

**POISON**

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



# **Crusader<sup>TM</sup>**

## **Herbicide**

**ACTIVE CONSTITUENT:** 30 g/L PYROXSULAM  
**CROP SAFENER:** 90 g/L CLOQUINTOCET- MEXYL  
**SOLVENT:** 750 g/L LIQUID HYDROCARBON

<b>GROUP</b>	<b>B</b>	<b>HERBICIDE</b>
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An oil dispersible liquid formulation for post-emergent control of grass and broadleaf weeds in triticale and wheat, excluding durum varieties, as specified in the Directions for Use.

**IMPORTANT: READ THE ATTACHED BOOKLET BEFORE USE.**

**Dow AgroSciences Australia Limited**

A.B.N. 24 003 771 659

20 Rodborough Road

FRENCHS FOREST NSW 2086

[www.dowagrosciences.com.au](http://www.dowagrosciences.com.au)

**CUSTOMER SERVICE TOLL FREE: 1-800 700 096**

™ Trademark of Dow AgroSciences

**Contents: 10 L**

GMID:

## STORAGE AND DISPOSAL

- Store in the tightly closed original container in a securely locked place, out of direct sunlight.
- DO NOT store near food, feedstuffs, fertilisers or seed.

This container can be recycled if it is clean, dry, free of visible residues and has the **drumMUSTER** logo visible. Triple or pressure rinse container for disposal. Dispose of rinsate by adding to the spray tank. Do not dispose of undiluted chemicals on site. Wash outside of the container and the cap. Store cleaned container in a sheltered place with cap removed. It will then be acceptable for recycling at any **drumMUSTER** collection or similar container management site. The cap should not be replaced but may be taken separately.

If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. **DO NOT** burn empty containers or product.

## SMALL SPILL MANAGEMENT

Wear appropriate clothing whilst cleaning up small spills (see SAFETY DIRECTIONS). Apply absorbent material such as earth, sand, clay granules or cat litter to the spill. Sweep up material and contain in a refuse vessel for disposal. Disposal of the contaminated material must be done in accordance with STATE and/or LOCAL regulations.

## SAFETY DIRECTIONS

Harmful if inhaled. May irritate nose and throat. Will irritate the skin. Will damage the eyes. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin.

When opening the container and preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and disposable mist face mask covering mouth and nose.

If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water.

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves, goggles 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.

## SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet for **CRUSADER™ HERBICIDE** which is available from Dow AgroSciences on request. Call Customer Service Toll Free on 1-800 700 096 or visit [www.dowagrosciences.com.au](http://www.dowagrosciences.com.au)

## NOTICE

Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. No warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of the product contrary to label instructions, or under off-label permits not endorsed by Dow AgroSciences, or under abnormal conditions.



DrumMuster logo D.O.M./Batch No.:

APVMA Approval No. 61277/51143

Made in USA

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## GENERAL INSTRUCTIONS

Crusader is a selective sulphonamide herbicide. It is a foliar herbicide for post-emergence use in wheat. It will not reliably control weeds that emerge after treatment. Best results are achieved under good growing conditions. Treatment of crop or weeds that are stressed must be avoided.

**Adjuvant:** Always use BS1000<sup>®</sup> or Chemwet<sup>®</sup> 1000 at 250 mL/100 L spray volume.

### Crop Safety

Yield is normally unaffected by treatment with Crusader Herbicide or tank mixes. However, transient stem shortening and crop yellowing may occur. Symptoms may be worse where the crop is stressed, heavy rain/irrigation follows application, crops are grown in alkaline soil conditions, crop has poor root growth, double overlap of spray has occurred or a combination of any or all the above. Where crop stress occurs, a longer period may be required for recovery, especially if the crop is stressed by root or foliar disease, poor nutrition, water logging, drought or cold stress. In severe cases and seasons where a hot, dry spring occurs, flowering may be delayed and yield may be reduced. Crusader Herbicide has been tested over major commercially grown crop varieties, but not all of those that may be grown. For information on crop variety selectivity consult your local reseller or Dow AgroSciences.

**Note:** Application of another Group B herbicide to the same crop before or after Crusader's use may result in more injury than described above. Consult Dow AgroSciences for advice.

### Crop Rotation Recommendations

Safe recropping periods apply for all crops following Crusader application. Planting crops 'dry' without the minimum rainfall (as stated in the table below) increases the risk of injury to susceptible crops. Susceptible crops include, but are not limited to, those listed in the table below.

#### Plant-back Periods

Area/State	Rain or irrigation needed*	Plant-back Interval	Crops to be planted
SA, Sth NSW, Tas, Vic, and WA ( <b>Winter dominant rainfall areas</b> ) All soils	25 mm rain or more	9 months	Barley, canola, chickpeas, cotton, faba beans, field peas, lentils, lupins, lucerne, maize, medics, oats, ryegrass, sub-clover, sorghum, soybeans, sunflower, vetches, and white clover Note: For all other crops, consult your reseller or local Dow AgroSciences' representative.
Nth NSW and Qld ( <b>Summer dominant rainfall areas</b> ) Vertosol soils	50 mm or more rain or irrigation	6 months	

*For all situations, sufficient rainfall to enable soil wetting for at least one week is essential to enable residue breakdown before planting following crops other than wheat.*

\*on shallow, duplex or low organic matter soils and/or where rain or irrigation in one fall or over subsequent days is insufficient to thoroughly wet soil to 10 cm for one week or more in the summer to autumn period, extended plant-back times will apply and susceptible crops should not be planted for at least 12 months after application of Crusader Herbicide. Contact Dow AgroSciences, your farm chemical supplier, consultant or local Department of Agriculture for advice.

### Resistant Weeds Warning

<b>GROUP</b>	<b>B</b>	<b>HERBICIDE</b>
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Crusader Herbicide contains a member of the triazolopyrimidine sulfonanilide group of herbicides. The product has the acetolactate synthase (ALS) inhibitor mode of action. For weed resistance management, the product is a Group B herbicide. Some naturally occurring weed biotypes resistant to the product and other Group B herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by this product

or other Group B herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Dow AgroSciences accepts no liability for any losses that may result from the failure of the product to control resistant weeds.

Do not rely solely on Crusader or other Group B herbicides for weed control. Always use an Integrated Weed Management program with herbicides that have other modes-of-action, together with non-chemical methods of control. CropLife Australia resistance management strategies are available from local agricultural chemical suppliers or at [www.croplifeaustralia.org.au](http://www.croplifeaustralia.org.au). Use these strategies to limit the build up of resistant weeds on your farm.

### **Application**

*Boom Spraying* - apply Crusader in sufficient water to obtain complete and even coverage. It should be applied by an accurately calibrated ground rig using a water volume of 50–100 L/ha. Sprayers should apply a medium to coarse quality spray in accordance with ASABE standard S-572. Where coarse spray quality is to be applied, use a minimum of 70L/ha spray volume.

### **Mixing**

Crusader Herbicide is an oil-based concentrate which may show some separation on storage. Roll, shake or invert the container several times to ensure that Crusader Herbicide has completely redispersed before measuring to mix. Crusader Herbicide should be added to the spray tank with simultaneous agitation. If agitation is limited, premix the Crusader Herbicide in a bucket before adding to the main tank. Once diluted correctly, Crusader Herbicide remains in suspension.

### **Tankmixing**

If Crusader is to be mixed with other products, use the following order:

1. Quarter fill the spray tank, maintaining agitation,
2. Add Crusader Herbicide (as described above),
3. Add water to half fill the spray tank,
4. Add wettable powders, water dispersible granules or suspension concentrates,
5. Add emulsifiable concentrates,
6. Add wetter when spray tank is half-full,
7. Add water to bring to the final spray volume.

Crusader Herbicide should be mixed and sprayed out within 8 hours.

### **Cleaning Spray Equipment**

After using Crusader Herbicide, empty the tank completely and drain the whole system. Thoroughly wash inside the tank using a pressure hose, drain the tank and clean tank, pump, line and nozzle filters.

***Partial Cleaning - Rinse only*** - before using sprayer to treat triticale or wheat:

After cleaning the tank as above, quarter fill the tank with clean water and circulate through the pump, line, hoses and nozzles. Drain and repeat procedure twice.

***Complete Cleaning - Decontamination*** - before using sprayer to treat crops that are susceptible to Crusader Herbicide:

After cleaning the tank as above, quarter fill the tank with clean water and add a liquid alkali detergent (e.g. Surf<sup>®</sup>, Omo<sup>®</sup>, Drive<sup>®</sup>) at 500 mL/100 L water and circulate throughout the system for at least fifteen minutes. Drain the whole system. Then remove filters and nozzles and clean separately. Finally rinse inside the tank thoroughly using a pressure hose and flush system with clean water and allow to drain. Note: Chlorine-based cleaners are NOT recommended. These tank cleaning recommendations are for Crusader only. Please consult tankmix partner labels to determine requirement for decontamination for other products.

Rinse water should be discharged onto a designated disposal area or, if this is unavailable, onto unused land away from desirable plants and their roots and watercourses.

### Compatibility

Crusader Herbicide is compatible with the following:

**Broadleaf herbicides:** metsulfuron (eg. Ally<sup>®</sup> Herbicide), bromoxynil, bromoxynil-MCPA, Conclude<sup>™</sup> Herbicide, Hotshot<sup>™</sup> Herbicide, Lontrel<sup>™</sup> Herbicide, Lontrel 750 SG Herbicide, Dow AgroSciences LVE 600 MCPA, MCPA LVE, Starane<sup>™</sup> Advanced Herbicide and Torpedo<sup>™</sup> Herbicide.

**Adjuvants:** Always use either BS1000 or Chemwet 1000 at 250mL/100L spray volume.

**DIRECTIONS FOR USE:** *For application to triticale and wheat (excluding durum varieties) only from 3 leaf up to 1<sup>st</sup> node of the crop.*

### RESTRAINTS

**DO NOT** apply to crops or weeds which may be stressed due to prolonged periods of extreme cold, moisture stress (water-logging or drought) or previous herbicide treatment, as crop damage or reduced levels of control may result (see crop safety warning below).

**DO NOT** spray if rain is likely to occur within 6 hours.

**DO NOT** apply later than the 1<sup>st</sup> node stage of the crops.

**DO NOT** apply by air.

**DO NOT** apply to durum varieties of wheat.

**DO NOT** double overlap or double spray crop.

**DO NOT** apply to paddocks where there is a high risk of weeds resistant to Group B herbicides.

**Table 1. Grass weed control or suppression**

WEEDS	WEED STAGE	RATE/ha	CRITICAL COMMENTS
<b>Control</b> Brome grass ( <i>Bromus diandrus</i> ), Phalaris spp., Wild oats ( <i>Avena</i> spp.)  <b>Suppression</b> Annual ryegrass ( <i>Lolium rigidum</i> ) Barley grass ( <i>Hordeum leporinum</i> ) Silver grass ( <i>Vulpia</i> spp.)	1-3 leaf (pre-tillering)	500 mL	Always use BS1000 or Chemwet 1000 at 250 mL/100 L.  <b>Weed suppression:</b> Weeds may only be suppressed where densities of > 150 plants/m <sup>2</sup> are treated and may survive treatment, but will usually show reduced growth and seed set. Always use together with other methods of control to stop weed seed set.

**Table 2. Broadleaf weed control**

WEED	WEED STAGE & SIZE	RATE/ha	CRITICAL COMMENTS
Bedstraw ( <i>Galium tricornutum</i> )	Cotyledon - 6 whorl Up to 10cm	500 mL	Always use BS 1000 or Chemwet 1000 at 250 mL/100 L.
Canola ( <i>Brassica napus</i> )	Cotyledon - 4 leaf Up to 10 cm		

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Capeweed ( <i>Arctotheca calendula</i> )	<b>Cotyledon - 6 leaf Up to 12 cm</b>	<b>500 mL</b> + 40-60 g of Lontrel 750 SG + 300 mL LVE 600 MCPA <b>or</b> + 500 mL Bromoxynil/MCPA (200 + 200 g/L) <b>or</b> + 500 mL Bromoxynil / MCPA + 40 g Lontrel 750 SG	<b>High weed density:</b> For high densities (> 50/m <sup>2</sup> ), use tank-mixes and highest rate of partner herbicide where a range is stated.  <b>Crop stage for tankmixes:</b> treat crop at the labelled growth stage for the partner herbicide.  <b>MCPA tankmixes:</b> LVE 600 MCPA at 400 mL/ha must be applied from 5 leaf stage onwards in NSW and Qld.
Chickpea ( <i>Cicer arietinum</i> )	<b>Cotyledon - 6 leaf Up to 15 cm</b>	<b>500 mL</b>	
Climbing buckwheat (Black bindweed) ( <i>Fallopia convolvulus</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>	<b>500 mL</b> + 375-500 mL Hotshot Herbicide	
Deadnettle ( <i>Lamium amplexicaule</i> )	<b>Cotyledon - 4 leaf Up to 5cm</b>	<b>500 mL</b>	
Doublegee or spiny emex ( <i>Emex australis</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>	<b>500mL</b> + 5g Metsulfuron (600g/kg)	
Faba bean ( <i>Vicia faba</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>	<b>500 mL</b>	
Field pea ( <i>Pisum sativum</i> )	<b>Cotyledon - 6 node Up to 12 cm</b>		
Indian hedge mustard ( <i>Sisymbrium orientale</i> )	<b>Cotyledon - 6 leaf Up to 10 cm</b>	<b>500 mL</b> + 300 – 400 mL LVE 600 MCPA	
Lentil ( <i>Lens esculentum</i> )	<b>Cotyledon - 6 leaf Up to 8 cm</b>	<b>500 mL</b>	
Lupins - suppression ( <i>Lupinus albus</i> )	<b>Cotyledon - 4 leaf Up to 6 cm</b>		
Medic spp.	<b>Cotyledon - 4 leaf Up to 8 cm</b>		
Prickly lettuce ( <i>Lactuca serriola</i> )	<b>Cotyledon - 6 leaf Up to 10 cm</b>	<b>500mL</b> + 400 mL LVE 600 MCPA	
Small flowered mallow - suppression ( <i>Malva parviflora</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>	<b>500mL</b> + 400 mL LVE 600 MCPA <b>or</b> + 300 mL LVE 600 MCPA + 5 g Metsulfuron (600g/kg) <b>or</b> + 500 mL Conclude	
Sowthistle ( <i>Sonchus oleraceus</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>	<b>500mL</b> + 500 mL Hotshot + 400 mL LVE 600 MCPA	
Subclover ( <i>Trifolium subterraneum</i> )	<b>Cotyledon - 4 leaf Up to 5 cm</b>	<b>500 mL</b>	
Turnip weed ( <i>Rapistrum rugosum</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>		
Vetch - suppression ( <i>Vicia sativa</i> )	<b>Cotyledon - 4 leaf Up to 10 cm</b>		
Wild radish ( <i>Raphanus raphanistrum</i> )	<b>Cotyledon - 4 leaf Up to 15 cm</b>	<b>500 mL</b> + 300 – 400 mL LVE 600 MCPA	
Wireweed ( <i>Polygonum aviculare</i> )	<b>Cotyledon - 4 leaf Up to 8 cm</b>	<b>500 mL</b>	

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

### **WITHHOLDING PERIODS**

When using Crusader Herbicide in a tank mix with another product, observe whichever Harvest or Grazing/Stockfood Withholding Period that is the longer.

**Harvest: NOT REQUIRED WHEN USED AS DIRECTED.**

**Grazing/Stockfood: DO NOT GRAZE OR CUT TREATED CROPS FOR STOCK FEED FOR 4 WEEKS AFTER APPLICATION.**

### **PRECAUTION**

**Re-entry Period:** Nil re-entry period if wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. If not wearing protective clothing as described above, allow the spray to dry prior to re-entry. Protective clothing must be laundered after each day's use.

### **PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS**

Do not apply under weather conditions or from spraying equipment that may cause spray to drift onto nearby native and other non-target plants or susceptible plants/crops, cropping lands or pastures.

### **PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT**

Crusader Herbicide is highly toxic to algae and aquatic plants. **DO NOT** contaminate streams, rivers or waterways with chemical or used containers.

**DO NOT** apply under meteorological conditions or from spraying equipment that could be expected to cause spray to drift onto wetlands, natural surface waters, neighbouring properties or other sensitive areas. For ground application, a buffer zone of 5 metres is required between the downwind edge of the boom and the closest edge of waterbodies.

### **STORAGE AND DISPOSAL**

Store in the tightly closed original container in a securely locked place, out of direct sunlight. **DO NOT** store near food, feedstuffs, fertilisers or seed.

This container can be recycled if it is clean, dry, free of visible residues and has the **drumMUSTER** logo visible. Triple or pressure rinse container for disposal. Dispose of rinsate by adding to the spray tank. Do not dispose of undiluted chemicals on site. Wash outside of the container and the cap. Store cleaned container in a sheltered place with cap removed. It will then be acceptable for recycling at any **drumMUSTER** collection or similar container management site. The cap should not be replaced but may be taken separately.

If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. **DO NOT** burn empty containers or product.

### **SMALL SPILL MANAGEMENT**

Wear appropriate clothing whilst cleaning up small spills (see SAFETY DIRECTIONS). Apply absorbent material such as earth, sand, clay granules or cat litter to the spill. Sweep up material and contain in a refuse vessel for disposal. Disposal of the contaminated material must be done in accordance with STATE and/or LOCAL regulations.

### **SAFETY DIRECTIONS**

Harmful if inhaled. May irritate nose and throat. Will irritate the skin. Will damage the eyes. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin.



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When opening the container and preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and disposable mist face mask covering mouth and nose.

If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water.

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves, goggles and contaminated clothing.

**FIRST AID**

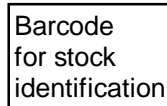
If poisoning occurs contact a doctor or Poisons Information Centre. Phone: *Australia* 13 11 26. If swallowed, do NOT induce vomiting. Give a glass of water.

**MATERIAL SAFETY DATA SHEET**

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