



# Standard Operating Procedures & Equipment

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# Application Approach



WALS can be applied in a variety of methods  
for specific habitats



# Application Methods

PLATFORM	UTILITY	EQUIPMENT	REMARKS
Backpack Sprayers	Targeted coverage of hot spots and wide area coverage of small areas	Power Backpack Blowers capable of generating fine to very fine drop spectra	Targeted within properties or clusters of houses
Vehicle-mounted Sprayers	Wide area coverage of urban and suburban areas	Modified cold fogger and air blast machines capable of generating fine to very fine drop spectra	Spray passes limited to streets for application; highly dependent on wind for drop distribution
Aerial Application	Rapid coverage of large blocks	Helicopters and fixed-wing with atomizers capable of generating fine to very fine drop spectra	Not dependent on streets or property access



# Backpack

Backpack sprayers provide targeted coverage of hot spots.





## Backpack



Stihl® SR450 & SR 430 backpack sprayers (ULV nozzle w/ grey tip & water pump)





## Backpack



Guardsman™ Backpack  
ULV Blower (ULV nozzle  
w/ orange tip)







# Vehicle

Vehicle-mounted sprayers are used for wide area coverage of specific blocks.





## Vehicle | Air Blast Equipment

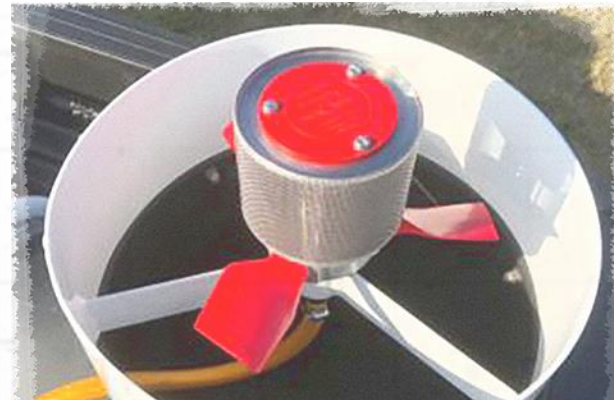


A1 Super Duty Mist Sprayer  
with Micronair® AU5000 (ULV)

## Vehicle | Air Blast Equipment



Buffalo Turbine with Micronair®  
AU5000 (ULV)





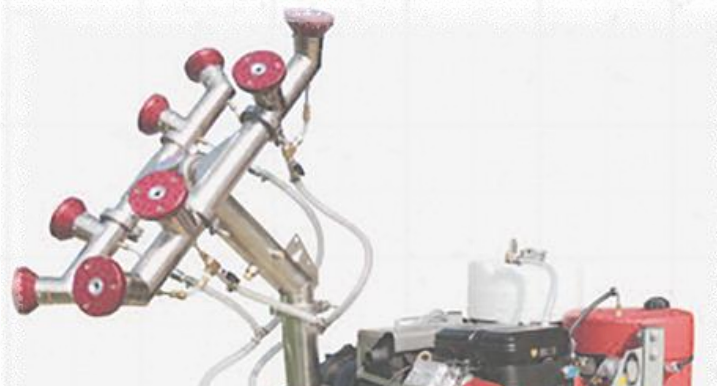
### Guardian 190G4 Larviciding Attachment



## Vehicle | Cold Fogger



### LV-8 Low Volume Sprayer (ULV)





# Aerial

Aerial application is recommended for rapid coverage of large blocks.





Aerial



Bell 206L Helicopter w/  
Micronair® AU5000





Aerial



Thrush fixed wing





# Application Parameters & Recommendations





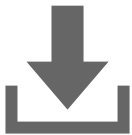
# Standard Operating Procedures (SOP)

## **Zika, Dengue and Chikungunya Vector Control**

Backpack Spraying of VectoBac® WDG Bacterial Larvicide  
Standard Operating Procedure (SOP) For The USA

## **Container Mosquito Control**

Vehicle Mounted WALSTM of VectoBac® WDG Bacterial Larvicide  
Standard Operation Procedure (SOP) For The USA  
(Version 1.6; January 2019)



## Optimal WALS Application Parameters & Settings

PARAMETERS	SETTING
<b>Application Rate</b>	<p>0.25 – 0.875 lbs/acre (4 – 14 oz/acre)</p> <p>Standard Rate = 0.5 lbs/acre (8 oz/acre)</p>
<b>Spray Volume</b>	<p>Backpack = 1.5 – 6.0 GPA</p> <p>Aerial &amp; Vehicle = 0.125 – 5.0 GPA</p>
<b>Flow Rate</b>	Dependent on swath width, dilution and speed
<b>Dilutions</b>	<p>Ounces of Dry Product / Ounces of Water</p> <ul style="list-style-type: none"> <li>▪ 12% = 1 lb VectoBac WDG / 1 gal water</li> <li>▪ 24% = 2 lb VectoBac WDG / 1 gal water</li> </ul>
<b>Droplet Size</b>	Extremely fine to fine range







## Optimal WALS Droplet Size

SPRAY QUALITY	VOLUME MEAN DIAMETER (MICRONS)	EQUIPMENT TYPE
<b>Extremely Fine</b>	30 - 60	Cold Fogger / Air Blast (Micronair AU 5000 with EX6353 set at 55°)
<b>Very Fine</b>	61 – 105	
<b>Fine</b>	106 - 235	



WALS requires a unique droplet size range in the extremely fine to fine (30 – 235 microns), which can drift through areas such as neighborhood backyards where inaccessible containers may be abundant.

ACHIEVES RAPID COVERAGE

DEPOSITS IN CRYPTIC CONTAINERS



# Aerial Application – Recommended Atomizer

## Micronair AU4000

High Speed Aircraft (fixed wing)

Blade Size: Dependent on Speed

AU4000

**2.7" (EX2665) 140-200 mph**

3.7" (CBP289/2) 90-150 mph

Blade Angle: **35°**

## Micronair AU5000

Helicopter

Blade Size: Dependent on Speed

AU5000

3.75" (EX1772/2) 90-150 mph

**5.0" (EX2021/2) 50-100 mph**

Blade Angle: **35°**



# Vehicle Mounted – Recommended Atomizer

## Air Blast Systems

Micronair AU5000

2.75" (EX6353) 150-200 mph

2.75" blade @ 55° angle

## Cold Fogger Systems

ULV Vortex or Air Assist





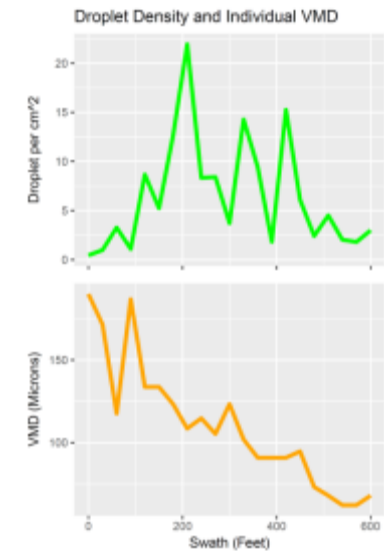
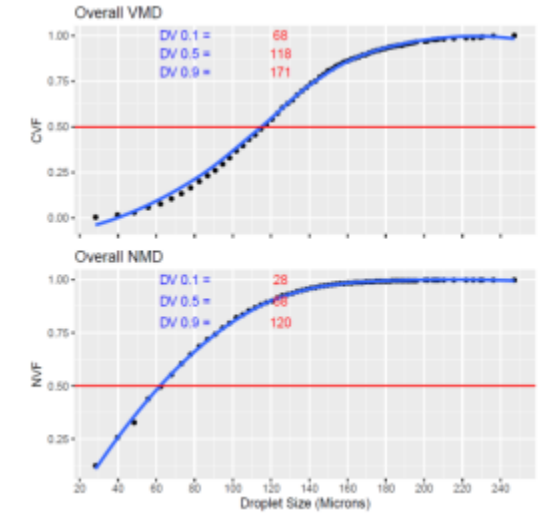
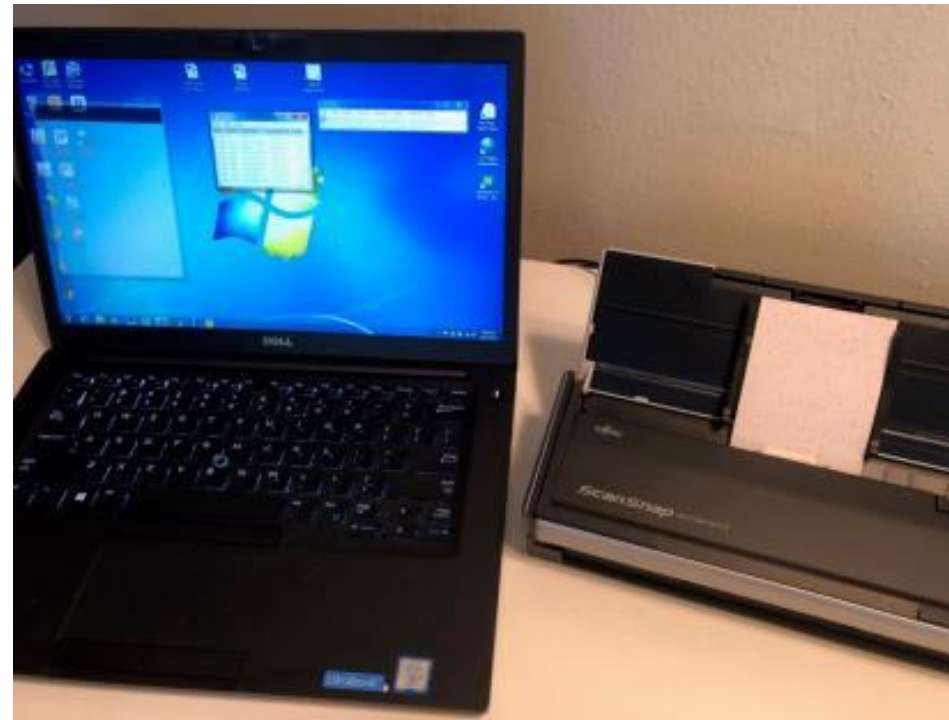
## Required flow rates in gallons per minute for various WALS swath widths

SWATH	FLOW RATE 0.5 gal/acre @ 12% mix (1 lb VectoBac WDG/gallon)			FLOW RATE 0.25 gal/acre @ 24% mix (2 lb VectoBac WDG/gallon)		
	100 ft	200 ft	300 ft	100 ft	200 ft	300 ft
5 MPH	0.5	1.0	1.5	0.25	0.5	0.76
10 MPH	1.0	2.0	3.0	0.5	1.0	1.5

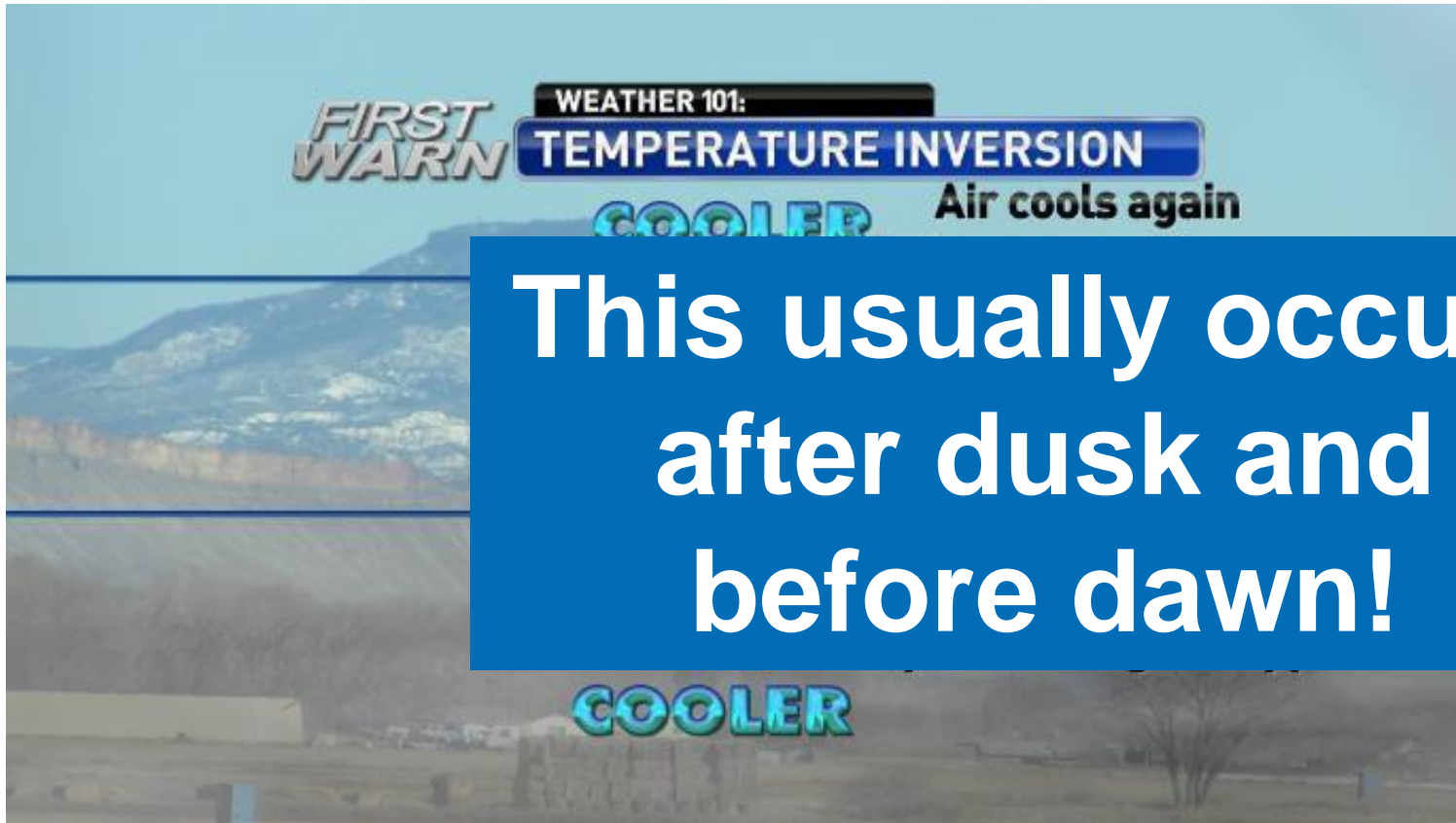


# BacDrop™ Analysis

VMD, NMD, Drop Density, and Swath Analysis



# Recommended Application Timing & Weather Conditions



Inversion must occur  
before application

Wind must be at least 1  
mph; preferably 3-15 mph



# Mixing

- It is recommended that the spray mix **NOT** be prepared in the insecticide tank of the spray equipment, but rather in a separate mixing system.
  - Paint Mixer Drill Attachment & 5-Gallon Bucket
  - Custom Build (Rain Barrel/PVC adaptation with Water Pump)
  - Venturi Inductor Mixing Stations
- When in suspension, it should be used within 48 hours, but CAN be used up to 72 hours post-mixing.
- Once mixed, the product should stay in suspension during application period. Brief re-circulation may be needed if left undisturbed for several hours.







Thank You