AGWA,1,198,,,water+MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 84.34, 152.25,225.58, 16.33, 80.40

AGWA,1,199,,,water+MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 86.28, 152.15,225.54, 15.76, 80.50

AGWA,1,201,,,water+MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 220.49, 373.80,521.08, 1.00, 7.61

AGWA,1,205,,,water+MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 223.84, 373.75,502.35, 0.93, 7.27

AGWA,1,206,,,water+MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 222.39, 381.51,551.16, 0.99, 7.47

AGWA,1,207,,,water+MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 74.75, 138.13,206.07, 21.89, 87.54

AGWA,1,210,,,water+MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 78.04, 134.92,201.29, 22.00, 89.53

AGWA,1,211,,,water+MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 75.15, 131.45,201.08, 25.18, 89.63

AGWA,1,212,,,water+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 72.43, 136.99,205.86, 22.99, 87.67

AGWA,1,213,,,water+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 72.49, 133.43,201.93, 24.56, 89.30

AGWA,1,215,,,water+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 68.73, 128.90,200.25, 27.87, 89.92

AGWA,1,217,,,water+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 88.32, 151.78,225.40, 15.04, 80.77

AGWA,1,218,,,water+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 76.08, 143.26,219.52, 21.13, 83.32

AGWA,1,220,,,water+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 84.39, 147.85,224.32, 17.59, 81.63

AGWA,1,221,,,water+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 241.08, 406.81,576.56, 0.82, 5.98

AGWA,1,222,,,water+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 245.11, 410.48,576.79, 0.67, 5.63

AGWA,1,224,,,water+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 237.48, 410.17,589.88, 0.85, 6.25

AGWA,1,227,,,water+Silwet 0.1%,TVI8001,6.5bar,100 mph, 211.89, 379.29,564.05, 1.14, 8.63

AGWA,1,228,,,water+Silwet 0.1%,TVI8001,6.5bar,100 mph, 206.55, 369.10,526.63, 1.23, 9.22

AGWA,1,229,,,water+Silwet 0.1%,TVI8001,6.5bar,100 mph, 209.88, 378.14,558.84, 1.17, 8.87

AGWA,1,230,,,water+Silwet 0.1%,TXB8001,6.5bar,100 mph, 72.75, 130.21,200.40, 26.37, 89.87

AGWA,1,231,,,water+Silwet 0.1%,TXB8001,6.5bar,100 mph, 68.01, 128.42,196.70, 27.99, 91.08

AGWA,1,232,,,water+Silwet 0.1%,TXB8001,6.5bar,100 mph, 72.77, 131.81,202.35, 25.78, 89.18

AGWA,1,233,,,water+Silwet 0.1%,TXVK8,6.5bar,100 mph, 79.84, 147.58,227.48, 19.06, 80.86

AGWA,1,235,,,water+Silwet 0.1%,TXVK8,6.5bar,100 mph, 77.15, 145.19,222.01, 20.39, 82.38

AGWA,1,236,,,water+Silwet 0.1%,TXVK8,6.5bar,100 mph, 77.09, 146.09,225.72, 20.33, 81.47

AGWA,1,237,,,Downdraft 0.1%,TXVK8,6.5bar,100 mph, 80.73, 148.11,226.41, 18.44, 80.98

AGWA,1,238,,,Downdraft 0.1%,TXVK8,6.5bar,100 mph, 78.86, 147.14,225.40, 19.42, 81.38

AGWA,1,239,,,Downdraft 0.1%,TXVK8,6.5bar,100 mph, 78.94, 146.48,223.65, 19.43, 81.92

AGWA,1,240,,,Downdraft 0.1%,TVI8001,6.5bar,100 mph, 218.27, 388.36,571.64, 1.04, 7.86

AGWA,1,241,,,Downdraft 0.1%,TVI8001,6.5bar,100 mph, 214.56, 385.85,566.28, 1.10, 8.29

AGWA,1,243,,,Downdraft 0.1%,TVI8001,6.5bar,100 mph, 215.32, 386.22,570.80, 1.05, 8.17

AGWA,1,244,,,Downdraft 0.1%,TXB8001,6.5bar,100 mph, 71.18, 131.02,201.31, 26.52, 89.55

AGWA,1,245,,,Downdraft 0.1%,TXB8001,6.5bar,100 mph, 74.23, 132.72,202.71, 25.31, 89.03

AGWA,1,246,,,Downdraft 0.1%,TXB8001,6.5bar,100 mph, 69.22, 132.01,202.67, 26.35, 89.05

AGWA,1,247,,,Interlock 0.45%,TXB8001,6.5bar,100 mph, 78.20, 136.50,205.65, 22.28, 87.80

AGWA,1,248,,,Interlock 0.45%,TXB8001,6.5bar,100 mph, 82.33, 139.36,204.79, 19.42, 88.02

AGWA,1,249,,,Interlock 0.45%,TXB8001,6.5bar,100 mph, 79.06, 136.37,201.69, 20.76, 89.36

AGWA,1,250,,,Interlock 0.45%,TXVK8,6.5bar,100 mph, 88.87, 153.71,223.32, 14.16, 80.86

AGWA,1,251,,,Interlock 0.45%,TXVK8,6.5bar,100 mph, 86.49, 152.76,223.03, 15.25, 81.12

AGWA,1,252,,,Interlock 0.45%,TXVK8,6.5bar,100 mph, 86.05, 153.34,222.84, 15.15, 80.97

AGWA,1,253,,,water+Interlock 0.45%,TVI8001,6.5bar,100 mph, 199.66, 354.85,511.19, 0.78, 10.04

AGWA,1,255,,,water+Interlock 0.45%,TVI8001,6.5bar,100 mph, 180.89, 349.57,502.67, 3.35, 12.28

AGWA,1,256,,,Interlock 0.45%,TVI8001,6.5bar,100 mph, 200.01, 350.41,497.87, 0.72, 10.00

AGWA,1,261,,,water+Interlock 0.1%,TVI8001,6.5bar,100 mph, 228.71, 390.36,558.30, 0.85, 6.82

AGWA,1,262,,,water+Interlock 0.1%,TVI8001,6.5bar,100 mph, 226.97, 389.35,563.00, 0.93, 6.98

AGWA,1,263,,,water+Interlock 0.1%,TVI8001,6.5bar,100 mph, 230.82, 395.90,567.88, 0.94, 6.76

AGWA,1,264,,,water+Interlock 0.1%,TXB8001,6.5bar,100 mph, 76.45, 137.47,205.38, 21.64, 87.87

AGWA,1,265,,,water+Interlock 0.1%,TXB8001,6.5bar,100 mph, 75.34, 136.37,205.45, 22.82, 87.88

AGWA,1,267,,,water+Interlock 0.1%,TXB8001,6.5bar,100 mph, 76.01, 135.92,205.46, 22.83, 87.91

AGWA,1,268,,,water+Interlock 0.1%,TXVK8,6.5bar,100 mph, 86.01, 155.84,234.36, 15.58, 77.33

AGWA,1,269,,,water+Interlock 0.1%,TXVK8,6.5bar,100 mph, 83.48, 155.93,234.19, 16.20, 77.29

AGWA,1,270,,,water+Interlock 0.1%,TXVK8,6.5bar,100 mph, 84.40, 154.19,232.51, 16.29, 78.21

AGWA,1,254,,,Thiovit Jet 0.25%+Designer 0.1%,TXVK8,6.5bar,100 mph, 78.33, 150.34,230.02, 18.85, 79.55

AGWA,1,255,,,Thiovit Jet 0.25%+Designer 0.1%,TXVK8,6.5bar,100 mph, 79.46, 150.33,229.46, 18.53, 79.74

AGWA,1,256,,,Thiovit Jet 0.25%+Designer 0.1%,TXVK8,6.5bar,100 mph, 78.23, 148.79,228.61, 19.29, 80.25

AGWA,1,258,,,Thiovit Jet 0.25%+Designer 0.1%,TVI8001,6.5bar,100 mph, 190.07, 400.32,707.29, 2.02, 11.27

AGWA,1,259,,,Thiovit Jet 0.25%+Designer 0.1%,TVI8001,6.5bar,100 mph, 190.84, 404.93,742.60, 2.03, 11.15

AGWA,1,260,,,Thiovit Jet 0.25%+Designer 0.1%,TVI8001,6.5bar,100 mph, 192.20, 408.64,769.38, 2.03, 10.96

AGWA,1,262,,,Thiovit Jet 0.25%+Designer 0.1%,TXB8001,6.5bar,100 mph, 61.57, 125.00,197.89, 31.87, 90.65

AGWA,1,263,,,Thiovit Jet 0.25%+Designer 0.1%,TXB8001,6.5bar,100 mph, 65.09, 124.18,196.07, 31.46, 91.15

AGWA,1,266,,,Thiovit Jet 0.25%+Designer 0.1%,TXB8001,6.5bar,100 mph, 67.42, 123.99,195.00, 31.29, 91.44

AGWA,1,269,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 71.04, 130.71,196.63, 25.87, 91.15

AGWA,1,270,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 72.57, 130.27,197.12, 25.97, 90.94

AGWA,1,271,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXB8001,6.5bar,100 mph, 77.23, 134.01,201.65, 23.43, 89.40

AGWA,1,272,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 78.48, 150.02,237.75, 18.97, 78.24

AGWA,1,275,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 80.72, 150.83,229.03, 17.92, 79.81

AGWA,1,277,,,Thiovit Jet 0.25%+Masterlock 0.1%,TXVK8,6.5bar,100 mph, 81.95, 150.25,228.20, 17.76, 80.15

AGWA,1,279,,,Thiovit Jet 0.25%+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 232.97, 406.46,588.50, 0.85, 6.49

AGWA,1,280,,,Thiovit Jet 0.25%+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 239.08, 406.13,580.09, 0.69, 5.94

AGWA,1,282,,,Thiovit Jet 0.25%+Masterlock 0.1%,TVI8001,6.5bar,100 mph, 233.22, 405.34,586.25, 0.90, 6.53

AGWA,1,284,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TVI8001,6.5bar,100 mph, 223.42, 382.04,552.34, 0.98, 7.36

AGWA,1,285,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TVI8001,6.5bar,100 mph, 221.32, 375.25,538.38, 0.99, 7.49

AGWA,1,286,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TVI8001,6.5bar,100 mph, 219.58, 375.88,565.21, 1.03, 7.72

AGWA,1,288,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXB8001,6.5bar,100 mph, 80.96, 137.10,203.31, 20.74, 88.71

AGWA,1,289,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXB8001,6.5bar,100 mph, 74.93, 132.38,199.92, 24.25, 90.03

AGWA,1,291,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXB8001,6.5bar,100 mph, 73.43, 135.25,203.04, 23.24, 88.86

AGWA,1,293,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXVK8,6.5bar,100 mph, 85.38, 150.58,223.00, 16.27, 81.49

AGWA,1,294,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXVK8,6.5bar,100 mph, 85.35, 149.83,221.49, 16.38, 81.99

AGWA,1,295,,,Thiovit Jet 0.25%+Lecitech MSO 0.1%,TXVK8,6.5bar,100 mph, 84.08, 149.47,219.84, 16.69, 82.43

AGWA,1,297,,,Thiovit Jet 0.25%+Interlock 0.1%,TXVK8,6.5bar,100 mph, 85.16, 152.47,224.96, 15.92, 80.64

AGWA,1,298,,,Thiovit Jet 0.25%+Interlock 0.1%,TXVK8,6.5bar,100 mph, 89.62, 150.51,222.75, 14.88, 81.64

AGWA,1,299,,,Thiovit Jet 0.25%+Interlock 0.1%,TXVK8,6.5bar,100 mph, 90.33, 152.72,222.90, 13.92, 81.20

AGWA,1,301,,,Thiovit Jet 0.25%+Interlock 0.1%,TVI8001,6.5bar,100 mph, 233.26, 402.93,568.05, 0.85, 6.50

AGWA,1,302,,,Thiovit Jet 0.25%+Interlock 0.1%,TVI8001,6.5bar,100 mph, 231.75, 401.27,576.16, 0.91, 6.70

AGWA,1,303,,,Thiovit Jet 0.25%+Interlock 0.1%,TVI8001,6.5bar,100 mph, 231.71, 398.42,568.20, 0.87, 6.64

AGWA,1,304,,,Thiovit Jet 0.25%+Interlock 0.1%,TXB8001,6.5bar,100 mph, 73.02, 132.59,199.60, 24.67, 90.14

AGWA,1,305,,,Thiovit Jet 0.25%+Interlock 0.1%,TXB8001,6.5bar,100 mph, 78.16, 135.87,202.85, 22.26, 88.91

AGWA,1,306,,,Thiovit Jet 0.25%+Interlock 0.1%,TXB8001,6.5bar,100 mph, 78.28, 135.43,202.66, 22.45, 88.99

AGWA,1,308,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 81.22, 137.86,201.89, 19.40, 89.27

AGWA,1,309,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 82.68, 138.29,203.12, 19.52, 88.75

AGWA,1,310,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 79.35, 136.07,200.46, 20.70, 89.83

AGWA,1,311,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 86.64, 150.79,219.65, 15.51, 82.31

AGWA,1,312,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 86.81, 154.03,222.57, 14.74, 80.93

AGWA,1,313,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 87.36, 154.69,224.91, 14.53, 80.31

AGWA,1,314,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 217.84, 374.58,545.56, 1.05, 7.87

AGWA,1,315,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 215.79, 373.84,552.31, 1.04, 8.10

AGWA,1,316,,,Thiovit Jet 0.25%+Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 218.14, 377.14,557.56, 1.01, 7.83

AGWA,1,317,,,Thiovit Jet 0.25%,TVI8001,6.5bar,100 mph, 218.30, 378.70,563.22, 1.06, 7.83

AGWA,1,318,,,Thiovit Jet 0.25%,TVI8001,6.5bar,100 mph, 221.07, 381.37,569.97, 1.01, 7.54

AGWA,1,319,,,Thiovit Jet 0.25%,TVI8001,6.5bar,100 mph, 219.70, 384.93,552.46, 1.03, 7.73

AGWA,1,321,,,Thiovit Jet 0.25%,TXB8001,6.5bar,100 mph, 65.42, 126.21,195.46, 29.73, 91.40

AGWA,1,323,,,Thiovit Jet 0.25%,TXB8001,6.5bar,100 mph, 65.91, 123.82,193.89, 31.38, 91.74

AGWA,1,324,,,Thiovit Jet 0.25%,TXB8001,6.5bar,100 mph, 64.26, 117.79,186.98, 35.45, 93.11

AGWA,1,325,,,Thiovit Jet 0.25%,TXVK8,6.5bar,100 mph, 74.29, 135.91,209.09, 24.63, 86.36

AGWA,1,326,,,Thiovit Jet 0.25%,TXVK8,6.5bar,100 mph, 67.02, 132.23,207.18, 27.77, 87.30

AGWA,1,327,,,Thiovit Jet 0.25%,TXVK8,6.5bar,100 mph, 68.05, 131.44,205.16, 27.62, 88.10

AGWA,1,3,,,Ridomil Gold 0.25% + Designer 0.1%,TXVK8,6.5bar,100 mph, 65.29, 132.23,208.52, 28.32, 86.78

AGWA,1,4,,,Ridomil Gold 0.25% + Designer 0.1%,TXVK8,6.5bar,100 mph, 71.35, 132.44,208.07, 26.89, 87.04

AGWA,1,5,,,Ridomil Gold 0.25% + Designer 0.1%,TXVK8,6.5bar,100 mph, 68.97, 136.53,209.65, 25.06, 86.02

AGWA,1,6,,,Ridomil Gold 0.25% + Designer 0.1%,TVI8001,6.5bar,100 mph, 231.75, 420.50,612.50, 0.83, 6.59

AGWA,1,7,,,Ridomil Gold 0.25% + Designer 0.1%,TVI8001,6.5bar,100 mph, 232.64, 422.61,622.18, 0.83, 6.53

AGWA,1,8,,,Ridomil Gold 0.25% + Designer 0.1%,TVI8001,6.5bar,100 mph, 231.99, 422.10,615.48, 0.84, 6.58

AGWA,1,9,,,Ridomil Gold 0.25% + Designer 0.1%,TXB8001,6.5bar,100 mph, 61.17, 116.69,187.62, 36.77, 92.94

AGWA,1,11,,,Ridomil Gold 0.25% + Designer 0.1%,TXB8001,6.5bar,100 mph, 61.53, 121.05,189.46, 33.37, 92.77

AGWA,1,12,,,Ridomil Gold 0.25% + Designer 0.1%,TXB8001,6.5bar,100 mph, 64.46, 118.13,188.52, 35.26, 92.79

AGWA,1,14,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXB8001,6.5bar,100 mph, 72.04, 131.11,200.47, 26.10, 89.84

AGWA,1,15,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXB8001,6.5bar,100 mph, 76.48, 134.93,201.49, 22.37, 89.46

AGWA,1,16,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXB8001,6.5bar,100 mph, 71.77, 130.98,200.26, 26.12, 89.91

AGWA,1,17,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXVK8,6.5bar,100 mph, 77.11, 144.84,220.78, 20.32, 82.81

AGWA,1,19,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXVK8,6.5bar,100 mph, 76.30, 145.91,230.87, 20.55, 80.56

AGWA,1,20,,,Ridomil Gold 0.25% + Masterlock 0.1%,TXVK8,6.5bar,100 mph, 77.91, 146.60,226.07, 19.81, 81.30

AGWA,1,21,,,Ridomil Gold 0.25% + Masterlock 0.1%,TVI8001,6.5bar,100 mph, 234.55, 404.87,571.18, 0.89, 6.43

AGWA,1,22,,,Ridomil Gold 0.25% + Masterlock 0.1%,TVI8001,6.5bar,100 mph, 232.72, 402.39,571.41, 0.88, 6.53

AGWA,1,24,,,Ridomil Gold 0.25% + Masterlock 0.1%,TVI8001,6.5bar,100 mph, 230.93, 391.75,531.28, 0.71, 6.56

AGWA,1,27,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 218.27, 379.99,546.95, 1.08, 7.92

AGWA,1,28,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 219.73, 378.38,523.98, 1.11, 7.79

AGWA,1,29,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TVI8001,6.5bar,100 mph, 219.94, 381.32,549.20, 1.07, 7.75

AGWA,1,30,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 71.55, 132.73,199.02, 24.64, 90.35

AGWA,1,32,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 74.27, 132.83,198.94, 24.24, 90.37

AGWA,1,34,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXB8001,6.5bar,100 mph, 75.74, 132.76,199.10, 23.83, 90.31

AGWA,1,35,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 82.12, 148.40,221.45, 17.61, 82.21

AGWA,1,36,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 83.75, 147.42,218.45, 17.21, 83.06

AGWA,1,37,,,Ridomil Gold 0.25% + MSO Lecitech 0.1%,TXVK8,6.5bar,100 mph, 82.22, 149.69,221.37, 17.16, 81.98

AGWA,1,38,,,Ridomil Gold 0.25% + Interlock 0.1%,TXVK8,6.5bar,100 mph, 85.02, 145.87,217.13, 17.53, 83.63

AGWA,1,39,,,Ridomil Gold 0.25% + Interlock 0.1%,TXVK8,6.5bar,100 mph, 82.17, 148.06,219.91, 17.65, 82.56

AGWA,1,40,,,Ridomil Gold 0.25% + Interlock 0.1%,TXVK8,6.5bar,100 mph, 87.34, 148.69,220.72, 16.10, 82.40

AGWA,1,41,,,Ridomil Gold 0.25% + Interlock 0.1%,TVI8001,6.5bar,100 mph, 224.61, 394.13,574.12, 1.00, 7.31

AGWA,1,44,,,Ridomil Gold 0.25% + Interlock 0.1%,TVI8001,6.5bar,100 mph, 225.03, 394.69,578.42, 1.00, 7.28

AGWA,1,45,,,Ridomil Gold 0.25% + Interlock 0.1%,TVI8001,6.5bar,100 mph, 225.14, 395.57,579.42, 0.99, 7.26

AGWA,1,46,,,Ridomil Gold 0.25% + Interlock 0.1%,TXB8001,6.5bar,100 mph, 73.92, 128.51,193.10, 26.17, 92.07

AGWA,1,47,,,Ridomil Gold 0.25% + Interlock 0.1%,TXB8001,6.5bar,100 mph, 74.52, 130.29,196.64, 25.46, 91.08

AGWA,1,48,,,Ridomil Gold 0.25% + Interlock 0.1%,TXB8001,6.5bar,100 mph, 75.43, 131.88,198.73, 24.55, 90.43

AGWA,1,50,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 77.33, 134.16,199.39, 22.50, 90.22

AGWA,1,52,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 79.82, 132.83,193.90, 21.15, 91.97

AGWA,1,53,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXB8001,6.5bar,100 mph, 75.52, 133.04,197.05, 22.98, 91.02

AGWA,1,54,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 83.75, 152.19,229.31, 16.39, 79.71

AGWA,1,55,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 83.39, 151.35,225.68, 16.57, 80.69

AGWA,1,56,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TXVK8,6.5bar,100 mph, 86.40, 152.59,227.12, 15.48, 80.26

AGWA,1,57,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 215.50, 370.90,538.44, 1.05, 8.11

AGWA,1,58,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 218.24, 376.96,554.14, 0.99, 7.78

AGWA,1,60,,,Ridomil Gold 0.25% + Vitiwet 0.1%,TVI8001,6.5bar,100 mph, 218.40, 379.51,560.35, 0.96, 7.79

AGWA,1,62,,,Ridomil Gold 0.25% ,TVI8001,6.5bar,100 mph, 218.56, 379.26,558.69, 0.99, 7.77

AGWA,1,63,,,Ridomil Gold 0.25% ,TVI8001,6.5bar,100 mph, 217.53, 375.47,531.32, 1.03, 7.86

AGWA,1,65,,,Ridomil Gold 0.25% ,TVI8001,6.5bar,100 mph, 221.96, 391.51,568.88, 0.95, 7.41

AGWA,1,68,,,Ridomil Gold 0.25% ,TXB8001,6.5bar,100 mph, 56.57, 114.32,178.10, 38.10, 94.93

AGWA,1,69,,,Ridomil Gold 0.25% ,TXB8001,6.5bar,100 mph, 59.02, 110.21,175.24, 41.32, 95.47

AGWA,1,70,,,Ridomil Gold 0.25% ,TXB8001,6.5bar,100 mph, 62.91, 112.40,176.89, 39.27, 95.10

AGWA,1,72,,,Ridomil Gold 0.25% ,TXVK8,6.5bar,100 mph, 52.19, 116.21,196.63, 38.47, 90.89

AGWA,1,73,,,Ridomil Gold 0.25% ,TXVK8,6.5bar,100 mph, 52.46, 117.38,198.24, 37.79, 90.49

AGWA,1,75,,,Ridomil Gold 0.25% ,TXVK8,6.5bar,100 mph, 51.41, 117.03,198.23, 38.26, 90.49

GWRDC,,3,Spray.Seed 2%,,,AIXR 110 02,2.0 bar,18 mph, 216.17, 445.66,698.51, 1.23, 8.29

GWRDC,,5,Spray.Seed 2%,,,AIXR 110 02,2.0 bar,18 mph, 222.95, 463.08,728.15, 1.07, 7.66

GWRDC,,6,Spray.Seed 2%,,,AIXR 110 02,2.0 bar,18 mph, 201.37, 429.29,675.03, 1.70, 9.85

GWRDC,,7,Spray.Seed 2%,,,AIXR 110 02,2.0 bar,18 mph, 196.88, 427.09,667.98, 1.80, 10.35

GWRDC,,10,Spray.Seed 2%,,,AIXR 110 02,3.0 bar,18 mph, 161.32, 362.92,592.78, 3.27, 15.82

GWRDC,,12,Spray.Seed 2%,,,AIXR 110 02,3.0 bar,18 mph, 157.57, 359.04,601.62, 3.50, 16.53

GWRDC,,13,Spray.Seed 2%,,,AIXR 110 02,3.0 bar,18 mph, 161.40, 363.73,593.05, 3.27, 15.73

GWRDC,,17,Spray.Seed 2%,,,AIXR 110 02,4.0 bar,18 mph, 142.38, 333.89,579.99, 4.53, 20.05

GWRDC,,18,Spray.Seed 2%,,,AIXR 110 02,4.0 bar,18 mph, 143.22, 334.86,579.87, 4.49, 19.88

GWRDC,,19,Spray.Seed 2%,,,AIXR 110 02,4.0 bar,18 mph, 144.94, 335.73,582.25, 4.37, 19.53

GWRDC,,20,Spray.Seed 2%,,,AIXR 110 02,5.0 bar,18 mph, 131.71, 307.92,531.83, 5.36, 23.58

GWRDC,,21,Spray.Seed 2%,,,AIXR 110 02,5.0 bar,18 mph, 135.40, 310.54,527.71, 4.92, 22.76

GWRDC,,22,Spray.Seed 2%,,,AIXR 110 02,5.0 bar,18 mph, 132.71, 307.56,515.73, 5.21, 23.48

GWRDC,,23,Spray.Seed 2%,,,AIXR 110 015,5.0 bar,18 mph, 122.72, 286.22,488.43, 6.27, 27.32

GWRDC,,24,Spray.Seed 2%,,,AIXR 110 015,5.0 bar,18 mph, 123.68, 287.70,493.88, 6.12, 27.04

GWRDC,,25,Spray.Seed 2%,,,AIXR 110 015,5.0 bar,18 mph, 122.44, 281.55,481.43, 6.24, 27.98

GWRDC,,28,Spray.Seed 2%,,,AIXR 110 015,5.0 bar,18 mph, 114.73, 274.09,485.16, 7.28, 30.31

GWRDC,,29,Spray.Seed 2%,,,AIXR 110 015,4.0 bar,18 mph, 130.16, 303.32,532.90, 5.31, 24.45

GWRDC,,30,Spray.Seed 2%,,,AIXR 110 015,4.0 bar,18 mph, 133.71, 311.69,549.32, 5.01, 23.11

GWRDC,,36,Spray.Seed 2%,,,AIXR 110 015,4.0 bar,18 mph, 135.78, 306.12,517.22, 4.75, 22.95

GWRDC,,37,Spray.Seed 2%,,,AIXR 110 015,3.0 bar,18 mph, 160.57, 346.47,572.77, 3.07, 16.46

GWRDC,,38,Spray.Seed 2%,,,AIXR 110 015,3.0 bar,18 mph, 155.19, 340.76,570.75, 3.45, 17.51

GWRDC,,39,Spray.Seed 2%,,,AIXR 110 015,3.0 bar,18 mph, 159.54, 345.40,570.64, 3.12, 16.68

GWRDC,,40,Spray.Seed 2%,,,AIXR 110 015,2.0 bar,18 mph, 194.08, 394.63,634.64, 1.58, 10.76

GWRDC,,41,Spray.Seed 2%,,,AIXR 110 015,2.0 bar,18 mph, 196.46, 399.36,641.54, 1.52, 10.44

GWRDC,,42,Spray.Seed 2%,,,AIXR 110 015,2.0 bar,18 mph, 194.80, 397.70,638.63, 1.66, 10.65

GWRDC,,43,Spray.Seed 2%,,,AIXR 110 03,2.0 bar,18 mph, 186.88, 405.49,652.35, 1.95, 11.69

GWRDC,,45,Spray.Seed 2%,,,AIXR 110 03,2.0 bar,18 mph, 185.98, 409.31,681.45, 1.96, 11.80

GWRDC,,46,Spray.Seed 2%,,,AIXR 110 03,2.0 bar,18 mph, 186.33, 412.48,677.11, 2.02, 11.73

GWRDC,,47,Spray.Seed 2%,,,AIXR 110 03,3.0 bar,18 mph, 158.40, 369.66,650.47, 3.47, 16.23

GWRDC,,48,Spray.Seed 2%,,,AIXR 110 03,3.0 bar,18 mph, 152.07, 360.43,619.81, 3.94, 17.48

GWRDC,,49,Spray.Seed 2%,,,AIXR 110 03,3.0 bar,18 mph, 153.08, 358.50,592.89, 3.88, 17.35

GWRDC,,50,Spray.Seed 2%,,,AIXR 110 03,4.0 bar,18 mph, 142.32, 333.39,552.93, 4.49, 20.06

GWRDC,,56,Spray.Seed 2%,,,AIXR 110 03,4.0 bar,18 mph, 140.87, 333.69,564.88, 4.61, 20.34

GWRDC,,57,Spray.Seed 2%,,,AIXR 110 03,4.0 bar,18 mph, 152.60, 345.78,584.89, 3.67, 17.97

GWRDC,,58,Spray.Seed 2%,,,AIXR 110 03,5.0 bar,18 mph, 138.49, 324.67,563.00, 4.66, 21.47

GWRDC,,59,Spray.Seed 2%,,,AIXR 110 03,5.0 bar,18 mph, 134.59, 326.96,582.15, 5.15, 21.95

GWRDC,,60,Spray.Seed 2%,,,AIXR 110 03,5.0 bar,18 mph, 135.49, 325.94,582.79, 5.00, 21.92

GWRDC,,23,Spray.Seed 2%,,,TT 110 015,5.0 bar,18 mph, 93.13, 228.54,460.44, 11.72, 41.88

GWRDC,,24,Spray.Seed 2%,,,TT 110 015,5.0 bar,18 mph, 93.25, 227.93,452.93, 11.68, 41.96

GWRDC,,25,Spray.Seed 2%,,,TT 110 015,5.0 bar,18 mph, 94.53, 229.15,455.74, 11.36, 41.65

GWRDC,,26,Spray.Seed 2%,,,TT 110 015,4.0 bar,18 mph, 111.17, 252.05,477.77, 7.50, 34.85

GWRDC,,27,Spray.Seed 2%,,,TT 110 015,4.0 bar,18 mph, 106.16, 247.91,475.14, 8.54, 36.27

GWRDC,,28,Spray.Seed 2%,,,TT 110 015,4.0 bar,18 mph, 111.28, 251.77,467.04, 7.51, 34.73

GWRDC,,29,Spray.Seed 2%,,,TT 110 015,3.0 bar,18 mph, 125.64, 276.12,495.82, 5.33, 28.72

GWRDC,,30,Spray.Seed 2%,,,TT 110 015,3.0 bar,18 mph, 126.13, 278.74,500.71, 5.29, 28.35

GWRDC,,31,Spray.Seed 2%,,,TT 110 015,3.0 bar,18 mph, 126.34, 277.72,497.85, 5.25, 28.46

GWRDC,,32,Spray.Seed 2%,,,TT 110 015,2.0 bar,18 mph, 150.22, 314.77,551.68, 3.11, 20.58

GWRDC,,33,Spray.Seed 2%,,,TT 110 015,2.0 bar,18 mph, 149.74, 316.19,556.82, 3.08, 20.69

GWRDC,,34,Spray.Seed 2%,,,TT 110 015,2.0 bar,18 mph, 152.37, 320.30,554.69, 2.96, 19.82

GWRDC,,38,Spray.Seed 2%,,,TT 110 02,2.0 bar,18 mph, 340.61, 635.58,987.66, 0.06, 1.71

GWRDC,,39,Spray.Seed 2%,,,TT 110 02,2.0 bar,18 mph, 329.01, 626.99,982.09, 0.07, 1.94

GWRDC,,40,Spray.Seed 2%,,,TT 110 02,2.0 bar,18 mph, 334.20, 636.77,1005.10, 0.06, 1.81

GWRDC,,41,Spray.Seed 2%,,,TT 110 02,3.0 bar,18 mph, 264.62, 549.31,979.37, 0.24, 4.22

GWRDC,,45,Spray.Seed 2%,,,TT 110 02,3.0 bar,18 mph, 265.24, 554.54,972.17, 0.25, 4.28

GWRDC,,46,Spray.Seed 2%,,,TT 110 02,3.0 bar,18 mph, 268.28, 552.70,985.87, 0.24, 4.10

GWRDC,,47,Spray.Seed 2%,,,TT 110 02,4.0 bar,18 mph, 232.13, 501.35,905.90, 0.64, 6.58

GWRDC,,48,Spray.Seed 2%,,,TT 110 02,4.0 bar,18 mph, 232.11, 492.03,886.13, 0.60, 6.49

GWRDC,,49,Spray.Seed 2%,,,TT 110 02,4.0 bar,18 mph, 231.58, 495.99,894.67, 0.62, 6.56

GWRDC,,50,Spray.Seed 2%,,,TT 110 02,5.0 bar,18 mph, 208.83, 479.94,912.39, 1.08, 9.00

GWRDC,,51,Spray.Seed 2%,,,TT 110 02,5.0 bar,18 mph, 209.46, 474.62,897.37, 1.02, 8.91

GWRDC,,52,Spray.Seed 2%,,,TT 110 02,5.0 bar,18 mph, 209.48, 477.19,893.42, 1.03, 8.92

GWRDC,,53,Spray.Seed 2%,,,TT 110 03,5.0 bar,18 mph, 121.09, 313.24,611.40, 6.37, 26.48

GWRDC,,54,Spray.Seed 2%,,,TT 110 03,5.0 bar,18 mph, 120.80, 303.90,596.07, 6.32, 27.46

GWRDC,,55,Spray.Seed 2%,,,TT 110 03,5.0 bar,18 mph, 123.27, 306.13,591.72, 6.01, 26.53

GWRDC,,56,Spray.Seed 2%,,,TT 110 03,4.0 bar,18 mph, 131.45, 327.21,627.58, 5.03, 23.74

GWRDC,,57,Spray.Seed 2%,,,TT 110 03,4.0 bar,18 mph, 131.61, 331.14,634.72, 5.03, 23.42

GWRDC,,58,Spray.Seed 2%,,,TT 110 03,4.0 bar,18 mph, 130.95, 326.77,611.55, 5.11, 23.77

GWRDC,,59,Spray.Seed 2%,,,TT 110 03,3.0 bar,18 mph, 147.38, 354.78,662.31, 3.67, 19.52

GWRDC,,60,Spray.Seed 2%,,,TT 110 03,3.0 bar,18 mph, 149.17, 353.12,649.87, 3.57, 19.25

GWRDC,,61,Spray.Seed 2%,,,TT 110 03,3.0 bar,18 mph, 147.66, 352.81,639.66, 3.67, 19.48

GWRDC,,62,Spray.Seed 2%,,,TT 110 03,2.0 bar,18 mph, 174.51, 391.20,696.23, 2.17, 13.88

GWRDC,,63,Spray.Seed 2%,,,TT 110 03,2.0 bar,18 mph, 167.19, 387.90,691.99, 2.53, 15.07

GWRDC,,64,Spray.Seed 2%,,,TT 110 03,2.0 bar,18 mph, 169.41, 386.49,683.75, 2.39, 14.76

GWRDC,,65,Spray.Seed 2%,,,AI 110 015,2.0 bar,18 mph, 301.65, 618.44,1005.10, 0.38, 3.49

GWRDC,,66,Spray.Seed 2%,,,AI 110 015,2.0 bar,18 mph, 303.24, 615.87,971.52, 0.34, 3.39

GWRDC,,67,Spray.Seed 2%,,,AI 110 015,2.0 bar,18 mph, 293.04, 598.90,992.32, 0.38, 3.76

GWRDC,,68,Spray.Seed 2%,,,AI 110 015,3.0 bar,18 mph, 226.09, 479.15,804.81, 1.15, 7.45

GWRDC,,69,Spray.Seed 2%,,,AI 110 015,3.0 bar,18 mph, 220.15, 465.21,756.47, 1.28, 7.97

GWRDC,,70,Spray.Seed 2%,,,AI 110 015,3.0 bar,18 mph, 224.17, 471.61,764.05, 1.19, 7.59

GWRDC,,71,Spray.Seed 2%,,,AI 110 015,4.0 bar,18 mph, 193.88, 423.00,719.84, 1.94, 10.73

GWRDC,,72,Spray.Seed 2%,,,AI 110 015,4.0 bar,18 mph, 190.22, 418.46,714.94, 2.09, 11.19

GWRDC,,73,Spray.Seed 2%,,,AI 110 015,4.0 bar,18 mph, 191.72, 419.49,715.73, 2.05, 11.00

GWRDC,,74,Spray.Seed 2%,,,AI 110 015,5.0 bar,18 mph, 172.55, 383.21,660.52, 2.70, 14.01

GWRDC,,75,Spray.Seed 2%,,,AI 110 015,5.0 bar,18 mph, 170.93, 384.15,668.74, 2.81, 14.23

GWRDC,,76,Spray.Seed 2%,,,AI 110 015,5.0 bar,18 mph, 171.95, 385.59,666.84, 2.78, 14.04

GWRDC,,77,Spray.Seed 2%,,,AI 110 02,5.0 bar,18 mph, 189.99, 417.75,702.94, 2.05, 11.26

GWRDC,,78,Spray.Seed 2%,,,AI 110 02,5.0 bar,18 mph, 180.99, 400.09,667.17, 2.34, 12.62

GWRDC,,80,Spray.Seed 2%,,,AI 110 02,5.0 bar,18 mph, 186.47, 417.98,722.17, 2.20, 11.73

GWRDC,,82,Spray.Seed 2%,,,AI 110 02,4.0 bar,18 mph, 197.64, 437.71,735.65, 1.82, 10.27

GWRDC,,83,Spray.Seed 2%,,,AI 110 02,4.0 bar,18 mph, 196.65, 430.53,704.63, 1.79, 10.39

GWRDC,,84,Spray.Seed 2%,,,AI 110 02,4.0 bar,18 mph, 201.52, 437.71,727.90, 1.68, 9.83

GWRDC,,85,Spray.Seed 2%,,,AI 110 02,3.0 bar,18 mph, 234.03, 495.53,815.84, 0.90, 6.75

GWRDC,,86,Spray.Seed 2%,,,AI 110 02,3.0 bar,18 mph, 232.13, 493.93,824.67, 1.02, 6.95

GWRDC,,87,Spray.Seed 2%,,,AI 110 02,3.0 bar,18 mph, 232.30, 495.46,829.42, 1.00, 6.93

GWRDC,,88,Spray.Seed 2%,,,AI 110 02,2.0 bar,18 mph, 308.06, 625.66,982.96, 0.25, 3.10

GWRDC,,89,Spray.Seed 2%,,,AI 110 02,2.0 bar,18 mph, 289.62, 586.78,913.67, 0.39, 3.78

GWRDC,,90,Spray.Seed 2%,,,AI 110 02,2.0 bar,18 mph, 296.94, 600.38,923.98, 0.36, 3.53

GWRDC,,92,Spray.Seed 2%,,,AI 110 03,2.0 bar,18 mph, 292.12, 603.86,1003.66, 0.36, 3.73

GWRDC,,93,Spray.Seed 2%,,,AI 110 03,2.0 bar,18 mph, 289.87, 599.58,996.46, 0.37, 3.80

GWRDC,,94,Spray.Seed 2%,,,AI 110 03,2.0 bar,18 mph, 290.51, 595.38,963.26, 0.37, 3.81

GWRDC,,95,Spray.Seed 2%,,,AI 110 03,3.0 bar,18 mph, 230.28, 496.50,827.73, 1.04, 7.15

GWRDC,,96,Spray.Seed 2%,,,AI 110 03,3.0 bar,18 mph, 230.09, 498.03,840.52, 1.06, 7.17

GWRDC,,97,Spray.Seed 2%,,,AI 110 03,3.0 bar,18 mph, 228.96, 493.76,816.10, 1.07, 7.26

GWRDC,,98,Spray.Seed 2%,,,AI 110 03,4.0 bar,18 mph, 205.24, 455.35,761.35, 1.73, 9.46

GWRDC,,99,Spray.Seed 2%,,,AI 110 03,4.0 bar,18 mph, 208.22, 464.02,799.91, 1.72, 9.19

GWRDC,,100,Spray.Seed 2%,,,AI 110 03,4.0 bar,18 mph, 208.19, 462.75,797.33, 1.72, 9.18

GWRDC,,101,Spray.Seed 2%,,,AI 110 03,5.0 bar,18 mph, 193.88, 431.41,717.80, 1.96, 10.73

GWRDC,,106,Spray.Seed 2%,,,AI 110 03,5.0 bar,18 mph, 194.99, 439.02,716.02, 2.19, 10.56

GWRDC,,107,Spray.Seed 2%,,,AI 110 03,5.0 bar,18 mph, 191.92, 434.83,713.40, 2.25, 10.93

GWRDC,,114,Spray.Seed 2%,,,Airmix 110 015,2.0 bar,18 mph, 191.64, 401.64,646.08, 1.75, 11.10

GWRDC,,115,Spray.Seed 2%,,,Airmix 110 015,2.0 bar,18 mph, 189.22, 394.89,631.10, 1.82, 11.47

GWRDC,,116,Spray.Seed 2%,,,Airmix 110 015,2.0 bar,18 mph, 186.16, 383.47,620.87, 1.77, 12.06

GWRDC,,117,Spray.Seed 2%,,,Airmix 110 015,3.0 bar,18 mph, 163.09, 360.74,620.97, 2.89, 15.89

GWRDC,,118,Spray.Seed 2%,,,Airmix 110 015,3.0 bar,18 mph, 166.20, 364.94,619.94, 2.73, 15.27

GWRDC,,119,Spray.Seed 2%,,,Airmix 110 015,3.0 bar,18 mph, 168.83, 371.60,633.16, 2.62, 14.77

GWRDC,,120,Spray.Seed 2%,,,Airmix 110 015,4.0 bar,18 mph, 141.76, 322.98,561.59, 4.28, 21.16

GWRDC,,121,Spray.Seed 2%,,,Airmix 110 015,4.0 bar,18 mph, 142.84, 321.97,555.22, 4.18, 20.98

GWRDC,,122,Spray.Seed 2%,,,Airmix 110 015,4.0 bar,18 mph, 140.75, 320.96,550.90, 4.37, 21.35

GWRDC,,125,Spray.Seed 2%,,,Airmix 110 015,5.0 bar,18 mph, 130.86, 299.96,526.79, 5.15, 24.79

GWRDC,,126,Spray.Seed 2%,,,Airmix 110 015,5.0 bar,18 mph, 127.96, 301.44,538.00, 5.58, 25.10

GWRDC,,127,Spray.Seed 2%,,,Airmix 110 015,5.0 bar,18 mph, 132.44, 303.78,539.93, 5.01, 24.23

GWRDC,,128,Spray.Seed 2%,,,Airmix 110 02,5.0 bar,18 mph, 131.73, 303.57,525.60, 5.08, 24.16

GWRDC,,129,Spray.Seed 2%,,,Airmix 110 02,5.0 bar,18 mph, 127.17, 296.58,508.81, 5.55, 25.65

GWRDC,,130,Spray.Seed 2%,,,Airmix 110 02,5.0 bar,18 mph, 123.86, 290.16,489.17, 6.01, 26.62

GWRDC,,132,Spray.Seed 2%,,,Airmix 110 02,4.0 bar,18 mph, 142.53, 326.14,557.40, 4.23, 20.72

GWRDC,,133,Spray.Seed 2%,,,Airmix 110 02,4.0 bar,18 mph, 137.98, 321.32,560.10, 4.56, 21.82

GWRDC,,135,Spray.Seed 2%,,,Airmix 110 02,4.0 bar,18 mph, 142.94, 323.87,546.42, 4.13, 20.59

GWRDC,,136,Spray.Seed 2%,,,Airmix 110 02,3.0 bar,18 mph, 155.89, 351.69,593.15, 3.30, 17.33

GWRDC,,137,Spray.Seed 2%,,,Airmix 110 02,3.0 bar,18 mph, 152.41, 348.07,591.80, 3.54, 18.07

GWRDC,,138,Spray.Seed 2%,,,Airmix 110 02,3.0 bar,18 mph, 154.51, 350.81,593.64, 3.33, 17.64

GWRDC,,139,Spray.Seed 2%,,,Airmix 110 02,2.0 bar,18 mph, 192.83, 415.59,693.29, 1.67, 10.90

GWRDC,,140,Spray.Seed 2%,,,Airmix 110 02,2.0 bar,18 mph, 195.34, 423.95,716.98, 1.57, 10.57

GWRDC,,141,Spray.Seed 2%,,,Airmix 110 02,2.0 bar,18 mph, 196.42, 424.87,710.17, 1.50, 10.44

GWRDC,,143,Spray.Seed 2%,,,Airmix 110 03,2.0 bar,18 mph, 187.99, 423.73,705.16, 1.89, 11.51

GWRDC,,144,Spray.Seed 2%,,,Airmix 110 03,2.0 bar,18 mph, 190.39, 424.45,698.19, 1.80, 11.18

GWRDC,,145,Spray.Seed 2%,,,Airmix 110 03,2.0 bar,18 mph, 190.28, 427.56,705.47, 1.81, 11.19

GWRDC,,146,Spray.Seed 2%,,,Airmix 110 03,3.0 bar,18 mph, 159.05, 380.95,676.71, 3.29, 16.00

GWRDC,,147,Spray.Seed 2%,,,Airmix 110 03,3.0 bar,18 mph, 158.78, 380.27,669.15, 3.34, 16.05

GWRDC,,148,Spray.Seed 2%,,,Airmix 110 03,3.0 bar,18 mph, 156.91, 380.03,664.26, 3.57, 16.27

GWRDC,,149,Spray.Seed 2%,,,Airmix 110 03,4.0 bar,18 mph, 143.16, 354.55,615.70, 4.66, 18.93

GWRDC,,150,Spray.Seed 2%,,,Airmix 110 03,4.0 bar,18 mph, 147.44, 360.34,664.71, 4.11, 18.38

GWRDC,,151,Spray.Seed 2%,,,Airmix 110 03,4.0 bar,18 mph, 144.26, 356.63,624.02, 4.59, 18.68

GWRDC,,153,Spray.Seed 2%,,,Airmix 110 03,5.0 bar,18 mph, 137.15, 342.34,598.16, 5.05, 20.46

GWRDC,,154,Spray.Seed 2%,,,Airmix 110 03,5.0 bar,18 mph, 136.18, 339.65,595.07, 5.15, 20.67

GWRDC,,155,Spray.Seed 2%,,,Airmix 110 03,5.0 bar,18 mph, 137.31, 332.64,581.71, 4.74, 21.24

GWRDC,,156,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 88.78, 204.79,368.58, 13.23, 48.30

GWRDC,,157,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 89.31, 204.95,368.57, 13.04, 48.23

GWRDC,,158,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 86.46, 205.59,366.48, 13.88, 48.05

GWRDC,,159,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 106.11, 230.39,396.48, 8.49, 39.47

GWRDC,,160,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 105.70, 231.16,399.49, 8.60, 39.30

GWRDC,,161,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 105.47, 230.09,398.74, 8.65, 39.63

GWRDC,,164,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 125.39, 257.63,425.21, 5.28, 30.75

GWRDC,,165,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 128.68, 262.43,431.02, 4.88, 29.23

GWRDC,,166,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 130.01, 265.18,433.12, 4.76, 28.48

GWRDC,,167,Spray.Seed 2%,,,ABJ 110 015,2.0 bar,18 mph, 166.28, 319.59,496.02, 2.08, 16.53

GWRDC,,169,Spray.Seed 2%,,,ABJ 110 015,2.0 bar,18 mph, 168.66, 321.43,497.11, 1.95, 16.08

GWRDC,,170,Spray.Seed 2%,,,ABJ 110 015,2.0 bar,18 mph, 168.03, 319.28,496.73, 1.97, 16.29

GWRDC,,171,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 124.30, 254.02,414.32, 5.47, 31.49

GWRDC,,173,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 121.45, 252.70,419.54, 5.95, 32.25

GWRDC,,174,Spray.Seed 2%,,,ABJ 110 015,3.0 bar,18 mph, 123.98, 255.20,419.31, 5.51, 31.38

GWRDC,,175,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 104.32, 228.46,409.46, 8.91, 40.22

GWRDC,,176,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 102.72, 227.28,406.80, 9.30, 40.68

GWRDC,,177,Spray.Seed 2%,,,ABJ 110 015,4.0 bar,18 mph, 104.11, 226.35,394.16, 8.95, 40.73

GWRDC,,178,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 92.78, 212.18,380.15, 11.88, 45.69

GWRDC,,179,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 89.66, 208.34,371.54, 12.82, 47.03

GWRDC,,180,Spray.Seed 2%,,,ABJ 110 015,5.0 bar,18 mph, 90.24, 208.69,385.76, 12.72, 46.95

GWRDC,,181,Spray.Seed 2%,,,ABJ 110 02,5.0 bar,18 mph, 112.20, 269.60,491.29, 7.60, 31.56

GWRDC,,182,Spray.Seed 2%,,,ABJ 110 02,5.0 bar,18 mph, 114.39, 269.26,482.73, 7.26, 31.17

GWRDC,,183,Spray.Seed 2%,,,ABJ 110 02,5.0 bar,18 mph, 117.84, 277.81,488.65, 6.79, 29.46

GWRDC,,184,Spray.Seed 2%,,,ABJ 110 02,4.0 bar,18 mph, 124.17, 287.70,513.79, 5.94, 27.23

GWRDC,,185,Spray.Seed 2%,,,ABJ 110 02,4.0 bar,18 mph, 121.84, 283.08,494.36, 6.25, 28.11

GWRDC,,186,Spray.Seed 2%,,,ABJ 110 02,4.0 bar,18 mph, 122.98, 284.63,498.94, 6.09, 27.73

GWRDC,,187,Spray.Seed 2%,,,ABJ 110 02,3.0 bar,18 mph, 139.39, 313.23,553.04, 4.41, 22.02

GWRDC,,188,Spray.Seed 2%,,,ABJ 110 02,3.0 bar,18 mph, 139.75, 313.64,556.55, 4.35, 21.99

GWRDC,,189,Spray.Seed 2%,,,ABJ 110 02,3.0 bar,18 mph, 138.92, 307.95,531.29, 4.41, 22.34

GWRDC,,190,Spray.Seed 2%,,,ABJ 110 02,2.0 bar,18 mph, 181.49, 376.56,656.65, 1.85, 12.81

GWRDC,,191,Spray.Seed 2%,,,ABJ 110 02,2.0 bar,18 mph, 177.80, 367.58,630.26, 1.99, 13.45

GWRDC,,193,Spray.Seed 2%,,,ABJ 110 02,2.0 bar,18 mph, 184.28, 381.18,658.77, 1.73, 12.32

GWRDC,,196,Spray.Seed 2%,,,ABJ 110 02,2.0 bar,18 mph, 173.01, 370.27,644.96, 2.30, 14.07

GWRDC,,199,Spray.Seed 2%,,,ABJ 110 03,2.0 bar,18 mph, 208.16, 418.16,699.66, 1.04, 9.03

GWRDC,,200,Spray.Seed 2%,,,ABJ 110 03,2.0 bar,18 mph, 210.05, 420.07,695.71, 1.01, 8.82

GWRDC,,201,Spray.Seed 2%,,,ABJ 110 03,2.0 bar,18 mph, 209.90, 418.63,687.25, 1.01, 8.84

GWRDC,,202,Spray.Seed 2%,,,ABJ 110 03,3.0 bar,18 mph, 160.49, 341.58,576.79, 2.68, 17.06

GWRDC,,204,Spray.Seed 2%,,,ABJ 110 03,3.0 bar,18 mph, 161.62, 342.21,571.73, 2.63, 16.84

GWRDC,,205,Spray.Seed 2%,,,ABJ 110 03,3.0 bar,18 mph, 161.71, 342.08,573.23, 2.60, 16.83

GWRDC,,207,Spray.Seed 2%,,,ABJ 110 03,4.0 bar,18 mph, 127.58, 297.38,524.95, 5.47, 25.59

GWRDC,,208,Spray.Seed 2%,,,ABJ 110 03,4.0 bar,18 mph, 128.47, 297.81,529.88, 5.32, 25.46

GWRDC,,210,Spray.Seed 2%,,,ABJ 110 03,4.0 bar,18 mph, 130.82, 298.01,521.87, 5.01, 24.99

GWRDC,,211,Spray.Seed 2%,,,ABJ 110 03,5.0 bar,18 mph, 117.73, 277.23,493.50, 6.75, 29.55

GWRDC,,213,Spray.Seed 2%,,,ABJ 110 03,5.0 bar,18 mph, 117.43, 278.53,502.83, 6.75, 29.51

GWRDC,,214,Spray.Seed 2%,,,ABJ 110 03,5.0 bar,18 mph, 118.54, 280.73,514.01, 6.62, 29.03

GWRDC,,216,Spray.Seed 4%,,,ABJ 110 03,5.0 bar,18 mph, 109.94, 267.18,493.01, 7.99, 32.09

GWRDC,,217,Spray.Seed 4%,,,ABJ 110 03,5.0 bar,18 mph, 112.09, 271.97,519.27, 7.64, 31.12

GWRDC,,218,Spray.Seed 4%,,,ABJ 110 03,5.0 bar,18 mph, 109.25, 272.34,518.48, 8.17, 31.41

GWRDC,,219,Spray.Seed 4%,,,ABJ 110 03,4.0 bar,18 mph, 127.08, 290.29,526.85, 5.43, 26.45

GWRDC,,220,Spray.Seed 4%,,,ABJ 110 03,4.0 bar,18 mph, 128.24, 290.30,516.54, 5.29, 26.22

GWRDC,,222,Spray.Seed 4%,,,ABJ 110 03,4.0 bar,18 mph, 127.19, 290.54,517.82, 5.43, 26.40

GWRDC,,223,Spray.Seed 4%,,,ABJ 110 03,3.0 bar,18 mph, 152.86, 324.66,557.64, 3.04, 19.32

GWRDC,,224,Spray.Seed 4%,,,ABJ 110 03,3.0 bar,18 mph, 152.92, 324.52,557.52, 3.05, 19.35

GWRDC,,225,Spray.Seed 4%,,,ABJ 110 03,3.0 bar,18 mph, 154.36, 326.16,553.20, 2.96, 18.91

GWRDC,,226,Spray.Seed 4%,,,ABJ 110 03,2.0 bar,18 mph, 196.39, 392.42,636.25, 1.23, 10.50

GWRDC,,227,Spray.Seed 4%,,,ABJ 110 03,2.0 bar,18 mph, 196.38, 392.41,632.48, 1.22, 10.50

GWRDC,,228,Spray.Seed 4%,,,ABJ 110 03,2.0 bar,18 mph, 190.47, 383.44,616.92, 1.37, 11.41

GWRDC,,229,Spray.Seed 4%,,,ABJ 110 02,2.0 bar,18 mph, 168.74, 355.37,615.79, 2.32, 15.09

GWRDC,,230,Spray.Seed 4%,,,ABJ 110 02,2.0 bar,18 mph, 169.87, 356.41,609.08, 2.30, 14.86

GWRDC,,233,Spray.Seed 4%,,,ABJ 110 02,2.0 bar,18 mph, 167.76, 352.34,599.88, 2.35, 15.30

GWRDC,,234,Spray.Seed 4%,,,ABJ 110 02,3.0 bar,18 mph, 138.47, 310.42,566.34, 4.49, 22.44

GWRDC,,235,Spray.Seed 4%,,,ABJ 110 02,3.0 bar,18 mph, 139.09, 310.27,551.67, 4.41, 22.32

GWRDC,,236,Spray.Seed 4%,,,ABJ 110 02,3.0 bar,18 mph, 141.44, 318.41,574.71, 4.25, 21.49

GWRDC,,237,Spray.Seed 4%,,,ABJ 110 02,4.0 bar,18 mph, 117.17, 277.07,502.58, 7.01, 29.38

GWRDC,,240,Spray.Seed 4%,,,ABJ 110 02,4.0 bar,18 mph, 119.61, 282.76,520.74, 6.71, 28.40

GWRDC,,241,Spray.Seed 4%,,,ABJ 110 02,4.0 bar,18 mph, 116.10, 273.20,496.62, 7.13, 30.07

GWRDC,,242,Spray.Seed 4%,,,ABJ 110 02,5.0 bar,18 mph, 107.06, 264.86,493.45, 8.60, 32.68

GWRDC,,243,Spray.Seed 4%,,,ABJ 110 02,5.0 bar,18 mph, 102.05, 252.87,485.96, 9.55, 35.36

GWRDC,,244,Spray.Seed 4%,,,ABJ 110 02,5.0 bar,18 mph, 104.44, 256.32,480.61, 9.07, 34.32

GWRDC,,245,Spray.Seed 4%,,,ABJ 110 015,5.0 bar,18 mph, 83.98, 196.32,361.43, 14.85, 51.34

GWRDC,,246,Spray.Seed 4%,,,ABJ 110 015,5.0 bar,18 mph, 87.02, 198.75,359.55, 13.75, 50.47

GWRDC,,247,Spray.Seed 4%,,,ABJ 110 015,5.0 bar,18 mph, 85.95, 198.04,359.71, 14.19, 50.73

GWRDC,,248,Spray.Seed 4%,,,ABJ 110 015,4.0 bar,18 mph, 102.10, 221.87,407.01, 9.44, 42.27

GWRDC,,249,Spray.Seed 4%,,,ABJ 110 015,4.0 bar,18 mph, 102.45, 220.27,389.17, 9.36, 42.62

GWRDC,,251,Spray.Seed 4%,,,ABJ 110 015,4.0 bar,18 mph, 101.92, 220.48,392.64, 9.49, 42.65

GWRDC,,252,Spray.Seed 4%,,,ABJ 110 015,3.0 bar,18 mph, 126.59, 255.09,418.27, 5.11, 30.87

GWRDC,,253,Spray.Seed 4%,,,ABJ 110 015,3.0 bar,18 mph, 124.35, 250.31,413.58, 5.41, 32.24

GWRDC,,254,Spray.Seed 4%,,,ABJ 110 015,3.0 bar,18 mph, 122.98, 249.62,418.23, 5.60, 32.64

GWRDC,,259,Spray.Seed 4%,,,ABJ 110 015,2.0 bar,18 mph, 158.25, 301.00,476.27, 2.37, 19.22

GWRDC,,260,Spray.Seed 4%,,,ABJ 110 015,2.0 bar,18 mph, 156.14, 295.89,471.80, 2.45, 20.09

GWRDC,,261,Spray.Seed 4%,,,ABJ 110 015,2.0 bar,18 mph, 155.71, 296.87,472.44, 2.51, 20.11

GWRDC,,262,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 204.40, 421.96,688.25, 1.36, 9.49

GWRDC,,263,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 206.69, 420.97,682.75, 1.32, 9.24

GWRDC,,264,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 203.56, 418.35,673.91, 1.39, 9.59

GWRDC,,265,Spray.Seed 4%,,,AIXR 110 015,3.0 bar,18 mph, 152.19, 335.10,564.78, 3.64, 18.53

GWRDC,,266,Spray.Seed 4%,,,AIXR 110 015,3.0 bar,18 mph, 153.00, 337.89,570.45, 3.61, 18.21

GWRDC,,267,Spray.Seed 4%,,,AIXR 110 015,3.0 bar,18 mph, 153.72, 337.47,569.92, 3.54, 18.12

GWRDC,,268,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 191.46, 404.83,657.32, 1.78, 11.10

GWRDC,,269,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 191.64, 404.30,661.44, 1.78, 11.07

GWRDC,,270,Spray.Seed 4%,,,AIXR 110 015,2.0 bar,18 mph, 195.78, 411.48,687.07, 1.56, 10.53

GWRDC,,276,Water,,,AIXR 110 015,3.0 bar,18 mph, 194.98, 382.67,594.48, 1.81, 10.63

GWRDC,,277,Water,,,AIXR 110 015,3.0 bar,18 mph, 197.60, 390.33,595.69, 1.83, 10.28

GWRDC,,278,Water,,,AIXR 110 015,3.0 bar,18 mph, 190.11, 387.51,592.49, 2.11, 11.21

GWRDC,,279,Water,,,AIXR 110 015,3.0 bar,18 mph, 198.67, 393.89,600.29, 1.82, 10.15

GWRDC,,280,Water,,Lower laser height,AIXR 110 015,3.0 bar,18 mph, 198.63, 400.91,615.91, 1.79, 10.16

GWRDC,,281,Water,,Lower laser height,AIXR 110 015,3.0 bar,18 mph, 194.63, 396.57,635.77, 1.77, 10.65

GWRDC,,282,Water,,Lower laser height,AIXR 110 015,3.0 bar,18 mph, 194.64, 396.60,629.44, 1.83, 10.64

GWRDC,,285,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,2.0 bar,18 mph, 206.18, 419.84,642.74, 1.26, 9.31

GWRDC,,286,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,2.0 bar,18 mph, 207.62, 426.82,689.53, 1.18, 9.15

GWRDC,,287,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,2.0 bar,18 mph, 202.10, 427.58,700.22, 1.29, 9.76

GWRDC,,288,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,3.0 bar,18 mph, 157.36, 338.06,556.87, 2.86, 17.51

GWRDC,,289,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,3.0 bar,18 mph, 160.90, 346.80,557.70, 2.85, 16.46

GWRDC,,292,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,3.0 bar,18 mph, 163.33, 351.06,576.92, 2.62, 15.98

GWRDC,,293,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,4.0 bar,18 mph, 137.31, 302.57,497.91, 4.30, 23.00

GWRDC,,294,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,4.0 bar,18 mph, 137.83, 302.95,492.63, 4.28, 22.79

GWRDC,,295,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,4.0 bar,18 mph, 139.00, 304.92,493.66, 4.20, 22.48

GWRDC,,297,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,5.0 bar,18 mph, 131.62, 291.80,485.83, 4.86, 24.94

GWRDC,,298,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,5.0 bar,18 mph, 130.95, 289.67,482.31, 4.92, 25.22

GWRDC,,299,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 015,5.0 bar,18 mph, 131.75, 292.87,484.48, 4.87, 24.75

GWRDC,,300,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,5.0 bar,18 mph, 140.20, 313.65,520.88, 4.19, 21.64

GWRDC,,301,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,5.0 bar,18 mph, 136.59, 306.76,526.26, 4.48, 22.81

GWRDC,,302,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,5.0 bar,18 mph, 137.25, 307.60,526.62, 4.42, 22.63

GWRDC,,303,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,4.0 bar,18 mph, 148.87, 329.12,540.57, 3.65, 19.28

GWRDC,,305,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,4.0 bar,18 mph, 150.24, 332.18,559.68, 3.50, 19.00

GWRDC,,307,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,4.0 bar,18 mph, 148.48, 329.39,567.09, 3.59, 19.48

GWRDC,,308,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,3.0 bar,18 mph, 169.02, 368.93,609.20, 2.45, 14.64

GWRDC,,309,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,3.0 bar,18 mph, 167.23, 365.71,607.75, 2.51, 15.01

GWRDC,,310,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,3.0 bar,18 mph, 166.39, 362.40,592.19, 2.53, 15.19

GWRDC,,311,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,2.0 bar,18 mph, 197.70, 412.19,653.48, 1.47, 10.28

GWRDC,,312,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,2.0 bar,18 mph, 203.12, 421.46,658.81, 1.36, 9.65

GWRDC,,313,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 02,2.0 bar,18 mph, 205.05, 424.36,679.46, 1.30, 9.43

GWRDC,,314,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 195.36, 416.93,662.82, 1.53, 10.57

GWRDC,,315,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 198.86, 423.05,684.65, 1.45, 10.13

GWRDC,,316,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 196.62, 420.25,668.35, 1.51, 10.41

GWRDC,,317,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 166.94, 370.60,630.08, 2.56, 14.98

GWRDC,,318,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 168.26, 374.13,637.21, 2.52, 14.71

GWRDC,,319,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 168.84, 374.50,646.65, 2.49, 14.62

GWRDC,,320,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 153.98, 345.67,593.38, 3.30, 17.78

GWRDC,,321,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 152.04, 342.02,577.61, 3.46, 18.20

GWRDC,,322,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 152.57, 341.86,575.39, 3.40, 18.13

GWRDC,,323,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,5.0 bar,18 mph, 145.40, 327.45,554.27, 3.90, 19.96

GWRDC,,324,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,5.0 bar,18 mph, 145.41, 326.53,551.22, 3.89, 19.97

GWRDC,,325,2% Spray.Seed & 0.3% Spotlight,, ,AIXR 110 03,5.0 bar,18 mph, 145.51, 326.43,554.35, 3.88, 20.00

GWRDC,,327,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 208.71, 456.47,774.75, 1.38, 9.09

GWRDC,,333,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 224.78, 476.35,748.49, 1.02, 7.49

GWRDC,,335,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 259.46, 550.03,924.06, 0.61, 5.20

GWRDC,,339,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 260.07, 549.28,883.95, 0.59, 5.13

GWRDC,,342,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 257.41, 543.86,877.21, 0.63, 5.30

GWRDC,,343,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 225.88, 486.49,813.81, 1.04, 7.43

GWRDC,,344,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 225.85, 488.13,816.51, 1.04, 7.44

GWRDC,,345,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 212.07, 460.98,794.70, 1.29, 8.74

GWRDC,,346,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 212.79, 462.19,802.70, 1.27, 8.66

GWRDC,,348,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 323.12, 663.57,1089.42, 0.20, 2.71

GWRDC,,349,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 324.72, 664.09,1090.48, 0.19, 2.66

GWRDC,,350,2% Spray.Seed & 0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 325.09, 661.22,1079.56, 0.19, 2.66

GWRDC,,352,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 198.53, 409.83,653.20, 1.25, 10.19

GWRDC,,353,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 197.61, 405.42,636.76, 1.27, 10.31

GWRDC,,354,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 197.34, 404.14,634.22, 1.28, 10.34

GWRDC,,355,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 158.96, 346.49,577.34, 2.68, 17.28

GWRDC,,356,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 157.29, 336.22,547.76, 2.77, 17.78

GWRDC,,357,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 157.36, 336.73,551.13, 2.76, 17.77

GWRDC,,358,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 133.45, 293.93,472.67, 4.50, 24.79

GWRDC,,359,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 134.17, 296.63,484.66, 4.45, 24.46

GWRDC,,360,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 133.76, 296.00,482.45, 4.47, 24.62

GWRDC,,361,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 129.57, 296.08,522.11, 4.95, 25.69

GWRDC,,362,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 129.06, 289.40,490.34, 4.96, 26.24

GWRDC,,363,2% Spray.Seed & 0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 128.35, 286.98,478.24, 5.08, 26.55

GWRDC,,364,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 130.27, 286.50,498.83, 4.81, 26.11

GWRDC,,365,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 126.77, 278.51,474.16, 5.23, 27.73

GWRDC,,368,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 125.39, 288.35,497.71, 5.50, 26.82

GWRDC,,369,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 130.84, 288.91,495.91, 4.75, 25.71

GWRDC,,370,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 136.81, 300.02,511.89, 4.16, 23.70

GWRDC,,371,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 140.10, 306.44,521.50, 3.93, 22.57

GWRDC,,372,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 138.49, 304.36,529.65, 4.03, 23.05

GWRDC,,373,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 153.83, 331.53,564.62, 2.96, 18.70

GWRDC,,374,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 155.57, 335.53,570.46, 2.86, 18.22

GWRDC,,375,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 155.34, 334.11,569.64, 2.85, 18.32

GWRDC,,376,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 182.24, 378.96,650.02, 1.60, 12.75

GWRDC,,377,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 181.65, 375.02,602.80, 1.63, 12.87

GWRDC,,378,2% Spray.Seed & 0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 182.36, 377.16,608.78, 1.61, 12.73

GWRDC,,379,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 178.50, 377.88,642.83, 1.76, 13.51

GWRDC,,380,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 179.54, 377.71,638.50, 1.66, 13.38

GWRDC,,381,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 179.96, 379.67,640.98, 1.66, 13.28

GWRDC,,382,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 144.91, 314.19,544.32, 3.46, 21.80

GWRDC,,383,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 145.85, 316.25,555.67, 3.41, 21.45

GWRDC,,384,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 145.54, 315.13,547.03, 3.39, 21.65

GWRDC,,385,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 126.28, 280.32,494.18, 5.27, 28.24

GWRDC,,386,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 124.93, 274.34,478.77, 5.40, 29.12

GWRDC,,387,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 124.84, 274.58,476.70, 5.45, 29.04

GWRDC,,388,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 109.78, 245.33,419.78, 7.80, 35.98

GWRDC,,389,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 111.16, 248.45,437.30, 7.55, 35.23

GWRDC,,390,2% Spray.Seed & 0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 111.71, 248.66,443.56, 7.45, 35.10

GWRDC,,391,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 147.02, 325.08,555.50, 3.69, 20.11

GWRDC,,392,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 152.21, 330.22,563.19, 3.41, 18.72

GWRDC,,393,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 149.80, 329.26,564.92, 3.53, 19.35

GWRDC,,394,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 158.86, 346.21,578.79, 2.94, 17.00

GWRDC,,395,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 160.34, 350.98,590.42, 2.86, 16.51

GWRDC,,396,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 159.01, 348.12,584.84, 2.92, 16.86

GWRDC,,397,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 174.72, 380.53,642.88, 2.18, 13.71

GWRDC,,398,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 174.55, 380.78,639.91, 2.20, 13.73

GWRDC,,399,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 173.95, 378.72,634.89, 2.21, 13.84

GWRDC,,400,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 203.27, 433.70,719.91, 1.29, 9.62

GWRDC,,401,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 203.62, 435.06,730.58, 1.28, 9.58

GWRDC,,402,2% Spray.Seed & 0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 205.32, 438.04,739.41, 1.24, 9.40

GWRDC,,403,0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 181.83, 371.25,591.02, 1.95, 12.79

GWRDC,,404,0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 182.72, 368.09,584.89, 1.88, 12.70

GWRDC,,405,0.3% Spotlight,, ,Airmix 110 03,5.0 bar,18 mph, 181.90, 365.37,574.37, 2.01, 12.84

GWRDC,,406,0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 200.51, 399.20,641.39, 1.32, 9.93

GWRDC,,407,0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 201.21, 399.04,640.09, 1.30, 9.85

GWRDC,,408,0.3% Spotlight,, ,Airmix 110 03,4.0 bar,18 mph, 204.09, 396.83,626.94, 1.27, 9.49

GWRDC,,410,0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 226.04, 435.60,683.95, 0.88, 7.03

GWRDC,,411,0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 226.43, 437.12,690.46, 0.86, 6.98

GWRDC,,412,0.3% Spotlight,, ,Airmix 110 03,3.0 bar,18 mph, 230.45, 438.40,689.01, 0.77, 6.63

GWRDC,,413,0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 264.48, 492.28,753.41, 0.41, 4.27

GWRDC,,414,0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 265.43, 491.04,734.95, 0.41, 4.22

GWRDC,,415,0.3% Spotlight,, ,Airmix 110 03,2.0 bar,18 mph, 263.84, 494.80,743.24, 0.43, 4.33

GWRDC,,416,Water,, ,Airmix 110 03,2.0 bar,18 mph, 268.87, 491.63,781.58, 0.42, 4.09

GWRDC,,417,Water,, ,Airmix 110 03,2.0 bar,18 mph, 264.59, 492.73,802.94, 0.50, 4.34

GWRDC,,418,Water,, ,Airmix 110 03,2.0 bar,18 mph, 263.17, 497.29,819.02, 0.53, 4.51

GWRDC,,419,Water,, ,Airmix 110 03,2.0 bar,18 mph, 257.50, 494.81,807.23, 0.58, 4.93

GWRDC,,420,Water,, ,Airmix 110 03,3.0 bar,18 mph, 201.82, 413.00,673.63, 1.51, 9.78

GWRDC,,421,Water,, ,Airmix 110 03,3.0 bar,18 mph, 203.10, 413.77,663.32, 1.54, 9.64

GWRDC,,422,Water,, ,Airmix 110 03,3.0 bar,18 mph, 200.43, 411.79,647.17, 1.59, 9.95

GWRDC,,424,Water,, ,Airmix 110 03,4.0 bar,18 mph, 179.35, 381.04,615.61, 2.31, 12.99

GWRDC,,425,Water,, ,Airmix 110 03,4.0 bar,18 mph, 178.90, 382.39,633.52, 2.34, 13.04

GWRDC,,426,Water,, ,Airmix 110 03,4.0 bar,18 mph, 179.43, 379.92,607.18, 2.32, 12.99

GWRDC,,427,Water,, ,Airmix 110 03,5.0 bar,18 mph, 156.33, 350.00,582.09, 3.35, 17.26

GWRDC,,429,Water,, ,Airmix 110 03,5.0 bar,18 mph, 156.96, 353.22,587.69, 3.32, 17.07

GWRDC,,431,Water,, ,Airmix 110 03,5.0 bar,18 mph, 159.72, 352.33,594.00, 3.19, 16.45

GWRDC,,432,Water,, ,GA 110 03,5.0 bar,18 mph, 149.47, 321.21,538.53, 3.73, 19.46

GWRDC,,433,Water,, ,GA 110 03,5.0 bar,18 mph, 147.97, 319.51,534.26, 3.87, 19.74

GWRDC,,434,Water,, ,GA 110 03,5.0 bar,18 mph, 146.75, 318.01,526.77, 4.07, 19.92

GWRDC,,436,Water,, ,GA 110 03,4.0 bar,18 mph, 165.33, 347.70,575.94, 2.78, 15.59

GWRDC,,437,Water,, ,GA 110 03,4.0 bar,18 mph, 166.77, 350.70,585.15, 2.72, 15.27

GWRDC,,438,Water,, ,GA 110 03,4.0 bar,18 mph, 163.81, 346.51,584.59, 2.87, 15.86

GWRDC,,439,Water,, ,GA 110 03,3.0 bar,18 mph, 191.49, 388.66,651.55, 1.76, 11.13

GWRDC,,440,Water,, ,GA 110 03,3.0 bar,18 mph, 191.68, 390.17,648.12, 1.74, 11.10

GWRDC,,441,Water,, ,GA 110 03,3.0 bar,18 mph, 191.68, 389.10,641.27, 1.74, 11.11

GWRDC,,442,Water,, ,GA 110 03,2.0 bar,18 mph, 234.80, 454.79,736.14, 0.86, 6.44

GWRDC,,444,Water,, ,GA 110 03,2.0 bar,18 mph, 240.71, 460.72,724.79, 0.74, 6.00

GWRDC,,445,Water,, ,GA 110 03,2.0 bar,18 mph, 230.29, 442.88,684.82, 0.90, 6.77

GWRDC,,446,0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 252.02, 478.28,734.71, 0.56, 5.18

GWRDC,,447,0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 251.48, 459.10,703.95, 0.42, 4.92

GWRDC,,448,0.3% Spotlight,, ,GA 110 03,2.0 bar,18 mph, 250.78, 452.35,693.58, 0.40, 4.87

GWRDC,,450,0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 214.58, 396.18,609.63, 0.80, 8.10

GWRDC,,451,0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 215.84, 399.46,641.83, 0.78, 7.94

GWRDC,,452,0.3% Spotlight,, ,GA 110 03,3.0 bar,18 mph, 214.49, 395.75,606.23, 0.81, 8.11

GWRDC,,453,0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 189.75, 358.40,562.43, 1.35, 11.62

GWRDC,,454,0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 191.19, 358.74,561.52, 1.29, 11.38

GWRDC,,455,0.3% Spotlight,, ,GA 110 03,4.0 bar,18 mph, 190.14, 358.96,563.03, 1.31, 11.55

GWRDC,,456,0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 175.64, 335.90,528.50, 1.83, 14.40

GWRDC,,457,0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 175.74, 336.26,532.12, 1.82, 14.38

GWRDC,,458,0.3% Spotlight,, ,GA 110 03,5.0 bar,18 mph, 175.30, 335.62,531.97, 1.86, 14.47

GWRDC,,459,0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 196.04, 366.96,579.38, 1.14, 10.60

GWRDC,,460,0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 196.34, 368.52,589.81, 1.13, 10.55

GWRDC,,461,0.3% Spotlight,, ,ABJ 110 03,5.0 bar,18 mph, 195.34, 365.67,578.05, 1.14, 10.71

GWRDC,,462,0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 211.32, 390.46,599.31, 0.81, 8.51

GWRDC,,463,0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 211.39, 389.25,596.78, 0.80, 8.50

GWRDC,,464,0.3% Spotlight,, ,ABJ 110 03,4.0 bar,18 mph, 211.98, 391.08,596.95, 0.79, 8.42

GWRDC,,465,0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 231.75, 425.90,654.78, 0.55, 6.21

GWRDC,,468,0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 231.81, 432.00,678.62, 0.60, 6.28

GWRDC,,469,0.3% Spotlight,, ,ABJ 110 03,3.0 bar,18 mph, 228.54, 421.67,651.51, 0.60, 6.53

GWRDC,,471,0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 276.27, 513.77,821.78, 0.21, 3.44

GWRDC,,472,0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 277.73, 515.43,821.38, 0.21, 3.38

GWRDC,,473,0.3% Spotlight,, ,ABJ 110 03,2.0 bar,18 mph, 276.11, 512.01,809.50, 0.22, 3.47

GWRDC,,476,Water,, ,ABJ 110 03,2.0 bar,18 mph, 292.21, 526.35,837.53, 0.21, 2.90

GWRDC,,477,Water,, ,ABJ 110 03,2.0 bar,18 mph, 287.23, 523.15,818.59, 0.22, 3.14

GWRDC,,478,Water,, ,ABJ 110 03,2.0 bar,18 mph, 284.85, 524.33,810.95, 0.23, 3.29

GWRDC,,479,Water,, ,ABJ 110 03,3.0 bar,18 mph, 221.60, 431.25,684.41, 0.97, 7.53

GWRDC,,480,Water,, ,ABJ 110 03,3.0 bar,18 mph, 223.13, 433.89,687.39, 0.96, 7.39

GWRDC,,481,Water,, ,ABJ 110 03,3.0 bar,18 mph, 223.27, 436.73,692.78, 0.97, 7.39

GWRDC,,482,Water,, ,ABJ 110 03,4.0 bar,18 mph, 189.28, 383.55,605.49, 1.80, 11.47

GWRDC,,483,Water,, ,ABJ 110 03,4.0 bar,18 mph, 189.53, 383.35,602.30, 1.80, 11.43

GWRDC,,484,Water,, ,ABJ 110 03,4.0 bar,18 mph, 189.01, 383.22,603.74, 1.82, 11.51

GWRDC,,485,Water,, ,ABJ 110 03,5.0 bar,18 mph, 168.39, 352.07,571.26, 2.63, 14.98

GWRDC,,486,Water,, ,ABJ 110 03,5.0 bar,18 mph, 170.86, 355.94,575.92, 2.53, 14.51

GWRDC,,487,Water,, ,ABJ 110 03,5.0 bar,18 mph, 171.96, 357.23,578.12, 2.49, 14.32

GWRDC,,488,0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 261.85, 496.18,779.64, 0.61, 4.70

GWRDC,,489,0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 260.41, 496.01,774.73, 0.61, 4.77

GWRDC,,490,0.3% Spotlight,, ,AI 110 03,5.0 bar,18 mph, 259.76, 494.45,761.52, 0.61, 4.81

GWRDC,,493,0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 282.35, 532.09,827.31, 0.39, 3.65

GWRDC,,494,0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 283.95, 533.75,826.28, 0.38, 3.60

GWRDC,,495,0.3% Spotlight,, ,AI 110 03,4.0 bar,18 mph, 285.51, 537.14,835.89, 0.37, 3.54

GWRDC,,500,0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 314.45, 580.61,871.27, 0.20, 2.51

GWRDC,,501,0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 313.08, 573.78,839.57, 0.20, 2.52

GWRDC,,502,0.3% Spotlight,, ,AI 110 03,3.0 bar,18 mph, 309.10, 560.38,818.28, 0.21, 2.64

GWRDC,,506,0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 380.37, 697.24,1103.85, 0.05, 1.30

GWRDC,,507,0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 380.05, 697.53,1127.41, 0.05, 1.29

GWRDC,,508,0.3% Spotlight,, ,AI 110 03,2.0 bar,18 mph, 380.36, 695.25,1099.27, 0.05, 1.30

GWRDC,,510,0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 259.96, 472.96,710.55, 0.37, 4.33

GWRDC,,511,0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 259.83, 471.88,705.70, 0.37, 4.32

GWRDC,,512,0.3% Spotlight,, ,AIXR 110 03,2.0 bar,18 mph, 258.75, 468.56,691.33, 0.38, 4.40

GWRDC,,513,0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 227.57, 420.13,643.93, 0.70, 6.71

GWRDC,,514,0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 228.35, 421.45,651.82, 0.69, 6.62

GWRDC,,515,0.3% Spotlight,, ,AIXR 110 03,3.0 bar,18 mph, 228.61, 423.05,652.53, 0.69, 6.61

GWRDC,,516,0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 203.92, 382.93,582.56, 1.11, 9.48

GWRDC,,517,0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 201.79, 383.29,585.30, 1.16, 9.76

GWRDC,,518,0.3% Spotlight,, ,AIXR 110 03,4.0 bar,18 mph, 206.06, 385.56,589.59, 1.10, 9.23

GWRDC,,519,0.3% Spotlight,, ,AIXR 110 03,5.0 bar,18 mph, 186.76, 357.10,550.38, 1.58, 12.12

GWRDC,,520,0.3% Spotlight,, ,AIXR 110 03,5.0 bar,18 mph, 184.87, 354.06,555.89, 1.66, 12.45

GWRDC,,522,0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 112.35, 240.32,415.82, 7.29, 36.41

GWRDC,,523,0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 112.55, 240.95,415.30, 7.25, 36.26

GWRDC,,524,0.3% Spotlight,, ,TT 110 03,5.0 bar,18 mph, 112.88, 241.78,415.70, 7.19, 36.07

GWRDC,,525,0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 125.86, 262.50,436.39, 5.28, 29.89

GWRDC,,526,0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 125.60, 261.65,432.51, 5.30, 30.07

GWRDC,,527,0.3% Spotlight,, ,TT 110 03,4.0 bar,18 mph, 125.57, 260.92,425.43, 5.29, 30.16

GWRDC,,529,0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 150.69, 304.23,494.96, 3.09, 20.93

GWRDC,,530,0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 150.84, 304.67,494.86, 3.10, 20.80

GWRDC,,531,0.3% Spotlight,, ,TT 110 03,3.0 bar,18 mph, 152.10, 307.18,498.09, 3.01, 20.43

GWRDC,,532,0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 184.65, 358.11,569.82, 1.50, 12.57

GWRDC,,533,0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 185.63, 358.71,560.71, 1.46, 12.37

GWRDC,,534,0.3% Spotlight,, ,TT 110 03,2.0 bar,18 mph, 185.45, 356.90,554.81, 1.47, 12.41

GWRDC,,535,0.3% Spotlight,, ,AIXR 110 04,2.0 bar,18 mph, 300.66, 543.40,801.93, 0.20, 2.80

GWRDC,,537,0.3% Spotlight,, ,AIXR 110 04,2.0 bar,18 mph, 303.90, 552.06,813.99, 0.19, 2.68

GWRDC,,538,0.3% Spotlight,, ,AIXR 110 04,2.0 bar,18 mph, 305.84, 559.41,838.91, 0.19, 2.60

GWRDC,,539,0.3% Spotlight,, ,AIXR 110 04,3.0 bar,18 mph, 254.72, 473.07,698.06, 0.54, 4.92

GWRDC,,540,0.3% Spotlight,, ,AIXR 110 04,3.0 bar,18 mph, 258.24, 483.49,736.96, 0.52, 4.71

GWRDC,,541,0.3% Spotlight,, ,AIXR 110 04,3.0 bar,18 mph, 259.05, 484.19,733.82, 0.51, 4.65

GWRDC,,542,0.3% Spotlight,, ,AIXR 110 04,4.0 bar,18 mph, 232.89, 445.56,697.29, 0.77, 6.48

GWRDC,,543,0.3% Spotlight,, ,AIXR 110 04,4.0 bar,18 mph, 232.23, 444.77,688.96, 0.77, 6.54

GWRDC,,544,0.3% Spotlight,, ,AIXR 110 04,4.0 bar,18 mph, 230.20, 438.85,654.99, 0.78, 6.68

GWRDC,,545,0.3% Spotlight,, ,AIXR 110 04,5.0 bar,18 mph, 209.46, 399.14,586.96, 1.19, 8.90

GWRDC,,546,0.3% Spotlight,, ,AIXR 110 04,5.0 bar,18 mph, 212.12, 405.23,599.80, 1.13, 8.57

GWRDC,,547,0.3% Spotlight,, ,AIXR 110 04,5.0 bar,18 mph, 211.57, 405.15,600.34, 1.15, 8.65

GWRDC,,548,0.3% Spotlight,, ,GA 110 04,5.0 bar,18 mph, 183.11, 355.49,566.03, 1.60, 12.74

GWRDC,,549,0.3% Spotlight,, ,GA 110 04,5.0 bar,18 mph, 183.09, 353.33,561.25, 1.63, 12.80

GWRDC,,550,0.3% Spotlight,, ,GA 110 04,5.0 bar,18 mph, 181.44, 349.26,548.70, 1.73, 13.10

GWRDC,,551,0.3% Spotlight,, ,GA 110 04,4.0 bar,18 mph, 199.25, 377.00,578.36, 1.20, 10.10

GWRDC,,552,0.3% Spotlight,, ,GA 110 04,4.0 bar,18 mph, 200.13, 383.19,592.02, 1.19, 9.98

GWRDC,,553,0.3% Spotlight,, ,GA 110 04,4.0 bar,18 mph, 200.29, 383.99,592.60, 1.19, 9.96

GWRDC,,555,0.3% Spotlight,, ,GA 110 04,3.0 bar,18 mph, 228.37, 420.67,652.66, 0.70, 6.67

GWRDC,,556,0.3% Spotlight,, ,GA 110 04,3.0 bar,18 mph, 228.23, 419.17,645.82, 0.68, 6.67

GWRDC,,557,0.3% Spotlight,, ,GA 110 04,3.0 bar,18 mph, 227.61, 425.80,662.66, 0.71, 6.78

GWRDC,,558,0.3% Spotlight,, ,GA 110 04,2.0 bar,18 mph, 265.26, 480.40,746.40, 0.34, 4.03

GWRDC,,559,0.3% Spotlight,, ,GA 110 04,2.0 bar,18 mph, 265.74, 481.62,750.98, 0.34, 4.02

GWRDC,,560,0.3% Spotlight,, ,GA 110 04,2.0 bar,18 mph, 268.38, 485.05,757.53, 0.26, 3.83

GWRDC,,561,0.3% Spotlight,, ,ULD 120 04,2.0 bar,18 mph, 386.20, 702.81,1022.76, 0.00, 1.09

GWRDC,,562,0.3% Spotlight,, ,ULD 120 04,2.0 bar,18 mph, 370.05, 668.77,972.96, 0.05, 1.33

GWRDC,,565,0.3% Spotlight,, ,ULD 120 04,2.0 bar,18 mph, 386.66, 706.53,1104.89, 0.05, 1.17

GWRDC,,566,0.3% Spotlight,, ,ULD 120 04,3.0 bar,18 mph, 337.15, 637.58,971.01, 0.09, 1.97

GWRDC,,567,0.3% Spotlight,, ,ULD 120 04,3.0 bar,18 mph, 338.48, 641.10,970.09, 0.09, 1.95

GWRDC,,568,0.3% Spotlight,, ,ULD 120 04,3.0 bar,18 mph, 338.07, 642.55,967.14, 0.09, 1.98

GWRDC,,569,0.3% Spotlight,, ,ULD 120 04,4.0 bar,18 mph, 296.98, 566.36,848.13, 0.22, 3.07

GWRDC,,570,0.3% Spotlight,, ,ULD 120 04,4.0 bar,18 mph, 300.77, 576.34,886.84, 0.22, 2.98

GWRDC,,571,0.3% Spotlight,, ,ULD 120 04,4.0 bar,18 mph, 302.77, 580.56,894.84, 0.21, 2.92

GWRDC,,572,0.3% Spotlight,, ,ULD 120 04,5.0 bar,18 mph, 274.93, 540.99,852.14, 0.38, 3.95

GWRDC,,573,0.3% Spotlight,, ,ULD 120 04,5.0 bar,18 mph, 276.76, 543.97,853.08, 0.38, 3.90

GWRDC,,574,0.3% Spotlight,, ,ULD 120 04,5.0 bar,18 mph, 274.71, 535.57,830.61, 0.37, 3.96

GWRDC,,575,0.3% Spotlight,, ,TTI 110 04,5.0 bar,18 mph, 270.38, 545.11,911.00, 0.37, 4.12

GWRDC,,576,0.3% Spotlight,, ,TTI 110 04,5.0 bar,18 mph, 278.97, 533.90,892.47, 0.37, 3.75

GWRDC,,577,0.3% Spotlight,, ,TTI 110 04,5.0 bar,18 mph, 264.57, 540.38,902.14, 0.52, 4.63

GWRDC,,1,0.3% Spotlight,,,TTI 110 04,4.0 bar,18 mph, 296.46, 601.75,982.08, 0.22, 3.12

GWRDC,,580,0.3% Spotlight,, ,TTI 110 04,4.0 bar,18 mph, 300.78, 605.42,1009.75, 0.20, 2.91

GWRDC,,2,0.3% Spotlight,,,TTI 110 04,4.0 bar,18 mph, 298.65, 602.65,989.95, 0.21, 3.01

GWRDC,,3,0.3% Spotlight,,,TTI 110 04,5.0 bar,18 mph, 261.17, 541.82,929.64, 0.42, 4.64

GWRDC,,4,0.3% Spotlight,,,TTI 110 04,5.0 bar,18 mph, 262.08, 538.50,917.61, 0.42, 4.55

GWRDC,,5,0.3% Spotlight,,,TTI 110 04,5.0 bar,18 mph, 263.82, 541.92,926.36, 0.41, 4.47

GWRDC,,6,0.3% Spotlight,,,ABJ 110 02,5.0 bar,18 mph, 172.28, 335.80,542.74, 1.95, 15.10

GWRDC,,7,0.3% Spotlight,,,ABJ 110 02,5.0 bar,18 mph, 170.13, 329.95,526.42, 2.00, 15.65

GWRDC,,8,0.3% Spotlight,,,ABJ 110 02,5.0 bar,18 mph, 169.94, 335.89,532.56, 2.28, 15.40

GWRDC,,9,0.3% Spotlight,,,ABJ 110 02,4.0 bar,18 mph, 189.52, 365.15,586.90, 1.36, 11.67

GWRDC,,10,0.3% Spotlight,,,ABJ 110 02,4.0 bar,18 mph, 188.54, 362.50,577.82, 1.39, 11.85

GWRDC,,11,0.3% Spotlight,,,ABJ 110 02,4.0 bar,18 mph, 188.32, 360.72,573.46, 1.41, 11.89

GWRDC,,13,0.3% Spotlight,,,ABJ 110 02,3.0 bar,18 mph, 211.27, 401.06,628.47, 0.87, 8.57

GWRDC,,14,0.3% Spotlight,,,ABJ 110 02,3.0 bar,18 mph, 211.96, 401.64,634.04, 0.87, 8.47

GWRDC,,16,0.3% Spotlight,,,ABJ 110 02,3.0 bar,18 mph, 211.23, 400.60,646.27, 0.87, 8.58

GWRDC,,17,0.3% Spotlight,,,ABJ 110 02,2.0 bar,18 mph, 243.80, 462.66,714.49, 0.43, 5.44

GWRDC,,18,0.3% Spotlight,,,ABJ 110 02,2.0 bar,18 mph, 243.99, 463.96,731.00, 0.44, 5.43

GWRDC,,19,0.3% Spotlight,,,ABJ 110 02,2.0 bar,18 mph, 244.27, 463.47,726.96, 0.43, 5.42

GWRDC,,21,0.3% Spotlight,,,AI 110 02,2.0 bar,18 mph, 365.70, 662.54,1005.59, 0.05, 1.41

GWRDC,,22,0.3% Spotlight,,,AI 110 02,2.0 bar,18 mph, 358.76, 647.83,991.47, 0.05, 1.48

GWRDC,,23,0.3% Spotlight,,,AI 110 02,2.0 bar,18 mph, 359.40, 652.32,1011.22, 0.05, 1.49

GWRDC,,25,0.3% Spotlight,,,AI 110 02,3.0 bar,18 mph, 302.29, 542.72,818.66, 0.21, 2.74

GWRDC,,27,0.3% Spotlight,,,AI 110 02,3.0 bar,18 mph, 301.77, 542.59,822.58, 0.20, 2.76

GWRDC,,28,0.3% Spotlight,,,AI 110 02,3.0 bar,18 mph, 300.87, 540.40,809.73, 0.20, 2.79

GWRDC,,29,0.3% Spotlight,,,AI 110 02,4.0 bar,18 mph, 264.14, 480.42,715.71, 0.50, 4.32

GWRDC,,30,0.3% Spotlight,,,AI 110 02,4.0 bar,18 mph, 262.56, 479.71,712.63, 0.51, 4.40

GWRDC,,31,0.3% Spotlight,,,AI 110 02,4.0 bar,18 mph, 263.21, 481.13,716.97, 0.50, 4.37

GWRDC,,32,0.3% Spotlight,,,AI 110 02,5.0 bar,18 mph, 244.34, 449.65,682.05, 0.69, 5.62

GWRDC,,33,0.3% Spotlight,,,AI 110 02,5.0 bar,18 mph, 245.64, 451.19,684.83, 0.67, 5.53

GWRDC,,34,0.3% Spotlight,,,AI 110 02,5.0 bar,18 mph, 243.76, 448.65,679.14, 0.68, 5.65

GWRDC,,35,0.3% Spotlight,,,AIXR 110 02,5.0 bar,18 mph, 182.45, 345.67,531.75, 1.68, 13.03

GWRDC,,36,0.3% Spotlight,,,AIXR 110 02,5.0 bar,18 mph, 182.96, 345.82,535.86, 1.66, 12.91

GWRDC,,37,0.3% Spotlight,,,AIXR 110 02,5.0 bar,18 mph, 183.05, 347.33,538.60, 1.67, 12.86

GWRDC,,38,0.3% Spotlight,,,AIXR 110 02,4.0 bar,18 mph, 197.85, 371.89,576.16, 1.22, 10.30

GWRDC,,39,0.3% Spotlight,,,AIXR 110 02,4.0 bar,18 mph, 197.67, 372.02,573.53, 1.23, 10.33

GWRDC,,40,0.3% Spotlight,,,AIXR 110 02,4.0 bar,18 mph, 197.91, 371.69,568.70, 1.24, 10.29

GWRDC,,41,0.3% Spotlight,,,AIXR 110 02,3.0 bar,18 mph, 220.82, 409.55,620.45, 0.78, 7.40

GWRDC,,42,0.3% Spotlight,,,AIXR 110 02,3.0 bar,18 mph, 221.42, 410.31,623.75, 0.77, 7.35

GWRDC,,43,0.3% Spotlight,,,AIXR 110 02,3.0 bar,18 mph, 221.50, 409.22,616.19, 0.76, 7.34

GWRDC,,44,0.3% Spotlight,,,AIXR 110 02,2.0 bar,18 mph, 260.42, 473.10,705.86, 0.39, 4.39

GWRDC,,45,0.3% Spotlight,,,AIXR 110 02,2.0 bar,18 mph, 260.68, 471.68,697.08, 0.38, 4.35

GWRDC,,46,0.3% Spotlight,,,AIXR 110 02,2.0 bar,18 mph, 261.92, 473.44,692.38, 0.39, 4.30

GWRDC,,48,0.3% Spotlight,,,Airmix 110 02,2.0 bar,18 mph, 238.51, 443.26,684.28, 0.60, 5.89

GWRDC,,51,0.3% Spotlight,,,Airmix 110 02,2.0 bar,18 mph, 238.65, 441.29,666.18, 0.59, 5.88

GWRDC,,52,0.3% Spotlight,,,Airmix 110 02,2.0 bar,18 mph, 239.08, 441.71,664.04, 0.59, 5.86

GWRDC,,53,0.3% Spotlight,,,Airmix 110 02,3.0 bar,18 mph, 205.33, 385.68,590.63, 1.05, 9.32

GWRDC,,54,0.3% Spotlight,,,Airmix 110 02,3.0 bar,18 mph, 203.88, 382.71,584.95, 1.09, 9.49

GWRDC,,55,0.3% Spotlight,,,Airmix 110 02,3.0 bar,18 mph, 204.59, 383.65,585.63, 1.06, 9.40

GWRDC,,56,0.3% Spotlight,,,Airmix 110 02,4.0 bar,18 mph, 183.99, 351.97,544.06, 1.63, 12.65

GWRDC,,57,0.3% Spotlight,,,Airmix 110 02,4.0 bar,18 mph, 183.88, 351.28,546.00, 1.62, 12.69

GWRDC,,58,0.3% Spotlight,,,Airmix 110 02,4.0 bar,18 mph, 184.33, 351.95,546.74, 1.61, 12.59

GWRDC,,59,0.3% Spotlight,,,Airmix 110 02,5.0 bar,18 mph, 167.79, 327.68,500.13, 2.19, 15.93

GWRDC,,60,0.3% Spotlight,,,Airmix 110 02,5.0 bar,18 mph, 168.89, 328.62,506.10, 2.10, 15.72

GWRDC,,61,0.3% Spotlight,,,Airmix 110 02,5.0 bar,18 mph, 169.42, 329.01,506.77, 2.12, 15.57

GWRDC,,62,0.3% Spotlight,,,XR 110 02 VP,5.0 bar,18 mph, 84.61, 176.54,303.58, 15.35, 60.22

GWRDC,,63,0.3% Spotlight,,,XR 110 02 VP,5.0 bar,18 mph, 83.10, 173.18,295.27, 16.01, 61.99

GWRDC,,64,0.3% Spotlight,,,XR 110 02 VP,5.0 bar,18 mph, 83.62, 174.71,297.41, 15.76, 61.15

GWRDC,,65,0.3% Spotlight,,,XR 110 02 VP,4.0 bar,18 mph, 87.95, 183.89,318.56, 13.91, 56.83

GWRDC,,66,0.3% Spotlight,,,XR 110 02 VP,4.0 bar,18 mph, 87.68, 183.03,316.73, 14.02, 57.25

GWRDC,,67,0.3% Spotlight,,,XR 110 02 VP,4.0 bar,18 mph, 90.01, 185.24,318.23, 13.15, 56.35

GWRDC,,68,0.3% Spotlight,,,XR 110 02 VP,3.0 bar,18 mph, 98.18, 200.43,341.42, 10.47, 49.82

GWRDC,,70,0.3% Spotlight,,,XR 110 02 VP,3.0 bar,18 mph, 97.32, 198.88,343.48, 10.73, 50.46

GWRDC,,71,0.3% Spotlight,,,XR 110 02 VP,3.0 bar,18 mph, 97.51, 199.29,345.20, 10.68, 50.29

GWRDC,,73,0.3% Spotlight,,,XR 110 02 VP,2.0 bar,18 mph, 110.65, 226.53,387.65, 7.29, 40.35

GWRDC,,74,0.3% Spotlight,,,XR 110 02 VP,2.0 bar,18 mph, 109.29, 223.30,380.78, 7.57, 41.37

GWRDC,,75,0.3% Spotlight,,,XR 110 02 VP,2.0 bar,18 mph, 109.16, 224.34,383.35, 7.63, 41.08

GWRDC,,76,0.3% Spotlight,,,XR 110 02 VP,2.0 bar,18 mph, 108.90, 223.02,377.01, 7.71, 41.44

GWRDC,,77,0.3% Spotlight,,,XR 110 04 VP,2.0 bar,18 mph, 167.73, 318.42,489.55, 1.96, 16.38

GWRDC,,78,0.3% Spotlight,,,XR 110 04 VP,2.0 bar,18 mph, 165.91, 315.67,488.53, 2.01, 16.91

GWRDC,,79,0.3% Spotlight,,,XR 110 04 VP,2.0 bar,18 mph, 166.64, 317.10,488.95, 1.99, 16.71

GWRDC,,80,0.3% Spotlight,,,XR 110 04 VP,3.0 bar,18 mph, 143.50, 280.27,441.59, 3.45, 23.79

GWRDC,,81,0.3% Spotlight,,,XR 110 04 VP,3.0 bar,18 mph, 145.54, 282.58,446.76, 3.32, 23.15

GWRDC,,82,0.3% Spotlight,,,XR 110 04 VP,3.0 bar,18 mph, 146.25, 283.88,448.45, 3.28, 22.88

GWRDC,,83,0.3% Spotlight,,,XR 110 04 VP,4.0 bar,18 mph, 131.01, 260.53,407.04, 4.62, 28.57

GWRDC,,84,0.3% Spotlight,,,XR 110 04 VP,4.0 bar,18 mph, 131.84, 261.58,407.31, 4.51, 28.26

GWRDC,,85,0.3% Spotlight,,,XR 110 04 VP,4.0 bar,18 mph, 130.39, 258.40,406.44, 4.66, 29.11

GWRDC,,84,0.3% Spotlight,,,XR 110 04 VP,5.0 bar,18 mph, 121.57, 245.52,393.33, 5.94, 33.09

GWRDC,,85,0.3% Spotlight,,,XR 110 04 VP,5.0 bar,18 mph, 119.75, 243.06,392.70, 6.17, 34.13

GWRDC,,86,0.3% Spotlight,,,XR 110 04 VP,5.0 bar,18 mph, 121.96, 246.52,395.10, 5.88, 32.84

GWRDC,,87,0.3% Spotlight,,,XR 110 03 VP,5.0 bar,18 mph, 95.67, 197.26,332.41, 11.10, 51.20

GWRDC,,88,0.3% Spotlight,,,XR 110 03 VP,5.0 bar,18 mph, 94.46, 197.92,337.38, 11.44, 50.88

GWRDC,,89,0.3% Spotlight,,,XR 110 03 VP,5.0 bar,18 mph, 96.52, 198.64,337.01, 10.87, 50.59

GWRDC,,91,0.3% Spotlight,,,XR 110 03 VP,4.0 bar,18 mph, 106.65, 213.46,347.87, 8.32, 44.30

GWRDC,,92,0.3% Spotlight,,,XR 110 03 VP,4.0 bar,18 mph, 106.14, 212.13,341.52, 8.42, 44.76

GWRDC,,93,0.3% Spotlight,,,XR 110 03 VP,4.0 bar,18 mph, 106.89, 214.84,348.62, 8.27, 43.82

GWRDC,,94,0.3% Spotlight,,,XR 110 03 VP,3.0 bar,18 mph, 121.68, 236.10,379.86, 5.81, 35.56

GWRDC,,95,0.3% Spotlight,,,XR 110 03 VP,3.0 bar,18 mph, 121.44, 235.60,383.31, 5.83, 35.84

GWRDC,,96,0.3% Spotlight,,,XR 110 03 VP,3.0 bar,18 mph, 120.96, 237.48,391.77, 5.88, 35.67

GWRDC,,97,0.3% Spotlight,,,XR 110 03 VP,2.0 bar,18 mph, 140.16, 265.30,420.76, 3.67, 26.42

GWRDC,,98,0.3% Spotlight,,,XR 110 03 VP,2.0 bar,18 mph, 138.64, 268.91,437.27, 3.70, 26.58

GWRDC,,99,0.3% Spotlight,,,XR 110 03 VP,2.0 bar,18 mph, 141.16, 265.67,419.85, 3.62, 26.11

GWRDC,,102,0.3% Spotlight,,,ULD 120 03,2.0 bar,18 mph, 281.57, 522.14,786.58, 0.22, 3.40

GWRDC,,103,0.3% Spotlight,,,ULD 120 03,2.0 bar,18 mph, 281.81, 519.47,775.89, 0.23, 3.38

GWRDC,,104,0.3% Spotlight,,,ULD 120 03,2.0 bar,18 mph, 285.51, 529.32,793.12, 0.22, 3.28

GWRDC,,108,0.3% Spotlight,,,ULD 120 03,3.0 bar,18 mph, 223.26, 425.74,659.43, 0.74, 7.22

GWRDC,,109,0.3% Spotlight,,,ULD 120 03,3.0 bar,18 mph, 222.80, 423.55,650.21, 0.74, 7.27

GWRDC,,111,0.3% Spotlight,,,ULD 120 03,3.0 bar,18 mph, 226.97, 436.35,682.93, 0.71, 6.88

GWRDC,,112,0.3% Spotlight,,,ULD 120 03,4.0 bar,18 mph, 194.54, 382.17,603.61, 1.29, 10.78

GWRDC,,113,0.3% Spotlight,,,ULD 120 03,4.0 bar,18 mph, 194.65, 383.11,602.74, 1.28, 10.76

GWRDC,,114,0.3% Spotlight,,,ULD 120 03,4.0 bar,18 mph, 195.56, 384.65,598.66, 1.26, 10.62

GWRDC,,116,0.3% Spotlight,,,ULD 120 03,5.0 bar,18 mph, 171.90, 343.80,551.47, 1.99, 14.94

GWRDC,,117,0.3% Spotlight,,,ULD 120 03,5.0 bar,18 mph, 171.48, 339.62,543.90, 1.98, 15.04

GWRDC,,118,0.3% Spotlight,,,ULD 120 03,5.0 bar,18 mph, 172.55, 340.18,540.45, 1.94, 14.84

GWRDC,,119,0.3% Spotlight,,,GAT 110 03,5.0 bar,18 mph, 1239.28, 3128.44,3425.69, 0.00, 0.56

GWRDC,,277,Water,,,AIXR 110 015,3.0 bar,18 mph, 176.63, 3090.20,3418.04, 2.14, 11.93

GWRDC,,278,Water,,,AIXR 110 015,3.0 bar,18 mph, 114.60, 247.04,501.28, 6.36, 37.62

GWRDC,,279,Water,,,AIXR 110 015,3.0 bar,18 mph, 123.26, 269.73,557.93, 4.33, 34.11

GWRDC,,280,Water,,,AIXR 110 015,3.0 bar,18 mph, 120.75, 261.95,527.74, 5.16, 34.34

GWRDC,,281,Water,,,AIXR 110 015,3.0 bar,18 mph, 192.54, 391.56,602.28, 1.64, 11.00

GWRDC,,53,Water,,,TXVK-6 CONEJET,20.0 bar,75 mph, 38.58, 96.22,160.06, 53.25, 97.89

GWRDC,,54,Water,,,TXVK-6 CONEJET,20.0 bar,75 mph, 38.95, 100.10,161.91, 49.91, 97.71

GWRDC,,55,Water,,,TXVK-6 CONEJET,20.0 bar,75 mph, 47.25, 98.89,164.53, 50.97, 97.19

GWRDC,,60,Water,,,TXVK-6 CONEJET,20.0 bar,100 mph, 38.55, 94.20,161.98, 54.93, 97.27

GWRDC,,62,Water,,,TXVK-6 CONEJET,20.0 bar,100 mph, 39.39, 93.76,158.63, 55.32, 97.95

GWRDC,,66,Water,,,TXVK-6 CONEJET,20.0 bar,100 mph, 38.45, 94.64,163.54, 54.36, 97.08

GWRDC,,67,Water,,,TXVK-6 CONEJET,20.0 bar,125 mph, 42.55, 94.70,159.85, 54.62, 97.55

GWRDC,,68,Water,,,TXVK-6 CONEJET,20.0 bar,125 mph, 43.19, 94.99,159.59, 54.39, 97.58

GWRDC,,70,Water,,,TXVK-6 CONEJET,20.0 bar,125 mph, 43.42, 95.05,159.65, 54.34, 97.62

GWRDC,,71,Water,,,TXVK-6 CONEJET,10.0 bar,125 mph, 61.45, 114.49,181.43, 38.06, 93.98

GWRDC,,71,Water,,,TXVK-6 CONEJET,10.0 bar,125 mph, 56.17, 116.08,182.90, 37.45, 93.85

GWRDC,,72,Water,,,TXVK-6 CONEJET,10.0 bar,125 mph, 58.12, 113.53,180.43, 39.13, 94.29

GWRDC,,74,Water,,,TXVK-6 CONEJET,10.0 bar,100 mph, 44.29, 111.26,182.79, 41.52, 93.81

GWRDC,,75,Water,,,TXVK-6 CONEJET,10.0 bar,100 mph, 45.52, 111.20,183.58, 41.62, 93.66

GWRDC,,77,Water,,,TXVK-6 CONEJET,10.0 bar,100 mph, 46.36, 110.08,179.55, 42.33, 94.47

GWRDC,,78,Water,,,TXVK-6 CONEJET,10.0 bar,75 mph, 46.59, 110.29,179.45, 42.15, 94.58

GWRDC,,81,Water,,,TXVK-6 CONEJET,10.0 bar,75 mph, 45.12, 110.91,184.72, 42.20, 93.50

GWRDC,,82,Water,,,TXVK-6 CONEJET,10.0 bar,75 mph, 45.35, 110.35,184.91, 42.56, 93.29

GWRDC,,86,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 40.59, 107.63,180.48, 44.53, 94.12

GWRDC,,89,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 30.32, 105.37,176.34, 45.99, 95.09

GWRDC,,93,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 55.21, 108.76,177.74, 42.91, 94.60

GWRDC,,94,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 48.23, 101.42,172.81, 48.90, 95.55

GWRDC,,95,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 45.46, 99.28,173.43, 50.58, 95.28

GWRDC,,98,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.00, 106.77,178.66, 45.07, 94.48

GWRDC,,99,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.00, 107.98,179.98, 44.26, 94.11

GWRDC,,100,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 45.96, 105.52,174.69, 45.72, 95.47

GWRDC,,101,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 46.03, 105.32,174.54, 45.85, 95.46

GWRDC,,102,ThiovitJet (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 46.06, 105.54,174.81, 45.70, 95.43

GWRDC,,103,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 33.24, 90.10,152.11, 58.43, 98.32

GWRDC,,104,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 40.02, 86.86,148.80, 61.42, 98.47

GWRDC,,105,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 45.74, 95.38,158.66, 54.17, 97.63

GWRDC,,107,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 50.38, 99.17,161.63, 50.76, 97.74

GWRDC,,108,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 50.83, 99.70,162.23, 50.27, 97.70

GWRDC,,109,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 50.24, 99.16,161.80, 50.77, 97.72

GWRDC,,110,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 35.66, 90.11,149.90, 58.73, 98.47

GWRDC,,111,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 37.97, 87.02,149.36, 61.24, 98.19

GWRDC,,112,ThiovitJet (0.25%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 35.30, 89.80,151.32, 58.88, 98.16

GWRDC,,118,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 50.19, 98.35,159.30, 51.54, 98.03

GWRDC,,119,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 49.50, 97.83,158.71, 52.03, 98.08

GWRDC,,120,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,75 mph, 49.92, 98.16,158.85, 51.73, 98.06

GWRDC,,121,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 48.42, 99.08,164.38, 50.82, 97.09

GWRDC,,122,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 46.57, 96.98,160.37, 52.71, 97.70

GWRDC,,123,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,100 mph, 49.11, 98.27,161.45, 51.57, 97.72

GWRDC,,124,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 30.90, 89.51,152.77, 58.73, 98.24

GWRDC,,126,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 32.64, 89.97,153.70, 58.37, 98.16

GWRDC,,127,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,125 mph, 33.67, 88.92,152.21, 59.28, 98.16

GWRDC,,128,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,Idle, 50.72, 97.66,157.08, 52.24, 98.16

GWRDC,,129,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,Idle, 50.44, 97.36,156.68, 52.53, 98.17

GWRDC,,130,ThiovitJet (0.50%),,,TXVK-6 CONEJET,20.0 bar,Idle, 49.55, 97.17,157.64, 52.66, 98.03

GWRDC,,131,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Idle, 56.81, 110.10,178.12, 41.73, 94.59

GWRDC,,132,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Idle, 55.52, 108.76,177.21, 42.85, 94.77

GWRDC,,133,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Idle, 55.29, 108.53,177.29, 43.06, 94.73

GWRDC,,134,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 52.02, 109.13,179.76, 42.98, 94.08

GWRDC,,135,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 53.56, 109.04,179.49, 42.93, 94.11

GWRDC,,136,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 50.78, 107.61,178.42, 44.14, 94.42

GWRDC,,137,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.87, 102.80,175.68, 47.98, 95.24

GWRDC,,138,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.18, 102.95,176.85, 47.89, 94.76

GWRDC,,139,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.79, 102.46,176.20, 48.22, 94.89

GWRDC,,140,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 47.00, 103.04,172.57, 47.61, 95.76

GWRDC,,141,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 46.20, 103.23,172.68, 47.46, 95.73

GWRDC,,142,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 45.20, 103.20,172.67, 47.49, 95.77

GWRDC,,143,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Full tilt, 57.83, 108.89,174.43, 42.46, 95.71

GWRDC,,144,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Full tilt, 56.75, 107.47,172.14, 43.66, 96.48

GWRDC,,145,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Full tilt, 57.59, 107.99,172.36, 43.17, 96.44

GWRDC,,146,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Rear fans only (max), 55.84, 105.63,172.35, 45.21, 95.80

GWRDC,,147,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Rear fans only (max), 57.13, 106.12,172.25, 44.73, 95.83

GWRDC,,148,ThiovitJet (0.50%),,,TXVK-6 CONEJET,10.0 bar,Rear fans only (max), 56.81, 105.35,171.37, 45.38, 95.96

GWRDC,,154,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 40.60, 101.32,176.45, 49.07, 94.83

GWRDC,,155,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 40.61, 101.82,176.23, 48.70, 94.93

GWRDC,,156,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,125 mph, 42.17, 106.50,179.55, 45.27, 94.20

GWRDC,,157,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 41.47, 101.13,177.48, 49.21, 94.48

GWRDC,,158,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 39.50, 105.06,183.13, 46.61, 93.55

GWRDC,,159,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,100 mph, 45.08, 105.33,179.80, 46.22, 94.05

GWRDC,,160,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 50.83, 109.81,183.32, 42.66, 93.52

GWRDC,,161,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 35.15, 100.88,176.99, 49.38, 94.55

GWRDC,,162,Ridomil Gold (0.25%),,,TXVK-6 CONEJET,10.0 bar,75 mph, 44.14, 99.26,175.04, 50.58, 94.91

GWRDC,,163,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,75 mph, 54.80, 115.46,186.85, 38.14, 93.08

GWRDC,,170,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,75 mph, 73.59, 123.69,181.48, 28.74, 94.47

GWRDC,,172,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,75 mph, 77.15, 126.95,185.99, 25.90, 93.73

GWRDC,,173,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,125 mph, 79.94, 127.36,179.80, 23.85, 95.26

GWRDC,,175,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,125 mph, 78.58, 126.10,179.88, 25.42, 94.92

GWRDC,,176,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,10.0 bar,125 mph, 63.04, 118.67,176.95, 33.36, 95.70

GWRDC,,177,Ridomil Gold (0.25%),,0.5% Hasten,TXVK-6 CONEJET,20.0 bar,125 mph, 47.75, 96.52,146.97, 53.62, 99.14

GWRDC,,68,Water,,,Whirljet,5.5 bar,Rear fans only, 102.42, 220.45,472.37, 9.24, 43.92

GWRDC,,70,Water,,,Whirljet,5.5 bar,Rear fans only, 132.11, 297.61,681.23, 3.29, 27.90

GWRDC,,71,Water,,,Whirljet,5.5 bar,Rear fans only, 131.19, 282.57,542.89, 4.14, 28.33