Australian Pesticides & Veterinary Medicines Authority

Product Name: Nufarm Dropzone Herbicide
APVMA Approval No: 91596/145566

Label Name:	Nufarm Dropzone Herbicide

Signal Headings:	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Constituent Statements:	ACTIVE CONSTITUENT: 500 g/L 2,4-D PRESENT AS THE DIMETHYLAMINE AND MONOMETHYLAMINE SALTS

Mode of Action:	GROUP 4 HERBICIDE

Statement of Claims:	For the control of broadleaf weeds in situations as per Directions for Use with a range of benefits: - Spray droplet optimisation to enhance coverage, improve retention and reduce the risk of spray drift - Increased speed of action and final weed control - Low odour - Non-volatile THIS IS A PHENOXY HERBICIDE THAT CAN CAUSE SEVERE DAMAGE TO NATIVE VEGETATION AND SUSCEPTIBLE CROPS SUCH AS COTTON, GRAPES, TOMATOES, OILSEED CROPS AND ORNAMENTALS.

Net Contents:	500 mL - 1000 L

Restraints:	PLEASE SEE ATTACHED

Directions for Use:	PLEASE SEE ATTACHED

Other Limitations:	IN TASMANIA, THIS PRODUCT MAY ONLY BE USED FROM 15 APRIL TO 15 SEPTEMBER UNLESS OTHERWISE PERMITTED BY THE REGISTRAR OF PESTICIDES.

Withholding Periods:	WITHHOLDING PERIODS GRAZING: Pasture, Cereal Crops - DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 7 DAYS AFTER APPLICATION. HARVEST: NOT REQUIRED WHEN USED AS DIRECTED.

Trade Advice:	

General Instructions:	This section contains file attachment.

Resistance Warning:	RESISTANT WEEDS WARNING GROUP 4 HERBICIDE Nufarm DROPZONE® Herbicide is a member of the phenoxy group of herbicides. Nufarm DROPZONE® has the disruptor of plant cell growth mode of action. For weed resistance management Nufarm DROPZONE® is a Group 4 herbicide. Some naturally occurring weed biotypes resistant to Nufarm DROPZONE® and other Group 4 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 Nufarm DROPZONE® or other Group 4 herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Nufarm Australia Limited accepts no liability for any losses that may result from the failure of Nufarm DROPZONE® to control resistant weeds.

Precautions:	PRECAUTIONS Re-Entry Period DO NOT enter treated areas until spray has dried. If prior entry is necessary, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use. DO NOT hand harvest sugar cane for at least 11 day after application.

Protections:	PROTECTION OF CROPS, NATIVE AND OTHER NON TARGET PLANTS DO NOT spray crops if undersown with sensitive crops such as lucerne. PROTECTION OF LIVESTOCK Low hazard to bees. May be applied at any time as recommended in the Directions for Use. PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.

Storage and Disposal:	STORAGE AND DISPOSAL Store in the closed, original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Non-refillable 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. Returnable containers Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

Safety Directions:	Harmful if absorbed by skin or swallowed. Corrosive – will damage eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. When opening the container, preparing the product for use, and using the prepared spray wear chemical resistant clothing, buttoned to the neck and wrist and a washable hat, elbow-length chemical resistant gloves, impervious footwear and face shield or goggles. If applying by closed cab boomspray equipment, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing). If clothing becomes contaminated with product remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing. Do not re-use footwear until thoroughly aired.

First Aid Instructions:	FIRST AID INSTRUCTIONS If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 13 11 26, New Zealand 0800 764 766.

First Aid Warnings:	Corrosive liquid

RESTRAINTS

DO NOT apply if heavy rains or storms are forecast within 3 days, or if any rain is expected within 6 hours.
DO NOT irrigate to the point of runoff for at least 3 days after application.
DO NOT apply if crop or weeds are stressed due to dry or excessively moist conditions.
DO NOT exceed maximum application rate of 2.1 L/ha for boom sprayers and 6.7 L/100L water for optical spot spray technologies.
DO NOT exceed the maximum daily application rate by backpack spraying of 4 L/day.
Additional USAGE restrictions apply in certain states (listed below) and in peanut, pasture and sugarcane situations (refer to Section 10 of the Directions for Use Tables):
Tasmania & South Australia:

- Only apply in no-till farming systems for the following situations:
  - Preparatory sprays in dryland cropping
  - Pre-emergent application in winter cereals, summer cereals and legumes

Western Australia:

- Only apply in no-till farming systems for pre-emergent applications in winter cereals and legumes.

Spray Drift Restraints

DO NOT apply by vertical sprayer.
Specific definitions for terms used in this section of the label can be found at www.apvma.gov.au/spraydrift
DO NOT allow **bystanders** to come into contact with the spray cloud.
DO NOT apply in a manner that may cause an **unacceptable impact** to **native vegetation, agricultural crops, landscaped gardens** and **aquaculture production**, or cause contamination of plant or livestock commodities, outside the application site from **spray drift**. The **buffer zones** in the relevant buffer zone tables 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.

Boom Sprayers

DO NOT apply by a boom sprayer unless the following requirements are met:

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

Buffer Zones for Boom Sprayers

Application rate	Boom Height above target canopy	Mandatory buffer zones (distances given in metres)				
		Bystander Areas	Natural Aquatic Areas	Pollinator Areas	Vegetation Areas	Livestock Areas
Up to 350 mL/ha	0.5 m or lower	0	0	0	0	0
	1.0 m or lower		15		15	
Up to 700 mL/ha	0.5 m or lower		0		0	
	1.0 m or lower		25		25	
Up to 1.37 L/ha	0.5 m or lower		5		5	
	1.0 m or lower		40		35	
Up to 2.1 L/ha	0.5 m or lower		15		15	
	1.0 m or lower		50		50	

Optical Spot Spraying Technology

DO NOT apply by an Optical Spot 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** (see '**Mandatory buffer zones**' section of the following table titled 'Buffer zones for optical spot sprayers') are observed.

Buffer Zones for Optical Spot Sprayers

Minimum droplet size / nozzle	Equipment setup and calibration	Maximum weed cover	Mandatory buffer zones (distances given in metres)				
			Bystander Areas	Natural Aquatic Areas	Pollinator Areas	Vegetation Areas	Livestock Areas
COARSE	- calibrate to spray the equivalent of 100 L/ha - add Nufarm DROPZONE® up to 6.7 L/100 L - ensure boom height above target canopy is 0.75 m or lower	**10%** (maximum application rate per hectare 670 mL/ha)	0	20	0	20	0
VERY COARSE		**15%** (maximum application rate per hectare 1 L/ha)		20		20	
		30% (maximum application rate per hectare 2 L/ha)		35		35	
Agrotop Spot Fan 4003 at 3 bar pressure		**15%** (maximum application rate per hectare 1 L/ha)		15		10	
		30% (maximum application rate per hectare 2 L/ha)		25		25	

Aircraft

DO NOT apply by aircraft unless the following requirements are met:

- spray droplets are no smaller than a VERY COARSE **spray droplet size category**
- for maximum release heights above the target canopy of 3 m or 25% of wingspan or 25% of rotor diameter whichever is the greatest, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for aircraft') are observed.

Buffer Zones For Aircraft

Application rate	Aircraft Type	Mandatory buffer zones (distances given in meters)				
		Bystander Areas	Natural Aquatic Areas	Pollinator Areas	Vegetation Areas	Livestock Areas
Up to 350 mL/ha	Fixed Wing	0	50	0	50	0
	Helicopter		40		40	
Up to 700 mL/ha	Fixed Wing		85		85	
	Helicopter		65		65	
Up to 1.37 L/ha	Fixed Wing		140		130	
	Helicopter		95		95	
Up to 2.1 L/ha	Fixed Wing		180		180	
	Helicopter		130		120	

DIRECTIONS FOR USE

Nufarm DROPZONE® produces an optimised spray droplet spectrum by reducing undesirable and ineffective droplets at both ends of the droplet spectrum. This results in a more effective and uniform spray pattern with a higher proportion of droplets in the optimal size range, including when used in tank mixtures as recommended in Sections 1 and 2 of the Directions for Use. This enhances spray coverage and droplet retention and reduces the risk of off-target spray drift.
Nufarm DROPZONE® may show increased speed of action and final weed control when applied with VC-UC spray quality compared to alternative 2,4-D amine formulations, including when used in tank mixtures as recommended in Sections 1 and 2 of the Directions for Use.
Nufarm DROPZONE® should be used in conjunction with spray application practices to reduce drift. Refer to GRDC GROWNOTES Spray Application Manual for Growers: Module 4, Drift management strategies: minimising and managing spray drift risk, for best practise spray application guidelines.

SECTION 1. FALLOW and PRE-SOWING

SITUATION & CROP	WEEDS	RATE	CRITICAL COMMENTS
Prior to sowing a crop or pasture or for fallow, as specified in the plantback table	Refer to Weed Table, Section 4.	0.28 - 2.1 L/ha OR 0.4 - 1.7 L/ha + 0.6 - 1.8 L/ha Nufarm CRUCIAL® OR 0.4 – 1.7 L/ha + 0.77 – 2.3 L/ha Nufarm weedmaster® DST® + 125 mL/100L Nufarm Activator®	**RATE SELECTION:** Select appropriate rate from the Section 4 Weeds Table below. Use the lower rate for seedling or small weeds and increase to the higher rate for larger weeds. 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. Where required, Nufarm Activator® is the preferred adjuvant. Refer adjuvant section for further information. Nufarm Liase (liquid ammonium sulphate) can be added and is recommended to mitigate hard water and maximise efficacy, particularly when using glyphosate tank mixes and under adverse environmental conditions. Spray droplet optimisation is supported for water rates of 70 - 250 L/ha. Higher than minimum water volumes may be required for improved coverage, efficacy, or to ensure compatibility of tank-mix partners. Refer to compatibility section below for further advice on physical compatibility and water rates.

SECTION 2. FLEABANE AND SOWTHISTLE CONTROL FOR FALLOW AND PRE-SOWING – MIXTURES WITH NUFARM CRUCIAL® or weedmaster DST + Nufarm Activator

SITUATION & CROP	WEEDS	RATE	CRITICAL COMMENTS
Prior to sowing a crop or pasture or commencing a fallow, as specified in the plantback table	Flaxleaf fleabane (*Conyza bonariensis*) Sowthistle (*Sonchus oleraceus*)	0.91 - 1.54 L/ha + 1.1 - 1.8 L/ha Nufarm CRUCIAL® OR 0.91 - 1.54 L/ha + 1.4 - 2.3 L/ha Nufarm weedmaster® DST® + 125 mL/100L Nufarm Activator®	Apply to cotyledon to 12 leaf rosette stage prior to stem elongation. Use the low rates in autumn/winter and the highest rates in spring/summer in minimum 70 L water/ha. Nufarm Liase (liquid ammonium sulphate) can be added and is recommended to mitigate hard water and maximise efficacy, particularly when using glyphosate tank mixes and under adverse environmental conditions. Spray droplet optimisation is supported for water rates of 70 - 250 L/ha. Higher than minimum water volumes may be required for improved coverage, efficacy, or to ensure compatibility of tank-mix partners. Refer to compatibility section below for further advice on physical compatibility and water rates.
		As above followed by 1.6 - 2.0 L/ha Shirquat® 250	A sequential application of Shirquat® 250 is also recommended 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 spray is applied 7 - 14 days after the first application. Use the low rate in autumn/winter and the high rate in spring/summer in minimum 70 L water/ha. Refer additional comments above.

SECTION 3. CEREALS - POST EMERGENCE

SITUATION & CROP	WEEDS	RATE	CRITICAL COMMENTS
Barley, Wheat	Refer to weed table section 4 (where Nufarm DROPZONE® is used alone at rates of 1.4 L/ha or less)	0.7 – 1.4 L/ha	Apply from first node (Z31) to Z39 crop growth stage ONLY. DO NOT exceed the maximum rate (1.4 L/ha) in Wheat and Barley as it could lead to unacceptable crop injury. DO NOT spray if Lucerne is present. DO NOT apply to undersown medics. Due to its unique formulation, DROPZONE can cause additional transient phytotoxicity when applied to wheat or barley when compared to other 2,4-D formulations. Tank mixing with other products may further increase the potential of additional phytotoxicity. Refer to in-crop compatibility section for supported products. **DO NOT** apply to crops under sown with sensitive species (anything other than wheat or barley).
	Volunteer canola (Brassica napus) Including Roundup Ready varieties and canola hybrids with the Optimum GLY tolerance trait (where Nufarm DROPZONE® is used alone) Up to 4-leaf stage	1.2 L/ha	

SECTION 4. WEEDS TABLE FOR SECTIONS 1,3, 5, 6, 8, and 9

Nufarm DROPZONE® can be used alone or in tank mix with Nufarm CRUCIAL® or Nufarm weedmaster® DST* + Nufarm Activator
Minimum application rates are listed below for Nufarm DROPZONE® applied alone or in a tank mixture with Nufarm CRUCIAL®. All weeds listed can be treated up to the maximum application rate of 1.8 L/ha of Nufarm CRUCIAL®* and 1.7 L/ha of Nufarm DROPZONE®.
Use lower rates for small, seedling weeds under ideal conditions and increase to higher rates for larger weeds.

WEEDS	MINIMUM APPLICATION RATE of NUFARM DROPZONE® ALONE	MINIMUM APPLICATION RATES of NUFARM DROPZONE® + NUFARM CRUCIAL®*	CRITICAL COMMENTS
Ageratum/Billygoat weed/Blue top (*Ageratum* spp)	-	550 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Amaranth/Green amaranth (*Amaranthus viridus*)	-	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Amaranthus spp.	700 mL/ha	-	
Amsinckia (*Amsinckia calycina*)	1.37 L/ha	-	
Annual ground cherry *(Physalis angulate*)	-	1 L/ha + 1.2 L/ha Nufarm CRUCIAL®*	
Apple of Peru (*Nicandra physalodes*)	1 L/ha	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Australian bindweed (*Convolvulus angustissumus*)	-	400 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Ball mustard (*Neslia paniculata*)	-	400 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Bathurst burr (*Xanthium spinosum*)	1 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Bellvine (*Rhodochiton atrosanguineus*)	2.1 L/ha	400 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Bindweed (*Convolvulus arvensis*)	1.37 L/ha	-	
Blackberry nightshade (*Solanum nigrum*)	700 mL/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Blackeyed Susan (*Thunbergia alata*)	2.1 L/ha	-	Apply at pre-flowering, preferably to younger plants.
Bladder Ketmia (*Hibiscus trionum*)	-	1 L/ha + 900 mL/ha Nufarm CRUCIAL®*	

WEEDS	MINIMUM APPLICATION RATE of NUFARM DROPZONE® ALONE	MINIMUM APPLICATION RATES of NUFARM DROPZONE® + NUFARM CRUCIAL®*	CRITICAL COMMENTS
Blue snakeweed (*Stachytarpheta dichotoma*)	2.1 L/ha	-	
California burr (*Xanthium orientale*)	700 mL/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Caltrop (*Tribulus terrestris*)	1 L/ha	400 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Cape tulip (*Moraea flacdida, Moraea miniata*)	800 mL/ha	-	Low rate for cormils only.
Capeweed (*Arctotheca calendula*)	1.37 L/ha	-	Spray up to rosette stage.
Charlock (*Sinapsis arvensis*)	700 mL/ha	550 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	Spray up to rosette stage.
Clover species (*Trifolium* spp)	1.5 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
	1.37 L/ha + 185 - 265 mL/ha Nufarm Kamba® 750	-	**DO NOT** sow pasture seed for at least 30 days after application.
Cobbler's pegs (*Bidens pilosa*)	2.1 L/ha	-	Apply at pre-flowering, preferably to young plants.
Common ice plant (*Mesembryanthemum crystallinum*)	1.37 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Common sida (*Sida rhombifolia*)	2.1 L/ha	-	
Cow vine (*Ipomoea lonchophylla*)	-	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Docks (*Rumex* spp.)	1.37 L/ha	550 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Doveweed (*Eremocarpus setiger*)	1.37 L/ha	-	
Erodium/Storksbill (*Erodium* spp.)	1.75 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Spray up to young rosettes.
False castor oil plant (*Datura stramonium*)	-	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Fat hen (*Chenopodium album*)	1 L/ha	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	Spray pre-flowering.
Flannel weed (*Sida cordifolia*)	2.1 L/ha	-	
Flatweed (*Hypochaeris radicata*)	1.37 L/ha	-	
Flaxleaf fleabane (*Conyza bonariensis*)	2.1 L/ha	Refer to Section 2 above.	Apply up to 6 leaf rosette stage in minimum 70 L water/ha.
Fumitory – red (*Fumaria officinalis*)	2.1 L/ha	550 mL/ha + 750 mL/ha Nufarm CRUCIAL®*	
Fumitory – white (*Fumaria capreolata*)	700 mL/ha	400 mL/ha + 750 mL/ha Nufarm CRUCIAL®*	Spray at multiple leaf stage.
Goosefoot/mintweed *(Dysphania pumilio)*		1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Hedge mustard (*Sisymbrium officinale*)	-	400 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Heliotrope (*Heliotropium europaeum*)	1.37 L/ha	-	Stock poisoning may occur when grazed after spraying if large amounts present.
Hexham scent/Melilotus (*Melilotus indica*)	1.37 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	Spray at multiple leaf stage.
Hoary cress (*Lepidium draba*)	1.1 L/ha	-	Spray rosettes and pre-flowering. When spot spraying is used, repeat application may be necessary.
Horehound (*Marrubium vulgare*)	1.75 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	Suppression only with Nufarm DROPZONE® alone. Good coverage required.
Indian hedge mustard (*Sisymbrium orientale*)	1.37 L/ha	400 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Khaki weed (*Alternanthera pungens)*	1.37 L/ha	-	
Lincoln weed (*Diplotaxis tenuifolia*)	2.1 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Lippia (*Phyla canescens*)	2.1 L/ha + 0.5% Nufarm CanDo™ Adjuvant	-	Apply when Lippia is in fresh condition, mid-flower and has good soil moisture. A sequential application over summer; 2-3 months apart, will provide the highest level of control. **DO NOT** apply in dry conditions. **DO NOT** apply more than two applications.
London rocket (*Sisymbrium irio*)	1.37 L/ha	-	
Marshmallow/Small-flowered mallow (*Malva parviflora*)	-	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Matricaria (*Oncosiphon spp.)*	1 L/ha	-	
Medics (*Medicago* spp.)	-	550 mL/ha + 750 mL/ha Nufarm CRUCIAL®*	
Melons – (various genera) Camel/Afghan melon (*Citrullus lanatus*) Paddy/Prickly paddy melon (*Cucumis myriocarpus*)	1 L/ha + 0.5% Nufarm CanDo™ Adjuvant	1 L/ha + 900 mL/ha Nufarm CRUCIAL®*	Larger and older plants will need the addition of Nufarm CRUCIAL® or triclopyr for adequate control.
Mexican poppy (*Argemone ochroleuca*)	1.75 L/ha	1 L/ha + 600 mL/ha Nufarm CRUCIAL®*	
Mintweed (*Salvia reflexa*)	1.12 L/ha	-	
Morning glory (*Ipomoea* spp.)	2.1 L/ha	-	Spray at seedling to flowering stage.
Mustards (*Sisymbrium* spp.)	280 mL/ha	-	Use low rate for 2 - 4 leaf up to rosette stage, higher rates for larger weeds.
Native rosella (*Hibiscus heterophyllus*)	-	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Needle burr (*Amaranthus spinosus*)	2.1 L/ha	-	Apply at pre-flowering, preferably to young plants.
New Zealand spinach (*Tetragonia tetragonoides)*	1.37 L/ha	400 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Noogoora burr (*Xanthium occidentale syn. X. strumarium, X. pungens*)	1 L/ha	1 L/ha + 900 mL/ha Nufarm CRUCIAL®*	

WEEDS	MINIMUM APPLICATION RATE of NUFARM DROPZONE® ALONE	MINIMUM APPLICATION RATES of NUFARM DROPZONE® + NUFARM CRUCIAL®*	CRITICAL COMMENTS
Paterson's curse/Salvation Jane (*Echium plantagineum*)	1.37 L/ha	550 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Spray rosettes or before plants have 10 leaves.
Pinkburr/Pink flowered burr (*Urena lobata*)	2.1 L/ha	-	
Potato weed (*Galinsoga parviflora*)	1 L/ha	1 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Prickly lettuce/Whip thistle (*Lactuca serriola*)	-	550 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Prickly saltwort/Roly poly (*Salsola kali*)	2 L/ha	-	Spray when plants are small.
Radish (*Raphanus* spp.)	1.37 L/ha	-	
Ragwort (*Senecio jacobaea*)	1.37 L/ha	-	
Raspweed (*Haloragis aspera*)	-	400 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Rough poppy/wild poppy (*Papava hybridum*)	700 mL/ha	-	Spray rosettes.
Sesbania pea (*Sesbania* spp.)	700 mL/ha	-	
Shepherd's purse (*Capsella bursa-pastoris*)	700 mL/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	Spray young rosettes.
Siratro/Purple bean (*Macroptilium atropurpureum*)	2.1 L/ha	-	
Skeleton weed (*Chondrilla juncea*)	1.37 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Spray rosettes before aerial growth commences. Suppression only. Spraying should only be done 6-8 weeks before anticipated sowing date and subsequent cultivation limited to a minimum.
Sorrel (*Rumex acetosella*)	1.75 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Only moderately susceptible to Nufarm DROPZONE® alone.
	1.4 L/ha + 185 - 265 mL/ha Kamba® 750	-	Apply to actively growing plants in autumn. **DO NOT** sow pasture seed for at least 30 days after application.
Speedwell - Ivy leaf (*Veronica hederifolia*)	1.37 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Spiny emex, Three-cornered Jack, Doublegee (*Emex australis*)	1.37 L/ha	-	
Spinyhead sida (*Sida acuta*)	2.1 L/ha	-	
Starburr (*Acanthospermum hispidum*)	2.1 L/ha	-	
Star of Bethlehem/Cupid's flower (*Ipomoea quamoclit*)	2.1 L/ha	-	
Stinkwort (*Dittrichia graveolens*)	1 L/ha	-	
Thistles:			
- annual thistles	1.37 L/ha	-	
- Saffron thistle (*Carthamus lanatus*)	700 mL/ha	550 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
- Slender/Shore thistle (*Carduus* spp.)	650 mL/ha	-	Suppression only at lower rates.
- Soldier thistle (*Picnomon acarna)*	2 L/ha	-	Spray young rosettes.
- Sowthistle/Milk thistle (*Sonchus oleraceus*)	1.75 L/ha	400 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	Spray young rosettes. Previously grazed plants may be difficult to control without allowing full recovery.
- Spear thistle (*Cirsium vulgare)*	650 mL/ha	550 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Spray young rosettes.
- Variegated thistle (*Silybum marianum*)	650 mL/ha	550 mL/ha + 750 mL/ha Nufarm CRUCIAL®*	Spray at rosette stage.
Thornapples (*Datura* spp.)	1 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Tridax/Tridax daisy (*Tridax procumbens*)	2.1 L/ha	-	
Turnip Weed/Rapistrum (*Rapistrum rugosum*)	650 mL/ha	400 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Vetches/Tares/Volunteer vetch (*Vicia sativa*)	1.37 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
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 Nufarm DROPZONE®)	1.2 L/ha	1.2 L/ha + 1.1 L/ha Nufarm CRUCIAL®*	Use 1.2 L/ha rate of Nufarm DROPZONE® for up to 4 leaf weed stage and 1.7 L/ha for up to 6 leaf weed stage in a minimum water volume of 70 L/ha. Nufarm CRUCIAL® tank mixes may not improve control of Roundup Ready® varieties and canola hybrids with the Optimum GLY® herbicide tolerance trait. Refer to Nufarm CRUCIAL® label for Integrated Weed Management Strategy Guidelines.
Volunteer lupins (*Lupinus* spp.)	1 L/ha	550 mL/ha + 750 mL/ha Nufarm CRUCIAL®*	
Volunteer peas (various species)	-	550 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Volunteer safflower (*Carthamus tinctorius*)	700 mL/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Volunteer sunflower (*Helianthus annuus*)	700 mL/ha	550 mL/ha + 600 mL/ha Nufarm CRUCIAL®*	
Ward's weed (*Carrichtera annua*)	1.37 L/ha	700 mL/ha + 1.1 L/ha Nufarm CRUCIAL®*	
Wild cabbage (*Brassica oleracea*)	1.75 L/ha	-	
Wild gooseberry (*Physalis angulata*)		1 L/ha + 900 mL/ha Nufarm CRUCIAL®*	
Wild lettuce (*Lactuca saligna*)	-	550 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Wild radish (*Raphanus raphanistrum)*	660 mL/ha	400 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Wild turnip (*Brassica tournefortii*)	400 mL/ha	400 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	Spray 2 - 4 leaf up to rosette stage.

WEEDS	MINIMUM APPLICATION RATE of NUFARM DROPZONE® ALONE	MINIMUM APPLICATION RATES of NUFARM DROPZONE® + NUFARM CRUCIAL®*	CRITICAL COMMENTS
Wireweed/Hogweed (*Polygonum aviculare*)	1.75 L/ha	700 mL/ha + 900 mL/ha Nufarm CRUCIAL®*	
Yellow vine (*Tribulus micrococcus*)	-	1 L/ha + 600 mL/ha Nufarm CRUCIAL®*	

*alternatively to Nufarm CRUCIAL® use an equivalent rate of Nufarm weedmaster® DST® + 125 mL/100L Nufarm Activator

SECTION 5. PRE-HARVEST SPRAY WINTER CEREALS

CROP	WEEDS	RATE	CRITICAL COMMENTS
Pre-harvest Spray - Winter Cereals	Desiccate broadleaf weeds	1.5 – 2.1 L/ha	Apply after firm dough stage (Z85 growth stage)

SECTION 6. ESTABLISHED GRASS PASTURE

CROP	WEEDS	RATE	CRITICAL COMMENTS
Established grass pasture	Refer to Section 4 Weed Table (where Nufarm DROPZONE® is used alone, not in tank mixtures with Nufarm CRUCIAL® or Nufarm weedmaster® DST®)	1 - 2.1 L/ha	Legume species (subclovers, medics) may be damaged. Refer to your local Nufarm representative for further information.

SECTION 7. SUGAR CANE

CROP	WEEDS	RATE	CRITICAL COMMENTS
Sugar cane	Bellvine* (*Rhodochiton atrosanguineus*)	350 mL/100 L water	Unless otherwise indicated below, Nufarm DROPZONE® can be applied as a directed spray or over-the-top by boom sprayer or aircraft. When applied as a directed spray, the buffer zones for boom sprayers listed in the RESTRAINTS section of the label do not apply if the spraying equipment is set up so the nozzles are orientated below the horizontal of the top of the crop canopy and spray is released at a height below the top of the crop canopy (excluding sprayers that are air assisted). Add 60 - 120 mL/100 L Nufarm Activator® or Nufarm Liase and agitate well. **DO NOT** use on Q63 or Q67 varieties (at any rate). **DO NOT** use above 980 mL/ha on Q80, Q96 or H56 varieties. Refer to local Sugar Research Australia (SRA) representative for further information on local variety susceptibility. * For optimal control of bellvine, apply in spring, using directed spray. ^ For optimal control of morning glory, apply over the top or using directed spray in summer using high clearance tractor. # For optimal control of pink convolvulus or star of Bethlehem, apply in autumn by aircraft.
	Morning glory^ (*Ipomoea spp)*	0.7 - 1.37 L/ha	
	Pink Convolvulus# (*Ipomoea triloba*) Star of Bethlehem# (*Ipomoea quamoclit*)	1.37 L/ha	
	Bindy eye/Star burr (*Acanthospermum hispidum*) Ageratum/Blue Top (*Ageratum* spp.) Cobbler's pegs (*Bidens pilosa*) Convolvulus vines Fleabanes (*Conyza* spp.) Ipomoea vines Jute (*Corchorus olitorius*) Leucas (*Leucas linifolia*) Needle burr (*Amaranthus spinosus*) Spear thistle (*Cirsium vulgare*) Water primrose (*Ludwigia peploides*)	2.1 L/ha	

SECTION 8. RIGHTS OF WAY, NON-AGRICULTURAL and INDUSTRIAL AREAS

SITUATION	WEEDS	RATE	CRITICAL COMMENTS
Rights of Way, Non-agricultural and Industrial Areas	Refer to Section 4 Weed Table	0.7 - 2.1 L/ha or spot spraying as shown in Section 8 below.	Apply to young, actively growing weeds ensuring thorough coverage. Refer to Section 4 Weed Table for critical comments for each weed.

SECTION 9. SPOT SPRAYING AND CUT STUMP APPLICATION

SITUATION	WEEDS	RATE	CRITICAL COMMENTS
High volume spraying or knapsack application in pastures and non-agricultural areas	Refer to Section 4 Weed Table for list of weeds controlled. In Addition, the following weeds will be controlled by spot spraying: Annual pigweed (*Portulaca oleracea*) Artichoke thistle (*Cynara cardunculus*) Californian/Perennial thistle (*Cirsium arvense*) Clockweed^ (*Gaura parviflora*) Galvanised burr (*Sclerolaena birchii*) Hemlock (*Conium maculatum*) Knobweed (*Hyptis capitata*) Kyllinga weed/Whisker grass (*Cyperus* spp.) Lantana* (*Lantana camara*) Milky cotton bush (*Asclepias curassavica*) Mother of millions** (*Bryophyllum* Spp.) Parthenium weed (*Parthenium hysteropherus*) Perennial pigweed (*Amaranthus deflexus*) Scarlet pimpernel (*Anagallis arvensis*) Star burr (*Acanthospermum hispidum*) Star thistle (*Centaurea calcitrapa*) White eye (Mexican clover) (*Richardia brasiliensis*) Wier vine (*Ipomoea calobra*)	High volume spraying: 700 mL/100 L water. Apply 1000 L spray volume/ha Knapsack application: 7 mL/L water	Refer to critical comments in Section 4 Weed Table for individual critical comments. Apply to young, actively growing weeds. Ensure thorough coverage. ^ Clockweed: spray rosette stage. * Lantana: use a very coarse spray with sufficient pressure to penetrate canopy and wet stems as well as foliage. Spray at the end of a wet summer (March to May). Defoliation should occur but respraying of new growth will be necessary in the following autumn. Broadcast grass seed and keep stock off the following summer to allow the pasture to establish. Damage may result to pasture legumes where sprayed. **Mother of millions: Ensure thorough coverage. Add Nufarm Activator® at the rate of 1 mL of surfactant per 1 L of mixture.
	Boneseed (*Chrysanthemoides monilifera*) Boxthorn (*Lycium* spp.) Hawthorn (*Crataegus* spp.)	1 L/100 L water	
Cut stump application	Boneseed (*Chrysanthemoides monilifera*) Boxthorn (*Lycium* spp.) Hawthorn (*Crataegus* spp.)	Undiluted	Apply or paint undiluted to freshly cut stumps.
	Groundsel (*Senecio* spp.) Rubber vine (*Cryptostegia grandiflora*) Wild tobacco tree (*Solanum mauritianum*)	200 mL/10 L water	Apply to freshly cut stumps by pouring can or knapsack spray.

SECTION 10. OPTICAL SPOT SPRAY TECHNOLOGIES

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

For weed cover up to 10% (COARSE spray droplets) or 30% (VERY COARSE or larger spray droplets) only. If percentage weed cover exceeds this use approved boom spray rates.

SITUATION	WEEDS	RATE	CRITICAL COMMENTS
Fallow	Fleabane, Common sowthistle, Yellow vine (Caltrop)	6.7 L/100 L	Apply to rosette to flowering plants. **DO NOT** apply greater than 30 L of spray mixture per hectare through Optical Spot Spraying Technology equipment (2 L of product per hectare equivalent).

Section 11. USAGE RESTRICTIONS IN SUGARCANE, PASTURE AND PEANUT

Timing restriction for spraying in sugarcane

Situation	Region	Timing Restriction: DO NOT APPLY DURING THE MONTHS	
		Up to 1.56 L/ha	Up to 2.1 L/ha
No trash blanket present during application	Wet tropics & Baron (upper)	No timing restriction	No timing restriction
	Burdekin & Baron (lower)	No timing restriction	No timing restriction
	Mackay/Whitsunday	No timing restriction	October to November
	Mary/Burnett	No timing restriction	October to November
	Northern NSW & Rocky Point	No timing restriction	No timing restriction
Trash blanket is present during application	Wet tropics & Baron (upper)	No timing restriction	No timing restriction
	Burdekin & Baron (lower)	No timing restriction	No timing restriction
	Mackay/Whitsunday	No timing restriction	October
	Mary/Burnett	No timing restriction	October
	Northern NSW & Rocky Point	No timing restriction	No timing restriction

Application and timing restrictions for application to pastures

Situation	State	DO NOT apply above maximum rate (L/ha) below			
		Summer	Autumn	Winter	Spring
Pastures (prior to sowing, conservation tillage)	Queensland & NT	2.1	2.1	2.1	2.1
	New South Wales & ACT	2.1	2.1	2.1	2.1
	Victoria	0.7	2.08	2.1	2.08
	Tasmania	0.7	1.56	2.1	2.08
	South Australia	1.44	2.08	2.1	2.1
	Western Australia	2.08	2.1	2.1	2.1
Pastures (established)	Queensland & NT	2.1	2.1	2.1	2.1
	New South Wales & ACT	2.1	2.1	2.1	2.1
	Victoria	1.2	2.1	2.1	2.1
	Tasmania	0.84	2.1	2.1	2.1
	South Australia	1.8	2.1	2.1	2.1
	Western Australia	2.1	2.1	2.1	2.1

GENERAL INSTRUCTIONS

Nufarm DROPZONE® is a non-volatile, low odour, water soluble liquid (SL) formulation with non-selective herbicidal activity against broadleaf weeds. Nufarm DROPZONE® causes the spray mixture to appear hazy and cloudy which is different to other 2,4-D amine formulations.

Droplet Optimisation

Nufarm DROPZONE® produces an optimised spray droplet spectrum by reducing undesirable and ineffective droplets at both ends of the droplet spectrum. This results in a more effective and uniform spray pattern with a higher proportion of droplets in the optimal size range, including when used in tank mixtures as recommended in Sections 1 and 2 of the Directions for Use. This enhances spray coverage and droplet retention and reduces the risk of off-target spray drift. As a result, Nufarm DROPZONE® may show increased speed of action and final weed control when applied with VC-UC spray quality compared to alternative 2,4-D amine formulations, including when used in tank mixtures as recommended in Sections 1 and 2 of the Directions for Use.

Nufarm DROPZONE® should be used in conjunction with spray application practises to reduce drift. Driftable fines may be lost to the environment causing off target drift and reduced weed control. Oversized droplets reduce coverage and are likely to bounce off small weeds, particularly grasses. Poor retention of oversized droplets can result in reduced or uneven weed control. Refer to GRDC GROWNOTES Spray Application Manual for Growers: Module 4, Drift management strategies: minimising and managing spray drift risk, for best practise spray application guidelines.

Weed control

Nufarm DROPZONE® will control emerged weeds only, and provides no residual control although certain Plant Back Periods should be observed. Nufarm DROPZONE® is absorbed by plant foliage and accumulates to lethal levels in the regions of growth and reproduction, upsetting the ability of plants to balance the synthesis and use of nutrients. Visible effects are a gradual yellowing and wilting of the plants which advances to complete browning of above ground growth and deterioration of root systems. Effects may not be apparent for 7 - 10 days or even up to 21 days under cold or cloudy conditions.

DO NOT treat weeds under poor growing or dormant conditions such as occur in drought, water-logging, disease, insect damage, following frost, weeds heavily covered with dust or silt. Reduced results may also occur if weeds are under stress from previous herbicide application. Rainfall occurring up to 6 hours after application may reduce effectiveness.

Crop Establishment

When Nufarm DROPZONE® is applied prior to crop establishment, certain Plant Back Periods should be observed to ensure that the herbicide has degraded sufficiently to allow safe sowing of the intended crop. Herbicide degradation is largely influenced by moisture, temperature and certain soil characteristics and may be delayed particularly when conditions are cold and dry. Refer to the Plant Back Period table below for specific information.

The preferred alternative is to spray early to control any weeds in their less advanced stages and ensure the seedbed is in a suitable condition for early sowing when soil temperatures are not excessively cold. In seasons of heavy weed growth, or where the following conditions apply, it may be necessary to further delay sowing until a suitable seedbed can be formed. Conditions which can delay crop germination and seedling development include:

- Heavy green or decaying weed growth incorporated into the soil
- Soil compaction or crusting
- Cold and wet soils
- Deep seeding
- Prior use of residual or pre-emergent herbicides

To minimise these effects it is suggested that:

- Weed bulk be reduced by grazing and cultivating
- A friable seedbed be produced by cultivation, where necessary
- The use of pre-emergent herbicides to be avoided if they might contribute to reduced germination
- A correct seeding depth be used

Plant Back Periods (days) for Nufarm DROPZONE®

CROP	RATES		
	Up to 700 mL/ha	700 mL – 1.37 L/ha	1.37 - 2.1 L/ha
Balansa clover	7	7	10
Barley %	1	1	3
Canola #	14	21	28
Chickpeas #	7	14	21
Cotton	10	14	21
Faba beans	7	7	10
Field peas	7	14	14
Lentils	7	7	10
Linseed	7	7	14
Lucerne	7	7	10
Lupins +	7	14	21
Medics	7	7	10
Narbon beans	7	7	10
Navybean	10	10	14
Oats	3	3	7
Perennial ryegrass	7	7	10
Persian clover	7	7	10
Phalaris	7	7	10
Rice	7	7	14
Safflower #	7	14	21
Sorghum @	3	7	10
Soybean	14	14	21
Sub. Clover	7	7	10
Sunflower @	7	10	14
Triticale %	1	3	7
Vetch	7	7	10
Wheat %	1	3	7
White clover	7	7	10

IMPORTANT: WHEN APPLIED TO DRY SOILS AT LEAST 15mm (1/2 inch) OF RAIN MUST FALL PRIOR TO THE COMMENCEMENT OF THE PLANT BACK PERIOD.

NOTES:

% In Queensland, no rainfall is required to fall prior to commencement of Plant Back Period for wheat, barley and triticale.

In Queensland, planting of canola, chickpeas and safflower must be delayed for at least 14 days following rainfall of at least 15mm.

@ In Central Queensland, when using 1.0 L/ha or less of Nufarm DROPZONE®, the Plant Back Period for sorghum and sunflower is 1 day irrespective of rainfall.

+ In WA the Plant Back Period for lupins at all rates is 28 days.

Application Information

A minimum water rate of 70 L/ha is recommended.

Spray droplet optimisation is supported for water rates of 70 - 250 L/ha. Higher than minimum water volumes may be required for improved coverage, efficacy, or to ensure compatibility of tank-mix partners. Refer to compatibility section below for further advice on compatibility and water rates.

Ground Sprayer Application - Use 70 - 250 L/ha of water.

Aerial Application - Use 40 - 90 L/ha of water.

DO NOT apply by aircraft when temperature is above 35˚C. **DO NOT** apply by aircraft in intensive horticultural cropping areas. Thoroughly wash aircraft, especially landing gear after each day of spraying to remove herbicide residues.

Equipment Maintenance and Usage

Equipment that has been used for this chemical should not be used for the application of other materials to sensitive plants, unless it has been well washed out with hot soapy water or 1% solution of ammonia, followed by several clear water rinses or use Tank & Equipment Cleaner. Follow decontamination procedures detailed on any tank mix partner product label.

A 50 mesh primary filter and 80 mesh secondary filter(s) are recommended. The use of in-line nozzle filters is not recommended.

Mixtures with Nufarm CRUCIAL®, Nufarm weedmaster® DST® or other compatible glyphosate products: spray solutions of Nufarm DROPZONE® and compatible glyphosate products should be mixed, stored and applied only in stainless steel, aluminium, brass, copper, fibreglass, plastic-lined containers. **DO NOT** mix, store or apply these spray solutions in galvanised steel or unlined steel (except stainless steel) containers or spray tanks. Nufarm DROPZONE® plus glyphosate product spray solutions may react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture that can flash or explode.

Adjuvant Addition

DO NOT add adjuvant except where recommended on this label or required by the mix partner. Adjuvants other than those listed in the compatibility section are not supported.

Nufarm Activator® is the preferred adjuvant where required due to improved efficacy, compatibility & impact on droplet spectrum. **DO NOT** add Dead Sure* or OnCoarse DRA*.

Nufarm Liase (liquid ammonium sulphate) can be added and is recommended to mitigate hard water and maximise efficacy, particularly when using glyphosate tank mixes and under adverse environmental conditions.

Addition of tech grade crystalline ammonium sulphate may take a significantly longer time to dissolve. Undissolved ammonium sulphate can cause compatibility issues with 2,4-D amine which may not be apparent at the time of mixing.

Mixing Instructions

Nufarm DROPZONE® has been formulated and recommended for use with Nufarm CRUCIAL® and Nufarm weedmaster® DST®. **DO NOT** mix with spraying oils, or any other materials or agricultural chemicals except as directed on this label.

Nufarm DROPZONE® is a soluble liquid (SL) formulation that mixes readily with water. Note that the spray solution may appear hazy and cloudy, which is normal for this formulation.

Ensure the spray tank is free of any residue of previous spray materials. Flush chemical suction equipment with fresh water between products, and between fills, when adding to the spray solution.

1. Fill the spray tank with clean water to at least 70% of the required amount and start agitation. **DO NOT** use mechanical agitators as these may cause excessive foaming when herbicides are added.
2. Add Nufarm Liase if recommended. If using crystalline ammonium sulphate allow adequate time to dissolve. Undissolved ammonium sulphate can cause compatibility issues with 2,4-D amine which may not be apparent at the time of mixing.
3. Add recommended herbicide additive/insecticide to the spray tank and mix thoroughly (mixing order water dispersible granules, then suspension concentrates, then emulsifiable concentrates, then soluble liquids).
4. Add Nufarm DROPZONE® and mix thoroughly.
5. Top up tank to 95% of desired capacity then add any glyphosate product and the remaining water.
6. When Nufarm CanDo™, Nufarm Activator® or Nufarm Collide® is used, add near the end of the filling process.
7. Always maintain adequate agitation during application and use the tank mix promptly.