READ SAFETY DIRECTIONS BEFORE OPENING OR USING

QUANTUM

Moxypyr

HERBICIDE

ACTIVE CONSTITUENTS:
33 g/L IMAZAMOX as the AMMONIUM SALT
15 g/L IMAZAPYR PRESENT as the AMMONIUM SALT

GROUP 2 HERBICIDE

For the early post-emergence control of certain annual grass and broadleaf weeds in imidazolinone-tolerant wheat, imidazolinone-tolerant barley, imidazolinone-tolerant canola, as specified in the DIRECTIONS FOR USE section of this label.

APVMA Approval No.: 96620/150115

SL Formulation Type **Soluble Liquid Concentrate**

BE PROUDLY AUSTRALIAN

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QUANTUM AGROSCIENCES

DIRECTIONS FOR USE

RESTRAINTS:

Apply ONLY to certified imidazolinone-tolerant wheat, imidazolinone-tolerant barley and imidazolinone-tolerant canola varieties with the imidazolinone-tolerance technology, excluding varieties CL STL and CL JNZ.

DO NOT apply to conventional or other herbicide tolerant canola, wheat, and barley varieties.

DO NOT apply to crops that are stressed due to conditions such as waterlogging, too little moisture, frost, disease or nutritional disorders.

DO NOT apply by aircraft.

DO NOT apply if rain is expected within 2 hours of application.

DO NOT apply more than once per season to any one crop.

DO NOT use in Imidazolinone-tolerant wheat crops in tank mix or sequentially with diuron, sulfonylureas, or sulfonamides.

SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label 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 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 unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

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 a boom sprayer unless the following requirements are met:

- Spray droplets not smaller than a MEDIUM spray droplet size category.
- Minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for boom sprayers') are observed.

Buffer zones for boom sprayers		
Application rate	**Mandatory downwind buffer zones (metres)**	
	Natural aquatic areas	**Vegetation areas**
Up to maximum label rate	50	30

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Imidazolinone-tolerant wheat DO NOT use on CL STL and CL JNZ wheat varieties. **Imidazolinone-tolerant barley**	Brome (*Bromus diandrus* and *B. rigidus*) Barley (*Hordeum vulgare*) Barley grass (*Hordeum leporinum*) Indian hedge mustard (*Sisymbrium orientale*) Muskweed (*Myagrum perfoliatum*) Oat (*Avena sativa*) Triticale (*Triticosecale* spp) Wheat (*Triticum aestivum*) -non imidazolinone-tolerant varieties Wild oat (*Avena fatua*) Wild radish (*Raphanus raphanistrum*) Wild turnip (*Brassica tournefortii*)	375 to 750mL/ha plus Hasten™[1] or Kwickin™[2] at 0.5L/100L spray volume	**NOT for use on Imidazolinone-tolerant wheat varieties CL STL and CL JNZ.** Apply to Imidazolinone-tolerant wheat crops from the 3 leaf stage to 1st node stage (Z31). Apply to Imidazolinone-tolerant barley crops from the 5 leaf stage to 1st node stage(Z31). DO NOT apply to Imidazolinone-tolerant wheat or Imidazolinone-tolerant barley after the 1st node stage (Z31). Applications should be targeted at grass weeds when the majority are in the 2-4 leaf stage and only when within the recommended crop stages. Application to multi-tillered crops may impair weed control because of poor contact and coverage of weeds. See Compatibility. Tank mixes with 750 g/L Clopyralid formulations, eg CLOPYRALID 750 SG HERBICIDE at 60 mL/ha will provide control of composite and legume weeds. Tank mixes with 570 g/L MCPA formulations, eg QA LVE MCPA 570 EC HERBICIDE at 500mL/ha will provide control of composite and brassicaceous weeds. The control of brassicaceous weeds will depend on the status of Group 2 resistance in the population. The addition of MCPA formulation will improve control and provide an additional mode of action for resistance management. If other weeds require control, apply appropriate herbicides at least two weeks before or after Quantum Moxypyr Herbicide and only when signs of regrowth or renewed vigour appear, otherwise the effects of the early treatment may affect the performance of the subsequent treatment.
	Annual ryegrass (*Lolium rigidum*) Dense flower fumitory (*Fumaria densiflora*) Marshmallow (*Malva parviflora*) Sub clover (*Trifolium subterraneum*) **Suppression only:** Bedstraw spp. (*Galium tricornutum* and *G. aparine*) Doublegee (*Emex australis*) Silver grasses (*Vulpia bromoides* and *V. myuros*)	600 to 750 mL/ha plus Hasten™[1] or Kwickin™[2] at 0.5L/100L spray volume	Weed species will either be controlled or suppressed. In both cases, surviving plants will be stunted and will be uncompetitive with the crop, and seed set will be prevented or greatly reduced. The control of annual ryegrass varies from excellent to poor depending on the status of Group 2 resistance in the population and environmental conditions. Where the population is expected to exceed 200 plants/m^2, or a high level of control is required, or the ryegrass is known to be resistant or thought to be developing resistance, an application of a suitable pre-emergent should be made prior to sowing. A follow up grass selective herbicide may also be necessary.

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Canola varieties with Imidazolinone-tolerance technology only	Indian hedge mustard (*Sisymbrium orientale*) Muskweed (*Myagrum perfoliatum*) Wild radish (*Raphanus raphanistrum*) Wild turnip (*Brassica toumefortii*)	300 to 500mL/ha plus Hasten™[1] or Kwickin™[2] at 0.5L/100L spray volume	Read Follow Crop comments and restrictions on the label prior to use. Apply to crop at the 2 to 6 leaf stage. DO NOT apply after the 6 leaf stage. Apply to actively growing weeds in the 3-leaf to 2-tiller stage and broadleaf weeds in the 2 to 6 leaf stage. Use the higher rate when weed numbers are high or towards the upper end of the recommended growth stages, or when the crop is at the 5 to 6 leaf stage to ensure better contact and coverage. If other weeds require control, apply appropriate herbicides at least two weeks after Quantum Moxypyr Herbicide and only when signs of regrowth or renewed vigour appear, or the effects of Quantum Moxypyr Herbicide may affect their performance.
	As above plus: Capeweed (*Arctotheca calendula*) Field pea (*Pisum sativum*) Narrow leaf lupin (*Lupinus angustifolius*) Sub clover (*Trifolium subterraneum*),	300 to 500 mL/ha plus Lontrel™[5] Advanced Herbicide at 75 to 150 mL/ha plus Hasten or Kwickin at 0.5L/100L spray volume	Refer to critical comments for 300 to 500 mL/ha alone. Lontrel™[5] Advanced Herbicide aids in the control of legume and composite weed species. Refer to the Lontrel™[5] Advanced Herbicide label. Use rates above 75 mL/ha when these weeds are primary weeds in the paddock and when required by their growth stage. Lontrel™[5] Advanced Herbicide above 75 mL/ha can slightly impair grass control. The addition of LontrelTM5 Advanced Herbicide does not affect the control of wild radish and wild turnip. (Refer to the Compatibility section of this label and the Lontrel™[5] Advanced Herbicide label for further details of use).
	Non-Imidazolinone-tolerant Barley (*Hordeum vulgare*) Barley grass (*Hordeum leporinum*) Great brome (*Bromus diandrus*) Indian hedge mustard (*Sisymbrium orientale*) Oats (*Avena sativa*) Rigid brome (*Bromus rigidus*) Marshmallow (*Malva parviflora*) Sub clover (*Trifolium subterraneum*) Non-Imidazolinone-tolerant wheat (*Triticum aestivum*) Wild oat (Avena fatua) Wild radish (*Raphanus raphanistrum*) Wild turnip (*Brassica toumefortii*)	600 to 750 mL/ha plus Hasten or Kwickin at 0.5L/100L spray volume	Apply to crop at the 2 to 6 leaf stage. DO NOT apply after the 6 leaf stage. Apply to actively growing grass weeds in the 3-leaf to 2-tiller stage and broadleaf weeds in the 2 to 6 leaf stage. Use the higher rate when weed numbers are high or towards the upper end of the recommended growth stages, or when the crop is at the 5 to 6 leaf stage, to ensure better contact and coverage. Weeds will either be killed in high numbers (weeds controlled) or in moderate numbers (weeds suppressed). In both cases, surviving plants will be stunted and will be uncompetitive with the crop, and seed set will be prevented or greatly reduced. If other weed species require control, apply appropriate herbicides at least two weeks after Quantum Moxypyr Herbicide and only when signs of regrowth or renewed vigour appear or the effects of Quantum Moxypyr Herbicide may affect their performance. ***Continued next page***

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Canola varieties with Imidazolinone-tolerance technology only *– continued*	**Suppression only:** Annual ryegrass[3] (*Lolium rigidum*) Bedstraw spp. (*Galium tricornutum* and *G. aparine*), Doublegee (*Emex australis*) Silver grasses (*Vulpia bromoides* and *B. myuros*)	600 to 750 mL/ha plus Hasten or Kwickin at 0.5L/100L spray volume	***Continued from previous page*** [3] The control of annual ryegrass varies from excellent to poor depending on the status of Group 2 resistance in the population and environmental conditions. Where the population is expected to exceed 200 plants per sqm, or a high level of control is required, or the ryegrass is known to be resistant or thought to be developing resistance, an application of a pre-emergent herbicide should be made prior to sowing. A tank mix with a grass selective herbicide may also be necessary.
	As above plus Capeweed (*Arctotheca calendula*) Field pea (*Pisum sativum*) Narrow leaf lupin (*Lupinus angustifolius*)	600 to 750 mL/ha plus Lontrel™5 Advanced Herbicide at 75 to 150 mL/ha plus Hasten or Kwickin at 0.5L/100L spray volume	Refer to critical comments for 600 to 750 mL/ha alone. DO NOT apply after the 6 leaf stage. Lontrel™5 Advanced Herbicide aids in the control of legume and composite weed species. Refer to the Lontrel™5 Advanced Herbicide label. Use rates above 75 mL/ha when these weeds are primary weeds in the paddock and when required by their growth stage. Lontrel™5 Advanced Herbicide above 75 mL/ha can slightly impair grass control. The addition of LontrelTM5 Advanced Herbicide does not affect the control of other weeds controlled by Quantum Moxypyr Herbicide. (Refer to the Compatibility section of this label and the Lontrel™5 Advanced Herbicide label for further details of use).

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

Withholding Periods:
GRAZING
IMIDAZOLINONE-TOLERANT WHEAT AND IMIDAZOLINONE-TOLERANT BARLEY:
DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 4 WEEKS AFTER APPLICATION.

IMIDAZOLINONE-TOLERANT CANOLA:
DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 5 WEEKS AFTER APPLICATION.

GENERAL INSTRUCTIONS

Quantum Moxypyr Herbicide is for use in Imidazolinone-tolerant wheat, Imidazolinone-tolerant barley, and Imidazolinone-tolerant canola. Varieties with Imidazolinone-tolerance technology are those that have been bred specifically to be tolerant to Quantum Moxypyr Herbicide.

Quantum Moxypyr Herbicide is absorbed through the leaves, green stems and roots of susceptible weeds and moved from the point of contact throughout the plant. Weeds will either die or will remain stunted and will not compete with the crop. Symptoms of kill may take one to two weeks to develop with death occurring up to one month from treatment. Symptoms first appear at the growth points where young foliage becomes discoloured and distorted before dying. Quantum Moxypyr Herbicide is primarily a post-emergence product. Best results will be achieved when good contact and coverage of weeds occurs and weeds are actively growing. The product must be mixed with Hasten or Kwickin as per the Directions for Use.

Quantum Moxypyr Herbicide also has some residual soil activity under good soil moisture conditions. Residual effects on weeds can be reduced when dry soil conditions follow application before the herbicide has moved to the root zone. Best results will be achieved when application is made to moist soil or if approximately 10 mm rain follows within several days of application.

Vigorous crop growth will assist in suppressing weeds not completely killed and those germinating later.

MIXING

Quantum Moxypyr Herbicide is a water-soluble liquid (SL) formulation. Pour the required amount of the product into a spray tank containing almost the total amount of water required. Mix thoroughly. If Quantum Moxypyr is added fdilulirningg, foaming may occur. If excessive foaming becomes a problem, add a silicone based antifoaming agent at the manufacturers recommended rate. DO NOT use a suction probe unless the antifoaming agent has already been added to the spray tank water. Consult your distributor for specific information on suitable antifoaming agents.

When tank mixing this product with other recommended compatible products, first add the other product(s) to the tank and mix thoroughly before adding Quantum Moxypyr.

Quantum Moxypyr may be applied in hard or soft water.

The product is corrosive to mild steel. Use ONLY stainless steel, fibreglass, plastic or plastic-lined containers for mixing, storage and application.

APPLICATION

DO NOT apply by aircraft.

Apply in minimum 70L water per hectare. When the crop is very leafy or when the total weed population exceeds 200 plants/m^2, apply in a minimum of 100L water per hectare to improve contact and coverage. Quantum Moxypyr Herbicide should be applied a minimum of two hours before rainfall or irrigation. If tank-mixed with other products, follow recommendations for the mixing partner should these extend beyond two hours.

EQUIPMENT CLEAN-UP

Thoroughly flush all spray equipment with water following the use of Quantum Moxypyr Herbicide and before use with other products. If tank-mixed with other products, also follow clean-up procedures recommended for the mixing partner.

COMPATIBILITY

DO NOT tank mix with foliar fertilisers.

BEST MANAGEMENT PRACTICE (BMP) PROGRAM

A detailed program has been developed that outlines sound agronomic and integrated weed management practices, designed to optimise the performance of Imidazolinone-tolerance systems and minimise the potential for the development of herbicide resistance in weed populations. Consultation on BMP should be undertaken with an Imidazolinone-tolerant accredited agronomist prior to use of Quantum Moxypyr Herbicide in the Imidazolinonetolerance systems for wheat, barley and canola. Implementation of the BMP is an essential part of herbicide resistance management.

CROP SAFETY

This product may, in some circumstances, lead to transient crop yellowing and temporary slowing of growth of Imidazolinone-tolerant wheat, Imidazolinone-tolerant barley and Imidazolinone-tolerant canola but plants soon recover and yield is unaffected. This effect may be more pronounced when the product is used under poor growth conditions. The Imidazolinone-tolerant wheat varieties CL STL and CL JNZ have limited tolerance to Quantum Moxypyr Herbicide. Application of Quantum Moxypyr Herbicide to these wheat varieties can cause unacceptable injury especially under cold, wet conditions. Quantum Moxypyr Herbicide should not be used on these varieties.

DO NOT use this product on any canola variety other than certified varieties with Imidazolinone-tolerance technology. Extreme crop damage and/or death will result to conventional and other herbicide tolerant wheat and canola varieties.

FOLLOWING CROPS

This product is broken down in the soil by microbes in wet, aerobic conditions. Under conditions that do not favour breakdown, carry-over soil residues can affect susceptible follow crops. Normally safe residue levels may still affect follow crops when soil nutrition is low or marginal, when cold and very wet soil conditions prevail, or when soil pathogens or nematodes are present. As environmental and agronomic factors make it impossible to eliminate all risks associated with this product, rotational crop injury is always possible.

Note: when the intention is to grow cereals on imidazolinone-tolerant canola stubble (treated with Quantum Moxypyr Herbicide) self-sown canola volunteers must be removed before they mature beyond 2-leaf, all macro and micro-nutrients must be maintained at levels necessary to grow the planned crops, and sulfonylureas must not be used.

The following minimum re-cropping intervals (months after application) should be observed.

Months after Application	Follow Crops
0	Imidazolinone-tolerant wheat, Imidazolinone-tolerant barley, Imidazolinonetolerant canola
10	Chickpeas, Faba beans, Field peas, Lucerne, Lupins, Pasture legumes, vetch, Oats*, Triticale*, Non-Imidazolinone-tolerant Barley, Non-Imidazolinone tolerant Wheat
34	Conventional and other herbicide tolerant canola, All other crops

* Non-Imidazolinone-tolerant Barley, Oats, Triticale, Non-Imidazolinone-tolerant Wheat:

The following additional requirements apply if it is intended to sow these cereals during the next winter season:

- DO NOT apply Quantum Moxypyr later than the end of August (no later than the end of July in WA).
- DO NOT use Quantum Moxypyr in areas where rainfall from spraying to sowing of cereals is expected to be below 150 mm (for 300 - 375 mL/ha use), 200 mm (for up to 500 mL/ha use) and 250 mm (for 600 - 750 mL/ha use).
- DO NOT use above 375 mL/ha in the Lower Great Southern region of Western Australia.

For all situations, if expected rainfall is not received following use of Quantum Moxypyr, consult your local Quantum Agrosciences Holdings before planting non-imidazolinone-tolerant cereals. In calculating rainfall actually received, place greater emphasis on rain received from application up to the end of spring and lesser emphasis on break rains. If single isolated heavy summer and autumn falls and break rains are required to achieve rainfall targets, it may not be safe to sow non-imidazolinone-tolerant cereals within 10 months of application. Consult your local Quantum Agrosciences Holdings representative for advice.

RESISTANT WEEDS WARNING

GROUP **2** HERBICIDE

Quantum Moxypyr Herbicide is a member of the imidazolinone group of herbicides. The product has the inhibitors of acetolactate- synthase (ALS) mode of action. For weed resistance management, the product is a Group 2 herbicide. Some naturally-occurring weed biotypes resistant to the product and other Group 2 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 2 herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Quantum Agrosciences Holdings Pty Ltd accepts no liability for any losses that may result from failure of this product to control resistant weeds.

PRECAUTIONS

Re-Entry Period: DO NOT re-enter treated areas until spray has dried. If re-entry is necessary wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves.

PROTECTION TO LIVESTOCK

Quantum Moxypyr Herbicide is of low hazard to bees.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.

STORAGE AND DISPOSAL

1L-100L: KEEP OUT OF REACH OF CHILDREN. Store in the closed, original container in a dry, cool well- ventilated area. DO NOT store for prolonged periods in direct sunlight. Triple 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 deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the containers below 500mm 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.

110L & 1000L: KEEP OUT OF REACH OF CHILDREN. Store in the closed, original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the containers and preparing product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat and elbow-length chemical resistant gloves. Wash hands after use. After each day's use, wash gloves and contaminated clothing.

When tank mixing with other products consult also the safety directions for those products.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre, Phone Australia 131 126; New Zealand 0800 764 766.

SAFETY DATA SHEET

For further information refer to Safety Data Sheet (SDS) which can be obtained from the supplier.

C**ONDITIONS OF SALE:** Quantum Agrosciences Holdings Pty Ltd shall not be liable for any loss injury damage or death whether consequential or otherwise whatsoever or howsoever arising whether through negligence or otherwise in connection with the sale supply use or application of this product. The supply of this product is on the express condition that the purchaser does not rely on Quantum Agrosciences Holdings Pty Ltd's skill or judgement in purchasing or using the same and every person dealing with this product does so at his own risk absolutely. No representative of Quantum Agrosciences Holdings Pty Ltd has any authority to add to or alter these conditions.

Additional information required under the Globally Harmonised System (GHS) classification of the substance/mixture: **Causes skin irritation. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.** Avoid release to the environment. Wear protective gloves, protective clothing, eye protection and face protection. Wash all exposed external body areas thoroughly after handling.

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