

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

UNITY[®] 240 EW

Herbicide

**ACTIVE CONSTITUENT: 240 g/L CARFENTRAZONE-ETHYL
SOLVENT: 250 g/L LIQUID HYDROCARBON**



**For the control of certain annual broadleaf weeds in
winter cereals and pyrethrum as per the Directions For Use Table**

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Crop Care Australasia Pty Ltd, Unit 17/16 Metroplex Avenue, Murarrie Qld 4172

DIRECTIONS FOR USE

Restraints:

DO NOT tank mix Unity with any wetter, crop oil concentrates or blended oil/surfactant adjuvants (See compatibility section).

DO NOT tank mix MCPA LVE with Unity.

DO NOT tank mix Unity treatments with selective grass herbicides.

DO NOT apply the tank mix of Unity + Thistle-Killem[®] 750 (MCPA amine) before the three leaf stage of cereals.

DO NOT apply to cereals under sown with legumes.

DO NOT apply Unity to winter cereals by aircraft.

DO NOT apply to crops or weeds which are suffering moisture stress (waterlogged or drought affected), insect, disease or nutritional disorders, frost affected (or if frosts are imminent) or stress from previous herbicide or foliar fertiliser treatment.

DO NOT spray when the leaves of the crop or weeds are wet with dew or rain.

CROP	TARGET WEED	STATE	RATE/ha [#]	WEED STAGE	CRITICAL COMMENTS
Winter cereals (wheat, barley, oats, triticale)	Ball mustard <i>Neslia paniculata</i>	All States	85mL [#] 100mL [#]	2 leaf to 6 leaf 2 leaf to 8 leaf	<p>General Apply as a post-emergence treatment for the control of small actively growing weeds.</p> <p># Always tank mix Unity with Thistle-Killem[®] 750 (MCPA amine) in winter cereals. A Thistle-Killem 750 rate of 330mL/ha is the minimum rate required for control. Refer to the Thistle-Killem 750 label for higher use rates.</p> <p>Under wet/ good growing conditions some weed regrowth may occur eg. Bifora. A follow up application of a suitable herbicide ie. 2,4-D amine may be required as part of a good weed management strategy.</p> <p>Refer to General Instructions and Compatibility directions for further application details.</p>
	Bedstraw/Cleavers <i>Galium tricornutum</i>		85mL [#]	1 to 10 whorls	
	Bifora <i>Bifora testiculata</i>		100mL [#]	2 leaf to 6 leaf	
	Canola <i>Brassica napus</i> <i>B. campestris</i>		85mL [#] 100mL [#]	2 leaf to 6 leaf 2 leaf to 8 leaf	
	Capeweed <i>Arctotheca calendula</i>		85mL [#]	2 leaf to 4 leaf	
	Climbing buckwheat <i>Fallopia convolvulus</i>		85mL [#]	2 leaf to 6 leaf	
	Crassula <i>Crassula sieberana</i>		85mL [#]	2 leaf to 8 leaf	
	Fumitory (Dense flower) <i>Fumaria densiflora</i>		85mL [#]	2 leaf to 8 leaf	
	Indian hedge mustard <i>Sisymbrium orientale</i>		85mL [#]	2 leaf to 8 leaf	
	Ivy-leaf speedwell <i>Veronica hederifolia</i>		85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf	
	Long storksbill <i>Erodium botrys</i>		85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf	
	Marshmallow <i>Malva parviflora</i>		65mL [#] 85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf 2 leaf to 8 leaf	
	Musk weed <i>Myagrurn perfoliatum</i>		85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf	
	Prickly lettuce <i>Lactuca serriola</i>		85mL [#]	2 leaf to 8 leaf	
	Rough poppy <i>Papaver hybridum</i>		85mL [#]	2 leaf to 8 leaf	
	Sheepweed / Corn gromwell / White iron weed <i>Buglossoides arvensis</i>		85mL [#] 100mL [#]	2 leaf to 6 leaf 2 leaf to 8 leaf	
	Shepherd's purse <i>Capsella bursa-pastoris</i>		85mL [#]	2 leaf to 8 leaf	
	Sowthistle <i>Sonchus oleraceus</i>		85mL [#]	2 leaf to 6 leaf	
	Spiny emex <i>Emex australis</i>		85mL [#]	2 leaf to 4 leaf	

CROP	TARGET WEED	STATE	RATE/ha [#]	WEED STAGE	CRITICAL COMMENTS
Winter cereals (wheat, barley, oats, triticale) cont.	Stinging (dwarf) nettle <i>Urtica urens</i>	All States	85mL [#]	2 leaf to 6 leaf, prior to branching	
	Sub. clover <i>Trifolium subterraneum</i>		65mL [#] 85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf 2 leaf to 10 leaf	
	Toad rush <i>Juncus bufonius</i>		85mL [#] 100mL [#]	2 leaf to 4 leaf 2 leaf to 6 leaf	
	Turnip weed <i>Rapistrum rugosum</i>		85mL [#]	2 leaf to 8 leaf	
	Volunteer pulses - Faba beans <i>Vicia faba</i>		85mL [#] + Transit* 100mL OR + Kamba* 500 at 200mL	2 leaf to 5 nodes	
				2 leaf to 5 nodes	
				2 leaf to 6 leaf	
				2 leaf to 4 leaf 2 leaf to 8 leaf	
	- Field peas <i>Pisum sativum</i>				
	- Lentils <i>Lens culinaris</i>				
	- Lupins <i>Lupinus angustifolius</i>				
	- Vetch <i>Vicia spp</i>				
Wild radish <i>Raphanus raphanistrum</i>	WA only	65mL [#] 85mL [#] 100mL [#]	Majority at 2 leaf Majority at 4 leaf Majority at 6 leaf		
		100mL [#]	2 leaf to 4 leaf		
Wild turnip <i>Brassica tournefortii</i>	All States	85mL [#]	2 leaf to 6 leaf		
Wireweed <i>Polygonum aviculare</i>		85mL [#]	2 leaf to 4 leaf		
Pyrethrum New crops - from 4 true leaf onwards Established crops - post harvest	Blackberry nightshade <i>Solanum nigrum</i>	Tas. only	100mL	2 leaf to 4 leaf	To improve weed spectrum Unity may be tank mixed or applied as a sequential application with other pyrethrum herbicides. Do not apply within 10 days of other herbicides.
	Cleavers <i>Galium aparine</i>			2 to 6 whorls	
	Volunteer potatoes <i>Solanum tuberosum</i>			10 – 15 cm high	

Unity should always be tank mixed with 330mL/ha of Thistle-Killem 750 (MCPA amine) in winter cereals. The Thistle-Killem 750 rate of 330mL/ha is the minimum rate required for control.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIODS

Grazing: DO NOT ALLOW STOCK TO GRAZE TREATED AREAS FOR 14 DAYS AFTER APPLICATION.

Crop Harvest: NOT REQUIRED WHEN USED AS DIRECTED.

GENERAL INSTRUCTIONS

Unity 240 EW Herbicide is an early post-emergence herbicide for the control of certain broadleaf weeds in winter cereals and pyrethrum. Unity is a fast acting contact herbicide and controls weeds through a process of membrane disruption. The foliar uptake of Unity is rapid and plant desiccation can occur within 1 to 4 days of application. Application of Unity should target small actively growing weeds. Subsequent germinations will not be controlled. Unity should always be tank mixed with Thistle-Killem 750 in winter cereals.

SYMPTOMS

Unity is rapidly absorbed through the foliage of plants. Within a few hours following application, the foliage of susceptible weeds show signs of desiccation, and in subsequent days necrosis and death of the plant. Due to environmental conditions and certain spray tank additives, some herbicidal symptoms may appear on the crop in the form of leaf spotting. However, the crop recovers quickly, usually within two to three weeks of treatment.

Extremes in environmental conditions eg. temperature and moisture, soil conditions and/or cultural practices may affect the activity of Unity. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicidal symptoms is delayed, and weeds hardened off by drought are less susceptible to Unity.

COMPATIBILITY

Winter cereals: Unity should always be tank mixed with Thistle-Killem 750 (MCPA **amine**) to broaden the weed control spectrum compared to either product applied alone. Do not tank mix Unity with MCPA **LVE** formulations or ester formulations of other herbicides or with wetters and oil adjuvants, as excessive crop injury may occur.

Unity plus Thistle-Killem 750 is compatible with 2,4-D amine, Agtryne™ MA, Kamba® 500, Cadence®, diuron, Eclipse®, Logran®, metribuzin, Transit® (cloprialid), EDTA chelate formulations of trace elements.

Pyrethrum: Unity should be applied on its own, tank mixed with or used in a sequence with other herbicides used in pyrethrum as advised by Botanical Resources Australia.

Annual Grass (wild oat, ryegrass etc.) Control

Unity should not be mixed with selective grass herbicides as grass weed control is significantly reduced and excessive crop injury may occur. Increased crop injury is caused by the crop oil concentrates and oil/surfactant blends used with these grass herbicides. Instead, allow a 10 to 14 day interval between separate broadleaf and grass herbicide applications.

Use of Surfactant/Wetting Agents/Oil Adjuvants

Do not add wetters, spray oils or oil/surfactant adjuvants to the tank mix of Unity plus Thistle-Killem 750. The addition of wetters, oils and oil/surfactant blends will greatly increase crop injury without any significant improvement in weed control.

Prior to applying Unity clean the spray tank to remove any wetters or adjuvants remaining from previous spray operations otherwise crop injury may result.

RESISTANT WEEDS WARNING

GROUP	G	HERBICIDE
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Unity 240 EW Herbicide is a member of the aryl triazolone group of herbicides. Its mode of action is through a process of membrane disruption, which is initiated by the inhibition of the enzyme protoporphyrinogen oxidase. This inhibition interferes with the chlorophyll biosynthetic pathway. For weed resistance management Unity is a Group G herbicide.

Some naturally occurring weed biotypes resistant to Unity and other herbicides that inhibit the enzyme protoporphyrinogen oxidase may exist through normal genetic variability in any weed population and increase if these herbicides are used repeatedly. These resistant weeds will not be controlled by Unity or other herbicides that inhibit the enzyme protoporphyrinogen oxidase.

Since the occurrence of resistant weeds is difficult to detect prior to use, Crop Care Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Unity to control resistant weeds.

RE-ENTRY PERIOD

Do not allow entry into treated areas until the spray has dried, unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.

TIMING

Application should be made to small, actively growing weeds generally less than 6 to 8 leaf in stage – refer to growth stages for specific weeds. As Unity is a contact herbicide, best control is achieved when weeds are exposed and are not shielded by other weeds and/or the crop. Ideally crops should be at the 3 leaf to early/mid tillering stage (Zadok's code 13 to 25), prior to crop canopy closure.

MIXING

Add half the required volume of water to spray tank and start agitation and then add the measured amount of Unity. In cereals add the required volume of Thistle-Killem 750 next then add buffering agent if required then the balance of water to tank. Maintain good agitation at all times until spraying is completed.

The spray solution can be buffered to within the range of pH 5 to pH 8. Do not use with tank additives that alter the pH of the spray solution below pH 5 or above pH 8 or that contain surfactants.

APPLICATION

Apply Unity (plus Thistle-Killem 750 in cereals) as a broadcast application. Use conventional boom sprayers with either mechanical or by-pass agitation. Spray equipment should be properly calibrated to ensure correct application. Use a spray volume of 80 to 150 litres per hectare. Experience has shown that using a minimum spray volume of 100L/ha can improve weed control. This is particularly important on bifora and other hard to control weeds. Use a minimum of 100L/ha if weed infestation is heavy or the crop cover is dense.

Use single orifice flat fan nozzles such as Spraying Systems TeeJet® 11001, 110015, 11002 or equivalent sizes from other manufacturers or Spraying Systems TwinJet® twin flat spray tips TJ60-11002, TJ60-11003 or TJ60-11004 or equivalent sizes from other manufacturers. Do not use 110-03 or bigger single orifice nozzles or TJ11006 or bigger twin orifice nozzles with Unity 240EW.

Do not use floodjet, low drift or air inducted nozzles, boomless jets or misters or controlled droplet application equipment.

Do not apply Unity by aircraft. Always ensure that agitation is continued until spraying is completed even if the sprayer is stopped for brief periods of time.

Thistle-Killem 750 (750g/L MCPA amine): it is important to follow the Thistle-Killem 750 label directions for use in relation to weed and crop size and application timing. The Thistle-Killem 750 rate recommended for tank mix with Unity in cereals on this label is a minimum rate required for control. Higher Thistle-Killem 750 rates may be used in accordance with the specific MCPA amine label to improve results in difficult situations.

The best application conditions are when soil is moist, weather fine and rain unlikely within 6 hours.

Extremes in environmental conditions eg. temperature and moisture, soil conditions and/or cultural practices may affect the activity of Unity. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicidal symptoms is delayed, and weeds hardened off by drought are less susceptible to Unity.

SPRAYER CLEAN OUT

Thoroughly clean all spray equipment using the following procedure when you have finished spraying highly active materials such as carfentrazone-ethyl.

In addition to the following procedure, ensure proper equipment clean-out for any other products mixed with Unity as specified on the other product labels.

IMPORTANT:

More complete cleaning can be achieved if the spray equipment is cleaned immediately following each use.

Mix only as much herbicide spray solution as needed at a time.

DO NOT store the sprayer for any extended period of time, especially over night, with Unity

spray solution remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.

Preparation of the Cleaning Solution:

Prepare a spray equipment cleaning solution by mixing an alkaline detergent eg “OMO” or “SPREE” at a rate of 100g for every 100L of clean water used.

Upon completion of applying Unity and before spraying sensitive crops including **canola, pulses such as faba beans, lentils, other legumes and cotton:**

1. Fill the spray tank with sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles **then fill the spray tank to capacity to ensure contact of the solution with all internal surfaces. Let the cleaning solution soak in tank, pump and spray lines overnight.**
2. Before further use of the sprayer, operate the spray system for 15 minutes, then completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom, and spray nozzles.
3. If possible spray a pesticide requiring an oil adjuvant eg Achieve & Supercharge onto cereals as a further means of removing possible residues of Unity before spraying sensitive crops.
4. Immediately prior to commencement of spraying a sensitive crop, purge the boom lines by operating the spray system onto a fence line or waste area for sufficient time to remove any solution that has been residing in the spray lines. **This is also recommended for subsequent tank loads or if the sprayer has been left standing for a period of time containing spray solution.**
5. If storing equipment for more than 48 hours, preferred practice is to clean spray equipment as outlined above allowing to soak over night, drain and flush with fresh water and leave fresh water in the spray tank, hoses, and spray booms until next use. This water must be drained from the spray boom and lines and flushed out with clean water before beginning any application to a sensitive crop.

Properly dispose of all cleaning solution and rinsate safely in accordance with Federal, State, and local regulations and guidelines.

Do not apply sprayer cleaning solutions or rinsate to sensitive crops.

Should small quantities of Unity remain in inadequately cleaned mixing, loading and/or spray equipment, they may be released during subsequent applications potentially causing effects to sensitive crops and other vegetation.

The above method is only effective if the cleaning solution comes into contact with every surface or contact point that may contain even minute carfentrazone-ethyl residues.

CROP ROTATION RECOMMENDATIONS

Unity 240 EW Herbicide does not provide residual activity, therefore no crop rotational restrictions apply.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

Do not apply under weather conditions, or from spray equipment, which may cause spray drift onto nearby susceptible plants, adjacent crops, or pastures, or onto wetlands, waterbodies or watercourses.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Highly toxic to algae and aquatic plants. DO NOT contaminate streams, rivers or waterways with Unity or used container.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.

Triple or preferably pressure rinse empty containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation

and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SAFETY DIRECTIONS

May irritate the nose and throat. May irritate the eyes and skin. Avoid contact with eyes and skin. Avoid inhaling vapour. When opening the container, mixing, loading and using the product, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow-length PVC gloves. Wash hands after use. After each day's use, wash gloves and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26. If swallowed, do NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet which is available from your supplier or from the Crop Care website: www.cropcare.com.au

Conditions of sale

Crop Care Australasia Pty Ltd will not accept any responsibility whatsoever and howsoever arising and whether for consequential loss or otherwise in connection with the supply or use of these goods other than responsibility for the merchantable quality of the goods and such responsibilities mandatorily imposed by Statutes applicable to the sale or supply of these goods. To the extent allowed by such Statutes the liability of Crop Care Australasia Pty Ltd is limited to the replacement of the goods or (at the option of Crop Care Australasia Pty Ltd) the refund of the price paid and is conditional upon a claim being made in writing and where possible sufficient part of the goods to enable proper examination being returned to Crop Care Australasia Pty Ltd within thirty days of delivery.

In an Emergency Dial 000 Police or Fire Brigade	SPECIALIST ADVICE IN EMERGENCY ONLY 1800 033 498 ALL HOURS - AUSTRALIA-WIDE
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Crop Care Australasia Pty Ltd
ACN 061 362 347
Unit 17/16 Metroplex Avenue
Murarrie Qld 4172
Tel : (07) 3909 2000

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BN:
DOM: