

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



KEN-STAR 450

Herbicide

ACTIVE CONSTITUENT: 450 g/L 2,4-D
 present as the Isopropylamine salt

GROUP **I** HERBICIDE

**GENERAL INSTRUCTIONS FOR ALL 2,4-D
 PRODUCTS BEARING A SUSPENDED OR
 CANCELLED LABEL FROM
 1st OCTOBER 2020 ONWARDS**



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DIRECTIONS FOR USE:

This is a phenoxy herbicide that can cause severe damage to native vegetation and susceptible crops such as cotton, grapes, tomatoes, oilseed crops and ornamentals.

Restraints

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 tables 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 allow bystanders to come into contact with the spray cloud.

DO NOT apply unless the wind speed is between 3 and 15 kilometres per hour at the application site during the time of application.

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

Recognising a surface temperature inversion

A surface temperature inversion is likely to be present if:

- mist, fog, dew or a frost have occurred
- smoke or dust hangs in the air and moves sideways, just above the ground surface
- cumulus clouds that have built up during the day collapse towards evening
- wind speed is constantly less than 11 km/hr in the evening and overnight
- cool off-slope breezes develop during the evening and overnight
- distant sounds become clearer and easier to hear
- aromas become more distinct during the evening than during the day.

Spray timing

- Spray during the day wherever possible. Vertical mixing of the air makes surface temperature inversions unlikely and will reduce the risk of drift caused by surface temperature inversions.
- There is a very low risk of surface temperature inversion when there is continuous overcast weather, with low and heavy cloud and/or wind speed remains above 11km/h for the whole period between sunset and sunrise.
- A lack of suitable weather conditions for spraying over extended periods is not an excuse for spraying in unsuitable conditions.

DO NOT apply if crop or weeds are stressed due to dry or excessively moist conditions.

DO NOT apply with spray droplets smaller than VERY COARSE spray droplets according to the ASAE S572.1 definition for standard nozzles.

DO NOT use if rain is likely within 6 hours.

Monitoring and record keeping

Users of this product **MUST** make an accurate written record of the details of each spray application within 24 hours following application and KEEP this record for a minimum of 2 years. The spray application details that must be recorded are: 1- date of use with start and finish times of application; 2- the specific location which must include address and paddock/s sprayed; 3- Product trade name (full name) of the product being used; 4- rate of application which must include the amount of product used per hectare and number of hectares applied to; 5- situation, crop or commodity to which the chemical was applied; 6- wind speed and direction during application; 7- air temperature and relative humidity during application; 8- nozzle brand, model, size, type, and spray system pressure measured during application; 9- height of spray boom from ground; 10- name and contact details of person applying this product (Additional record keeping and/or details may be required by the state or territory where this product is used).

Watch for changes in weather conditions. Stop spraying immediately if a surface temperature inversion occurs or if spraying conditions become unsuitable for any other reason.

Advisory for boom sprayer use in cereals, fallow and pasture 1 October to 15 April

Use in cereals, fallow and pastures during the period **3 October to 15 April**, it is advised to:- Use nozzles that produce **extremely coarse (xc) to ultra coarse (uc) droplets**. Use higher water rates per ha, to give better efficacy. Use slower application speeds to allow operators to lower boom heights. Increasing droplet size and water rates while reducing application speed will assist in mitigating off target inversion drift during summer spraying. Extremely coarse droplets will produce <3% driftable droplets.

BOOM SPRAYERS (GROUND APPLICATION)

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets not smaller than a VERY COARSE (VC) spray droplet size category (minimum XC between 3 October and 15 April – advisory).
- boom heights 0.5 metres or lower above the target canopy (the higher of either the crop canopy or the targeted weeds)
- minimum distances between the application site and downwind sensitive aquatic and wetland areas including aquacultural ponds, surface streams and rivers (see Aquatic 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for boom sprayers') are observed.
- minimum distances between the application site and downwind sensitive crops, gardens, landscaping vegetation, protected native vegetation or protected animal habitat (see Terrestrial 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for boom sprayers') are observed. The buffer zones provide guidance but may not always be completely protective of all agricultural crops.

BUFFER ZONES FOR BOOM SPRAYERS:

Application rate (/ha)	Downwind mandatory no spray zone	
	Aquatic	Terrestrial
Dryland cropping: winter cereals and fallows		
Up to 1.7 L (750 g ae/ha)	10 metres	10 metres
Up to 1.9 L (880 g ae/ha)	15 metres	15 metres
Up to 2.3 L (1080 g ae/ha)	20 metres	20 metres
Tropical & subtropical uses: Sugarcane		
Up to 2.4 L (1080 g ae/ha)	20 metres	20 metres
Up to 4.9 L (2220 g ae/ha)	35 metres	30 metres
Tropical & subtropical uses: Peanuts		
Up to 5 L (2250 g ae/ha)	35 metres	30 metres
Pasture		
Up to 4.4 L (2000 g ae/ha)	30 metres	30 metres
Up to 6.1 L (2750 g ae/ha)	40 metres	35 metres

DIRECTIONS FOR USE FOR AERIAL APPLICATION

To enable aerial application of 2,4-D products the following instructions are provided:

1. Nozzle selection to achieve mandatory VERY COARSE or Larger Droplet Size Categories for aerial application.

Important information

These instructions inform users of 2,4-D products how to lawfully comply with the requirement of a VERY COARSE or larger spray droplet size category for aerial spray application.

Complying with the requirement to use a specific droplet size category means using the correct nozzle that will deliver that droplet size category under the spray operation conditions being used. Only the following specific methods can be used for choosing the correct nozzle. Use one of the methods specified in these instructions to select a correct nozzle to deliver a VERY COARSE or larger droplet size category for aerial application.

Instructions for Fixed-Wing Aerial Application – for VERY COARSE droplet size or larger categories

Instructions in this section apply to fixed-wing aerial application of products for which a label or a permit Spray Drift Restraint requires VERY COARSE spray droplet category.

Nozzle choices must be made using Option 1 or 2 below.

Mandatory Instructions for Fixed-Wing Aerial Applications

Option 1

For up to a maximum aircraft speed of 120 knots and a VERY COARSE droplet size category, USE ONLY narrow angle flat fan nozzles with spray angle less than or equal to 25, orifice size 20 or greater and oriented straight back to the flight direction. USE ONLY a spray system pressure greater than or equal to 4 bar.

Option 2

USE ONLY nozzles rated by the APVMA Approved AAAA Nozzle Calculator or the USDA-ARS Aerial Spray Nozzle Models as VERY COARSE to comply with a product label's requirement for a VERY COARSE spray droplet size category. When using the AAAA Nozzle Calculator or the USDA-ARS Aerial Spray Nozzle Models, aerial applicators must also follow the additional instructions below in (a), (b) and (c).

(a) Aerial applicators must only use the droplet size category given in the nozzle calculator at the $D_{V(0.1)}$ position to identify a nozzle to comply with the required spray droplet category. The categories shown at the $D_{V(0.5)}$ and the $D_{V(0.9)}$ positions in the calculator must not be used for making a nozzle selection.

(b) Aerial applicators must not apply at airspeeds greater than that speed used to select the nozzle. A nozzle identified as VERY COARSE can also be used at slower airspeeds provided that the nozzle angle and system pressure are kept the same.

(c) When a particular pesticide product is chosen within the nozzle calculator as one of the conditions set to select a nozzle, then aerial applicators must use that specific pesticide product with that nozzle.

Note – contact the Aerial Application Association of Australia (aaaa.org.au) for information on how to obtain access to the APVMA Approved AAAA Nozzle Calculator; the USDA-ARS Aerial Spray Nozzle Models can be downloaded from their website (ars.usda.gov/plains-area/college-station-tx/southern-plains-agricultural-research-center/aerial-application-technology-research/docs/a-models).

Instructions for Helicopter Aerial Application – for VERY COARSE droplet size or larger categories

Instructions in this section apply to helicopter application of products where a label or a permit Spray Drift Restraint requires VERY COARSE spray droplet category. Nozzle choices must be made using Option 1 or 2 below.

Mandatory Instructions for helicopter Aerial Applications

Option 1

For helicopter applications requiring a VERY COARSE spray droplet size category, USE ONLY nozzles selected with the methods previously specified for fixed-wing aircraft in Section 1.

Option 2

When using Accu-Flo nozzles (Bishop Equipment Mfg Inc), USE ONLY nozzles rated according to the manufacturer's instructions to select the correct nozzle to apply a VERY COARSE or an EXTREMELY COARSE droplet size category to satisfy the label requirement for one of those specific droplet size categories.

Examples of nozzles and settings that can achieve VERY COARSE or Larger Droplet Size Categories using Section 1, Option 2 include:

For flying speeds up to 120 knots (Fixed wing aircraft):						
Nozzle model	Fan Angle (deg)	Deflector	Orifice Size	Orientation to airstream (deg)	Pressure (psi)	Category
CP11TT straight stream	-	--	10	0	40 or higher	Very Coarse
			15		50 or higher	
			20		60 or higher	
CP09	-	0	0.078	0	70 or higher	
			0.125		90 or higher	
For flying speeds up to 100 knots (Fixed wing aircraft and Helicopters):						
Nozzle model	Fan Angle (deg)	Deflector	Orifice Size	Orientation to airstream	Pressure (psi)	Category
CP09	-	0	0.078	0	30 or higher	Very Coarse
			0.125		35 or higher	
CP11TT straight stream	-		10 or larger	0	40 or higher	Extremely Coarse
For flying speeds up to 60 knots (Helicopters):						
Nozzle model	Fan Angle (deg)	Deflector	Orifice Size	Orientation to airstream	Pressure (psi)	Category
CP09	-	30	0.078	0	30 or higher	Very Coarse
			0.125		30 or higher	
CP03	0		0.062 or larger	0	30	Extremely Coarse
STANDARD Flat Fan	40	-	6 or larger	0	30 or higher	Very Coarse
STANDARD Flat Fan	40	-	10 or larger	0	30 or higher	Extremely Coarse
CP11TT FF40	40		6 or larger	0	30 or higher	Very Coarse

AERIAL APPLICATION

DO NOT apply by aerial application unless the following requirements are met:

- spray droplets not smaller than a VERY COARSE (VC) spray droplet size category
- release heights 5 metres or lower above the target canopy
- minimum distances between the application site and downwind sensitive aquatic and wetland areas including aquacultural ponds, surface streams and rivers (see Aquatic 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for aircraft') are observed.
- minimum distances between the application site and downwind sensitive crops, gardens, landscaping vegetation, protected native vegetation or protected animal habitat (see Terrestrial 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for aircraft') are observed. The buffer zones provide guidance but may not always be completely protective of all agricultural crops.

BUFFER ZONES FOR AIRCRAFT FOR SUGARCANE BASED ON LOW APPLICATION RATE: 3 metre release height or lower above the target canopy

Application rate (/ha)	Spray droplet size category	Downwind mandatory no spray zone			
		Fixed wing		Helicopter	
		Aquatic	Terrestrial	Aquatic	Terrestrial
Tropical & subtropical uses: Sugarcane					
Up to 1080 g ae/ha	Very Coarse or larger	95 metres	90 metres	90 metres	85 metres
	Extremely Coarse or larger	70 metres	70 metres	70 metres	65 metres
Up to 1250 g ae/ha	Very Coarse or larger	110 metres	100 metres	95 metres	95 metres
	Extremely Coarse or larger	80 metres	75 metres	75 metres	70 metres

BUFFER ZONES FOR AIRCRAFT: 3 metre release height or lower above the target canopy

Application rate (/ha)	Downwind mandatory no spray zone			
	Fixed wing		Helicopter	
	Aquatic	Terrestrial	Aquatic	Terrestrial
Dryland cropping: winter cereals and fallows				
Up to 1.7 L (750 g ae/ha)	75 metres	70 metres	70 metres	70 metres
Up to 1.9 L (880 g ae/ha)	80 metres	80 metres	75 metres	75 metres
Up to 2.3 L (1080 g ae/ha)	95 metres	90 metres	90 metres	85 metres
Tropical & subtropical uses: Sugarcane				
Up to 4.9 L (2220 g ae/ha)	180 metres	170 metres	150 metres	140 metres
Tropical & subtropical uses: Peanuts				
Up to 5 L (2250 g ae/ha)	180 metres	170 metres	150 metres	140 metres

BUFFER ZONES FOR AIRCRAFT: 5 metre release height or lower above the target canopy

Application rate (/ha)	Downwind mandatory no spray zone			
	Fixed wing		Helicopter	
	Aquatic	Terrestrial	Aquatic	Terrestrial
Dryland cropping: winter cereals and fallows				
Up to 1.7 L (750 g ae/ha)	130 metres	130 metres	120 metres	110 metres
Up to 1.9 L (880 g ae/ha)	150 metres	150 metres	130 metres	120 metres
Up to 2.3 L (1080 g ae/ha)	180 metres	170 metres	140 metres	140 metres
Tropical & subtropical uses: Sugarcane				
Up to 4.9 L (2220 g ae/ha)	425 metres	400 metres	250 metres	225 metres
Tropical & subtropical uses: Peanuts				
Up to 5 L (2250 g ae/ha)	425 metres	400 metres	250 metres	225 metres

Pasture application by air – 5 m release height

NOTE:- some rates ARE NOT SUPPORTED for Fixed Wing aircraft and MUST NOT be applied by fixed wing aircraft

Application rate 2750 g ae/ha, VERY COARSE droplet size, Aerial application: 5 m release height or lower above target canopy
 Aquatic Protection
 Terrestrial Protection (2,4-D salt formulations)

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	500 metres	300 metres
From 7 to 14 kilometres per hour	550 metres	300 metres

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	475 metres	275 metres
From 7 to 14 kilometres per hour	525 metres	300 metres

Application rate 2000 g ae/ha, VERY COARSE droplet size, Aerial application: 5 m release height or lower above target canopy
 Aquatic Protection
 Terrestrial Protection (2,4-D salt formulations)

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	375 metres	190 metres
From 7 to 14 kilometres per hour	375 metres	220 metres

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	350 metres	180 metres
From 7 to 14 kilometres per hour	350 metres	210 metres

Pasture application by air – 3 m release height

NOTE:- some rates ARE NOT SUPPORTED for Fixed Wing aircraft and MUST NOT be applied by fixed wing aircraft

Application rate 2750 g ae/ha, VERY COARSE droplet size, Aerial application: 3 m release height or lower above target canopy
 Aquatic Protection
 Terrestrial Protection (2,4-D salt formulations)

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	250 metres	150 metres
From 7 to 14 kilometres per hour	250 metres	180 metres

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	250 metres	140 metres
From 7 to 14 kilometres per hour	250 metres	170 metres

Application rate 2000 g ae/ha, VERY COARSE droplet size, Aerial application: 3 m release height or lower above target canopy
 Aquatic Protection
 Terrestrial Protection (2,4-D salt formulations)

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	160 metres	90 metres
From 7 to 14 kilometres per hour	160 metres	140 metres

	Downwind no-spray zone	
	Fixed Wing	Helicopter
Wind speed range at time of application		
From 3 to 7 kilometres per hour	140 metres	85 metres
From 7 to 14 kilometres per hour	150 metres	130 metres

BUFFER ZONES FORESTRY USES FOR APPLICATION BY HELICOPTER AND ACCU-FLO NOZZLE, 0.020 ORIFICE OR LARGER

DO NOT apply by fixed wing aircraft. DO NOT apply by helicopter unless the following requirements are met:

- Accu-Flo™ nozzles with orifice size 0.020 or larger are used.
- flying speed 102 km/hr (55 knots) or slower
- release heights 15 metres or lower above the target canopy
- minimum distances between the application site and downwind sensitive aquatic and wetland areas including aquacultural ponds, surface streams and rivers (see Aquatic 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for aircraft') are observed.
- minimum distances between the application site and downwind sensitive crops, gardens, landscaping vegetation, protected native vegetation or protected animal habitat (see Terrestrial 'Downwind mandatory no-spray zone' section of the following table titled 'Buffer zones for aircraft') are observed. The buffer zones provide guidance but may not always be completely protective of all agricultural crops.

Application rate (/ha)	Wind speed range at time of application	Downwind mandatory no spray zone	
		Aquatic	Terrestrial
Release heights 15 metres or lower above the target canopy			
Up to 1000 g ae/ha	From 7 to 15 kilometres per hour	75 metres	75 metres
	From 3 to 7 kilometres per hour	35 metres	35 metres
Release heights 10 metres or lower above the target canopy			
Up to 1000 g ae/ha	From 7 to 15 kilometres per hour	45 metres	45 metres
	From 3 to 7 kilometres per hour	15 metres	15 metres