CAUTION

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

Nufarm CRUCIAL®

ACTIVE CONSTITUENT: 600 g/L GLYPHOSATE
present as the potassium, monomethylamine and mono-ammonium salts
ALSO CONTAINS: 0.77 g/L POLYETHANOXY (15) TALLOW AMINE

HERBICIDE

GROUP 9 HERBICIDE

Water soluble herbicide for non-selective control of many annual and perennial weeds in conservation tillage and other situations.

SL SOLUBLE CONCENTRATE

Nufarm

AUSTRALIAN THROUGH & THROUGH

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DIRECTIONS FOR USE

RESTRAINTS

General Restraints

DO NOT use Nufarm CRUCIAL® Herbicide ("CRUCIAL"), or any other product containing glyphosate, as the only method of weed control if glyphosate resistant weeds are suspected or present.

To ensure herbicide absorption, **DO NOT** disturb weeds by cultivation, sowing or grazing for 1 day after treatment of annual weeds and 7 days for perennial weeds, except where noted.

DO NOT treat weeds under poor growing conditions due to moisture stress, waterlogging, severe frosting, insect damage etc. Apply treatments to actively growing weeds which have at least one true leaf (broadleaf weeds) or two leaves (grasses) to provide an adequate surface area for herbicide uptake. Reduced performance may also occur where weeds are covered with dust or silt. If heavy grazing has occurred, allow regrowth to 6-8 cm before spraying and use the higher rates recommended (where higher rates are listed for the relevant crop/situation).

CAUTION Certain plants may be naturally toxic to stock. Where known toxic plants are present **DO NOT** allow stock to graze until complete browning of treated plants has occurred.

DO NOT apply by aircraft when mixed with Terrad'or Herbicide.

DO NOT apply by aircraft when temperature is above 30°C.

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 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.

When applying in a tank mix with Terrad'or, **DO NOT** apply by a boom sprayer unless the following requirements are met:

- Spray droplets are not smaller than a **COARSE** spray droplet size category
- Minimum distances between the application site and downwind sensitive areas are observed (see mandatory downwind buffer zones in the table titled 'Buffer zones for boom sprayers' below).

Buffer zones for boom sprayers

Application Rate	Boom height above the target canopy	Mandatory downwind buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Tank mix with Terrad'or	0.5 m or lower	0 metres	0 metres	0 metres	5 metres	0 metres
	1.0 m or lower	0 metres	20 metres	0 metres	30 metres	0 metres

Section 1. FALLOW AND PRE-SOWING – ALL CROPS

SITUATION	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Prior to sowing any crop or pasture or for a fallow (refer to partner product labels for planting intervals)	Annual and perennial weeds including those listed in **Section 2 weed table** where minimum application rates are listed.	0.6-5.5 L/ha OR 0.6-1.8 L/ha + 0.28-1.2 L/ha Amicide® Advance 700 OR 0.6-1.8 L/ha + other tank mix partner products listed in Section 2 weed table (including Terrad'or® 700WG Herbicide)	CRUCIAL may be used for control of annual and perennial weeds as directed, in agricultural land prior to sowing of any edible or non-edible crop (unless otherwise indicated on a tank mix partner label), except transplanted tomato seedlings. **DO NOT** apply prior to transplanting tomato seedlings. Sowing, cultivation or planting may proceed from 1 hour of daylight after application to seedling annual weeds (except when used in a tank mix, refer to tank mix partner label for planting interval information). CRUCIAL contains a built-in surfactant system so unless specifically required for certain weeds, situations or by tank-mix partner labels, CRUCIAL does not require the addition of a tank mix adjuvant or surfactant. Rainfast after 1 hour of daylight after application to seedling annual weeds (except when used in a tank mix, refer to tank mix partner label for rainfastness information). Minimum application rates for each weed are listed in the table in Section 2 (in mL/ha); recommended use rates (except where a tank mixture is used where the maximum rate is 1.8 L/ha, or when applying by aircraft when the maximum rate is 2.4 L/ha) are: - 0.6-1.8 L/ha for annual weed species - 1.8-3.6 L/ha for perennial species - 5.5 L/ha for hard to control perennial species NOTE: The maximum approved rate for any weed is 5.5 L/ha and this should never be exceeded. For further information on application rate selection, please refer to General Comments following the weed table in Section 2 below.

Section 2. WEED TABLE FOR SECTION 1, SECTION 10 AND SECTION 13

Refer to the General Comments following this table prior to use.

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
African lovegrass (*Eragrostis curvula*) #	1800	
African turnip weed (*Sisymbrium thellungii*)	600	
Ageratum (*Ageratum* species)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Amaranth (*Amaranthus viridis*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Amaranth, dwarf (Amaranthus macrocarpus)	600	Always add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo® Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Amaranth, native (*Amaranthus interruptus*)	600	Kamba® 750 at 105-160 mL/ha must always be added.
Amaranth, redroot (*Amaranthus retroflexus*)	1800	Alternatively to CRUCIAL alone add either: - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo® Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Annual ground cherry (*Physalis angulate*)	1200	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Annual ryegrass (*Lolium rigidum*) #	900	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL for higher levels of final control of annual ryegrass including populations with weak levels of glyphosate resistance.
Apple of Peru (*Nicandra physalodes*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Kamba 750 at 105-160 mL/ha for improved control.
Artichoke thistle (*Cynara cardunculus*)	1800	
Australian bindweed (*Convolvulus angustissimus)* *	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Australian bluebell (*Wahlenbergia stricta*)	600	
Australian crassula/stonecrop (*Crassula spp.*)	1800	Nail® 600EC Herbicide must always be added at 10-30 mL/ha.
Awnless Barnyard grass (*Echinochloa colona*)	600	Under Summer (hot) conditions, dense infestations may require follow-up treatment for complete control.
Ball mustard (*Neslia paniculata*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Barbed wire grass (*Cymbopogon refractus*)	1800	
Barley grasses (*Hordeum* species)	600	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo® Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Barnyard grass (*Echinochloa crus-galli*) #	1200	Under Summer (hot) conditions, dense infestations may require follow-up treatment for complete control. **DO NOT** tank mix with atrazine when spraying. Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control.
Bathurst burr (*Xanthium spinosum*)	900	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Bellvine (*Ipomea plebeian*) *	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100Lto increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Comet® 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds pre-flowering.
Bent grasses (*Agrostis* species)	1800	TIMING Apply to actively growing plants in late Spring when they have some seed-head development, but before Summer moisture stress. Remove stock to ensure there is full leaf growth. FOLLOW-UP MANAGEMENT Full disturbance with a tyned implement should follow 10-21 days after spraying. Then follow with a Summer crop, and/or re-seeded pasture or crop the following Autumn.
Bifora (*Bifora testiculata*)	1800	Nail 600EC Herbicide must always be added at 10-30 mL/ha.
Billygoat weed (*Ageratum* species)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Black bindweed (*Fallopia convolvulus*)	1000	Alternatively to CRUCIAL alone add either: - Kamba 750 at 105-160 mL/ha to improve control - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of 2 to 10 leaf weeds (up to 20 cm diameter) OR 375 mL/ha plus 900 mL/ha CRUCIAL for control of 10 to 12 leaf weeds (up to 30 cm diameter).
Black spear grass (*Heteropogon contortus*)	1800	
Blackberry nightshade (*Solanum nigrum*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Bladder ketmia (*Hibiscus trionum*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of 4 to 8 leaf weeds (up to 10 cm diameter).
Blady grass (*Imperata cylindrica*)	5500	
Blue top (*Ageratum* species)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Boggabri weed (*Amaranthus mitchellii*)	600	
Bracken (*Pteridium esculentum*)	5500	For Bracken add Pulse® at 200-500 mL/100L spray mix.
Brome grasses (*Bromus* species)	750	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control.
Burr medic (*Medicargo polymorpha*)	750	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Button grass (*Dactyloctenium radulans*)	600	
Californian burr (*Xanthium orientale*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Calomba daisy (*Oncosiphon suffruticosum*)	600	
Caltrop (*Tribulus terrestris*) *	600	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds up to 15 cm diameter.

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Camel/Afghan melon (*Citrullus lanatus*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Terrad'or® 700WG Herbicide at 40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Canary grass (Annual Phalaris) (*Phalaris canariensis*)	750	
Capeweed (*Arctotheca calendula*)	750	Alternatively to CRUCIAL alone add either: - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha for improved control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 10-30 mL/ha to increase the speed of brownout and may also improve final control.
Carpet grasses (*Axonopus* species)	1800	
Charlock (*Sinapsis arvensis*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Chickweed (*Stellaria media*)	1200	Alternatively to CRUCIAL alone add Nail 600EC Herbicide at 10-30 mL/ha for improved control.
Clammy Goosefoot (*Chenopodium pumilio*)	600	Always add Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L.
Climbing buckwheat (*Fallopia convolvulus*)	1000	Alternatively to CRUCIAL alone improved control occurs by adding either: - Kamba 750 at 105-160 mL/ha - Bromicide® 200 at 1.5 L/ha .
Clover species (*Trifolium* species)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Kamba 750 at 270 mL/ha - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha.
Cobblers peg (*Bidens pilosa*)	1200	
Cocksfoot (*Dactylis glomerata*)	1800	
Columbus grass (*Sorghum almum*) *, #	600	
Common ice plant (*Mesembryanthemum crystallinum*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Common sowthistle (*Sonchus oleraceus*)	600	Previously grazed plants may be difficult to control without allowing full recovery. Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds at 2 to 5 leaf (up to 10 cm diameter).
Couch (*Cynodon dactylon*) #	1800	Best control of couch in WA and SA is obtained with Spring treatment. Most effective control of couch in eastern states is obtained with Summer and Autumn treatments. In cultivated situations use sequential treatments of 1.8-3.8 L/ha for control, otherwise use the maximum rate of 5.5 L/ha.
Cowvine (*Ipomoea lonchophylla*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of 2 to 10 leaf weeds (up to 10 cm diameter).
Crabgrass (*Digitaria ciliaris*)	600	
Cudweeds (*Gnaphalium* species)	600	
Dead nettle (*Lamium amplexicaule*)	600	In Winter (cold) conditions, symptoms may be slow to develop.
Docks (*Rumex* species) *	600	Established plants require minimum rate of CRUCIAL of 1.5 L/ha. Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Kamba 750 at 270 mL/ha.

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Doublegee (*Emex australis*)	600	Alternatively to CRUCIAL alone add either: - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha for improved control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 10-30 mL/ha to increase the speed of brownout and may also improve final control.
English couch (*Elytrigia repens*)	3600	
Erodium (*Erodium* species) *	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
False castor oil plant (*Datura stramonium*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Fat hen (*Chenopodium album*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control.
Fescues (*Vulpia* species) #	900	When treating dense infestations, nozzles designed to give MEDIUM to COARSE spray quality and a spray volume of 70 L/ha or more are recommended to improve spray coverage. Good coverage critical for control.
Flatweed (*Hypochaeris radiata*)	1500	
Forage rape *(Brassica campestris spp*)	600	Always add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L (or other registered high quality methylated seed oil adjuvant).
Fumitories (*Fumaria* species)	750	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Green Amaranth (*Amaranthus viridis*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Ground cherry (*Physalis angulata*)	1200	
Guinea grass (*Megathyrsus maximus*)	5500	
Hedge mustard (*Sisymbrium officinale*)	600	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Heliotrope (*Heliotropium europaeum*)	600	Always add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L.
Hexham scent (*Melilotus indica*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Hoary cress (*Lepidium draba*)	900	Treat from late rosette to early flowering.
Horehound (*Marrubium vulgare*) *	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Indian hedge mustard (*Sisymbrium orientale*)	600	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Ivyleaf speedwell (*Veronica hederifolia*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Johnson grass (*Sorghum halepense*) #	3600	Apply to plants with a minimum of 30 cm new growth. Sequential treatments will be required for long term control.
Kangaroo grass (*Themeda triandra*)	3600	
Kikuyu (*Pennisetum clandestinum*)	3600	
Lesser canary grass (*Phalaris minor*)	750	
Lesser swinecress (*Lepidium didymum*)	1800	
Lincoln weed (***Diplotaxis*** *tenuifolia*)	**1100**	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Liverseed grass (*Urochloa panicoides*) #	600	Under Summer (hot) conditions, dense infestations may require follow-up treatment for complete control. **DO NOT** tank mix with atrazine when spraying. Alternatively to CRUCIAL alone add Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Lovegrasses (*Eragrostis* species) #	1800	

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Marshmallow (*Malva parviflora*) *	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 10-30 mL/ha to increase the speed of brownout and may also improve final control.
Medics (*Medicargo* species)	750	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Melilotus (*Melilotus indica*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Melons (Various genera)	900	See also, Prickly paddy melon. Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Mexican poppy (*Argemone ochroleuca*)	600	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Mintweed (*Salvia reflexa*)	600	Alternatively to CRUCIAL alone add Kamba 750 at 105-160 mL/ha for improved control.
Native millet (*Panicum decompositum*) #	600	
Native rosella (*Hibiscus heterophyllus*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Native vigna *(Vigna lanceolata)*	600	Always add Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Navua sedge (*Cyperus aromaticus*)	1800	
New Zealand spinach (*Tetragonia tetragonoides*) *	600	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Noogoora burr (*Xanthium strumarium*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Kamba 750 at 105-160 mL/ha - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Nutgrass (*Cyperus rotundus*)	1800 followed by a second application of 1800	Apply two treatments of CRUCIAL. Make first application to actively growing plants when at least 20% have reached the head stage (normally about Feb). After allowing maximum re-emergence to occur (normally in 6-8 weeks), it is essential to make a second application. NOTE Follow up treatments should be made as part of a Nutgrass control program.
Paragrass (*Urochloa mutica*)	5500	Use on Dry Drains and Channels ONLY. **DO NOT** use in aquatic situations.
Paradoxa grass (*Phalaris paradoxa*)	750	
Paspalum (*Paspalum dilatatum*)	3600	
Paterson's curse (*Echium plantagineum*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Kamba 750 at 105-160 mL/ha for improved control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 10-30 mL/ha to increase the speed of brownout and may also improve final control.
Phalaris (*Phalaris* species) #	900	CRUCIAL will provide knockdown, seasonal suppression and reduction in treated plant numbers. Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control.
Pigweed, black/giant (*Trianthema portulacastrum*)	600	

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Pigweed, red (*Portulaca oleracea*)	600	Plants up to 20 cm diameter will be controlled with an increased rate of at least 1200 mL/ha. Alternatively to CRUCIAL alone add either: - Associate® at 7 g/ha for control over dense weed populations up to 6-leaf - Comet 400 Herbicide at 185 mL/ha plus 900 mL/ha CRUCIAL for control of weeds up to 10 cm diameter OR 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds up to 60 cm diameter.
Plantains (*Plantago* species)	900	
Poa tussock (*Poa labiillardierei*) (suppression)	1800	For reduction of ground cover allowing pasture renovation TIMING: Graze heavily, then remove at least 14 days before spraying to allow fresh regrowth. Apply to actively growing plants after the Autumn break but before heavy frosts (March – May). APPLICATION: Increasing to the higher rate may give more effective reductions. FOLLOW UP MANAGEMENT: Sowing may start from 14 days after spraying. It is essential that correct follow-up crop/pasture establishment and management occurs after each treatment. Spot treatment will limit re-infestation.
Polymeria, annual (*Polymeria pusilla*)	900	Alternatively to CRUCIAL alone add Comet 400 Herbicide at 250 mL/ha for control of weeds 2 to 10 leaf (up to 20 cm diameter).
Potato weed (*Galinsoga parviflora*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Prairie grass (*Bromus catharticus*)	3600	
Prickly lettuce (*Lactuca serriola*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of 2 to 5 leaf weeds (up to 10 cm diameter).
Prickly paddy melon (*Cucumis myriocarpus*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - a 600 g/L triclopyr product at 80 mL/ha plus CRUCIAL at 600 mL/ha. **DO NOT** add crop oil.
Quack grass (*Elytrigia repens*)	3600	
Queensland Bluegrass (*Dichanthium sericeum*)	3600	
Raspweed (*Haloragis aspera*) *	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 280 mL/ha [B]
Red-leg grass (*Bothriochloa macra*)	3600	
Redshank (*Persicaria maculosa*)	600	Kamba 750 must always be added at 105-160 mL/ha.
Red Natal grass (*Melinis repens*)	1800	
Rhodes grass (*Chloris gayana*)	3600	
Rhynchosia (*Rhynchosia minima*)	900	Comet 400 Herbicide must always be added at 250 mL/ha for control of weeds at seedling to early flowering.
Rope twitch (*Elytrigia repens*)	3600	
Ryegrasses (*Lolium* species)	900	
Saffron thistle (*Carthamus lanatus*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Scotch thistle (*Onopordum acanthium*)	900	
Serrated Tussock (*Nassella trichotoma*)	2400	Apply to actively growing and stress-free plants. Best results May to October. **Application**: Boom spray volume of 70 L/ha or more is recommended to improve plant coverage. Also see Aerial Equipment. **Surfactants**: Addition of 200 mL of Wetter TX™ to 100 L of spraying solution may improve control of Serrated Tussock. **Site Preparation**: ***Burning*** of Serrated Tussock 10-12 months before spraying or ***slashing/heavy grazing*** (cell grazing) 2 weeks before spraying is essential for good results (**Note**: Serrated Tussock is almost indigestible and prolonged exposure can lead to starvation and death of stock). **Rates**: Use the 2.4 L/ha rate on Serrated Tussock regrowth after burning (no residual dead foliage). Use the 5.5 L/ha rate on Serrated Tussock that has been slashed or grazed (may contain some residual dead foliage).
Sesbania pea (*Sesbania cannabina*)	900	Comet 400 Herbicide must always be added at 250 mL/ha for control of weeds at 2 to 6 leaf (up to 10 cm tall).

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Shepherd's purse (*Capsella bursa-pastoris*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Silver grasses (*Vulpia* species) #	900	When treating dense infestations, nozzles designed to give MEDIUM to COARSE spray quality and a spray volume of 70 L/ha or more are recommended to improve spray coverage. Good coverage critical for control. Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 30-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Silver-leaf nightshade (*Solanum elaeagnifolium*)	5500	
Skeleton weed (*Chondrilla juncea*) *	900	CRUCIAL will provide knockdown, seasonal **suppression** and reduction in treated plant numbers only. Plants need to be fully emerged rosettes (NSW only). Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Soldier thistle (*Picnomon acarna*)	1100	Archer 750 Dual Salt Liquid Herbicide must always be added at 120 mL/ha for control of weeds up to 10cm diameter at the 4 to 8 leaf stage.
Sorrel (*Rumex acetosella*) *	900	CRUCIAL will provide knockdown, seasonal suppression and reduction in treated plant numbers. Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Kamba 750 at 270 mL/ha.
Soursob (*Oxalis pes-caprae*)	900	CRUCIAL will provide knockdown, seasonal suppression and reduction in treated plant numbers. Treat repeatedly until tuber exhaustion.
Sow thistle (*Sonchus oleraceus*)	600	Previously grazed plants may be difficult to control without allowing full recovery. Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Kamba 750 at 105-160 mL/ha - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Spear thistle (*Cirsium vulgare*)	900	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 390 mL/ha [B]
Spineless caltrop (*Tribulus micrococcus*)	900	Comet 400 Herbicide must always be added at 250 mL/ha for control of weeds up to 15 cm diameter.
Spiny burrgrass (*Cenchrus longispinus*)	1200	
Spurges (*Eupatorium* species)	600	
Stinkgrass (*Eragrostis cilianensis*) #	600	
Stinking goosefoot (*Chenopodium vulvaria*)	600	
Storksbills (*Erodium* spp) *	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Nail® 600EC Herbicide at 10-30 mL/ha for improved control of weeds with a maximum of 4 leaves.
Subterranean clover (*Trifolium subterraneum*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Kamba 750 at 270 mL/ha - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha - Nail 600EC Herbicide at 10-30 mL/ha for improved control.
Summer grass (*Digitaria ciliaris*)	600	
Sweet summer grass (*Brachiaria eruciformis*)	600	
Thornapples (*Datura* species)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Kamba 750 at 105-160 mL/ha - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of 2 to 8 leaf weeds (up to 15 cm diameter).

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Tree hogweed (*Polygonum patulum*)	600	Kamba 750 must always be added at 105-160 mL/ha.
Turnip weed (*Rapistrum rugosum*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Kamba 750 at 105-160 mL/ha.
Tussock grass (*Poa labiillardierei*)	1800	See Poa tussock.
Variegated thistle (*Silybum marianum*)	750	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Kamba 750 at 105-160 mL/ha.
Volunteer beans (Various species)	1800	Always add either: - Terrad'or® 700WG Herbicide at 15-40 g/ha (refer to Terrad'or® label for rates on each volunteer bean) with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha.
Volunteer canola (*Brassica napus*) including conventional, Roundup Ready® varieties and canola hybrids with the Optimum GLY® herbicide tolerance trait (herbicide tolerant varieties only when tank mixed with Amicide Advance 700 or Terrad'or® 700WG Herbicide)	1100	Always use 900 mL/ha of Amicide Advance 700 up to the 4 leaf weed stage. Use 1500 mL/ha of Amicide Advance 700 up to the 6 leaf weed stage [B]. For adequate coverage use a minimum application water volume of 70 L/ha. It is essential to manage volunteer herbicide tolerant canola varieties in both crop and non-crop situations. These plants are best managed using an integrated weed management program that may include the use of alternative mode of action herbicides registered for use in the crop and/or cultivation. Alternatively to Amicide Advance 700 add Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control
Volunteer cereals (Various species)	600	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 15-40 g/ha (refer to Terrad'or® label for rates on each volunteer cereal) with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Volunteer cotton (*Gossypium spp.*), seedings, including Roundup Ready* varieties	1800	Always add either: - Terrad'or® 700WG Herbicide at 40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 30-40 mL/ha (for Roundup Ready* varieties) or 20-30 mL/ha (for conventional varieties) and apply with Supercharge® Elite or Banjo® at 0.5 L/100L - Bromicide 200 Herbicide at 1.5 L/ha.
Volunteer lentils (*Lens culinaris*)	1100	Alternatively to CRUCIAL alone add either: - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha - Kamba 750 at 105-160 mL/ha.
Volunteer lupins (*Lupinus* species)	750	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha - Kamba 750 at 105-160 mL/ha.
Volunteer peas (Various species)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha - Kamba 750 at 105-160 mL/ha.
Volunteer safflower (*Carthamus tinctorius*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Archer 750 Dual Salt Liquid Herbicide at 120 mL/ha for control of weeds up to 6 leaf.
Volunteer sorghum (*Sorghum bicolor*)	600	

WEEDS	MINIMUM RATE (mL/ha) [A]	CRITICAL COMMENTS
Volunteer sunflower (*Helianthus annuus*)	600	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100L to increase the speed of brownout and may also improve final control.
Volunteer vetch (*Vicia sativa*)	1100	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control - Archer 750 Dual Salt Liquid Herbicide at 60-120 mL/ha.
Ward's weed (*Carrichtera annua*)	1100	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 515 mL/ha [B]
Water couch (*Paspalum distichum*)	5500	Use on Dry Drains and Channels ONLY. **DO NOT** use in aquatic situations.
Wild gooseberry (*Physalis angulata*)	900	Alternatively to CRUCIAL alone add Amicide Advance 700 at a minimum of 745 mL/ha [B]
Wild lettuce (*Lactuca saligna*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 390 mL/ha [B] - Kamba 750 at 105-160 mL/ha.
Wild mustard (*Sisymbrium officinale*)	900	Alternatively to CRUCIAL alone add Kamba 750 at 105-160 mL/ha.
Wild oats (*Avena* species)	600	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control.
Wild radish (*Raphanus raphanistrum*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100 L to increase the speed of brownout and may also improve final control - Nail 600EC Herbicide at 10-30 mL/ha to increase the speed of brownout and may also improve final control.
Wild turnip (*Brassica tournefortii*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 280 mL/ha [B] - Terrad'or® 700WG Herbicide at 15-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L and 0.6-1.8 L/ha of CRUCIAL to increase the speed of brownout and may also improve final control
Winter grass (*Poa annua*)	750	Alternatively to CRUCIAL alone add Terrad'or® 700WG Herbicide at 20-40 g/ha with Banjo Spray Adjuvant^ at 1 L/100L to increase the speed of brownout and may also improve final control
Wireweed (*Polygonum aviculare*)	900	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 515 mL/ha [B] - Kamba 750 at 105-160 mL/ha - Terrain 500 WG Herbicide at 30 g/ha with Banjo Spray Adjuvant at 0.5-1 L/100 L to increase the speed of brownout and may also improve final control - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds at 2 to 3 leaf (up to 10 cm tall).
Wire grasses (*Aristida* species)	1800	
Yellow burr weed (*Amsinckia calycina*)	750	
Yellow vine (*Tribulus micrococcus*) *	600	Alternatively to CRUCIAL alone add either: - Amicide Advance 700 at a minimum of 745 mL/ha [B] - Kamba 750 at 105-160 mL/ha. - Comet 400 Herbicide at 250 mL/ha plus 900 mL/ha CRUCIAL for control of weeds up to 15 cm diameter.
Yorkshire fog (*Holcus lanatus*) #	900	

Addition of Wetter TX 200 mL/100L spray solution may improve control * Plants of this species are best controlled as seedlings ^ Or other registered high quality methylated seed oil adjuvant

GENERAL COMMENTS FOR SECTION 2

[A] Application rate selection:

Use CRUCIAL at 0.6-5.5 L/ha as directed. Minimum application rates for each weed are listed in the table above (in mL/ha); recommended use rates (except where a tank mixture is used where the maximum rate is 1.8 L/ha, or when applying by aircraft when the maximum rate is 2.4 L/ha) are:

- 0.6-1.8 L/ha for annual weed species

- 1.8-3.6 L/ha for perennial species
- 5.5 L/ha for hard to control perennial species

NOTE: The maximum approved rate for any weed is 5.5 L/ha and this should never be exceeded.
Use lower rates on young weeds and where cultivation is to follow within 21 days. Increase to higher rates when treating under cold/overcast conditions, or when treating late in the season, or where grasses reach full tillering, or where broadleaf weeds reach stem elongation/budding, or when commencing a fallow. Addition of Liase at 2 L/100 L, may improve control when treating under adverse environmental conditions.

Perennial weeds:
Control of established perennials is best obtained when plants are at the seedhead stage. In general, best control of Winter growing perennials is obtained with application during Winter-Spring. Best control of Summer growing perennials is obtained with application late Summer and Autumn.

Tank mixtures:
See **TANK MIXTURES** for directions. Read and follow all label directions, restraints, plant-back periods, withholding periods, regional use restrictions and safety directions for the tank mix products. Where required on a tank-mix partner label add either a non-ionic surfactant (eg. Activator®) or Collide 700® in accordance with label directions on the mixture product. Use Collide 700 with the mixture product if insecticides will be included in the tank mixture or if faster brown out of weeds is required. Additional surfactant requirements are listed for specific tank-mix partners in the table above. For residual control of annual weeds CRUCIAL may be tank-mixed with certain residual herbicides listed in TANK MIXTURES.
DO NOT use CRUCIAL at rates higher than 1.8 L/ha in a tank mix for uses in Section 1 unless otherwise stated in the Section 2 weed table above.

Aerial application:
Use CRUCIAL up to a maximum of 2.4 L/ha. For further instructions on aerial application, and application under hot conditions, see **AERIAL EQUIPMENT**.

[B] **Amicide Advance 700 rate selection:**
Use Amicide Advance 700 at 0.28-1.2 L/ha as directed in a tank mixture with CRUCIAL. Minimum application rates for each weed are listed above, however all weeds listed can be treated up to the maximum application rate of 1.8 L/ha of CRUCIAL and 1.2 L/ha of Amicide Advance 700. Use lower rates for seedling broadleaf weeds and increase to higher rates for broadleaf weeds more than 10 cm diameter/high. For rate ranges specific to individual species, see the table above. At the time of application, all weeds must be actively growing and not under stress from low moisture, frost, cold, disease or water-logging. If grazing has occurred allow regrowth to 6-8 cm before spraying and use higher rate. For adequate coverage use a minimum application water volume of 70 L/ha.

Section 3. FLEABANE & SOWTHISTLE CONTROL FOR FALLOW AND PRE-SOWING – SEQUENTIAL APPLICATION

SITUATION & CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Prior to sowing any crop or pasture or for a fallow (refer to partner product labels for planting intervals)	Flaxleaf fleabane (*Conyza bonariensis*) Sowthistle (Sonchus oleraceus)	First spray application: 1.1-1.8 L/ha + 0.65-1.1 L/ha Amicide Advance 700	Apply to cotyledon to 12 leaf rosette prior to stem elongation. For Amicide Advance 700 use the low rate in Autumn/Winter and use the highest rate for Spring/Summer applications. For adequate coverage use a minimum application water volume of 70 L/ha. A sequential application of Shirquat or Terrad'or® 700WG Herbicide (refer below) is also recommended for situations where incomplete control is achieved with the first application, or where there are spray misses/shadowing, failures due to resistance, or under periods of temperature and/or moisture stress. In these situations, the sequential application is to be applied 7-14 days after the first application. **DO NOT** apply prior to transplanting tomato seedlings. Refer to Amicide Advance 700 label for planting intervals.
		Sequential spray application: 1.6-2.0 L/ha Shirquat* OR 40 g/ha Terrad'or® 700WG Herbicide + 1% v/v Banjo Spray Adjuvant*	<u>Second application with Shirquat:</u> Apply at stem elongation to flowering plants. Apply the sequential application 7-14 days after the first application. For Shirquat use the low rate in Autumn/Winter and use the highest rate for Spring/Summer applications. For adequate coverage use a minimum application water volume of 70 L/ha. The sequential application of Shirquat is recommended for situations where incomplete control is achieved with the first application, or where there are spray misses/shadowing, failures due to resistance or under periods of temperature and/or moisture stress. In these situations, the sequential application is to be applied 7-14 days after the first application. <u>Second application with Terrad'or® 700WG Herbicide:</u> Apply the sequential application (follow up spray) 7-14 days after the first application. For adequate coverage use a minimum application water volume of 80 L/ha. Observe the plant-back periods listed in the GENERAL INSTRUCTIONS. Sow following crops with a seeder that will move treated soil away from crop row (e.g. knife point with press wheels). Use of seeding machinery, or planting under conditions where product or treated soil remains or moves back into the crop row may result in crop damage. This may be caused by factors such as inappropriate seeding machinery, narrow row spacings, fast travel speeds, soil type, wind, heavy rainfall or irrigation after planting, etc. This is particularly important for susceptible crops such as canola. **DO NOT** apply post-sowing pre-emergent. Addition of Banjo spray adjuvant* at 1.0 % v/v must always be used with Terrad'or® 700 WG. Rainfast after 1 hour of daylight after application to seedling annual weeds when used with Banjo (for other mixtures, refer to tank mix partner label for rainfastness information). To broaden the weed spectrum Terrad'or® 700WG Herbicide may be tank mixed with the recommended rate of another knockdown herbicide (Shirquat®, Revolver®, Biffo®, Amitrole T). * or other registered high quality methylated seed oil adjuvant

Section 4. CANOLA - HYBRIDS WITH THE OPTIMUM GLY® HERBICIDE TOLERANCE TRAIT

CROP SAFETY

Over-the-top (OTT) applications may be made in canola hybrids with the Optimum GLY® Herbicide Tolerance Trait from cotyledon (BBCH 10) to the early bloom (BBCH 61) stage. Sequential applications must be at least 14 days apart. The canola crop must not have advanced beyond the latest recommended growth stage (i.e. 10% of flowers on main raceme open, main raceme elongating).

No additional surfactant is required for use in canola hybrids with the Optimum GLY® Herbicide Tolerance Trait.

NOTE: The total glyphosate active constituent applied as OTT applications up to BBCH61 in any one crop must not exceed 3.24 kg/ha.

Before application, users should consult the Optimum GLY® Technical Manual which have been designed to minimise the development of glyphosate resistance in weed populations.

WEEDS CONTROLLED	GROWTH STAGE OF CROP	RATE	WHP	CRITICAL COMMENTS
African turnip weed, Amsinckia, Annual ryegrass, Australian bluebell, Barley grass, Brome grass, Canary grass, Capeweed, Chickweed, Climbing buckwheat (less than 12 leaves), Cudweed, Deadnettle, Dock (seedling), Doublegee, Erodium, Flatweed, Fumitory, Hoary cress (late rosette to early flowering), Indian hedge mustard, Lesser swinecress, Medic (annual), Mexican poppy, Milk thistle, Mintweed, New Zealand spinach, Paradoxa grass, Paterson's curse, Prickly lettuce, Saffron thistle, Scotch thistle, Silver grass, Skeleton weed (fully emerged rosettes), Spear thistle, Spiny Emex, Sub clover, Sow thistle, Volunteer cereals, Volunteer chickpeas, Volunteer field peas, Volunteer lentils, Volunteer Lupins, Variegated thistle, Wild mustard, Wild oats, Wild lettuce, Wild radish, Wild turnip, Winter grass, Wireweed	Cotyledon (BBCH 10 - Cotyledons completely unfolded) to early bloom (BBCH 61 - 10% of flowers on main raceme open, main raceme elongating)	1.0-1.8 L/ha	**Harvest:** Not required when used as directed. **Grazing / Cutting for stockfeed:** 7 days	**DO NOT** apply after BBCH 61 (10% of flowers on main raceme open, main raceme elongating) crop stage. **DO NOT** apply more than 3 applications in any one crop. Each application must be a minimum of 1.0 L/ha and a maximum of 1.8 L/ha. Applications may be made to canola hybrids with the Optimum GLY® herbicide tolerance trait from cotyledon to the 10% flowering stage. The addition of a surfactant is not required for use in canola hybrids with the Optimum GLY® herbicide tolerance trait. Apply treatments to weeds which have at least one true leaf (broadleaf weeds) or two leaves (grasses) to provide an adequate surface area for herbicide uptake. Repeat applications may be required if a second flush of weeds germinate. For sequential applications, applications must be at least 14 days apart. Annual weeds are only to be sprayed when they are actively growing. Use the lower rate on grass weeds up to early tillering and broadleaf weeds with up to 2 true leaves. Increase to the higher rate on larger weeds and in situations of high density weed populations or tough environmental conditions. Perennial weeds should always be treated at the higher rate. CRUCIAL will provide knockdown, seasonal suppression and reduction in treated plant numbers. The effects of this product may not be apparent for 3 to 7 days (annual weeds) or 2 to 3 weeks (perennial weeds) or longer under cool, cloudy conditions. This product will control emerged weeds only, and provides no residual control.
Weeds as above plus: Soldier thistle (up to 10 cm diameter, 4 to 8 leaf)*, Volunteer faba beans, Volunteer safflower (up to 6 leaf)*, Volunteer vetch	2 to 8 leaf (BBCH12 to BBCH18). One or two applications; however total rate of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season.	1.0 L/ha + 60-120 mL/ha Archer 750 Dual Salt Liquid Herbicide		Use the higher rate of Archer 750 Dual Salt Liquid Herbicide in situations of high weed population, large weed size, and/or conditions of environmental stress (dry, frost etc). *The higher rate of Archer 750 Dual Salt Liquid Herbicide is required for control of soldier thistle and volunteer safflower. Varying levels of control can be experienced between different varieties of these species. Total application of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season. Application of this tank mix at the first spray timing is recommended.

WARNING: THE APPLICATIONS RECOMMENDED ABOVE ARE FOR USE ONLY WITH DESIGNATED CANOLA HYBRIDS WITH THE OPTIMUM GLY® HERBICIDE TOLERANCE TRAIT. APPLICATION OF THIS PRODUCT TO CANOLA THAT DOES NOT CONTAIN THE OPTIMUM GLY® HERBICIDE TOLERANCE TRAIT MAY RESULT IN SEVERE CROP INJURY AND YIELD LOSS OR DEATH OF THE CANOLA.

EXTREME CARE MUST BE TAKEN TO AVOID CONTACT WITH CROPS OR DESIRABLE PLANTS WITHOUT THE OPTIMUM GLY® HERBICIDE TOLERANCE TRAIT, OR WITH NATIVE VEGETATION, SINCE SEVERE INJURY OR DESTRUCTION WILL RESULT.

Optimum GLY® HERBICIDE TOLERANCE

Section 5. CANOLA – TRUFLEX* WITH ROUNDUP READY* TECHNOLOGY

CROP SAFETY FOR OTT APPLICATIONS

Over-the-top (OTT) applications may be made in canola varieties of TruFlex* with Roundup Ready* Technology (TruFlex* Canola) from crop emergence to the first flowering stage. Sequential applications must be at least 14 days apart and the canola crop must have incremental growth of two leaves between applications. The canola crop must not have advanced beyond the latest recommended growth stage (i.e. first flowering).

No additional surfactant is required for use in TruFlex* Canola.

NOTE: The total glyphosate active constituent applied as OTT applications up to first flowering in any one crop must not exceed 1.8 kg/ha (excluding pre-harvest applications).

PRE-HARVEST

Following OTT applications, CRUCIAL can also be used pre-harvest, applied at early senescence. For details, please refer to Section 8.

SITUATION - TRUFLEX* CANOLA

Before use in this situation is carried out users should consult the TruFlex* Canola Resistance Management Plan (RMP) which has been developed to minimise the evolution of herbicide resistance in weed populations.

WEEDS CONTROLLED	GROWTH STAGE OF CROP	GROWTH STAGE OF WEED	RATE	CRITICAL COMMENTS
Annual ryegrass, Barley grass, Brome grass, Canary grass, Capeweed, Paterson's curse, Saffron thistle, Scotch thistle, Silver grass, Spear thistle, Variegated thistle, Volunteer cereals, Wild mustard, Wild oats, Wild radish, Wild turnip, Winter grass	Crop emergence to first flowering (at least 50% of plants have at least one flower).	For grass weeds and volunteer cereals: 1 leaf to mid-tillering For volunteer plants and/ or broadleaf weeds: 1 true leaf to 8 leaves	1.0-1.5 L/ha	Up to 2 applications of up to 1.5 L/ha may be made in any one crop. Or, up to 3 applications of 1.0 L/ha may be made in any one crop. Repeat applications may be required if a second flush of weeds germinates but **DO NOT** apply after the first flowering stage of the crop (except when used pre-harvest – Refer to Section 8). For sequential applications, applications must be at least 14 days apart and the canola crop must have incremental growth of two leaves between applications. The canola crop must have not advanced beyond the latest recommended growth stage (i.e. first flowering). Ensure broadleaf weeds have at least one true leaf, and grasses two leaves before application. **DO NOT** apply after first flowering (except when used pre-harvest – Refer to Section 8).
Weeds as above plus, Annual medic, Sub clover, Volunteer chickpeas, Volunteer field peas, Volunteer lentils, Volunteer lupins	Crop emergence to first flowering (at least 50% of plants have at least one flower). Two applications required.		1.0-1.5 L/ha	Two applications of CRUCIAL provide higher levels of control than a single application. **DO NOT** apply after first flowering (except when used pre-harvest – Refer to Section 8).
Weeds as above plus, Volunteer faba beans, Volunteer vetch	Crop emergence to first flowering (at least 50% of plants have at least one flower). One or two applications; however total rate of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season.		1.0-1.5 L/ha + 60-120 mL/ha Archer 750 Dual Salt Liquid Herbicide	Use the higher rate of Archer 750 Dual Salt Liquid Herbicide in situations of high weed population, large weed size, and/or conditions of environmental stress (dry, frost etc). Varying levels of control can be experienced between different varieties of these species. Total application of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season. Application of this tank mix at the first spray timing is recommended. **DO NOT** apply after first flowering (except when used pre-harvest – Refer to Section 8).

WARNING: THE APPLICATIONS RECOMMENDED ABOVE ARE FOR USE ONLY WITH IMPROVED CANOLA VARIETIES THAT ARE DESIGNATED AS CANOLA WITH THE TRUFLEX* TECHNOLOGY.
SEVERE INJURY OR DEATH OF CANOLA WILL RESULT IF ANY CANOLA VARIETIES NOT PROPERLY DESIGNATED AS HAVING THE TRUFLEX* TECHNOLOGY ARE SPRAYED WITH THIS PRODUCT.
EXTREME CARE MUST BE TAKEN TO AVOID CONTACT WITH CROPS OR DESIRABLE PLANTS WITHOUT THE TRUFLEX* TECHNOLOGY, OR WITH NATIVE VEGETATION, SINCE SEVERE INJURY OR DESTRUCTION WILL RESULT.

Section 6. CANOLA - ROUNDUP READY*

CROP SAFETY

Over-the-top (OTT) applications may be made in Roundup Ready* canola from crop emergence to the 6-leaf stage (prior to bud formation).

Sequential applications must be at least 14 days apart and canola must have incremental growth of at least 2 new leaves between applications.

Some short-term, visual yellowing may occur when CRUCIAL is applied. This effect is temporary and will not influence crop growth or yield.

No additional surfactant is required for use in Roundup Ready* canola varieties.

CRUCIAL should be applied alone or with Archer 750 Dual Salt Liquid Herbicide, Nufarm Collide 700, Nufarm Liase, Astound Duo and Nufarm Dimethoate. Other tank mixes are not recommended for over-the-top applications of CRUCIAL due to the potential for reduced weed control or crop injury. Nufarm Liase may increase the performance of this product on annual and perennial weeds, particularly under hard water conditions (high levels of calcium, magnesium or bicarbonate ions) or drought conditions.

NOTE: The total glyphosate active constituent applied as OTT applications up to the 6-leaf stage in any one crop must not exceed 1.2 kg/ha (excluding pre-harvest applications)

PRE-HARVEST AID

CRUCIAL can be used pre-harvest, applied at early senescence. For details, please refer to Section 8.

CAUTION: The applications recommended here are for use only with improved canola varieties that are designated as glyphosate tolerant canola. Severe injury or death of canola will result if any canola varieties not properly designated as having glyphosate tolerance are sprayed with this product. Extreme care must be taken to avoid contact with crops or desirable plants without glyphosate tolerance, or with native vegetation, since severe injury or destruction will result.

SITUATION - ROUNDUP READY* CANOLA
Before use in this situation is carried out users should consult the Resistance Management Plan which has been developed to minimise the evolution of herbicide resistance in weed populations.

WEEDS CONTROLLED	GROWTH STAGE OF CROP	GROWTH STAGE OF WEED	RATE	CRITICAL COMMENTS
Annual ryegrass, Spear thistle, Barley grass, Variegated thistle, Brome grass, Volunteer cereals, Canary grass, Wild mustard, Capeweed, Wild oats, Paterson's curse, Wild radish, Saffron thistle, Wild turnip, Scotch thistle, Winter grass. Silver grass,	Crop emergence to 6 leaf (prior to bud formation).	For grass weeds and volunteer cereals: 1 leaf to mid-tillering. For volunteer plants and/or broadleaf weeds: 1 true leaf to 8 leaves.	1.0 L/ha	**Up to 2 applications only may be made in any one crop. Each application must be 1.0 L/ha.** Repeat applications may be required if a second flush of weeds germinates but **DO NOT** apply after the 6-leaf stage of the crop. For sequential applications, applications must be at least 14 days apart and the canola crop must have incremental growth of two leaves between applications. The canola crop must have not advanced beyond the latest recommended growth stage (i.e. 6 leaf). Ensure broadleaf weeds have at least one true leaf, and grasses two leaves before application.
Weeds as above plus, Annual Medic, Sub. clover, Volunteer Chickpeas. Volunteer Field peas, Volunteer Lentils, Volunteer Lupins	Crop emergence to 6 leaf (prior to bud formation). Two applications required		1.0 L/ha	Two applications of CRUCIAL provide higher levels of control than a single application.
Weeds as above plus, Annual Medic, Sub. clover, Volunteer Faba beans, Volunteer Chickpeas. Volunteer Field peas, Volunteer Lentils, Volunteer Lupins Volunteer Vetch	2 to 6 leaf (prior to bud formation). One or two applications; however total rate of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season.		1.0 L/ha + 60-120 mL/ha Archer 750 Dual Salt Liquid Herbicide	Use the higher rate of Archer 750 Dual Salt Liquid Herbicide in situations of high weed population, large weed size, and/or conditions of environmental stress (dry, frost etc). Varying levels of control can be experienced between different varieties of these species. Total application of Archer 750 Dual Salt Liquid Herbicide should not exceed 120 mL/ha in the one season. Application of this tank mix at the first spray timing is recommended.

WARNING: THE APPLICATIONS RECOMMENDED ABOVE ARE FOR USE ONLY WITH IMPROVED CANOLA VARIETIES THAT ARE DESIGNATED AS CANOLA WITH THE ROUNDUP READY* TECHNOLOGY.

SEVERE INJURY OR DEATH OF CANOLA WILL RESULT IF ANY CANOLA VARIETIES NOT PROPERLY DESIGNATED AS HAVING THE ROUNDUP READY* TECHNOLOGY ARE SPRAYED WITH THIS PRODUCT.

EXTREME CARE MUST BE TAKEN TO AVOID CONTACT WITH CROPS OR DESIRABLE PLANTS WITHOUT THE ROUNDUP READY* TECHNOLOGY, OR WITH NATIVE VEGETATION, SINCE SEVERE INJURY OR DESTRUCTION WILL RESULT.

Section 7. COTTON - ROUNDUP READY FLEX*

FOR OVER-THE-TOP (OTT) APPLICATIONS MADE IN ROUNDUP READY FLEX* COTTON FROM CROP EMERGENCE TO HARVEST

No more than 4 applications may be made OVER THE TOP in any one crop. Any single application MUST NOT exceed 1.7 L/ha. Applications MUST NOT be made between 22 NODES and 60% BOLL OPEN STAGE.	One (1) of the four (4) applications may be made OVER THE TOP in any one crop between 60% BOLL OPEN STAGE and HARVEST. Application at this stage MUST NOT exceed 1.7 L/ha. NO MORE THAN FOUR (4) APPLICATIONS MAY BE MADE IN ANY ONE CROP.

Tank-mixtures with other herbicides or insecticides are not recommended for over-the-top applications of this product due to the potential for reduced weed control or crop injury to result (except Bouncer® 960S Herbicide).
Tank mixes with Dropp* may be used providing the crop is 60% open and immature bolls cannot be cut with a sharp knife, alternatively where the seed coat in bisected bolls is black in colour.
No additional surfactant is required for use in Roundup Ready Flex* Cotton.
NOTE: The total glyphosate active constituent applied in any one crop must not exceed 4.14 kg/ha (including pre-harvest application).

SITUATION – Cotton with Roundup Ready Flex* Technology
OTT UP TO 22 NODES (except when mixed with Bouncer® 960S Herbicide where application is between 4 and 18 nodes only)
NO MORE than FOUR (4) applications are permitted in crop up to 22 nodes.
Any single application in crop up to 22 nodes MUST NOT exceed 1.7 L/ha.

WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Afghan melon, Mintweed, African turnip weed, Native millet, Annual ryegrass, New Zealand spinach, Annual ground cherry, Noogoora burr, Barnyard grass, Paradoxa grass, Bathurst burr, Pigweed (up to 25cm diam.), Black pigweed, Sow thistle, Bladder ketmia, Spear thistle, Boggabri weed, Stinkgrass, Button grass, Sweet Summer grass, Caltrop, Thornapple, Camel melon, Turnip weed, Caustic weed, Urochloa, Columbus grass, Variegated thistle, Datura, Volunteer cereals, Dead nettle, Volunteer sorghum, Liverseed grass, Wild oats, Lovegrass, Wild/Prickly lettuce, Mexican poppy, Wireweed, Milk thistle, Yellow vine	0.6-1.7 L/ha	Rate Selection Use the lower rates on young weeds and increase to the higher rate where weeds are dense or well developed. Dense infestations of some weeds e.g. Barnyard grass, Liverseed (Urochloa) grass may need follow up treatments for complete control.
Climbing buckwheat (less than 12 leaves), Couch, Johnson grass	1.1-1.7 L/ha	Use the higher rate on plants at the flowering/seed head stage. For Johnson grass apply to plants with a minimum of 30 cm new growth. For long term control of Couch and Johnson grass, repeat applications will be required.
Nutgrass	1.7 L/ha followed by 1.7 L/ha	Make first application to actively growing plants when the majority of nutgrass plants have reached at least the 6-8 leaf stage but preferably later. Allow for maximum re-emergence before retreating.
<u>The following weeds are controlled pre-emergence by Bouncer® 960S Herbicide, this tank mix will also control all weeds listed in Section 2 with minimum application rates of 1.2-1.7 L/ha CRUCIAL:</u> Awnless barnyard grass, Barnyard grass, Dinebra (*Dinebra retroflexa*), Crowsfoot grass, Liverseed grass, Lovegrasses, Pigeon grasses (*Setaria spp.*), Summer grass, Wandering Jew (*Tradescantia fluminensis*)	1.2-1.7 L/ha + 1 L/ha Bouncer® 960S Herbicide	**Over the top (OTT) application:** Apply from the 4 node to 18 node crop growth stage only. Apply when weeds are present, using a boom sprayer applying 85-120 L of mixture per hectare. For maximum efficacy ensure even distribution of spray across the furrow. Some minor transient leaf spotting or leaf scorching may occur after application. To avoid any leaf spotting or leaf scorching use a directed or shielded spray. Rain or irrigation is necessary within 10 days of spraying to thoroughly wet the top 3-4cm of soil. If rain does not occur or irrigation is unavailable to incorporate reduced residual control may occur. Apply only one application of Bouncer 960S herbicide per crop. **DO NOT** use both an OTT and directed spray application (see below).

SITUATION – Cotton with Roundup Ready Flex* Technology
Apply between 60% BOLL OPEN STAGE and HARVEST
NOT MORE than one (1) Application.
DO NOT use on crops intended for seed production
Application made between 60% open stage and harvest MUST NOT exceed 1.7 L/ha.

WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Bathurst burr, Noogoora burr, Winter annual weeds including Milkthistle, Common sowthistle	0.8-1.7 L/ha	Use the lower rate on light infestations of small weeds, where the crop canopy allows adequate spray coverage of the weeds. Increase to the higher rate when the crop canopy may limit spray coverage, when treating dense infestations, or when treating larger weeds. Apply alone or in tank mixtures with Dropp*. Apply when at least 60% of bolls are open and immature bolls cannot be easily cut with a sharp knife. Alternatively, where the seed coat in bisected bolls is black in colour. Where a leafy canopy limits spray coverage, reduced weed control can be expected. For best results under these conditions, delay application until canopy re-opens following initial conditioning treatment.

FOR DIRECTED SPRAYING IN TANK-MIXES IN ROUNDUP READY FLEX* COTTON

NOTE: The restrictions for OTT spraying regarding the number of applications and the total amount of glyphosate active constituent do not apply to this use pattern. This use can be in addition to the OTT uses listed previously in this section of the label.

SITUATION & CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Roundup Ready Flex cotton (4 node–18 node)	The following weeds are controlled pre-emergence by Rifle® 440 Herbicide, this tank mix will also control all weeds listed in Section 2 with minimum application rates of 1.2-1.7 L/ha CRUCIAL: Barnyard grass, Button grass, Common heliotrope (*Heliotropium europeaum),* Crested goosefoot (*Chenopodium cristatum),* Crowsfoot grass (*Eleusine indica),* Dwarf amaranth *(Amaranthus macrocarpus),* Early Spring grass *(Eriochloa* spp.*),* Green amaranth (Amaranthus viridis), Liverseed grass, Mexican clover *(Richardia brasiliensis),* Mossman River grass *(Cenchrus echinatus),* Native millet, Pale pigeon grass *(Setaria glauca),* Paspalidium *(Paspalidium* spp.*),* Pepper grass *(Panicum whitei),* Pigweed, Queensland bluegrass *(Dichanthium sericeum),* Red Flinders grass *(Iseilema vaginiflorum),* Scarlet pimpernel *(Anagallis arvensis),* Small burr grass *(Tragus australianus),* Stinkgrass, Weeping lovegrass *(Eragrostis parviflora),* Wireweed, The following weeds are suppressed pre-emergence by Rifle® 440 Herbicide: Caltrop, Common sowthistle, Common verbena (*Verbena officinalis*), Mintweed, Pepper cress *(Lepidium* spp.*),* Stagger weed *(Stachys arvensis)*	1.2-1.7 L/ha + 3.4 L/ha Rifle® 440 Herbicide	**Directed spray applications only:** Apply after weeds have emerged as a directed spray application to avoid shading by the crop which may affect herbicide placement. For maximum efficacy ensure even distribution of spray across the furrow. Rainfall or irrigation must occur within 10 days of application for product incorporation into the soil. **DO NOT** apply after full flowering (BBCH 65). Leaf yellowing and crinkling will usually occur after application. Apply only one application of Rifle 440 Herbicide per crop.
	The following weeds are controlled pre-emergence by Bouncer® 960S Herbicide: Awnless barnyard grass, Barnyard grass, Dinebra, Crowsfoot grass, Liverseed grass, Lovegrasses, Pigeon grasses, Summer grass, Wandering Jew	1.2-1.7 L/ha + 1 L/ha Bouncer® 960S Herbicide	**Directed spray applications only:** Apply after weeds have emerged as a directed spray application to avoid shading by the crop which may affect herbicide placement. For maximum efficacy ensure even distribution of spray across the furrow. Some minor transient leaf spotting or leaf scorching may occur after application. To avoid any leaf spotting or leaf scorching use a directed or shielded spray. Rain or irrigation is necessary within 10 days of spraying to thoroughly wet the top 3-4cm of soil. If rain does not occur or irrigation is unavailable to incorporate reduced residual control may occur. Apply only one application of Bouncer 960S herbicide per crop. **DO NOT** use both an OTT and directed spray application (see above).

WARNING: THE APPLICATIONS RECOMMENDED ABOVE ARE FOR USE ONLY WITH IMPROVED COTTON VARIETIES THAT ARE DESIGNATED AS COTTON WITH THE ROUNDUP READY FLEX* TECHNOLOGY.
SEVERE INJURY OR DEATH OF COTTON WILL RESULT IF ANY COTTON VARIETIES NOT PROPERLY DESIGNATED AS HAVING THE ROUNDUP READY FLEX* TECHNOLOGY ARE SPRAYED WITH THIS PRODUCT.
EXTREME CARE MUST BE TAKEN TO AVOID CONTACT WITH CROPS OR DESIRABLE PLANTS WITHOUT THE ROUNDUP READY* TECHNOLOGY, OR WITH NATIVE VEGETATION, SINCE SEVERE INJURY OR DESTRUCTION WILL RESULT.

Section 8. PRE AND POST HARVEST USES, PASTURE TOPPING

GENERAL COMMENT

DO NOT use on crops intended for seed production or sprouting.
DO NOT apply more than one (1) pre-harvest application per crop.
DO NOT apply if heavy rains are imminent.
DO NOT apply to malting barley.
Apply with ground boom or aerial equipment. For pre-harvest/cutting applications, speed of crop desiccation is dependent on crop stage, growing conditions and weather conditions during and after application. Any subsequent weed management strategies should involve an integrated weed management (IWM) approach to minimize development of glyphosate resistance.

CROP/SITUATION	SITUATION/WEEDS	RATE	CRITICAL COMMENTS
PRE-HARVEST/CUTTING APPLICATIONS			
BARLEY (except malting barley)	As a harvest aid Annual weeds	1.54 L/ha	Apply to mature crop from late dough stage (28% moisture) onwards. **DO NOT** harvest within 7 days after application.
CANOLA (including conventional, triazine tolerant, CLEARFIELD*, TruFlex* and Roundup Ready* varieties) MUSTARD (oilseed cultivars) (*Brassica juncea*)	As a harvest aid Annual weeds	1.1-3.2 L/ha	**DO NOT** use as a pre-harvest/cutting application on canola hybrids with the Optimum GLY® herbicide tolerance trait. Application on canola hybrids with the Optimum GLY® herbicide tolerance trait can only at or before BBCH 61 (refer to section 4 for further information). Apply to mature standing crop from early senescence (minimum of 20% of canola/mustard seeds as a random visual sample from various heights in the crop canopy from the main stem have changed to a dark brown/black colour) prior to windrowing or direct harvest. For further information on timing contact your Nufarm representative. **Application can also be made at the time of windrowing (windrow equipment fitted with spray booms). To avoid shatter losses from ground boom application; apply before complete senescence of the crop.** Use the higher rate when crops or weeds are dense and where faster desiccation is required. **DO NOT harvest for 5 days after application to standing crops.** **DO NOT apply after completion of the windrowing process** **DO NOT overspray windrows** **DO NOT direct spray at windrows** **DO NOT apply to standing crops and again at the time of windrowing.** For application to standing crops a minimum water rate of 80 L/ha is recommended to ensure adequate coverage of target weeds below the crop canopy.
COTTON (conventional)	Bathurst burr Noogoora burr Winter annual weeds including: Common sowthistle /milkthistle	0.75-1.5 L/ha	Use the lower rate on light infestations of small weeds, where the crop canopy allows adequate spray coverage of the weeds. Increase to the higher rate when the crop canopy may limit spray coverage, when treating dense infestations, or when treating larger weeds. Apply alone or in tank mixtures with Dropp*. Apply when at least 60% of bolls are open and immature bolls cannot be easily cut with a sharp knife. Where a leafy canopy limits spray coverage, reduced weed control can be expected. For best results under these conditions, delay application until canopy re-opens following initial conditioning treatment. Where control of Nutgrass or Noogoora burr is required treatments should be applied prior to the onset of frosts. When tank mixed with defoliants, a slightly higher proportion of cotton leaf may be retained, particularly where the higher rate is used. Read and follow all label direction for the tank mix products. **For pre-harvest application in Roundup Ready Flex* Cotton, please refer to Section 7.**
	Nutgrass (seasonal suppression only)	1.5 L/ha	
HAY/SILAGE production from annual pastures or crops	Prevention of re-growth Annual weeds	1.1-3.2 L/ha	Apply to mature standing pasture within 1–10 days prior to cutting or mowing. Annual pasture includes oats, wheat, triticale, barley, annual ryegrass and other annual forage grasses cut for hay or silage use. Annual pasture also includes broadleaf crops such as canola, pulses, etc., and forage brassicas, etc. cut for hay or silage use. Refer to uses in this table for crops where pre-harvest application is allowed for grain production. Use the higher rate if the hay/silage is of high density, if cutting is planned within 3 days of application, or if the crop is rank or lodged and where faster desiccation is required. The lower rate is for low density hay and silage pasture only. **DO NOT** cut within 1 day after application (except for crops specifically listed elsewhere in this table where longer withholding periods are required). A minimum of 3 days prior to cutting is recommended where conditions result in slow translocation in the target plant. Good spray coverage is also important for best results and it is recommended that a minimum application water volume of 70 L/ha is used.

CROP/SITUATION	SITUATION/WEEDS	RATE	CRITICAL COMMENTS
OILSEEDS (other than canola, cotton & mustard): Linseed Poppies Safflower Sesame Sunflower	As a harvest aid Annual weeds	**Poppies:** 1.6-1.8 L/ha **Safflower:** 1.6-3.2 L/ha **Sesame:** 1.6-2.6 L/ha **Linseed, Sunflower:** 1.6 L/ha	APPLICATION RATE: Use the higher rate when crops or weeds are dense and where faster desiccation is required. TIMING: Application timing for each listed crop is provided below. For further information on timing contact your Nufarm representative. **Linseed** - Apply to mature standing crop at 90% pod fill. **Poppies** - **DO NOT** apply prior to petal fall. Apply when majority of crop is at green capsule stage and petal fall is complete. **Safflower** - Apply when seed has lost its opaque character. This will occur approximately 20 to 30 days after the end of flowering of the secondary branches. **Sesame** - Apply as a foliar spray when at least 70% of the seed capsules have changed colour from dark green to light green or yellow. **Sunflower** - Application should be made at or after crop maturity. Apply when seed moisture content is below 35%. For application to standing crops a minimum water rate of 80 L/ha is recommended to ensure adequate coverage of target weeds below the crop canopy. **DO NOT harvest linseed within 10 days of application.** **DO NOT harvest other oilseed crops (except canola, cotton, linseed and mustard) within 7 days of application.**
PULSE CROPS, including: Adzuki beans Chickpeas Cowpea Faba beans Field peas Lentils Lupins Mungbeans Soybean Vetch	Crop desiccation As a harvest aid Annual Weeds	0.6-1.6 L/ha	Use higher rates where crops or weeds are dense and where faster desiccation is required. Application should be made at or after crop maturity: **Chickpeas and Lentils** - apply when physiologically mature and less than 15% green pods. **Faba beans** - apply when pods turn black and average seed moisture content is below 30%. **Field peas** - apply when seeds turn yellow and average seed moisture content is below 30%. **Lupins** - apply at or after crop maturity when seed moisture content is below 30%. **Mungbeans / Adzuki beans and Cowpea** - apply to mature crops when pods are brown/black. **Soybean** - apply only after seed pods have lost all green colour and 80-90% of leaves have dropped. **Vetch** - apply at or after crop maturity when seed moisture content is below 30%. **DO NOT harvest within 7 days of application.**
		Chickpeas only: 450-950 mL/ha plus 5 g/ha Associate® Herbicide	Apply when chickpeas are physiologically mature and less than 15% of green pods are present. Use higher rates where crops or weeds are dense and where faster desiccation is required. **DO NOT harvest within 7 days of application.**
SORGHUM	As a harvest aid Annual weeds and sorghum ratoon growth	0.9-1.8 L/ha	**DO NOT** apply if crop is under stress from low moisture, frost, cold or waterlogging. RATE SELECTION Use the lower rate for control of crop and late tillers and suppression of ratoon regrowth. Use the higher rate for improved suppression of ratoon regrowth, where the crop has produced significant number of late tillers or where following crops will be established without further treatment. TIMING Apply when grain moisture is less than 25%. Application can be made when moderate browning has occurred. CAUTION Treatment may increase potential for CROP LODGING, particularly if prior moisture stress has occurred. Under any set of environmental conditions, individual varieties can vary in response to preharvest treatments. In general, varieties with a more "determinant" growth habit are more susceptible than "indeterminant" varieties. Harvest should commence at least 7 days after application provided sufficient dry down has occurred to avoid possible lodging. CAUTION Sorghum may be naturally toxic to stock.
WHEAT	As a harvest aid Annual weeds	1.1-3.2 L/ha	Apply to mature crop from late dough stage (28% moisture) onwards. The higher rate will be required when crops are heavy and leaf shading effects may occur. **DO NOT** harvest within 5 days after application.
POST-HARVEST APPLICATIONS			
SORGHUM Harvested crops	Sorghum regrowth	600-900 mL/ha for fresh regrowth from slashed stubble 0.9-1.2 L/ha for standing stubble if sufficiently green and for fresh Spring regrowth	APPLY UNDER GOOD GROWING CONDITIONS ONLY. **DO NOT** apply if plants are under stress from low moisture, frost, cold or waterlogging. SLASHED STUBBLE AND SPRING REGROWTH Apply when fresh regrowth is at least 20cm high. STANDING STUBBLE Apply only if sufficient green leaf is present. If grazing has occurred allow regrowth to 20cm before treatment. RATE SELECTION Use the lower rate for knockdown and regrowth suppression where cultivation is to follow. Increase to the higher rate for improved regrowth control. NOTE Variable results occur where the crop has been subject to stress or growing conditions are marginal. CAUTION Sorghum may be naturally toxic to stock.
SUGARCANE Harvested crops	Sugarcane ratoon regrowth	3.6-5.4 L/ha	APPLY UNDER GOOD GROWING CONDITIONS ONLY to actively growing ratoons 60-120 cm tall. **DO NOT** apply if plants are under stress from low moisture or waterlogging. Use the lower rate for suppression or where cultivation is to follow. Use higher rate for control.

CROP/SITUATION	SITUATION/WEEDS	RATE	CRITICAL COMMENTS
PASTURE TOPPING			
PASTURES (For annual and perennial grasses, Bent grasses, Serrated Tussock, Capeweed and Calomba daisy seed-set reduction)	Annual ryegrass	275 mL/ha	Reduction in pasture legume population may occur because of treatment. Remove stock prior to treatment to allow even regrowth. Apply to Capeweed and Annual ryegrass at FLOWERING. For other grasses, apply from HEAD to MILKY DOUGH stage. Use the higher rate for dense infestations or where Annual ryegrass is present. Apply before signs of plants "haying off".
	Barley grass	180-275 mL/ha	
	Brome grass	180-275 mL/ha	
	Calomba daisy	275 mL/ha	
	Capeweed	180-275 mL/ha	
	Silvergrass	180-275 mL/ha	
	Bent grasses	225-375 mL/ha	TIMING Treat from late October to late November. Apply before seed heads have emerged. Use the higher rate where growth is excessive and renovation is intended the following Autumn. FOLLOW-UP MANAGEMENT Graze hard after spraying.
	Serrated Tussock	450-750 mL/ha	Apply to actively growing and stress free plants. Best results obtained during mid September – mid October. Apply prior to any seed head emergence. Also see Aerial Equipment. Surfactants: Addition of 200 mL of Wetter TX™ to 100 L of spraying solution may improve results. Rates: The lower rates will be less damaging to desirable pasture species. If seed head emergence is imminent then higher rates will give better results.

Section 9. OPTICAL SPOT SPRAY TECHNOLOGIES

Note: Calibrate the sprayer to spray the equivalent of 100 L/ha

For weed cover between 0 and 30 %. If percentage weed cover exceeds 30 % use approved boom spray rates.

SITUATION	WEEDS	RATE	CRITICAL COMMENTS
FALLOW	Australian bindweed	2.75-5.5 L/100L	Suppression only at low rates. Use the high rate on larger mature plants
	Barnyard grass		Use the high rate on large mature plants
	Bladder ketmia		Apply low rate to rosette to flowering plants. Use the high rate on large mature plants
	Common sowthistle		
	Turnip weed		
	Yellow vine (caltrop)		
Prior to sowing the following winter or summer broadacre crops, or starting a fallow and for fallow maintenance: Cereals; Pulses; Canola; Mustard (oilseed cultivars) (*Brassica juncea*); Cotton; as per the plantback table on the Terrad'or® 700WG Herbicide product label	Annual grass and broadleaf weeds as listed in **Section 2 weed table**.	1.8 L/100L + 40 g/100L Terrad'or® 700WG Herbicide + 1L/100L Banjo® Spray Adjuvant*	Observe the plant-back periods listed in the GENERAL INSTRUCTIONS. Sow following crops with a seeder that will move treated soil away from crop row (e.g. knife point with press wheels). Use of seeding machinery, or planting under conditions where product or treated soil remains or moves back into the crop row may result in crop damage. This may be caused by factors such as inappropriate seeding machinery, narrow row spacings, fast travel speeds, soil type, wind, heavy rainfall or irrigation after planting, etc. This is particularly important for susceptible crops such as canola. **DO NOT** apply post-sowing pre-emergent. Addition of Banjo spray adjuvant* at 1.0 % v/v must always be used with Terrad'or® 700 WG. Rainfast after 1 hour of daylight after application to seedling annual weeds. * or other registered high quality methylated seed oil adjuvant

Section 10. POST SOW PRE-EMERGENT (PSPE) USES, SHIELDED SPRAYERS AND BAND SPRAYING

SITUATION & CROP	WEEDS	RATE	CRITICAL COMMENTS
COTTON (inter-row shielded sprayers)	Refer to weeds and corresponding application rates in Section 2.		Apply CRUCIAL to weeds growing between crop rows using a shielded sprayer. **DO NOT** apply in crops less than 20 cm high. **DO NOT** allow spray or spray drift to contact any part of the cotton plant as severe injury or destruction may result. Can be used in conventional and tolerant cotton varieties.
ONIONS (PSPE)	For control of annual weeds and suppression of perennial weeds, including Rope Twitch	0.6-1.8 L/ha	Apply post-sowing and at least 7 days before crop is due to emerge. **DO NOT** apply to emerging Onion plants as severe injury will result. Use the lower rate on small, actively growing annual weeds. Increase to the higher rate for larger annual weeds (over 15 cm tall) and for suppression of perennial weeds.

SITUATION & CROP	WEEDS	RATE	CRITICAL COMMENTS
PASTURES (Band spraying) For suppression or control of pastures species prior to drilling improved pasture, forage species, Soybeans or Leucaena.	Refer to weeds and corresponding application rates in Section 2.		Apply low rates for suppression. Apply higher rates where complete control is required. Band spraying may be done immediately after the sowing operation. Mount the nozzles behind the coulter/tyne/press wheel assembly of the band seeder. Adjust to spray 0.5 to 1.0m strips. Ensure minimal disturbance of the pasture. Excessive dust created in the seedling operation may reduce herbicide activity. Pasture seed must be drilled at the appropriate depth and covered by soil. LEUCAENA: Apply maximum of 1.6 L/ha through a single taper fan nozzle LFI-80 mounted at the rear of the single row planter providing a 1 m swath. Planting rows to be 4 m apart.
SUGARCANE (inter-row shielded sprayers)	Annual and perennial grasses and broadleaf weeds	1.1-4.5 L/ha	Apply to weeds growing between crop rows using a ground based hooded and shielded sprayer. Apply at early growth stage of crop, before formation of the cane. Apply no more than 3 applications, to a maximum of 10.8 L/ha per crop. **DO NOT** allow spray or spray drift to contact any part of the crop as severe injury may result.

Section 11. BRUSH AND WOODY WEEDS – MIXTURES WITH ASSOCIATE

SITUATION	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
COMMERCIAL AND INDUSTRIAL AREAS DOMESTIC AND PUBLIC SERVICE AREAS FORESTS PASTURES RIGHTS OF WAY	Blackberry (*Rubus* spp.) Volunteer Pine (*Pinus* spp.) wildlings (suppression only)	**Handgun or Knapsack** 250 mL CRUCIAL plus 3 g Associate® per 100 L of water **Aerial or Boom** For Blackberry, Coppice and Volunteer Pine wildlings: 4.8 L/ha plus 60 g Associate® per ha For other weeds: 2.4 L/ha plus 30 g Associate® per ha	For Blackberries, apply from flowering until prior to leaf yellowing. Due to widespread picking of Blackberries by the public, it is not recommended that the product be applied to bushes bearing mature fruit. Application to Pine wildlings less than 50cm in height should be controlled when actively growing. Use Pulse® Penetrant at the rate of 200-500 mL per 100 L water.
	Bracken (*Pteridium esculentum)*		For Bracken, apply when fronds are fully unfurled but prior to first frosts. For boom application, refer to Boom application section. Use Pulse® Penetrant at the rate of 200-500 mL per 100L of water.
	Coppice (*Eucalyptus globulus*)		Use Pulse Penetrant at the rate of 500 mL per 100 L water. For coppice control, apply using a minimum 400 L/ha using a double pass application method to coppice up to a maximum 1.5 m in height. Target every stem separately. **DO NOT** disturb for 6 weeks to allow maximum translocation.
	Gorse *(Ulex europaeus)*		For Gorse, apply when actively growing at any time of year, except Spring. Use Pulse® Penetrant at the rate of 200-500 mL per 100 L of water.
	Lantana *(Lantana camara)*		For Lantana, apply when actively growing. **DO NOT** apply during periods of Summer drought stress. Use Pulse® Penetrant at the rate of 200-500 mL per 100 L of water.
	St John's Wort *(Hypericum perforatum)*		For St John's Wort, apply when actively growing from Spring to Summer. Use Pulse® Penetrant at the rate of 200-500 mL per 100 L of water.
	Sweet Briar *(Rosa rubiginosa)*		For Sweet Briar, apply when in full leaf, prior to leaf fall. Use Pulse® Penetrant at the rate of 200-500 mL per 100 L of water.

Section 12. UNWANTED TREE CONTROL

Ensure trees are actively growing at time of treatment and not under stress of drought, waterlogging or cold.

METHOD	SPECIES CONTROLLED	TREE SIZE	MIXTURE (BY VOL.) Product:Water	CRITICAL COMMENTS
CUT STUMP	Jarrah *(Eucalyptus marginata)*, Long-leaved box *(E. goniocalyx)*, Marri *(E. calophylla)*, Messmate *(E. obliqua)*, Narrow-leaved peppermint *(E. radiata)*	0-10 cm basal diameter	1:15	Dilute with water in the recommended ratio. Cut tree close to ground and immediately wet stump surface thoroughly using Splatter Gun, spray, swab or bush. Remove any branches on the stump and treat any cut surface.
	Privet *(Ligustrum* spp.*)*, Rhus *(Toxicodendron succedaneum)*	0-30 cm basal diameter	1:1	
FOLIAR APPLICATION: Low Volume (Gas Gun or Splatter Gun)	Bullich *(Eucalyptus megacarpa)*, Marri, Jarrah	0-1.5 m height	1:15 Add Pulse® Penetrant at 20 mL/10L spray mixture	Dilute in the recommended ratio. Calibrate Splatter Gun to apply 5 mL of solution per dose, as a fine spray. Apply 5 mL per 0.5 m tree height. Ensure spray contacts all foliage.
	Eucalyptus spp.	0-1.5 m height	1:5 Add Pulse® Penetrant at 20 mL/10L spray mixture	
FOLIAR APPLICATION: High Volume (Knapsack or Handgun)	*Eucalyptus spp.*, Willows *(Salix* spp.*)*	0-2 m height	600-800 mL/100L For Eucalyptus spp. Add Pulse® Penetrant at 200 mL/100L spray mixture	Spray to wet all foliage. Use the higher rate for trees 1 to 2 m high.

METHOD	SPECIES CONTROLLED	TREE SIZE	MIXTURE (BY VOL.) Product:Water	CRITICAL COMMENTS
STEM INJECTION	Flooded gum *(Eucalyptus grandis)*, Ghost gum *(Corymbia papuana)*, Gum-topped bloodwood *(C. dichromophloia)*, Messmate, Narrow-leaved ironbark *(E. crebra)*, Pink bloodwood *(C. intermedia)*, Poplar box *(E. populnea)*, Privet, Rhus, Silver-leaved ironbark *(E. melanophloia)*, Silvertop ash *(E. sieberi)*, Spotted gum *(C. maculata)*, Swamp mahogany *(Lophostemon suaveolens)*, White mahogany *(E. acmenoides)*, Willows	0-25 cm basal diameter	Undiluted 1 mL/cut	Use an applicator calibrated to deliver 1 or 2 mL per cut. Make 5 cm cuts at an oblique angle to penetrate the sapwood beneath the bark. Space cuts at 13 cm centers around tree circumference below any branching, otherwise remove or treat all branches below cuts. On multiple trunk trees ensure each trunk is treated.
		Over 25-60 cm basal diameter	Undiluted 2 mL/cut	
	Camphor laurel *(Cinnamomum camphora)*	Basal diameter to 25 cm	Mixture 1:1 2 mL/cut	
		Basal diameter over 25-60 cm	Undiluted 2 mL/cut	

Section 13. GENERAL WEED CONTROL

SITUATION	CRITICAL COMMENTS Refer to Section 2 for boom spray rates or Section 14 for handgun or knapsack rates.
GENERAL WEED CONTROL In Domestic Areas (Home Gardens), Commercial, Industrial and Public Service Areas, Agricultural Buildings and Other Farm Situations.	For the control of many grasses and broadleaf weeds. **RATE: 6 mL per litre of water.** When treating dense, maturing weed populations in non-arable scenarios using a boom sprayer, ensure good coverage by applying CRUCIAL at a rate of no more than 6 mL per litre of water. Apply when weeds are actively growing. Apply to ensure complete and uniform wetting of foliage. Visible symptoms may take from 3 to 7 days to develop.
AGRICULTURAL AREAS	CRUCIAL may be used for control of annual, perennial and woody weeds as directed, in agricultural land prior to sowing of any edible or non-edible crop, but not prior to transplanting tomato seedlings.
DRY DRAINS AND CHANNELS ONLY	**DO NOT** apply to weeds growing in or over water. **DO NOT** spray across open bodies of water, and **DO NOT** allow spray to enter the water. **DO NOT** allow water to return to dry channels and drains within 4 days of application.
FORESTS	CRUCIAL may be used prior to establishment of nurseries, for site preparation prior to planting and amongst established trees using a directed or shielded spray, or using selective wiper equipment. **DO NOT** allow wiper surface to contact any part of the tree. **DO NOT** allow spray or spray drift to contact foliage or green bark of desirable trees, since severe injury may result. For improved control of woody and herbaceous weeds pre-plant (broadcast spraying by air or helicopter) or post-plant (inter-row only), add 0.5-1.5 L/ha of Comet 400 with a rate of CRUCIAL up to 4.8 L/ha
NON-AGRICULTURAL AREAS Around Buildings, Commercial and Industrial Areas, Domestic and Public Service Areas, Right-Of-Ways.	CRUCIAL does not provide residual weed control. For residual control of annual weeds, CRUCIAL may be tank mixed with certain residual herbicides. See Tank Mixtures/Compatibility.
PASTURE	DIRECTED (SPOT) APPLICATION CRUCIAL is non-selective and may damage or kill any plant in the sprayed area. Re-treatment and/or pasture improvement may be necessary to restrict seedling re-establishment. SELECTIVE APPLICATION See Wiper Equipment. BOOM APPLICATION CRUCIAL may be used to suppress or kill existing pasture species prior to re-seeding or establishment of other crops. When spot application (spray or wiper) is undertaken, grazing stock need not be removed. **CAUTION** Certain plants may be naturally toxic to stock. Where known toxic plants are present **DO NOT** allow stock to graze until complete browning of treated plants has occurred.
TREE AND VINE CROPS Vineyards, Berries and Other Small fruits (Excluding Strawberry), Citrus fruits, Tropical and Sub-Tropical fruits, Pome fruits, Stone fruits, Tree nuts, Duboisia, Hops, Tea	Apply as a directed or shielded spray or using wiper equipment. **DO NOT** apply as spray near trees or vines less than 3 years old unless they are effectively shielded from spray and spray drift. **DO NOT** allow wiper surface to contact any part of the tree, vine or plant. **Citrus fruit, Nuts, Olives, Pome fruit & Vineyards DO NOT** allow spray or spray drift to contact green bark or stems, canes, laterals, suckers, fresh wounds, foliage or fruit. **Hops** Apply in Winter, prior to crop emerging from dormancy. **Tea** Apply a maximum of 2.4 L/ha by shielded boom or directed off-centre nozzle or 300 mL/100L by directed hand-gun or knapsack to avoid application to the crop. **All other crops DO NOT** allow spray or spray drift to contact any part of the plant including the trunk. CAUTION Where split bark on Kiwifruit and green stems on Pawpaw occur, extreme care is required.

SITUATION	CRITICAL COMMENTS Refer to Section 2 for boom spray rates or Section 14 for handgun or knapsack rates.
WIPER APPLICATION (above a crop or pasture)	Wiper equipment (e.g. Ropewick, canvas, felt or carpet applicators) may be used to apply CRUCIAL. Avoid contact with desirable vegetation. Operate wiper equipment a minimum of 10 cm above the crop or pasture. Weeds should be at least 15 cm above the crop or pasture at time of application. Speed of travel should be no greater than 8 km/h. Best results are achieved at lower speeds and where two applications are made in opposite directions (double pass). Where weeds are of variable height, or occur in dense infestations or clumps, some plants may not be contacted by the herbicide solution. In these cases repeat treatment may be necessary. **RATE**: Mix 600mL CRUCIAL with 2.2 L clean water. Adjust flow rate to suit equipment.

Section 14. WEED CONTROL TABLE FOR SECTION 13 (HANDGUN, KNAPSACK ONLY)

WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
ANNUAL WEEDS Amaranth, Bathurst burr, Barley grass, Billygoat weed, Brome grass, Barnyard grass, Caltrop, Canary grass, Capeweed, Chickweed, Cobblers peg, Deadnettle, Doublegee, Fumitory, Ground cherry, Hedge mustard, Lesser swinecress, Liverseed grass, Mintweed, Noogoora burr, Paradoxa grass, Paterson's curse, Pigweed, Potato weed, Ryegrass, Saffron thistle, Silvergrass, Sow thistle, Spear thistle, Spiny burrgrass, Spurge, Sub clover, Thornapple, Wild mustard, Wild oats, Wild turnip, Winter grass, Variegated thistle, Volunteer cereal	**Handgun:** 300-450 mL/100L **Knapsack:** 45-65 mL/15L **Boom:** Refer to Section 2	Use higher rate on weeds over 15 cm in height or diameter or where dense weed cover limits spray coverage. Use higher spot spraying rate when applying less than 5 L spray per 100sqm. CRUCIAL does not provide residual weed control. Repeat treatments may be necessary to control later germinating weeds. For residual control of annual weeds CRUCIAL may be tank-mixed with certain residual herbicides. See Tank Mixtures in the General Instructions for directions. **DO NOT** use an atrazine tank-mix for control of barnyard grass or liverseed grass.
PERENNIAL WEEDS Artichoke thistle, African lovegrass, Bent grass, Carpet grass, Cocksfoot, Flatweed, Johnson grass, Kangaroo grass, Kikuyu, Navua sedge, Nutgrass, Paspalum, Phalaris, Plantains, Poa tussock, Prairie grass, Qld blue grass, Red-leg grass, Rhodes grass, Rope twitch, Sorrel, Soursob, Yorkshire fog	**Handgun:** 450-600 mL/100L **Knapsack:** 65-90 mL/15L **Boom:** Refer to Section 2	Control of established perennials is best obtained when plants are at the seedhead stage. In general, best control of Winter growing perennials is obtained with application during Winter-Spring. Best control of Summer growing perennials is obtained with application late Summer and Autumn. For Nutgrass in cultivated situations apply sequential low rate treatments when Nutgrass has a minimum of 6-8 leaves. Use the higher rate in uncultivated situations. For Rhodes grass, Rope twitch, Praire grass, Qld blue grass, Johnson grass, Kangaroo grass, Kikuyu, Redleg grass, Paspalum and Sorrel, use the higher rates only.
Blady grass, Bracken, Couch, Guinea grass, [V]Paragrass, Silverleaf nightshade, [V]Water couch [V]Use on Dry Drains and Channels ONLY (see Use Situations critical comments above)	**Handgun:** 800-1200 mL/100L **Knapsack:** 125-180 mL/15L **Boom:** Refer to Section 2	For Bracken add Pulse® at 200-500 mL/100L spray mix. Best control of couch in WA and SA is obtained with Spring treatment. Most effective control of couch in eastern states is obtained with Summer and Autumn treatments. In cultivated situations use sequential treatments of 1.8-3.8 L/ha for control. Only use higher rate for handgun and knapsack for Silverleaf nightshade.
WOODY WEEDS Bamboo (*Phyllostachys* spp), Bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata*), Boneseed (*C. monilifera* subsp. *monilifera*), Boxthorn (*Lycium ferocissimum*), Crofton weed (*Ageratina adenophora*), Gorse, Groundsel bush (*Baccharis halimifolia*), Lantana, Mistflower (*Ageratina riparia*)	**Handgun:** 300-600 mL/100L **Knapsack:** 45-90 mL/15L **Boom:** Refer to Section 2	Further treatment may be necessary to restrict seedling re-establishment. **Bamboo**, apply when foliage/regrowth is 1-2m tall, use higher rate only. **Bitou bush/Boneseed,** apply higher rate on bushes greater than 1.5m. Best results are achieved when treated at peak flower during Winter. **Boxthorn** minimum rate is 450 mL/100L for handgun and 65 mL per 15 L for knapsack. **Groundsel bush**, apply higher rate on bushes greater than 2 m. **DO NOT** apply in Winter. Minimum rate is 450 mL/100L for handgun and 65 mL per 15 L for knapsack. **Gorse, always add Pulse®** at 200-500 mL/100L of spray mix, use higher rate only. **Lantana**, use higher rate only. Addition of Pulse® (200-500 mL/100L) may improve control. **Boxthorn, Gorse, Lantana** Removal of bushes (after complete brownout), pasture improvement or further treatment are recommended to control seedlings and/or regrowth.
WOODY WEEDS Blackberry, Eucalyptus spp. (seedlings less than 2m), Hawthorn, Pampas grass (*Cortaderia* spp.), Chinese scrub or Sifton bush (*Cassinia arcuata*), Sweet briar, Willow (less than 2m)	**Handgun:** 600-1200 mL/100L **Knapsack:** 90-125 mL/15L **Boom:** Refer to Section 2	Removal of bushes (after complete brownout), pasture improvement or further treatment are recommended to control seedlings and/or regrowth. **Blackberry,** apply from flowering to leaf fall, use higher rate on old dense infestations greater than 2 m high. In Tasmania, **DO NOT** treat bushes bearing mature fruit. **Chinese scrub**, use higher rates on bushes greater than 1m. **Eucalyptus spp.**, add Pulse® at 200-500 mL/100 L of spray mix. **Hawthorn**, apply from flowering to leaf fall, use higher rates on bushes greater than 2m. **Pampas grass**, allow regrowth to reach 1 m, best results-apply after flowering. **Sifton bush**, use higher rates on bushes greater than 1 m. **Sweet briar**, apply from late flowering to leaf fall, use 0.9-1.2 L/100L for handgun, and 125-180 mL per 15 L for knapsack, use higher rates on bushes greater than 1.5 m.

WITHHOLDING PERIOD:

GRAZING:

BARLEY, CANOLA, LINSEED, LUPINS, MUSTARD, SAFFLOWER, SESAME, SUNFLOWER:

- **DO NOT CUT OR GRAZE FOR STOCKFOOD FOR 7 DAYS AFTER APPLICATION.**

COTTON, POPPIES:

- **DO NOT GRAZE OR CUT FOR STOCKFOOD.**

HAY/SILAGE (OTHER THAN CROPS LISTED SEPARATELY IN THIS SECTION):

- **DO NOT MOW OR CUT FOR 1 DAY AFTER APPLICATION. A MINIMUM 3 DAYS PRIOR TO CUTTING IS RECOMMENDED WHERE CONDITIONS RESULT IN SLOW TRANSLOCATION IN THE TARGET PLANT.**

WHEAT:

- **DO NOT CUT OR GRAZE FOR STOCKFOOD FOR 5 DAYS AFTER APPLICATION.**

ALL OTHER USES:

- **NOT REQUIRED WHEN USED AS DIRECTED.**

HARVEST:

BARLEY, POPPIES, PULSES, SAFFLOWER, SESAME, SORGHUM, SUNFLOWER:

- **DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.**

CANOLA, MUSTARD:

- **NOT REQUIRED WHEN USED AS DIRECTED ON CANOLA HYBRIDS WITH THE OPTIMUM GLY® HERBICIDE TOLERANCE TRAIT.**
- **NOT REQUIRED WHEN USED SOLELY IN-CROP OVER ROUNDUP READY CANOLA PRIOR TO BUD FORMATION.**
- **DO NOT HARVEST FOR 5 DAYS AFTER APPLICATION TO A STANDING CROP AS A PRE-HARVEST / CUTTING APPLICATION.**
- **NOT REQUIRED WHEN USED AT WINDROWING.**

COTTON

- **NOT REQUIRED WHEN USED AS DIRECTED.**

LINSEED

- **DO NOT HARVEST FOR 10 DAYS AFTER APPLICATION.**

WHEAT:

- **DO NOT HARVEST FOR 5 DAYS AFTER APPLICATION.**

ALL OTHER USES:

- **NOT REQUIRED WHEN USED AS DIRECTED.**

TANK MIXTURES: REFER TO TANK MIX PARTNER LABEL AND FOLLOW ACCORDINGLY.

EXPORT OF TREATED PRODUCE

Growers should note that MRL's or import tolerances **DO NOT** exist in all markets for produce treated with CRUCIAL Herbicide. If you are growing produce for export, please check with Nufarm Australia Limited for the latest information on MRL's and import tolerance before using CRUCIAL Herbicide.

GENERAL INSTRUCTIONS

CRUCIAL is a non-volatile, non-selective, water soluble liquid herbicide with non-selective herbicidal activity. It is absorbed by plant foliage and green stems and moves through the plant from the point of contact to and into the root system. Effects may not be apparent for 3–7 days (annual weeds) or 2–3 weeks (perennial weeds) or longer under cool, cloudy conditions.

CRUCIAL will control emerged weeds only, and provides no residual weed control. Apply treatments to weeds which have at least one true leaf (broadleaf weeds) or two leaves (grasses) to provide an adequate surface area for herbicide uptake. CRUCIAL may be used prior to sowing any crop (edible or non-edible) but not prior to transplanting tomato seedlings.

A withholding period for grazing stock is not required (except for Canola and pre-harvest applications to barley & wheat and pre-cutting/grazing applications to hay/silage). However, it is recommended that grazing of treated plants be delayed for one day after treatment of annual weeds, or 7 days of perennial weeds are present, to ensure absorption of CRUCIAL. Certain plants (eg. Soursob, variegated thistle) may be naturally toxic to stock. Where known toxic plants are present, **DO NOT** allow stock to graze until complete browning of treated plants has occurred.

Weeds should be actively growing at the time of treatment. **DO NOT** treat weeds under poor growing or dormant conditions (such as occur in drought, water logging, disease, insect damage or following frosts) as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust or silt. Prior herbicide application may also induce stress in weeds.

Rainfall occurring up to 1 hour of daylight after application may reduce effectiveness, heavy rainfall may wash the chemical off the foliage and a repeat treatment may be required. Rainfastness or general efficacy may be reduced if weeds are not actively growing, are under stress or conditions of low light intensity/darkness. Delay treatment of plants wet with dew or rain, if water droplets run off when plants are disturbed. Avoid contact with foliage, green stems or fruit of crops, desirable plants and trees, since severe injury or destruction may result.

CROP ESTABLISHMENT

CRUCIAL is recommended for control of emerged weeds prior to crop establishment. Suitable cultivation and/or sowing operations are required to provide seed bed conditions satisfactory for crop germination and development. Spraying early to control young weeds will favour preparation of suitable seed beds. On friable soils and where there is only light cover of young weeds, sowing may proceed satisfactorily from one hour after spraying. In situations of heavy weed growth sowing should be delayed until weed decay and soil conditions allow formation of a satisfactory seed bed. Incorporation of green or decaying vegetation and roots into the seedbed by cultivation or sowing may cause retarded crop emergence, particularly in cold and/or wet conditions. Vegetation may be reduced by grazing and weed decay may be assisted by cultivation to leave trash on the surface. In marginal seedbed conditions take care to achieve correct seeding depth, and avoid use of pre-emergence herbicides where label directions advise of risk of retarded crop emergence.

Full soil disturbance seeding
When cultivating or sowing with a tyned implement, the operation may start one day after applying CRUCIAL to annual species and 7 days for perennial species and should be completed within 21 days. Cultivation or sowing may start 6 hours after treatment when treating light infestations or pre-tillering annual grasses or annual broadleaved weeds less than 8cm diameter/height.

Minimal or no soil disturbance seeding
Trash may be removed by grazing after applying CRUCIAL. Grazing may commence one day after treatment of small annual weeds, three days for large annual weeds, and 7 days for perennial weeds, and should be completed within 21 days.

Aerial (or surface) seeding
Delay seeding until trash is completely removed by grazing and/or plant decay. When establishing pasture, ensure application of fertilizer and insecticides and follow-up management is undertaken as required.
Crop plant back & rotation recommendation for tank mixes with Terrad'or®

1 hour		1 week	2 weeks	4 weeks	6 weeks
Wheat	Field pea	Canola (15 – 20 g/ha Terrad'or rates only)	Canola (21 – 40 g/ha Terrad'or rates only)	Mung bean	Cotton
Barley	Corn	Mustard (oilseed cultivars) (*Brassica*	Mustard (oilseed cultivars) (*Brassica*		
Oats	Sorghum	*juncea*) (15 – 20 g/ha Terrad'or® rates only)	*juncea*); (21 – 40 g/ha Terrad'or® rates		
Lupin	Faba bean		only)		
Chick pea	Lentil				

MIXING
CRUCIAL mixes readily with water. Note: Reduced results may occur if water containing soil is used, eg. Water from ponds and unlined ditches, or if hard water containing calcium salts is used.
DO NOT mix, store or apply this product or spray solutions of this product in galvanised steel or unlined steel containers or spray tanks, since a highly flammable gas mixture may be formed. Use stainless steel, aluminium, brass, copper, fibreglass, plastic or plastic lined containers or spray tanks.
Ensure the sprayer is free of any residue of previous spray materials. Use spray solutions promptly since a gradual loss of activity will occur. Fill the spray tank with one half the required amount of clean water and add the proper amount of CRUCIAL. Mix well before adding the remaining portion of water.
Where required, add surfactant near the end of the filling process to minimize foaming. Placing the filling hose below the surface of the spray solution will prevent excessive foaming. Removing hose from tank immediately after the filling will prevent back siphoning into water source. **DO NOT** use mechanical agitators as these may cause excessive foaming.
Spray tanks, pumps, lines and nozzles should be thoroughly rinsed with clean water following application to prevent corrosion.

TANK MIXTURES/COMPATIBILITY - All products
CRUCIAL may be tank mixed with the following herbicides, insecticides and additives. Read and follow all label directions, restraints, plant-back periods, withholding periods, regional use restrictions and safety directions for the tank mix products.

MIXING INSTRUCTIONS FOR ALL TANK MIXTURES
1. Fill the spray tank 1/3 to 1/2 full with clean water and start agitation.
2. Add Nufarm Liase where required.
3. Add recommended herbicide/insecticide/additive to the spray tank and mix thoroughly.
4. Add CRUCIAL and the remaining water. Mix thoroughly.
5. Add surfactant, if required, near the end of the filling process to minimize foaming.
6. Always maintain adequate agitation during application and use the tank mix promptly.

TANK MIXTURES – HERBICIDE COMPATIBILITY
CRUCIAL is compatible with the following herbicides: Amicide Advance® 700, Archer® 750, Archer®, Associate®, Atradex®, Avadex® Xtra, Balance*, Boxer Gold*, Bromicide® 200, Bouncer® 960S, Cobber® 475, Comet® 400, Diurex®, Estercide® 800, Estercide® Xtra 680, Grando®, Intercept®, Kamba® 750, Logran* 750, Logran* B Power, Lusta®, Mako®, Nail® 240EC, Nail® 600EC, Nugran*, Olando®, Polo® LVE 570, Rifle 440®, Rustler*, Sakura*, Sentry®, Sharpen*, Simagranz®, Spark®, Striker®, Terbazine, Terrain® 500WG, Tomahawk®, TriflurX®, and Trooper® 75-D.
Other brands have not been tested. Ensure all water dispersible granules, wettable powders, etc. have fully dispersed and agitation is maintained prior to the addition of CRUCIAL Herbicide.

TANK MIXTURES – INSECTICIDE COMPATIBILITY
CRUCIAL is compatible with the following insecticides: Astound® Duo, Astral® 250, Chlorpyrifos 500EC, Imidan®, Kaiso® 240EG with Sorbie Technology, Le-Mat*, Lorsban* 500, Matador Zeon®, Sumithion* ULV, and emulsifiable concentrates of dimethoate and fenitrothion. Other insecticides have not been tested.

TANK MIXTURES - ADDITIVES

Nufarm Liase (417 g/L ammonium sulphate liquid)
RATE: 2 L per 100 litres spray solution.
Nufarm Liase may be used as an adjuvant to alleviate the adverse effects of high levels of calcium, magnesium and bicarbonate ions in water. The addition of Nufarm Liase to CRUCIAL, when used to control annual weeds, MAY improve the performance of CRUCIAL under adverse environmental conditions such as cool cloudy weather. Nufarm Liase may also improve the performance of tank mixtures of CRUCIAL and atrazine or simazine. Ammonium sulphate may be corrosive to metal parts of the sprayer. Thoroughly flush tanks, pumps and nozzles with water after use. Solubility and impurity profiles of other forms of ammonium sulphate can vary and may reduce the performance of CRUCIAL or tank mixtures.

SURFACTANT ADDITION
CRUCIAL contains a built-in surfactant system so unless specifically required for certain weeds, situations or by tank-mix partner labels, CRUCIAL does not require the addition of a tank mix adjuvant or surfactant.

Nufarm Collide 700® Surfactant
RATE: 250-500 mL per 100 L. The addition of Nufarm Collide 700 surfactant MAY improve weed control. At rates of 300-500 mL per 100 L, Nufarm Collide 700 is likely to modify the droplet spectrum produced by CP and flat fan nozzles. This is likely to reduce the proportion of driftable FINE droplets produced by these nozzles. For high volume application (eg. Knapsack, Handgun equipment), if CRUCIAL is less than 0.9 L/100L, add Nufarm Collide 700® at 250 mL/100L.

Nufarm Activator®
RATE: Where required on a tank-mix partner label to use a non-ionic surfactant, add Activator at 70-125 mL per 100 L. General Purpose non-ionic surfactants, other than Activator, may increase the production of FINE and VERY FINE droplets, which are prone to drift when used through certain nozzle types.

Wetter TX Surfactant
RATE: 200 mL/100 L spray solution. Add when treating Annual Ryegrass, Silvergrass and Perennial grasses. Wetter TX is NOT a general-purpose surfactant and should be used only where recommended. The addition of Wetter TX may improve rainfastness on Winter annual weeds.

DO NOT use adjuvants or surfactants other than those recommended on this label.
DO NOT use crop oil except when tank mixing with a herbicide for which an oil adjuvant is recommended to be used. The addition of a crop oil can reduce control of some grass weeds, particularly in Summer.

APPLICATION
CRUCIAL is a non-selective translocated herbicide. Direct spray contact, or even slight drift, may cause severe injury or destruction of any growing crop or other desirable plants including trees. Clean all equipment after use by thoroughly washing with water.

Boom Equipment
For Broadacre boom application, a spray volume of 80 L/ha is recommended for broadacre uses and 200 L/ha or less for treeline and vineline spraying in orchards and vineyards. Nozzles and pressure settings should be selected to deliver a COARSE to VERY COARSE spray quality at the target. The use of nozzles and/or pressure settings that produce VERY FINE or FINE spray quality should be avoided as these are prone to loss or drift. In multiple product tank mixes a minimum water volume of 50 L/ha is recommended and local advice should be sought. Correct mixing order is important as is good in-tank agitation when application is occurring.

Shielded Equipment
For shielded applications a spray volume of 80 L/sprayed ha is recommended using nozzle types and pressure settings to deliver a COARSE spray quality at the target. Crop damage may result if spray drift occurs through incorrect nozzle and/or pressure selection, inadequate shielding and/or wind strength, high evaporation rates or excessive ground speed.

High Volume Application (e.g. Knapsack, Handgun Equipment)
The dilution rate varies depending on the use situation and weeds controlled - see Weeds Controlled tables for specific rates and use recommendation. Adjust equipment to achieve an even spray pattern with a COARSE spray quality at the target. Apply to ensure complete and uniform wetting of all foliage.

Controlled Droplet Application Equipment (CDA)
CRUCIAL can be applied through hand held and machine mounted CDA sprayers. See Weeds Controlled tables for specific rates and use recommendations. Due to the range of CDA equipment available, dilution rates, flow rates and travel speeds will need to be determined for individual sprayers to ensure labelled rates are applied. Spray units need to be cleaned thoroughly preferably after each application to ensure optimum performance.
DO NOT add oils to CRUCIAL/water mixture, otherwise difficulty in application and reduced weed control may occur.
Because CDA units may deliver relatively low spray volumes per hectare, use on large weeds may result in insufficient coverage resulting in inadequate weed control.
CAUTION: CDA equipment produces a fine spray pattern which is not easily visible. Ensure spray pattern or drift does not contact foliage or any other green tissue of desirable plants, since severe injury or destruction may result.

Aerial Equipment
CRUCIAL may be applied by aircraft for control of weeds in forests, cropland or pasture prior to establishment of crops, new pastures or new forest plantings and for pre-harvest applications, up to a maximum rate of 2.4 L/ha where specified by this label. **DO NOT** apply treatments by aircraft in situations where drift onto sensitive crops and pastures is likely to occur.
Apply treatments using a spray volume not less than 20 L/ha and using settings to produce a COARSE to VERY COARSE spray quality. In multiple product tank mixes a minimum water volume of 50 L/ha is recommended and local advice should be sought. Correct mixing order is important. Swath width should be set to consider aircraft type, wind conditions and target height. Swath width will need to be reduced to avoid striping under light wind conditions and/or application to tall, dense targets e.g. preharvest application, treatments in heavy crop stubble. Thoroughly wash aircraft after each day of spraying to remove herbicide residues.
When applying this product by helicopter in combination with Associate for the control of Blackberry, Coppice and Pine wildling suppression in forestry and other specific situations, a rate of 4.8 L/ha CRUCIAL may be applied. Refer Section 11 and the Associate label for specific recommendations and application recommendations.

Aerial application - Hilly terrain
For aerial application on hilly terrain, increase water volume to 30-80 L/ha and use a COARSE spray quality to optimise spray coverage.

Aerial application - Air temperature and relative humidity
DO NOT apply CRUCIAL by aircraft at temperatures above 30ºC. Ensure spray output is at least 30 L/ha when temperatures rise above 25ºC. Avoid application when relative humidity falls below 35%.

RESISTANT WEEDS WARNING

GROUP 9 HERBICIDE

Nufarm CRUCIAL Advanced Technology Herbicide ("**CRUCIAL**") is a member of the Glycines group of herbicides. **CRUCIAL** has the inhibition of EPSP synthase mode of action. For weed resistance management **CRUCIAL** is a Group 9 herbicide. Some naturally occurring weed biotypes resistant to **CRUCIAL** and other Group 9 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 **CRUCIAL** or other Group 9 herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Nufarm accepts no liability for any losses that may result from the failure of CRUCIAL to control resistant weeds.

Users of CRUCIAL over Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait must implement practices that minimize the development of resistance in treated weeds. Minimising this risk may best be achieved by following the integrated weed management strategy guidelines summarised below:

1. Aim to enter the Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait, cropping phase of the rotation with a low weed burden.
2. Integrate as many different weed control options (chemical and cultural) as possible through all phases of the crop rotation.
3. Make every herbicide application count – use registered rates at the correct application growth stage and assess effectiveness.
4. Rotate herbicides with different modes of action throughout the crop rotation.
5. Regularly monitor the effectiveness of resistance management practices.
6. Test weed populations for herbicide resistance status as part of ongoing integrated weed management.
7. Growers should not plant Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait in paddocks with populations of confirmed glyphosate resistant weeds.

It is advised that consultation on Integrated Weed Management be undertaken with an accredited agronomist or program prior to use of CRUCIAL over Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait.

More information on Integrated Weed Management can be found at:

- Australian Glyphosate Sustainability Working Group (AGSWG), 'Sustainable glyphosate use in winter grain cropping' http://glyphosateresistance.org.au
- Weedsmart: www.weedsmart.org.au
- CropLife Australia: http://www.croplife.org.au/industry-stewardship/resistancemanagement/

As with conventional varieties, volunteer and ratoon Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or volunteer canola hybrids with the Optimum GLY® herbicide tolerance trait may occur in fallows, and non-cropping areas of a farm such as irrigation ditches, water storages, etc. These plants will not be controlled by CRUCIAL or other glyphosate (Group 9) herbicides and should be controlled in both cropping and non-cropping areas. These plants are best managed with cultivation and/or appropriate registered herbicides (see Integrated Weed Management Strategy Guidelines above). Growers should ensure that they have an effective weed management strategy developed for the control of these weeds. Herbicide control options for these plants include the following (refer to product labels for further information on use situations): Agritone® 750, Alliance®, Amicide® Advance 700, Amitrole T, Associate®, Bentley®, Biffo®, Broadside®, Broadsword®, Bromicide® 200, Bromicide® MA, Comet® 400, Eliminar® C, Estercide® Xtra 680, Nail®240, Nail®600, Polo® 570 LVE, Revolver®, Sentry®, Shirquat® 250, T-Rex® and Unity®.

RESISTANT WEEDS REPORTING, AUDITING AND SURVEYING

Users of CRUCIAL are required to report any adverse events, such as suspected weed resistance, to Nufarm, as soon as it is identified.

Nufarm will investigate the incident and produce a report of any incidents of confirmed resistance of weeds to CRUCIAL in target weed species which are normally susceptible to this herbicide and forward the report as soon as practicable to the Australian Pesticides and Veterinary Medicines Authority. Weeds identified to have survived CRUCIAL must be controlled by an alternative strategy in order to prevent weeds from setting seed.

Users of CRUCIAL over Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait must allow Nufarm or its agents to undertake audits or surveys as necessary to assess management by users of the development of glyphosate resistance in target weeds. Nufarm or its agents will conduct an audit or survey annually on a percentage of fields where CRUCIAL has been used over Roundup Ready Flex* cotton, Roundup Ready* canola, TruFlex* canola or canola hybrids with the Optimum GLY® herbicide tolerance trait.

PRECAUTIONS

Re-entry period

Re-entry is not allowed until the product 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.

PROTECTION OF CROPS, NATIVE AND OTHER NONTARGET PLANTS

Avoid contact with foliage, green stems or fruit of crops, desirable plants and trees, since severe injury or destruction may result. **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. **DO NOT** apply if wind is blowing towards a sensitive crop or situation and off-target damage cannot be avoided.

PROTECTION OF WILDLIFE, FISH, CRUSTACEA AND ENVIRONMENT

DO NOT contaminate dams, rivers or streams with the product or used container. **DO NOT** apply to weeds growing in or over water. **DO NOT** spray across open bodies of water.

STORAGE AND DISPOSAL

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

For non-returnable containers

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 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.

For RETURNABLE containers
Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

SAFETY DIRECTIONS
May irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container, preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist and a washable hat, and elbow length chemical resistant gloves. Wash hands after use. After each day use, wash gloves and contaminated clothing.

FIRST AID
If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

ADDITIONAL STATEMENTS (WHS REGULATIONS 2011)
Not required – Not classified as hazardous.
Glyphosate is classified as non-carcinogenic by many international regulatory agencies. In 2015, the International Agency for Research on Cancer (IARC) classified glyphosate as "probably carcinogenic to humans" (Group 2A). In maintaining their position that glyphosate is non-carcinogenic, the regulatory
agencies have taken the IARC classification into account.

SAFETY DATA SHEET
For further information refer to the Safety Data Sheet (SDS), which can be obtained by scanning the QR code, from your supplier or the Nufarm website.
In case of emergency: Phone 1800 033 498 (24 hrs) and ask for shift supervisor.

PRODUCT STEWARDSHIP INFORMATION AND TOOLS
nufarm.com.au/spraywise is a website which contains resources on spray drift management, recording keeping and application technologies.
spraywisedecisions.com.au is an online weather forecasting program and is recommended for use when planning your pesticide application.
When spraying in or near areas with sensitive crops such as cotton, check online at **satacrop.com.au** for the proximity of sensitive crops mapped by growers.
stewardshipfirst.com.au is a website with CropLife Australia's suite of world-leading product stewardship initiatives, programs and best-practice guides.

CONDITIONS OF SALE
Any provisions or rights under the Competition and Consumer Act 2010 or relevant state legislation which cannot be excluded by those statutes or by law are not intended to be excluded by these conditions of sale. Subject to the foregoing, all warranties, conditions, rights and remedies, expressed or implied under common law, statute or otherwise, in relation to the sale, supply, use or application of this product, are excluded. Nufarm Australia Limited and/or its affiliates ("Nufarm") shall not accept any liability whatsoever (including consequential loss), or howsoever arising (including negligence) for any damage, injury or death connected with the sale, supply, use or application of this product except for liability which cannot be excluded by statute.

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For product advice, or to learn more about complementary Nufarm solutions,
reach out to your local Nufarm specialist or call **1800 NUFARM (1800 683 267)**.

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