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READ SAFETY DIRECTIONS BEFORE OPENING OR USING

# Brodal<sup>®</sup> Options

SELECTIVE HERBICIDE

ACTIVE CONSTITUENT: 500 g/L DIFLUFENICAN

GROUP 12 HERBICIDE

For control of certain weeds in clover-based pasture, field peas, lentils, lupins and oilseed poppy as specified in the DIRECTIONS FOR USE table

## DIRECTIONS FOR USE

### RESTRAINTS

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

**DO NOT** apply to crops or weeds under stress due to pre-emergence herbicide, root disease, insect damage, nutrient deficiency, excessively moist or dry conditions or extremes of pH.

**DO NOT** apply to frost affected crops or if frosts are imminent.

**DO NOT** apply if heavy rain is expected within 4 hours.

**DIRECTIONS FOR USE TABLE**

CROP	WEEDS CONTROLLED	STATE	WEED STAGE	RATE	CRITICAL COMMENTS	
Clover-based pasture, field peas, lentils, lupins	Wild radish ( <i>Raphanus raphanistrum</i> )	WA only	Up to 2 leaf stage and not more than 60 mm in diameter	100 mL/ha	<p>Sow crop evenly to a depth of at least 20 mm.</p> <p><b>CROP STAGE</b>  <b>CLOVER-BASED PASTURE:</b> Apply post-emergence, not before the 3<sup>rd</sup> trifoliate leaf stage.  <b>Warning:</b> Some species and varieties of clover may be more sensitive than others. Refer to legume tolerance table in the general instructions. DO NOT apply to medics or yellow serradella.</p> <p><b>FIELD PEAS:</b> Apply early post-emergence after the third node stage and before the start of flowering.  <b>Warning:</b> Field peas grown on high pH soils in the presence of free lime may be less tolerant to Brodal Options.</p> <p><b>LENTILS:</b> Apply early post-emergence after the third leaf stage of the crop and before the start of flowering.  <b>Warning:</b> Some lentil varieties may be more sensitive than others. DO NOT apply to Northfield variety. Avoid spray overlap. Refer to GENERAL INSTRUCTIONS.</p> <p><b>LUPINS: Post-emergence of Crop:</b> Apply post-emergence from the 2 leaf stage of the crop and before the start of primary flowering (big bud).  <b>Post-sowing, Pre-emergence of Crop (Not WA):</b> Apply in a tank mix with the recommended rate of post-sowing pre-emergence treatment of simazine. (Brodal Options should not be incorporated).</p> <p><b>APPLICATION AND WEED CONTROL</b>  Apply when weeds are actively growing. Good spray coverage of the weeds is important. Apply before weeds are obscured by the crop canopy. For optimum results apply 4 to 6 weeks post-sowing. Application beyond 8 weeks post-sowing may result in reduced levels of weed control. In most situations the rate specified for each weed size will give satisfactory control. Under certain conditions such as:  * high crop and weed density,  * late season germinations,  * abnormal weed growth (including early flowering); higher rates of product (up to the maximum rate of application specified for that weed) may be required.</p>	
			Up to 4 leaf stage and not more than 120 mm in diameter	150 mL/ha		
			Up to 6 leaf stage and not more than 180 mm in diameter	200 mL/ha		
	Hedge mustard ( <i>Sisymbrium officinale</i> ), Indian hedge mustard ( <i>Sisymbrium orientale</i> ), wild turnip ( <i>Brassica tournefortii</i> )	NSW, Vic, Tas, SA, WA only	WA only	Up to 2 leaf stage and not more than 60 mm in diameter		100 mL/ha
				Up to 4 leaf stage and not more than 120 mm in diameter		150 mL/ha
				Up to 6 leaf stage and not more than 180 mm in diameter		200 mL/ha
Turnip weed ( <i>Rapistrum rugosum</i> )	NSW, Vic, Tas, SA, WA only	NSW, Vic, Tas, SA, WA only	Up to 4 leaf stage and not more than 120 mm in diameter			
Charlock (wild mustard, <i>Sinapis arvensis</i> ), deadnettle ( <i>Lamium amplexicaule</i> )			Up to 2 leaf stage and not more than 60 mm in diameter			
Prickly lettuce ( <i>Lactuca serriola</i> )						
Pheasants eye ( <i>Adonis microcarpa</i> )	SA only					



CROP	WEEDS CONTROLLED	STATE	WEED STAGE	RATE	CRITICAL COMMENTS
Clover-based pasture, field peas, lentils, lupins	<b>Suppression of the Following Weeds</b>				<i>Refer Critical Comments page 3</i>
	Capeweed ( <i>Arctotheca calendula</i> ), crassula ( <i>Crassula</i> spp.), corn gromwell ( <i>Buglossoides arvensis</i> ), marshmallow ( <i>Malva parviflora</i> ), shepherd's purse ( <i>Capsella bursa-pastoris</i> )	NSW, Vic, Tas, SA, WA only	Up to 4 leaf stage and not more than 120 mm in diameter	200 mL/ha	
	Chickweed ( <i>Stellaria media</i> ), hyssop loosestrife ( <i>Lythrum hyssopifolia</i> ), mouse-eared chickweed ( <i>Cerastium glomeratum</i> ), night-scented stock ( <i>Matthiola longipetala</i> ), skeleton weed ( <i>Chondrilla juncea</i> ), speedwell ( <i>Veronica hederifolia</i> )	NSW, Vic, Tas, SA only			
	Amsinckia ( <i>Amsinckia</i> spp.), wireweed ( <i>Polygonum aviculare</i> )	NSW, Vic, Tas, SA only	Up to 2 leaf stage and not more than 60 mm in diameter		
	Paterson's curse (salvation Jane) ( <i>Echium plantagineum</i> ), rough poppy ( <i>Papaver hybridum</i> )	NSW, Vic, SA only			
	Sorrel ( <i>Rumex acetosella</i> ), toad rush ( <i>Juncus bufonius</i> )	NSW, Vic, Tas, SA only			
	Stinging nettle ( <i>Urtica urens</i> )	NSW only	Cotyledon stage		
Field peas	Prickly lettuce ( <i>Lactuca serriola</i> )	NSW, Vic, Tas, SA only	4 leaf	125 mL/ha plus 125 mL/ha MCPA amine (500 g/L)	
			6 leaf	150 mL/ha plus 150 mL/ha MCPA amine (500 g/L)	
	Charlock (wild mustard, <i>Sinapis arvensis</i> )		4 leaf	125 mL/ha plus 125 mL/ha MCPA amine (500 g/L)	
			6 - 8 leaf	150 mL/ha plus 150 mL/ha MCPA amine (500 g/L)	



CROP	WEEDS CONTROLLED	STATE	WEED STAGE	RATE	CRITICAL COMMENTS
Lupins  Danja, Gunguru, Kalya, Kiev and Tanjil varieties  For information on other varieties contact Bayer CropScience	Wild radish ( <i>Raphanus raphanistrum</i> )	WA only	Up to 8 leaf stage and not more than 200 mm in diameter	100 mL/ha plus 7 g/ha Eclipse®	<p><b><u>CROP STAGE</u></b> Apply no earlier than the 8 leaf stage and before the start of primary flowering (big bud).</p> <p><b><u>APPLICATION AND WEED CONTROL</u></b> Apply when weeds are actively growing. Good spray coverage of the weeds is important. Apply before weeds are obscured by the crop canopy. Control may be reduced where wild radish populations exceed 100 plants per m<sup>2</sup>.</p> <p>Do not add crop oils, wetters, surfactants, insecticides or grass herbicides as unacceptable crop damage may occur. A minimum of ten days should elapse between application of a grass herbicide and this mixture. Do not use where water hardness exceeds 500 ppm.</p> <p>Lupins should be actively growing at the time of treatment with no evidence of brown leaf spot or insect damage. A slight yellowing, often accompanied by height reduction, may be noticeable from 1-4 weeks after application, however these effects are generally transient. Avoid spraying double overlaps.</p>
	Capeweed ( <i>Arctotheca calendula</i> ), <b>(suppression only)</b>		Up to 6 leaf stage		
Oilseed poppy	Charlock ( <i>Sinapis arvensis</i> ), hedge mustard ( <i>Sisymbrium officinale</i> ), Indian hedge mustard ( <i>Sisymbrium orientale</i> ), wild radish ( <i>Raphanus raphanistrum</i> ), wild turnip ( <i>Brassica tournefortii</i> )	Tas only	Early post-emergence up to the 4 leaf stage and not more than 120 mm in diameter	150 mL/ha (4 -6 leaf crop stage) and/or 200 mL/ha (6 -10 leaf crop stage)	<p><b><u>CROP STAGE</u></b> Brodal Options may be mixed with Reglone® or Asulox® based on recommendations from poppy contracting companies. DO NOT use in mixtures with Tramat®.</p> <p><b><u>APPLICATION AND WEED CONTROL</u></b> See comments on clover-based pasture, field peas, lentils and lupins.</p>

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

**WITHHOLDING PERIODS**

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

**Grazing: All Crops - DO NOT GRAZE OR CUT FOR STOCKFEED FOR 14 DAYS AFTER APPLICATION**



**GENERAL INSTRUCTIONS**

For use as an early post-emergence spray in clover-based pasture, field peas, lentils, and lupins. Brodal Options may also be used as a post sowing pre-emergence spray on lupins in New South Wales, Victoria, South Australia and Tasmania.

This product provides both contact and residual activity. Residual activity can be expected for up to 8 weeks after application under favourable growing conditions. The level of effective residual control may be reduced where; rates lower than 200 mL/ha are used, dry conditions prevail, poor coverage of the soil surface is achieved, crop is planted in non-wetting sand or where soils have a high content of clay or organic matter.

Brodal Options will not effectively control; regrowth of suppressed weeds, transplanted weeds, regrowth from rhizomes or roots, or weeds growing under stress from previous herbicide applications. Weed control may be reduced in areas where trash or burnt straw from previous harvest is dense, such as in header trails. Best results will be obtained if good soil moisture exists at and after application.

This product is taken up by the shoots of germinating seeds and seedlings. Susceptible weeds germinate but show immediate chlorosis followed by a mauve-pink discoloration. The chlorosis spreads with the aerial growth and the plants become necrotic and die back.

After application, some transient crop discoloration may occur. In lentils and lupins, this usually appears as yellow or white banding on the leaves, while in clover and field peas, white/pink coloration of the leaf veins and tips may occur. Some crop height reduction may also occur.

Provided the crop is not under stress from pre-emergent herbicide, disease, insect damage, nutrient deficiency, frost, extremes of pH, dry or excessively moist conditions, the development of the crop and all subsequent growth will not be affected.

Some pre-emergence herbicides, such as atrazine, can cause stress to certain crops resulting in an increase in crop damage when using this product. Field peas are particularly sensitive.

**Clover Tolerance Table**

VARIETY	EFFECT ON VEGETATIVE GROWTH
Arrowleaf (Zulu)	Moderate
Balansa (Paradana)	Moderate
Persian (Kyambro)	Minimal
Strawberry (Palestine)	Moderate
Subterranean (Clare)	Moderate
Subterranean (June)	Moderate
Subterranean (Karridale)	Moderate
Subterranean (Larissa)	Moderate
Subterranean (Mt. Barker)	Moderate
Subterranean (Seaton Park)	Minimal
Subterranean (Trikkala)	Minimal
Subterranean (Woogenellup)	Moderate
White (Haifa)	Moderate
Reduction in growth - Minimal (0-20%), Moderate (20-50%)	

The following varieties of subterranean clover have been tested for effects on seed yield: Seaton Park, Trikkala and Woogenellup. Some reduction in seed yield may occur with cv. Trikkala.

**Subsequent Crop Tolerance**

To reduce the effect on subsequent susceptible crops (e.g. canola) ensure thorough cultivation of soil prior to the sowing of these crops.

**Mixing**

Stir product or invert container several times before use as settling may occur after storage for some weeks. To ensure even mixing, half fill the spray tank with clean water and add the required amount of product. Agitate thoroughly then add the remainder of the water. Agitate thoroughly while carrying out spray operations. Reseal part-used container immediately after use.

**Application****Ground**

A minimum water rate of 50 L/ha should be used, however, for optimum results water rates of 70 - 100 L/ha are recommended. Increase the water volume where weed infestation is heavy or the crop cover is dense. Complete coverage of weeds is essential. Higher water volumes (up to 100 L/ha) will ensure improved activity of the product on the weeds but may increase the symptoms of crop damage.

The following settings are examples that will ensure excellent coverage of exposed weeds:

WATER RATE	50 L/ha	75 L/ha	75 L/ha
NOZZLE	Hardi No. 10 or equivalent	Hardi No. 12 or equivalent	Hardi No. 14 or equivalent
SPEED	10 kph	10 kph	12 kph
PRESSURE	240 kPa (2.4 bar)	220 kPa (2.2 bar)	210 kPa (2.1 bar)

**RESISTANT WEEDS WARNING****GROUP 12 HERBICIDE**

Brodal Options is a member of the nicotinamide group of herbicides and acts by inhibiting carotenoid biosynthesis. For weed resistance management Brodal Options is a Group 12 herbicide.

Some naturally occurring weed biotypes resistant to Brodal Options and other Group 12 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 Brodal Options or other Group 12 herbicides.

Since the occurrence of resistant weeds is difficult to detect prior to use, Bayer CropScience Pty Ltd accepts no liability for any losses that may result from the failure of Brodal Options to control resistant weeds.

**COMPATIBILITY**

Brodal Options is physically compatible with most currently registered grass herbicides as two-way tank mixtures.

BRODAL OPTIONS RATE	COMPATIBLE PRODUCT
Up to 150 mL	Simazine (500 g/L product) up to 1.0 L/ha.
All rates	Decis Options <sup>®</sup> , dimethoate formulations, Dominex <sup>®</sup> 100EC, Hallmark <sup>®</sup> 50EC, Karate <sup>®</sup> , Le-Mat <sup>®</sup> 290 SL, Lexone <sup>®</sup> , Sencor <sup>®</sup> , Talstar <sup>®</sup> and Targa <sup>®</sup> .
Up to 100 mL	Eclipse <sup>®</sup> Herbicide up to 7 g/ha (provided water hardness does not exceed 500 ppm)

**Warning**

For tank-mixtures with grass herbicides, use the recommended rates for both herbicides as well as the surfactant recommendations of the grass herbicide. Read the label for the grass herbicide before mixing and using the tank mixtures. DO NOT use crop oils with Brodal Options or Brodal Options/grass herbicide tank-mixtures. Applications to lupins and field peas under stressed conditions may cause significant damage to the crop.

When tank mixing Brodal Options and Targa, use a surfactant only. Mixtures of Brodal Options and Verdict<sup>®</sup> applied to lupins or field peas can cause damage that may result in yield losses. Consult your local Bayer CropScience representative or the relevant grass herbicide manufacturer for advice on application and timing of tank-mixtures.

Tank mixes with simazine, metribuzin or Eclipse should be applied post-emergence to lupins crops only, and only to lupin varieties and at lupin growth stages recommended for these products. Increased crop effects may be experienced with the tank mix. Do not apply Brodal Options in mixture with simazine or metribuzin to Myallie lupins if atrazine has been applied pre-emergence.

DO NOT apply tank-mixtures to clover.

As formulations of other manufacturers' products are beyond the control of Bayer CropScience, all mixtures should be tested prior to mixing commercial quantities.

**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 susceptible plants/crops, cropping lands or pastures.



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

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

**STORAGE AND DISPOSAL**

Keep out of reach of children. Store in the closed, original container in a dry, cool, well-ventilated area, out of direct sunlight.

Triple or preferably pressure rinse 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 bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Do not re-use empty containers for any other purpose.

**SAFETY DIRECTIONS**

Avoid contact with eyes and skin. Wash hands after use.

**FIRST AID**

If poisoning occurs, contact a doctor or Poisons Information Centre (telephone 13 11 26).

**SAFETY DATA SHEET**

Additional information is listed in the Safety Data Sheet, which can be obtained from [www.crop.bayer.com.au](http://www.crop.bayer.com.au).

**EXCLUSION OF LIABILITY**

This product must be used strictly as directed, and in accordance with all instructions appearing on the label and in other reference material. So far as it is lawfully able to do so, Bayer CropScience Pty Ltd accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.

APVMA Approval No.: 53843/0905

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FOR 24 HOUR SPECIALIST ADVICE  
IN EMERGENCY ONLY  
PHONE 1800 033 111

**GHS STATEMENT**

**Classification not required according to GHS criteria.**