

THE SCIENCE OF BUFFER ZONES

HOW DOES THE SDMT WORK?



GRDC
GRAINS RESEARCH
& DEVELOPMENT
CORPORATION

OFF-TARGET PROTECTION

Regulatory Acceptable Levels (RALs)

Bystander areas

- Adapted from US EPA model for protection of toddlers in a back yard
- Same data used for operator or dietary exposure assessments
- Australian defaults used where available

Natural aquatic areas

- Same data used for run-off risk assessments
- Either a safety factor or probability approach
- 15 cm deep water

Pollinator areas

- Same data used for risk assessments for pollinators in crop

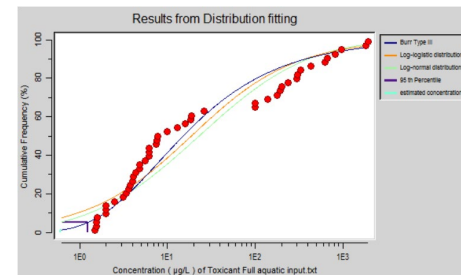
Vegetation areas

- Same data used for direct overspray risk assessments
- Either a safety factor or probability approach

Livestock areas

- Pasture density
- Highest Maximum Residue Limit (MRL) in an animal food commodity

$$RAL = \frac{\left(\frac{NOAEL}{MoE}\right) \times BW}{((DepR \times Ac \times DA \times TC \times ET) + (DepR \times Ac \times B \times SAo \times FQ \times ET_o))}$$



OFF-TARGET PROTECTION

Link between RALs and label statements

APVMA labelling requirement:

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below provide guidance, but may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

SDMT

Why is it important

- Flexibility
- Simplicity
- Reduced waste

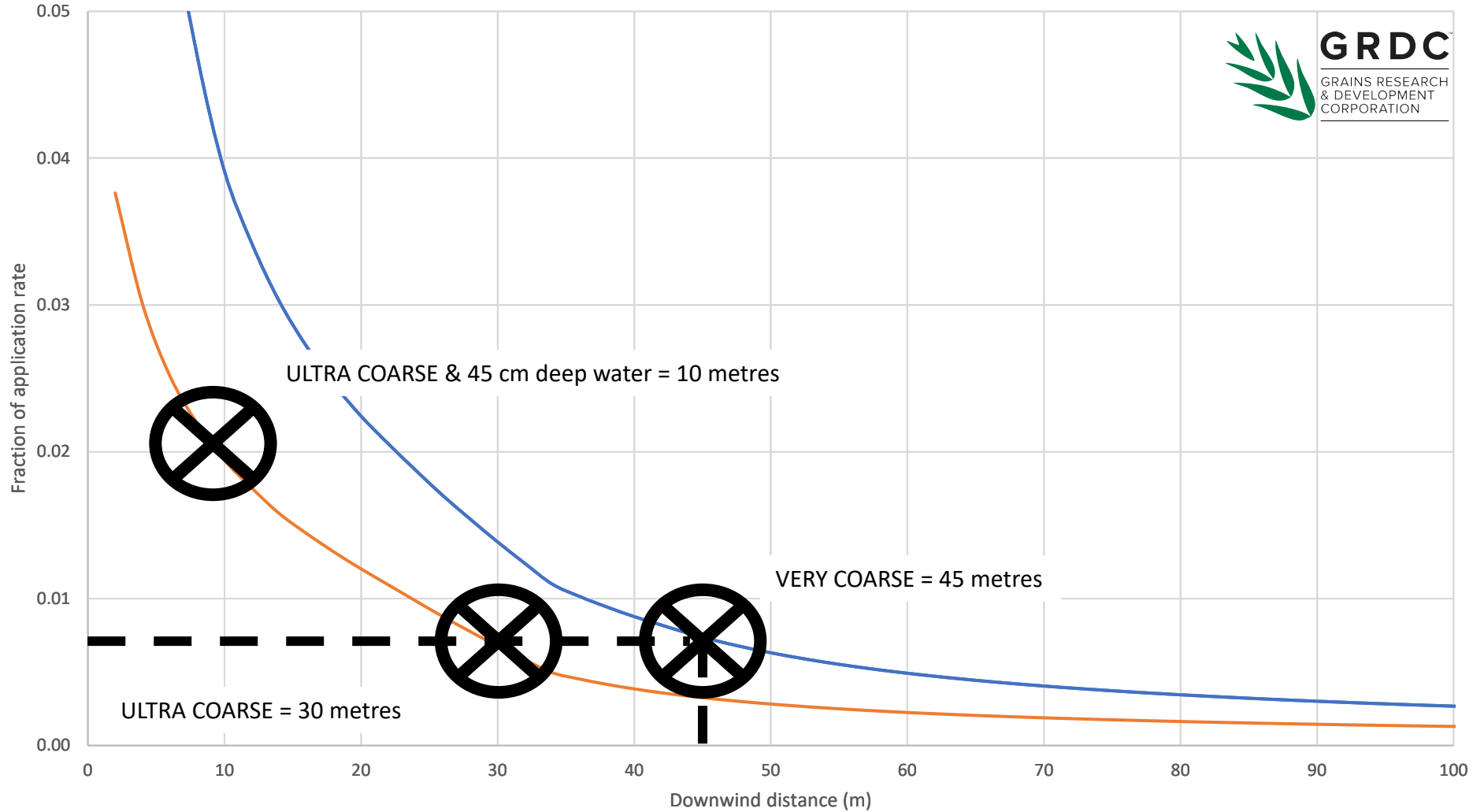
± **Buffer Zones for Boom Sprayers**

Application rate	Boom Height above target canopy	Mandatory buffer zones (distances given in metres)				
		Bystander Areas	Natural Aquatic Areas	Pollinator Areas	Vegetation Areas	Livestock Areas
Up to 250 mL/ha	0.5 m or lower	Not Required	Not required	Not Required	Not required	Not Required
	1.0 m or lower		15		15	
Up to 500 mL/ha	0.5 m or lower		Not required		Not required	
	1.0 m or lower		30		30	
Up to 1 L/ha	0.5 m or lower		20		15	
	1.0 m or lower		45		45	
Up to 1.5 L/ha	0.5 m or lower		25		25	
	1.0 m or lower		60		60	
Up to 3 L/ha	0.5 m or lower		35		35	
	1.0 m or lower		110		100	
Up to 4 L/ha	0.5 m or lower		45		45	
	1.0 m or lower		140		130	
Up to 4.75 L/ha	0.5 m or lower	55	50			
	1.0 m or lower	160	160			

BUFFER ZONE CALCULATION EXAMPLE

Nufarm Amicide Advance 700 Selective Herbicide®

- The new label requires a 45 metre buffer zone for natural aquatic areas for the following use scenario:
 - 1 L/ha application rate
 - 1 m high boom
 - VERY COARSE droplets
 - 3-20 km/hr wind speed
 - 15 cm deep water body



DRAFT PERMIT SDMT

Input screen

Application rate details

Nufarm Amicide
Advance 700 Selective

Product rate I am going to use: mL/ha
Enter a rate between 200 and 1500 mL/ha

Application equipment and weather details

I want to apply by:

Minimum droplet size

Maximum release height (metres)

Maximum wind speed (km/hr)

Application site details

Is there a natural aquatic area down wind of the treated area?

Minimum depth of the identified natural aquatic area: cm NOTE: standard depth = 15 cm

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Output screen (part 1)

These conditions apply to the use of Nufarm Amicide Advance 700 Selective Herbicide - (APVMA No. 66167)

SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in these conditions can be found at apvma.gov.au/spraydrift

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below provide guidance but may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.

DO NOT apply by Boom Sprayer (ground application) unless the following requirements are met:

- spray droplets not smaller than a VERY COARSE spray droplet size category
- the release height is not greater than 1 metres above the target canopy
- the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application

Same as label

Dependant
on inputs

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Output screen (part 2)

New buffer zones based on inputs

Reminder about existing obligations

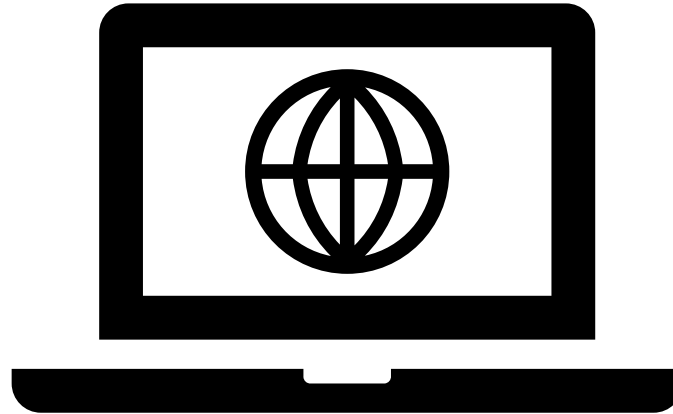
- minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for Boom Sprayer (ground application)') are observed.

Buffer zones for Boom Sprayer (ground application)					
Application rate	Mandatory downwind buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to a maximum of 1500 mL/ha	0 metres	60 metres	0 metres	55 metres	0 metres

Note: Use of the spray drift management tool (SDMT) does not permit the off-label use of products. It is the responsibility of the chemical user to ensure that any practices, technologies or innovations specified in SDMT conditions for the product and use situation will be efficacious.

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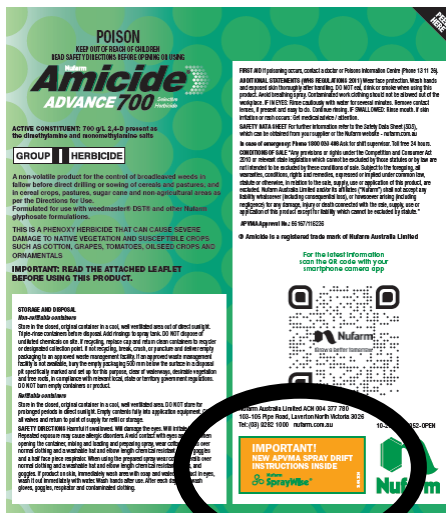
Live demonstration



REMINDER ABOUT 2,4-D LABEL CHANGES

Remember that APVMA have required all 2,4-D products to be supplied with the new labelling from 1 Oct 2021. This is regardless of date of manufacture. Products already on farm don't require physical re-labelling but the new versions of the labels must be followed

OLD LABEL:



POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE USING

Amicide
ADVANCE 700

ACTIVE CONSTITUENT: 700 g/L 2,4-D present as the dimethylamine and monoammonium salts.

GROUP 1 HERBICIDE

IMPORTANT! READ THE ATTACHED LEAFLET BEFORE USING THIS PRODUCT.

STORAGE AND DISPOSAL:
Non-volatile herbicide. Store in a cool, well-ventilated area out of direct sunlight. Tighten container lids to prevent moisture loss. Do not dispose of unused concentrate in the environment. Do not empty, reuse or reuse containers to dispose of agricultural chemicals. Do not empty, reuse or reuse containers to dispose of agricultural chemicals. Do not empty, reuse or reuse containers to dispose of agricultural chemicals. Do not empty, reuse or reuse containers to dispose of agricultural chemicals.

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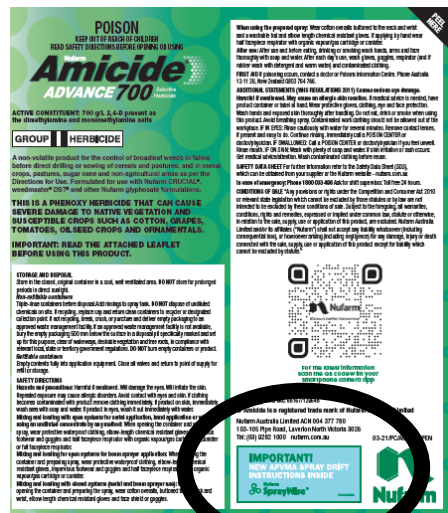
FOR THE LATEST INFORMATION
Scan the QR code with your smartphone camera app

IMPORTANT!
READ ATTACHED LEAFLET INSTRUCTIONS INSIDE

APVMA Approval No: 16150/10225

Amicide is a registered trade mark of Nufarm Australia Limited

NEW LABEL:



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KEY MESSAGES

Top 3 take away's

1. The science of setting buffer zones is complex
2. Users only need to use the SDMT if they are closer to a sensitive area (downwind) than buffer zone allow
3. The Spray Drift Management Tool (SDMT) will make it easy for users to reduce buffer zones by:
 - Entering what they are already planning to do
 - If this doesn't reduce a buffer zone enough, then additional drift reduction technologies or strategies can be used



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