Department of Primary Industries
and Regional Development

NSW GOVERNMENT

Weed control in winter crops 2025

NSW PRIMARY INDUSTRIES MANAGEMENT GUIDE

www.dpi.nsw.gov.au

STRONG FINISHES START HERE

Voraxor®
Herbicide

Simpler, more comprehensive broadleaf weed control

Luximax®
Herbicide

Group 30 annual ryegrass control in wheat*

NEW

Revystar®
Fungicide

High-performance protection in canola and cereals crops

Systiva®
Seed Treatment Fungicide

Seed treatment's star performer in barley, wheat and oats

Frequency®
Herbicide

Fine-tune tank-mixes to take control of tough weeds

Versys®
Insecticide

Targeted aphid control in canola, wheat and barley

AU55-P0000240 1124

Find out more by **scanning this code** or contact your local BASF representative on **1800 558 399.**

BASF
We create chemistry

ALWAYS READ AND FOLLOW LABEL DIRECTIONS.

*Not durum

Department of Primary Industries
and Regional Development

NSW GOVERNMENT

Weed control in winter crops 2025

Penny Heuston
Project Officer – Publications
Northern Cropping Systems, Trangie
0428 474 845
penny.heuston@dpi.nsw.gov.au

Michael Macpherson
AR&C Consulting
Rosella, Queensland
0497 476 299
info@arandc.com.au

ISSN 0812-907X (print)

ISSN 2206-5490 (online)

Job No. 17072

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (November 2024) and may not be accurate, current or complete. The State of New South Wales (including the Department of Primary Industries and Regional Development), the author and the publisher take no responsibility, and will accept no liability for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

Always read the label

Users of agricultural chemical products must always read the label and any permit before using the product and strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from any compliance with the directions on the label or the conditions of the permit by reason of any statement made or omitted to be made in this publication.

Acknowledgements

Special thanks to Amanda Warren-Smith for editorial support and layout.

Cover photo top: summer weed spraying, GRDC and Evan Collis Photography.
Bottom left: a 'sparkler' ryegrass plant in a wheat crop, Maurie Street, Grain Orana Alliance (GOA).
Middle: a spray rig in action, Dave Farmer, Croplands.
Bottom right: a strip of wheat that was not sprayed at sowing and the resulting fleabane plants, Andrew McFadyen, McFadyen Ag Consultancy.

Illustrations: originals by Alison Chambers and Dianne Gardoll, formerly NSW DPI. Redrawn by Michel Dignand, NSW DPI.

The pulse crop growth stages diagrams are reproduced with the permission of Di Holding and Annabel Bowcher, formerly CRC for Australian Weed Management.

Printing

NSW DPI is pleased to support regional businesses and the environment in publishing this guide. Supplied by Central Commercial Printers Pty Ltd (www.ccpi.com.au), Bathurst NSW. Printed on FSC-accredited paper sourced from farmed trees/plantation-grown pulp.

Advertising

Availability

This publication is a companion to the *Winter crop variety sowing guide*. Both are available from your local NSW Department of Primary Industries, Local Land Services, agribusinesses and the NSW DPI website (https://www.dpi.nsw.gov.au/agriculture/broadacre-crops/guides).

Contents

List of tables

What's new in 2025

New products

Aptitude® herbicide

Aptitude® (90 g/kg carfentrazone-ethyl + 375 g/kg metribuzin) from FMC is a Group 14 + 5 early post-emergence herbicide for the control of certain broadleaf weeds in wheat, barley, oats and triticale. Aptitude® herbicide provides rapid burn-down of broadleaf weeds and is a useful rotation tool for areas with multi-herbicide group resistance.

Ecopar® Forte

The Group 14 herbicide Ecopar® Forte from Sipcam has had a formulation change to a higher-loaded product now containing 40 g/L pyraflufen-ethyl. Ecopar® Forte is registered for the post-emergent control of certain broadleaf weeds in cereals, pulses and legume-based pastures. It is also registered for application when mixed with glyphosate before planting or starting a fallow.

Monsoon® herbicide

Monsoon® herbicide (300 g/L bromoxynil + 150 g/L fluroxypyr) from Adama Australia is a Group 6 + 4 herbicide for use in fallow and early in-crop post-emergent herbicide. It has flexible tank-mix options and is an ideal partner herbicide for use in fallow (including optical spot spray technologies) without the volatility concerns or re-cropping limitations of some alternative herbicide options.

Overwatch® eXL granules

FMC has released a new granular formulation of Overwatch® eXL Granules (750 g/kg bixlozone), Australia's only Group 13 herbicide for winter grain crops. Overwatch® herbicide is registered to control some grass and broadleaf weeds in wheat, barley, canola, faba bean and field pea.

Revystar® fungicide

Revystar® (100 g/L mefentrifluconazole + 50 g/L fluxapyroxad) from BASF is a Group 3 + 7 fungicide to provide sclerotinia control in canola. When used at 10–50% flowering, it will also provide protection against upper canopy blackleg infection. In cereals, Revystar® delivers powerful action against Septoria tritici and other key diseases.

Weed glossary: common and botanical names

Amaranth	*Amaranthus* spp.
Amsinckia	*Amsinckia* spp.
Annual ryegrass (Wimmera)	*Lolium rigidum*
Barley grass	*Hordeum leporinum*
Barnyard grass	*Echinochloa crus-galli*
Bathurst burr	*Xanthium spinosum*
Bindweed – Australian	*Convolvulus graminetinus*
Bindweed – black/ climbing buckwheat	*Fallopia convolvulus*
Blackberry nightshade	*Solanum nigrum*
Bladder ketmia	*Hibiscus trionum*
Bluebell	*Wahlenbergia* spp.
Boggabri weed	*Amaranthus mitchelli*
Brome grass	*Bromus* spp.
Button grass	*Dactyloctenium radulans*
Caltrop/cat head	*Tribulus terrestris*
Capeweed	*Arctotheca calendula*
Charlock	*Sinapis arvensis*
Chickweed	*Stellaria media*
Cleavers/bedstraw	*Galium* spp.
Clover	*Trifolium* spp.
Corn gromwell/sheep weed/ white iron weed	*Buglossoides arvense*
Cow/peach/bell vine	*Ipomoea* spp.
Crassula/stonecrop	*Crassula* spp.
Cudweed	*Gnaphalium* spp.
Datura/thornapple/false castor oil	*Datura* spp.
Deadnettle	*Lamium amplexicaule*
Dock	*Rumex* spp.
Erodium/stork's bill	*Erodium* spp.
Fat hen	*Chenopodium album*
Feathertop Rhodes grass	*Chloris virgata*
Fleabane	*Conyza* spp.
Fumitory	*Fumaria* spp.
Heliotrope – white	*Heliotropium europaeum*
Hexham scent	*Melilotus indicus*
Horehound	*Marrubium vulgare*
Johnson grass	*Sorghum halepense*
Khaki weed	*Alternanthera pungens*
Liverseed grass	*Urochloa panicoides*
London rocket	*Sisymbrium irio*
Loosestrife	*Lythrum hyssopifolia*
Lucerne	*Medicago sativa*
Marshmallow	*Malva parviflora*
Medic	*Medicago* spp.
Melon – camel/afghan	*Citrullus lanatus*
Melon – paddy/prickly	*Cucumis myriocarpus*
Mexican poppy	*Argemone ochroleuca*
Mintweed	*Salvia reflexa*
Mustards	*Sisymbrium* spp.
New Zealand spinach	*Tetragonia tetragonoides*
Noogoora burr	*Xanthium occidentale*
Nut grass	*Cyperus rotundus*
Paterson's curse	*Echium plantagineum*
Peppercress	*Lepidium* spp.
Phalaris – annual	*Phalaris minor; Phalaris paradoxa*
Phalaris – perennial	*Phalaris aquatica*
Pigweed	*Portulacca oleracea*
Plantain	*Plantago* spp.
Potato weed/quena	*Solanum esuriale*
Prickly/wild lettuce	*Lactuca* spp.
Rough poppy	*Papaver hybridum*
Scarlet pimpernel	*Anagallis arvensis*
Shepherd's purse	*Capsella bursa-pastoris*
Sida	*Sida* spp.
Skeleton weed	*Chondrilla juncea*
Sorrel	*Rumex acetosella*
Soursob/oxalis	*Oxalis* spp.
Sow thistle/milk thistle	*Sonchus* spp.
Spiny emex/doublegee	*Emex australis*
Stinging nettle	*Urtica* spp.
Stink grass/black grass/love grass	*Eragrostis cilianensis*
Sub clover	*Trifolium subterraneum*
Summer grass	*Digitaria* spp.
Thistle – saffron	*Carthamus lanatus*
Thistle – slender	*Carduus pycnocephalus*
Thistle – spear/black	*Cirsium vulgare*
Thistle – St Barnaby	*Centaurea solstitialis*
Thistle – star	*Centaurea calcitrapa*
Thistle – variegated	*Silybum marianum*
Toad rush	*Juncus bufonius*
Turnip weed	*Rapistrum rugosum*
Vetch	*Vicia* spp.
Vulpia/silver grass	*Vulpia* spp.
Wild oats	*Avena sterilis* sub. *ludoviciana*
Wild radish	*Raphanus raphanistrum*
Wild turnip	*Brassica tournefortii*
Windmill grass	*Chloris truncata*
Winter grass	*Poa annua*
Wireweed/hogweed	*Polygonum aviculare*

Herbicide mode of action alignment

Source: CropLife Australia

Herbicide mode of action (MoA) classifications have been updated internationally to capture new active constituents and ensure the MoA classification system is globally relevant.

The global MoA classification system is based on numerical codes (Table 1), providing infinite capacity to accommodate new herbicide MoA coming to market, unlike the alphabetical codes previously used in Australia.

CropLife Australia is working with key herbicide resistance management experts, advisors and the Australian Pesticides and Veterinary Medicines Authority (APVMA) to ensure farmers and agronomists are aware of the changes.

The new classification system was introduced in early 2022, so growers should have started seeing updated labels. During the transition period, herbicide labels with the alphabetical MoA classifications will still be in the supply chain. The numerical classification system is now live, and all labels should be updated by the end of 2024.

Go to page

Australian Pesticides and Veterinary Medicines Authority (APVMA)

CropLife Australia (https://www.croplife.org.au/resources/programs/resistance-management/herbicide-moa-alignment/)

Table 1. Herbicide mode of action classification summary.

Was (letter)	Is (number)
A	1
B	2
C	5, 6
D	3
E	23
F	12
G	14
H	27
I	4
J	15
K	15
L	22
M	9
N	10
O	29
P	19
Q	13, 34
R	18
T	30
Z	0, 31

Source: CropLife Australia.

Weed control methods

Effective weed control in winter crops is a vital part of successful and profitable crop production. Yield losses from weeds can vary from almost negligible to complete crop loss.

Weeds reduce crop yields by competing for soil moisture, nutrients, space and light. This competition reduces grain yield and quality and can impede harvesting. Weeds can also carry diseases that infect crops.

Some weeds can restrict cropping options as herbicides for control are sometimes limited. Thoroughly investigate which weed species are likely to germinate in a paddock before sowing crops with limited herbicide control options.

Weed control is a numbers game. With an ongoing program, growers should aim to reduce weed numbers and keep them low. The key to successful weed control is an integrated weed management system that combines all the available methods.

Crop rotation: a well-managed rotation in each paddock (alternating pastures, broadleaf and cereal crops) is a useful technique to control weeds. For example, grass weeds are more easily and cheaply controlled with chemicals in broadleaf crops, whereas broadleaf weeds are much easier to control in cereal crops. In parts of northern NSW, alternating summer and winter crops is a time-honoured strategy for weed control. Good crop rotations can substantially reduce the cost of chemical weed control.

Hay-making or **silage-making** in crops and pastures can reduce the weed burden.

Pasture management techniques such as topping by mowing or using herbicides, spray grazing, strategic heavy grazing, or burning can all be part of a weed control program. Cleaning grasses out of legume pastures in winter is a common practice that involves spraying grasses such as barley grass and silver grass to stop seed set, improve nitrogen build-up and reduce root diseases in the subsequent cereal crops.

Good agronomic practices such as using weed-free seed, sowing on time with optimal plant populations and adequate nutrition all contribute to good weed control. Be extremely vigilant with new weed incursions; do not allow them to set seed. Some crops and varieties are more competitive against weeds than others. Early sown varieties with early vigour can compete with emerging weeds more effectively than later sown varieties whose growth habit will be less vigorous due to the cooler conditions.

All weeds growing in a paddock should be controlled before the crop emerges. Large weeds that have not been controlled before sowing can be the most difficult, and often impossible, to manage with in-crop herbicides.

Timely cultivation is a valuable method for killing weeds and preparing seedbeds. Some growers use varying combinations of mechanical and chemical weed control to manage their fallows or stubbles.

Harvest weed-seed management is an integral part of managing herbicide-resistant weed populations by reducing weed numbers, whether resistant or not, in the paddock via mechanical rather than chemical methods. See the Grains Research and Development Corporation website for further information.

In-crop weed control: a wide range of pre-emergent and early post-emergent herbicides is available. Remove weeds from crops as early as possible and no later than 6 weeks after sowing to minimise yield losses. Yield responses will depend on weed species, weed and crop densities and seasonal conditions. The growth stages of both weed and crop, as well as the effects of environmental conditions on plant stress and herbicide efficacy, must be considered before spraying. Tolerance to herbicides varies between cereals and between the varieties of each cereal. Read herbicide labels carefully for these details and information on the best conditions for spraying.

Go to page

Grains Research and Development Corporation (http://www.grdc.com.au/)

Using herbicides successfully

Weeds typically compete with most cereals and broadleaf crops when the crops are in their earlier growth stages, e.g. emergence to tillering in cereals. Weeds should be removed no later than 6 weeks after sowing to minimise losses; however, selective herbicides are rarely completely non-toxic to the crop. Early post-emergence control nearly always results in higher yields than treatments applied after tillering in cereals or branching in broadleaf crops.

Points to remember for successfully using herbicides:

- Plan the operation: check paddock sizes, tank capacities, water availability and supply.
- Read the label: check to make sure the chemical is the right one for the situation; note any mixing instructions, especially if tank mixing more than one chemical.
- Conditions inhibiting plant cell growth, e.g. stress from drought, waterlogging, poor nutrition, high or low temperatures, low light intensity and disease or insect attack, can inhibit good herbicide uptake and movement.
- Check boom height with spray pattern operation for full target coverage.
- Check the accuracy of boom width with guidance systems or marking equipment.
- Check wind speed:
  - a light breeze helps the herbicide to penetrate crops; the ideal safe wind speed is 7–10 km/hour
  - do not spray when wind speeds are greater than 15–20 km/h; there could be spray drift onto sensitive crops and pastures, roadways, dams, trees, watercourses or public places. Note: all chemicals can drift – see Reducing herbicide spray drift on page 11
  - do not spray in zero wind conditions.
- Select the appropriate nozzle type for the application – see Nozzle selection for post-emergent herbicides and fungicides on page 16. Beware of compromising nozzle types when tank mixing herbicides with fungicides or insecticides. Use the coarsest spray quality that will provide efficacy.
- Calculate the amount of herbicide required for each paddock and tank load. Add surfactant where recommended – see Calibrating boom sprays on page 18.
- Use good equipment and check it frequently for performance and output – see Cleaning and decontaminating boom sprays on page 20.
- Keep a record of each spray operation; it is a legal requirement in NSW and in most other Australian states and territories. Forms are available online from several sources – see How to complete a Pesticide Application Record Sheet on page 21.
- Use good quality water, preferably rainwater. Bore, hard, dirty or muddy water needs special additives or conditioners to improve results with certain herbicides – see Water quality for applying herbicides on page 24.
- Carefully check crop and weed growth stages before deciding on a specific post-emergent herbicide. Use the diagrams in Timing herbicide applications with crop growth stages on page 28.
- Do not spray if rain is imminent or when heavy dew or frost is present – see Rainfastness – stock and harvest withholding periods on page 38.

This document is a guide; it cannot tell you all the information you need to know. Always read and follow all recommendations on the label.

Reducing herbicide spray drift

Spray in favourable conditions for increased efficacy. This results in:

- maximum herbicide effectiveness
- reduced damage and/or contamination to off-target crops and areas.

In areas where various agricultural enterprises co-exist, conflicts can arise, particularly from herbicide use. All herbicides are capable of drift.

People have a moral and legal responsibility to prevent herbicides from drifting and contaminating or damaging neighbours' crops and sensitive areas.

Some labels now carry spray drift management instructions including buffer zones. Read and follow all label instructions.

Types of spray drift

Sprayed herbicides can drift as droplets, particles or vapours.

Droplet drift is the easiest to control because, under good spraying conditions, droplets are carried downwards by air turbulence and gravity to collect on plant surfaces. Droplet drift is the most common cause of off-target damage from herbicide application. For example, spraying fallows with glyphosate under the wrong conditions can severely damage nearby establishing crops.

Particle drift occurs when water and other herbicide carriers evaporate quickly from the droplet, leaving tiny particles of concentrated herbicide. This can happen with any herbicide formulation, not just esters.

Vapour drift is confined to volatile herbicides such as 2,4-D ester. Vapours can arise directly from the spray or evaporation from the sprayed surfaces. Using 2,4-D ester can lead to vapour drift damage to highly susceptible crops, and this can happen hours after the herbicide has been applied. Even small quantities of drifting herbicide can cause severe damage to highly sensitive plants.

Vapours and tiny particles float in the airstream and are poorly collected on surfaces. They can be carried for many kilometres in thermal updraughts before being deposited.

Minimising spray drift

Before spraying

- If using a broadleaf herbicide, always check for susceptible crops in the area, e.g. broadleaf crops such as grapevines, cotton, oilseeds or pulses.
- Be aware of sensitive areas such as houses, schools and riparian areas.
- Notify neighbours of your spraying intentions.

During spraying

- Always carefully monitor meteorological conditions and understand their effect on drift hazards.
- Do not spray if conditions are not suitable and stop spraying if conditions change and become unsuitable.
- Under the Records Regulation of the *Pesticides Act 1999*, weather and relevant spray details must be recorded. Forms are available from the NSW DPI website. Record weather conditions (especially temperature and relative humidity), wind speed and direction, herbicide and water rates, and operating details for each paddock.
- Supervise all spraying, even when a contractor is employed. Provide a map marking the areas to be sprayed, buffers to be observed, sensitive crops and areas.
- Do not plan to spray when the temperature exceeds 28 °C unless you are confident that the weeds are not stressed and the product label supports the intended application.
- Minimise spray release height with the boom at its lowest height to achieve double overlap.
- Use the largest droplets that will give adequate spray coverage. Where droplet size is mentioned on the label, follow the label instructions.
- Always use the least-volatile formulation of herbicide available.

Go to pages

APVMA spray drift management guide (https://apvma.gov.au/node/10796)

GRDC spray drift resources (https://grdc.com.au/resources-and-publications/resources/spray-drift?utm_medium=fb_curator&utm_source=search&utm_campaign=spray-drift)

NSW DPI website (https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/186390/legal-responsibilities-in-applying-pesticides-F.pdf) (https://www.dpi.nsw.gov.au/agriculture/chemicals/farm-chemical-management/records)

Practical tips for spraying (https://grdc.com.au/resources-and-publications/all-publications/factsheets/2014/08/practical-tips-for-spraying)

SOS on-target pesticide application (https://sos-nsw.com/)

Spraywise (https://www.spraywisedecisions.com.au/)

Weather essentials for herbicide application (https://grdc.com.au/resources-and-publications/all-publications/link.aspx/2015/05/weather-essentials-for-pesticide-application)

- Maintain a downwind buffer that could be in-crop, e.g. keep a boom width from the downwind edge of the field.
- If sensitive crops are in the area, use the least damaging herbicide.

Factors affecting the risk of spray drift

The drift hazard, or off-target potential, of a herbicide in a particular situation depends on the:

- **volatility of the formulation applied**: volatility refers to the likelihood that the herbicide will evaporate and become a gas
- **proximity of susceptible crops to the herbicide being applied and their growth stage;** for example, cotton is most sensitive to Group 4 herbicides in the seedling stage and remains sensitive during reproductive (squares) initiation
- **method of application and equipment used:**
  - aerial application releases spray at 3 m or more above the target and uses relatively low application volumes
  - ground rigs have lower release heights and generally higher application volumes, and a range of nozzle types
  - misters produce large numbers of very fine droplets that use wind to carry them to their target
- **amount of active ingredient (herbicide) applied**: the more herbicide applied per hectare, the greater amount available to drift or volatilise
  - speed = hectares per hour
  - product rate = concentration of droplets
  - together (speed × rate) = the rate of product entering the atmosphere per unit of time
- **efficiency of droplet capture**: bare soil does not have anything to catch drifting droplets compared with crops, erect pasture species and standing stubbles
- **conditions before, during and after the application**: factors such as applying volatile products onto moist soil surfaces can increase volatilisation rates.

Use a low volatile formulation

Many ester formulations are highly volatile compared with non-volatile amine, sodium salt and acid formulations. Some low volatile ester formulations could have a proportion of high volatile esters present, so be cautious when using these products.

The compromise between minimising spray drift and achieving ideal coverage

A significant part of minimising spray drift is selecting the right equipment to reduce the number of small droplets produced. However, this can affect target coverage and the effectiveness of the herbicide application.

Carefully consider the product's mode of action and label requirements. When using contact herbicides, an increase in total application volume might be required. When increasing water volumes, ensure water quality will not affect efficacy. As the number of smaller droplets decreases, so does the coverage of the spray. The water rate might need to be increased to compensate for coverage.

Reduce spray release height

- Operate the boom at the minimum practical height. Drift potential increases with boom height and with finer spray. Lower heights, however, can lead to more striping as the boom sways and dips below the optimum height.
- 110° nozzles produce more fine droplets than 80° nozzles. However, they allow a lower boom height while maintaining the required double overlap.
- Operate within the nozzle manufacturer's recommended pressure range. Fine droplet production that is likely to drift increases as the operating pressure increases. Lower volumes, such as 30–40 L/ha, produce more fine droplets than higher spray volumes at the same pressure and nozzle design.

Aerial application should only be used where it is permitted on the product label of all products in the tank mix. It has an inherently greater risk than ground rig application due to several factors, including lower volume application, small droplet sizes, height of application, and turning and wing-tip vortices. An aircraft should not be used to apply herbicide in areas where highly susceptible crops are growing nearby.

Note on drift

Particle drifts have damaged susceptible crops up to 30 km from the source.

Sensitive crops can be up to 10,000 times more sensitive than the crop being sprayed.

Spray drift management tool

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has released a modified version of its spray drift management tool (SDMT) to allow for the recalculation of buffer zones for products authorised under PER93132.

loam

Build your soils, **to last.**

loambio.com

Weather conditions to be aware of

High temperatures

Do not plan to spray when the temperatures exceed 28 °C unless you are confident that the weeds are not stressed and the product label supports the intended application. In summer, updraughts during the heat of the day cause rapidly shifting wind directions, increasing the risk of spray drift.

Humidity

Very low humidity/high Delta T values (Figure 1) can adversely affect efficacy. Delta T values above 10 could indicate the potential for plant stress, reducing uptake and translocation, and causing smaller droplets to evaporate rapidly.

High humidity/low Delta T can improve efficacy, especially with aqueous concentrates (water-based products) such as glyphosate and paraquat. However, low Delta T values (around 2 or lower) increase the survival of small droplets, which increases the risk of off-target damage. Low Delta T values are often associated with inversion conditions.

Wind

- Avoid spraying under calm conditions.
- The ideal safe wind speed is 7–10 km/hour; leaves and twigs are in constant motion – a light breeze.
- A moderate breeze (11–14 km/h) is suitable for spraying if using low drift nozzles or higher volume applications (80–120 L/ha); small branches move, dust is raised and loose paper moves.

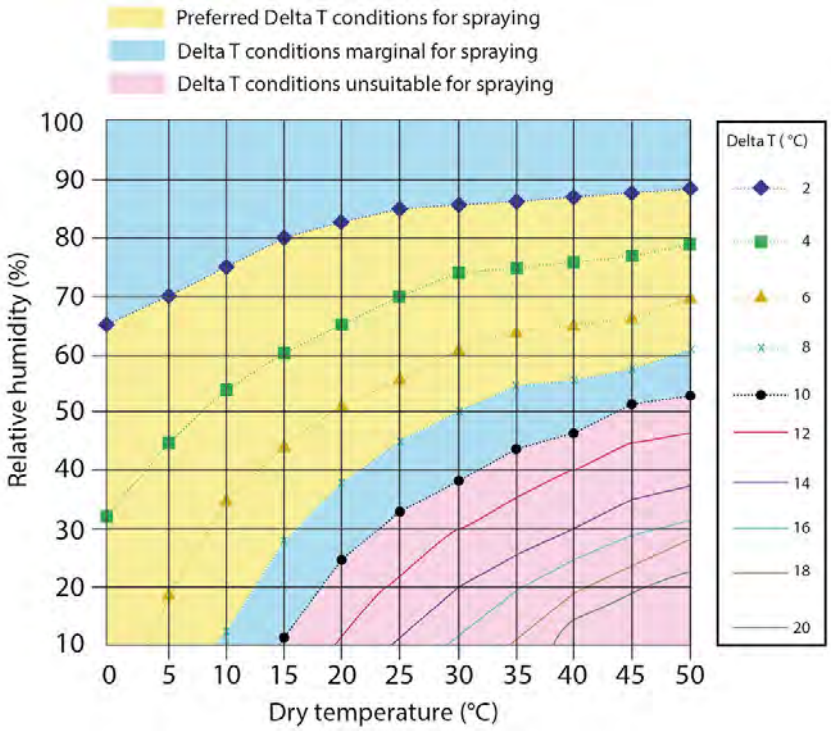


Figure 1. The relationship of air temperature and relative humidity to values of Delta T.

Key points

Where surface temperature inversion conditions exist, it is unsafe for spraying due to the potential for spray drift.

Spray applied at dawn, dusk and during the night is likely to be affected by a surface temperature inversion.

During surface temperature inversions, air near the ground lacks turbulence. This can lead to airborne herbicides remaining at high concentrations in the air at or near the surface.

The direction and distance that herbicides can move in the air close to the ground are very hard to predict when surface inversions exist.

Source: Weatherzone. (https://www.weatherzone.com.au/news/temperature-inversions-explained/658393)

Surface inversions

What are surface inversions?

Surface inversions are atmospheric layers at the earth's surface where temperature increases with height. This is the opposite (inverse) of the normal temperature decrease with height.

Hazards of surface inversions

Surface inversions strongly suppress airborne herbicide dispersion and can cause it to:

- remain at high concentrations for long periods over, and close to, the target
- travel close to the surface for many kilometres in light breezes
- move downslope and concentrate in low-lying regions
- be transported, often in unpredictable directions.

Radiation inversions – the most hazardous (created by radiation cooling)

Source: GRDC Surface temperature inversions and spraying.

Radiation inversions can form at any time at night when wind speed is less than 11 km/h and cloud cover does not severely restrict surface cooling. In calm and clear sky conditions, they can form just before sunset. Once the sun has set and has stopped heating the ground, heat radiates back into space, causing the ground to cool. In turn, the air in contact with the ground becomes cooler than the air higher in the atmosphere. This generates a surface temperature inversion.

Radiation inversions are the most dangerous for spraying operations as they cause airborne droplets to remain concentrated at a low level for long periods. Winds within the inversion can carry these droplets long distances. In gentle sloping country, concentrated droplets can be transported many kilometres by drainage winds towards the lowest point in the catchment. Under an inversion, where water drains from a property, droplets can move.

Go to pages

GRDC Hazardous surface temperature inversion (https://grdc.com.au/resources-and-publications/all-publications/factsheets/2022/hazardous-inversion)

Bureau of Meteorology (http://www.bom.gov.au/)

How to anticipate and recognise radiation inversions

Continuously check for inversions before and during spraying. If they are present, **do not spray**. Observe dust habits behind ground rigs and/or use smoke generators to help identify inversion conditions.

In the APVMA's spray drift initiative, labels increasingly include the restraint, 'Do not apply during surface temperature inversion conditions at the application site.' Any restraint is an absolute prohibition. Since surface inversion conditions are prevalent at night, avoid spraying then, unless the applicator can demonstrate an inversion is not present.

The potential for inversions can be decreased by:

- continuous overcast, low and heavy cloud
- continuous rain
- wind speed remains above 11 km/h for the whole period between sunset and sunrise. Remember that established inversions can sometimes still occur with winds above 11 km/h.

Night spraying

Spraying during the night and early morning is common, especially during summer, when controlling fallow weeds is an important agronomic practice. The main reason for night spraying is because, in many cases, Delta T conditions less than 8–10 are more common at night or in the early part of the morning, and the risk of physical drift from high wind is lower. The risk of inversions is nearly always greater at night or early morning.

Where to find helpful meteorological information

Real time data need to be collected in the paddock at the time of spraying. This can be done with:

- handheld units that measure temperature, Delta T and wind speed
- on-farm weather stations – some can be accessed by mobile phone.

Hourly data

Forecasts are available from several websites for Delta T and wind speed, often in 3-hour blocks. Hourly data from the Bureau of Meteorology (BOM) weather stations, including temperature, Delta T, wind speed and direction, are available. These data can help with planning spray activities and are useful for understanding the daily patterns of meteorological conditions.

Meteograms

Meteograms are helpful in planning spray programs for periods of lowest drift risk and highest herbicide efficacy. They can provide forecasts for 7 days or more of:

- temperature, rainfall and relative humidity (RH)
- Delta T
- wind speed and direction.

Meteograms are mostly available by subscription, for example Weatherwise or Spraywise®.

Active weather and networked data stations

Active weather and networked data (WAND) stations are a suite of 102 weather stations that have been installed throughout the cotton and grain growing regions of NSW and Qld. They provide real-time weather data that identifies and measures hazardous temperature inversions. It is a free network that all growers and spray applicators can access via their smartphones.

These inversion towers have remote sensing capability and new proprietary software to provide growers and spray contractors with a 2-hour forecast of real-time weather data that is updated every 10 minutes. These data can accurately identify whether a hazardous inversion or hazardous conditions are present, allowing farmers to understand whether they can spray according to label requirements. This information can help reduce the spray drift risk for growers and spray contractors.

Go to pages

Weatherwise (https://bestmobileappawards.com/app-submission/weatherwise)

Spraywise® (http://www.spraywisedecisions.com.au/)

WAND (https://www.goannaag.com/wand-network)

Nozzle selection for post-emergent herbicides and fungicides

Overview

Choosing a nozzle for applying post-emergent herbicides and fungicides to cereals should primarily focus on reducing the risk of spray drift without compromising efficacy. Late season fungicide and herbicide applications require consideration for coverage and penetration issues that are usually not required for pre-emergent or summer/fallow applications.

Fungi typically target specific plant parts such as stems, leaves, and heads or pods. For the fungicide to work, droplets must adequately cover these plant parts, requiring a special approach for nozzle selection. Likewise, some weeds might need to be selectively targeted within the crop canopy, which can potentially be more challenging than with knockdown applications.

These products were typically sprayed using fine droplets because they were assumed to give the best coverage. However, considerable research worldwide has shown that a medium spray droplet applied at higher water volumes is recommended.

The problem with fine droplets

In principle, fine droplets should mean greater coverage if they land on the target and do not blow away or evaporate. However, small droplets travel slowly, have little momentum, and are easily displaced by wind and turbulence.

The logic of increasing the spray pressure to force fine droplets into the canopy is not always successful. Small droplet acceleration lasts only milliseconds and does not affect the overall travel time to the target. Spraying at high pressure increases the wear rate of nozzles and produces finer sprays with a corresponding increase in drift potential.

When to use coarse droplets

Coarse spray droplets can deliver equivalent or greater amounts of product to the target, but the number and uniformity of the droplets on the target might be less than that of a medium spray quality at equivalent application volumes. Fully translocated products and soil-applied products are better suited to using coarse or larger spray droplet patterns. Where the product label or conditions require larger droplets, increased application volumes might be required for products with modes of action that are contact or have limited translocation.

Which nozzle?

GRDC has a chart and guide to help select the appropriate nozzle for spraying.

Guide to nozzles

GRDC guide and chart to nozzles (https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2007/07/nozzles-droplet-size-formulation-and-spray-drift)

Conclusions

- Use high application volumes unless the label specifically recommends otherwise.
- Higher volumes improve both coverage and spray penetration – the single most important variable for post-emergent herbicides and fungicides.
- Avoid fine and very fine spray patterns as they can lead to excessive spray drift and evaporation.
- Always select and operate a nozzle around its mid pressure range.
- As always, any application requirements on the product label must be followed.

24 Hour risk profile for Summer spraying

Always follow label instructions

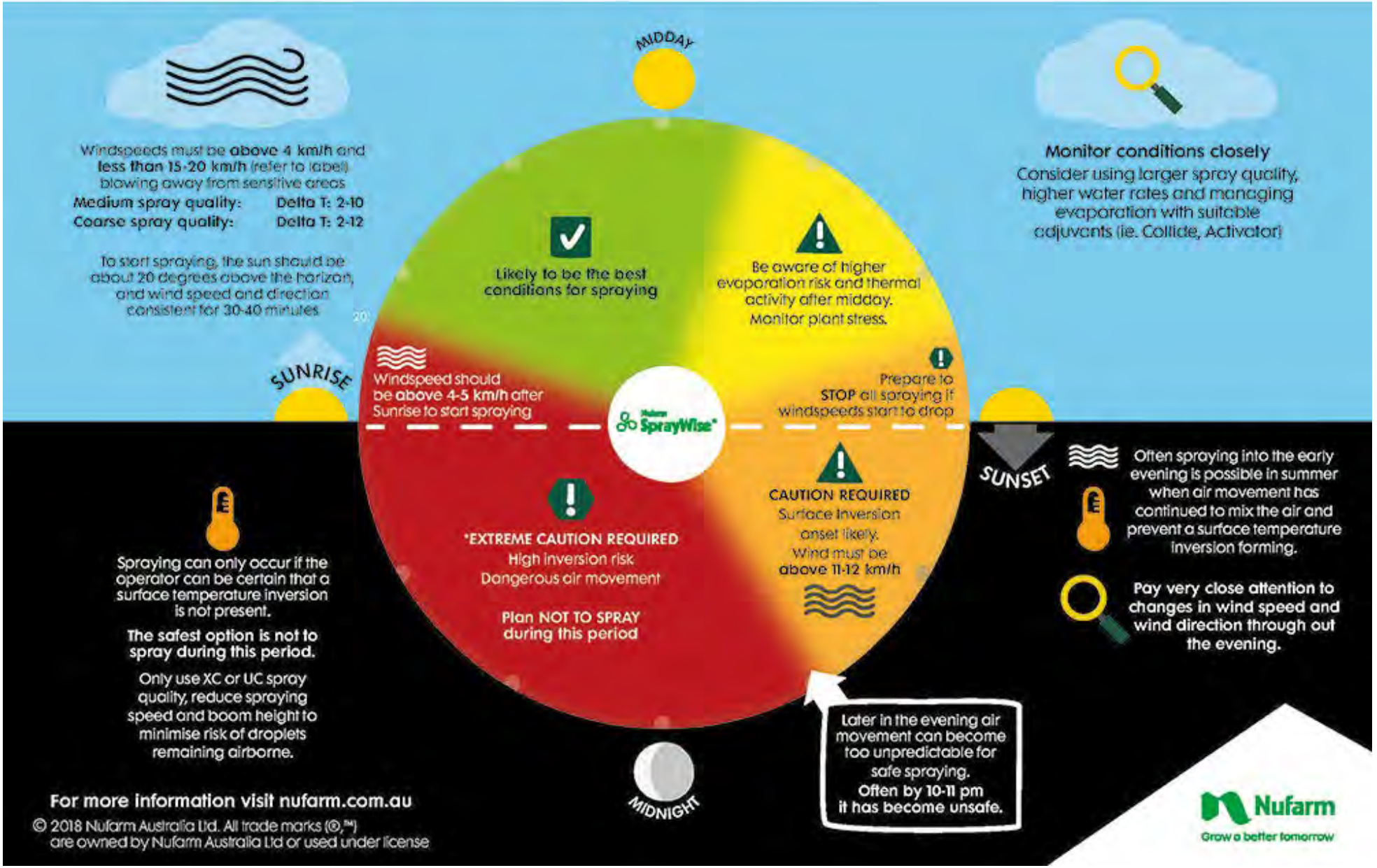


Image courtesy of Nufarm.

Calibrating boom sprays

Boom sprays must be calibrated regularly (Table 2) to work efficiently and economically. Regular calibration ensures the right amount of chemical will be applied to the target without costly wastage.

GRDC has a *Spray application manual for grain growers* to help calibrate their spray rig accurately.

Calibrating the spray rig

GRDC grownotes
https://grdc.com.au/__data/assets/pdf_file/0031/234778/8grdcsm8callibration-of-the-spray-system.pdf.pdf

Calibrating a sprayer

Table 2. The steps for calibrating a spray rig.

Step	Activity
1	Add sufficient water to a clean spray tank to provide sufficient volume to conduct the calibration and maintain pressure.
2	Run the sprayer and check the nozzles are not blocked and the spray patterns are even. Record the pressure and nozzle particulars on the record sheet.
3	Place collection vessels under each nozzle to be collected and run the boom for 30 or 60 seconds while collecting the output. It is recommended to collect from at least 20% of the nozzles across the boom. Ensure an even distribution of collection between each individual section (i.e. do not just collect from a single section).
4	Weigh the water collected in each vessel and record the weight (1 L = 1 kg) on the recording sheet. Weighing is more accurate than reading volume.
5	1. Add all the volumes together to get the total volume for the nozzles collected, and record this on the record sheet. 2. Then divide the total volume collected by the number of nozzles to get the average flow rate per nozzle. 3. Multiply the average flow rate by the total number of nozzles on the boom to get the total flow rate across the boom. **Note**: any nozzle that is operating at 5% more or less volume than the average should be replaced.
6	Proceed with the calculations on the record sheet by entering the values in their corresponding boxes in the formulas. This will provide the L/ha of water that the boom is operating at with that nozzle, pressure and speed combination.

SpraySMART®

Chemical Accreditation Training

SpraySMART is a Registered Training Organisation (RTO - 40867) and leading provider of Face to Face, Online and Zoom Chemical Accreditation Training. We work with all Industry sectors to provide specialised training and industry accreditation for users of Agricultural and Veterinary (AgVet) chemicals. Delivering Chemical Accreditation Training Australia wide.

NSW State Government

AgSkilled 3.0 Fee Free Training

AgSkilled™

FUNDING AVAILABLE for AQF3 Chemical Accreditation Training

AHCSS00074 Agricultural Chemical Skill Set and is mapped to the following Units of Competency:

AHCCHM304 Transport and store chemicals
AHCCHM307 Prepare and apply chemicals to control pest, weeds and diseases

Limited Funding available up till June 2025 for eligible applicants*

For further information on how and where you can complete training:

- Call our enrolment centre on 1800 872 462 or 02 6895 2021
- Visit our website www.spraysmart.com.au or
- Scan the QR Code

Condobolin Enrolment Centre PO Box123 Condobolin NSW 2877 training@spraysmart.com.au
Wagga Wagga Office 85A Travers Street Wagga Wagga NSW 2650 admin@spraysmart.com.au
Sydney Office PO Box 367 Kurrajong NSW 2758 info@spraysmart.com.au

1800 872 462

*Not all applications are guaranteed approval

Cleaning and decontaminating boom sprays

Cleaning and decontaminating (Table 3) spray equipment for herbicide application are essential. Many crops and pastures have been severely damaged or destroyed by failing to ensure that spray equipment was thoroughly cleaned before use.

With the advent of crops such as canola and pulse crops in the rotation, and with more emphasis on legume-based pastures, spray units must be decontaminated to ensure that there is no possibility of crop or pasture damage.

Labels usually detail decontamination and cleaning procedures for each product.

Table 3. Decontaminating boom sprays. Read the label before using a product.

Herbicide used	Rate of agent/100 L water	Instructions for cleaning and decontamination
Impose® (imazapic) Precept® (MCPA + pyrasulfotole) Roundup Ultra®MAX (glyphosate) Sharpen® (saflufenacil 700) Spinnaker® (imazethapyr) Velocity® (pyrasulfotole + bromoxynil)	120 g Nufarm tank and equipment cleaner or 1 L Absolute Boomer®	Rinse thoroughly several times with clean water before use.
Phenoxy type salt or amine formulations (2,4-D amine, MCPA amine, 2,4-DB, dicamba)	2 L household ammonia or 120 g Nufarm tank and equipment cleaner	Thoroughly agitate and flush a small amount of solution through the system and let it stand in the sprayer overnight. Flush and rinse with clean water several times before use.
Phenoxy type, ester formulations 2,4-D ester, MCPA ester, Flight® EC (picolinafen + bromoxynil + MCPA), Legacy® MA (diflufenican + MCPA)	125 g powdered detergent or 120 g Nufarm tank and equipment cleaner	Rinse the inside and outside of the tank and flush a small amount through the system for 15–20 minutes. Let it stand for at least 2 hours or preferably overnight. Flush and rinse before use.
Atrazine, simazine	125 g powdered detergent or 120 g Nufarm tank and equipment cleaner or 1 L Absolute Boomer®	Rinse with clean water before and after using the solution.
Sulfonylurea herbicides e.g. Associate® (metsulfuron-methyl) Atlantis® OD (metsulfuron-methyl + mefenpyr-diethyl) Chlorsulfuron 750 (chlorsulfuron) Hussar® OD (idolsulfuron-methyl sodium + mefenpyr-diethyl) Salve (metsulfuron-methyl + aminopyralid)	300 mL fresh household chlorine bleach containing 4% chlorine or 240 g Nufarm tank and equipment cleaner or 1 L Absolute Boomer®	1. Drain and flush the tank, hoses and boom with clean water for 10 minutes. 2. Fill the tank with clean water and add the chlorine bleach. Flush the boom and allow it to stand for 15 minutes, then drain. 3. Repeat step 2. 4. Nozzles, screens and filters should be removed and cleaned separately.
Broadstrike®, ForageMax®, Garlon® 600, Grazon® Extra, Hotshot®, Lontrel® Advanced, Paradigm®, Pixxaro®, Rexade®	500 mL alkali liquid detergent DynamoMatic®, Surf®, Omo® or 1 L Absolute Boomer® or 500 g of the powder equivalent such as Surf®, Omo®	Flush the system, then quarter-fill the tank with water and add the detergent. Start the pump and circulate for at least 15 minutes. Drain the whole system. Remove and clean the filters, screens and nozzles with clean water and allow them to drain.
Herbicides for grass control in broadleaf crops and pastures	500 mL alkali liquid detergent such as Surf®, Omo®, DynamoMatic®, or 500 g of the powder equivalent or 1 L Absolute Boomer®	If broadleaf herbicides, particularly sulfonylureas (such as Chlorsulfuron 750), have been used in the spray equipment at any time before grass herbicides, particular care should be taken to follow the directions for cleaning and decontamination on the label of the relevant broadleaf herbicide. Before spraying cereals, maize, sorghum or other sensitive crops: 1. wash the tank and rinse after use 2. completely drain the tank and wash filters, screens and nozzles 3. drain and repeat the procedure twice. To decontaminate, wash and rinse the system as above, quarter-fill the tank, add the detergent and circulate through the system for at least 15 minutes. Drain the whole system. Remove filters, screens and nozzles and clean separately. Finally, flush the system with clean water and allow it to drain.

Warning: Group 1 grass control herbicides such as Elantra® Xtreme®, Fusilade® Forte, Shogun® and Status® can be extremely damaging to winter and summer cereals. Likewise, spray tank contamination of small quantities of sulfonylurea herbicides such as Chlorsulfuron 750 can be extremely damaging to crops such as canola, pulse crops and legume pastures.

Note: the products mentioned in this table are not the only products available for decontamination.

Rinse water should be discharged into a designated disposal area, or if this is unavailable, onto unused land away from surface water, water bodies, gardens, shelter belts and other environmentally sensitive areas.

Applying herbicides: managing your legal responsibilities

The Pesticides Act 1999

The *Pesticides Act 1999* is the primary legislative instrument controlling the use of pesticides in NSW and is administered by the Environment Protection Authority (EPA). The underlying principle of the *Pesticides Act* is that pesticides must only be used for the purpose described on the product label and all the instructions on the label must be followed. Consequently, all label directions must be read by, or explained to, the user before each pesticide use.

All pesticide users should take reasonable care to protect their own health and the health of others when using a pesticide. They should also make every reasonable attempt to prevent damage occurring from using pesticides, such as off-target drift onto sensitive areas or harm to endangered or protected species.

A Regulation was gazetted in 2017 renewing the requirement for all commercial pesticide users, i.e. all farmers and spray contractors, to keep records of their pesticide application.

Numerous sources and websites, including Croplands, have spray record forms. More information on your spray record responsibilities is available on the Environment Protection Authority website. The EPA also has a spray record form that can be downloaded and used.

Notes on how to fill these forms in are included in this guide.

The 2017 Regulation requires all commercial pesticide users to be trained in pesticide application. Trained aerial applicators, pest control operators and fumigators are recognised as satisfying the requirements of the Regulation. Apart from these groups, all commercial users must have a prescribed qualification. Only domestic use, such as home gardens, is excluded, provided the pesticide is a specific domestic/home garden product.

Covered by the Regulation is pest control by/on:

- public authorities, e.g. State Rail
- golf courses, sporting fields and bowling greens
- agricultural, horticultural, aquacultural and forestry operations
- businesses, educational institutions, and hospitals.

Growers are recommended to undertake the SMARTtrain course or the standard ChemCERT course, both of which cover the higher AQF3 competencies. For growers with literacy and/or numeracy problems, the lower level AQF2 competency will provide a minimum qualification that satisfies the Regulation.

Go to web pages

Croplands
(https://croplands.com/au/product/spraywise-record-keeping/)

EPA
(https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/esticides/130814pestfmeg.pdf)

EPA
(https://www.epa.nsw.gov.au/your-environment/pesticides/compulsory-record-keeping)

SMARTtrain Chemical Safety and Training
(https://www.tocal.nsw.edu.au/courses/short-courses/smarttrain-chemical-safety-and-training)

ChemCERT
https://www.chemcert.com.au/courses/

How to complete a pesticide application record

Property/holding: attaching a property map or line drawing, showing adjoining sensitive areas, with paddocks and other features clearly identified, can be helpful. Fill in the residential address.

Applicator details: the person applying the pesticide must fill in their contact details. If the applicator is not the owner, e.g. a contractor or employee, then the owner's details must also be completed. In the case of a contractor, one copy of the record should be kept by the applicator and another given to the owner.

Sensitive area identification: if there are sensitive areas, either on the property or adjoining land, these should be identified in advance and marked on the sensitive areas diagram, together with any precautions or special instructions. When using a contractor or giving the job to an employee, this section should be filled in and given to the person doing the application **before** the job starts. The property map with sensitive areas marked should be shown to them, and the job fully discussed.

Paddock identification: identify the paddocks/blocks and order of treatment (if there is more than one) in the 'paddock' row of the form. This should be filled in before starting application, along with the residential address. If using a contractor or employee, this information should also be given to them **before** they start the job. Applicators using GPS could include a GPS reading as well as the paddock number/name.

Crop/animal identification: as a minimum, identify the host (crop/situation) and the weed. It is helpful to provide as much detail about the weed as possible, e.g. 4-leaf. Additional details such as crop variety and growth stage are often important for quality assurance schemes, but could also be necessary to identify the area treated as required by the Regulation.

Product details: transcribe the product name and rate or dose from the label, including all products and additives included in tank mixes. If the use pattern is on a permit, include the permit number, expiry date and label details. A permit rate or dose might vary from the label. The water rate might come from the label, or from your standard practice or calibration. The total litres (L) or kilograms (kg) can be calculated when the application is finished.

Withholding periods (WHP): labels often have several different withholding periods. These might be different harvest WHP for different crops, grazing WHP or export slaughter interval (ESI). All WHPs are the minimum number of days after treatment before harvest, grazing or livestock slaughter for export markets can take place.

Equipment details: as a minimum, you have to fill in what equipment you used. Specify the setting used for the application, e.g. nozzle type, angle and pressure. With pressure, the reading should be as close to the nozzle as possible. Other details such as the date of calibration and water quality, are useful as a reminder for future use, or as a check on your set-up should you have a treatment failure. Water quality is important for herbicide efficacy. At the most basic level, water quality can be described in terms of its source, e.g. rainwater, dam water, bore water.

Weather: as a minimum, you have to record wind speed and direction. It is better to measure with instruments than to estimate. Record any changes during application.

You will need to record weather information, including Delta T, during application. Rainfall should be recorded for the 24 hours before and after application, unless a different figure is given in the restraints or critical comments sections of the label. Rainfall before or after application can affect efficacy.

Temperature and relative humidity should also be recorded, particularly if either or both are referred to in the restraints or critical comments sections of the label. Temperature and relative humidity can affect efficacy, increase the risk of off-target drift or could damage the host (e.g. phytotoxicity) or a combination of all 3.

You must also record the time when you started, and the time when you finished.

Hazardous chemicals legislation

Many registered pesticides are classified as hazardous chemicals. Even those that are not classified as hazardous pose some risk to the health of those who use them or are exposed to them.

The *Work Health and Safety Act 2011* (WHS) and the Hazardous Chemical section of the Work Health and Safety Regulation 2011 detail legal requirements for suppliers, workers and persons conducting businesses or undertakings in the workplace for hazardous chemicals management. The Act and accompanying Regulation are intended to protect workers from both the short- and long-term health effects of exposure to hazardous chemicals and to improve current health and safety practices by:

- providing health and safety information to workers (including a list or register of all hazardous chemicals and an SDS (Safety Data Sheet) for each hazardous chemical)
- consultation with, and training, workers
- minimising the risks from hazardous chemicals exposure
- health surveillance (if warranted by the risk assessment for organophosphates).

Both storage and use are covered by the WHS legislation. Storage limits have changed. Premises storing large quantities require both the storage shed and the entrances to the premises to display placards. If very large quantities are stored (which would be rare on-farm), a manifest, site plan and written emergency plan are required. Consult your local SafeWork NSW office for advice.

SafeWork NSW's Code of Practice for safely using and storing chemicals (including pesticides and herbicides) in agriculture is an approved industry code of practice and provides practical guidance for farm chemical users to comply with this legislation.

Records must be:

- made within 24 hours of application
- written in legible English
- kept for 3 years
- pesticide users must be trained.

Records must include:

- date
- property address
- location and area treated
- name of owner
- owner's contact details: address and phone
- operator's name
- operator's contact details: address and phone
- area sprayed
- crop and pest conditions and density
- equipment type
- nozzle type
- spray system pressure during application
- no-spray zone
- full product name including additives
- chemical rate
- water rate
- total amount of concentrate
- total amount of chemical mix used
- time of spraying
- temperature during the operation
- wind speed and direction during the operation.

Go to page

SafeWork NSW hazardous chemicals

(https://www.safework.nsw.gov.au/hazards-a-z/hazardous-chemical)

Good spray drift reduction makes good neighbours!

On Coarse® DRA

That's where On Coarse DRA (Drift Reducing Adjuvant) comes into the picture.

On Coarse DRA is a tank mix partner for fallow herbicides that improves their performance by greatly reducing spray drift risk, even when already using a very coarse spray set-up.

There is no better way to keep your neighbour relationships On Coarse!

Visit **ag.fmc.com/au** for more information

FMC An Agricultural Sciences Company

FMC Australasia
Phone: 1800 066 355
ag.fmc.com/au

Water quality for herbicide application

Good, clean quality water is important when mixing and spraying herbicides. Poor quality water can reduce the effectiveness of some herbicides and damage spray equipment.

Effects of water quality

Water quality depends on the source of the water (rain-fed tank, dam, river, bore or aquifer) and the season (e.g. heavy rain, drought). Several characteristics of water quality will affect chemical performance (Table 4).

Dirt: dirty water has very small soil particles (clay and silt) suspended in it, which can absorb and bind the chemical and reduce its effectiveness. This applies especially to glyphosate, paraquat and diquat.

Dirt can also block nozzles, lines and filters and reduce the sprayer's overall performance and life. As a guide, water is considered dirty when it is difficult to see a 10¢ coin in the bottom of a household bucket of water.

Water hardness: water is termed hard when it has a high percentage of dissolved minerals such as calcium, manganese or magnesium. Hard water will not lather with soap and can cause some chemicals to precipitate. Susceptible chemicals often need to have agents added to overcome this problem.

Formulations of 2,4-DB are particularly sensitive to hard water (>400 ppm CaCO3 equivalent). Other herbicides such as glyphosate, 2,4-D amine, MCPA amine and clopyralid can also be affected.

Hard water can affect chemicals by:

- causing some to precipitate
- affecting the wetting, emulsifying and dispersing properties of some surfactants.

Water pH: pH is a measure of acidity and alkalinity that ranges between 1 and 14. A pH of 7 is neutral, less than 7 acid and more than 7 is alkaline. Most natural water has a pH of 6.5–8.

In alkaline water (pH >8), many chemicals undergo alkaline hydrolysis. This causes the active ingredient to break down into other compounds that can reduce the herbicide's effectiveness over time. This is one reason why spray mixes should not be left in tanks overnight.

Acidic water can also affect the stability and physical properties of some chemical formulations.

Dissolved salts: the total amount of mineral salts dissolved in water is usually measured by the water's electrical conductivity (EC).

The EC of bore and dam water depends largely on the salt levels in the rock and soil that surrounds them. During a drought, water salinity increases.

Very salty water can cause equipment blockages and is more resistant to pH changes.

Organic matter: water containing organic matter, such as leaves or algae, can block nozzles, lines and filters. Algae can also react with some chemicals, reducing their effectiveness.

Temperature: very hot or cold water can affect how some chemicals perform.

Acknowledgement: extracts from Burfitt T, Hardy S and Somers T (1996) *Spray Sense Bulletin* No.12, NSW DPI (https://www.dpi.nsw.gov.au/agriculture/chemicals/spray-sense-leaflet-series).

Improving water quality

Water needs to be tested to see whether it will affect chemical performance. There are commercial products available to reduce pH (e.g. Hotup®, LI 700 and Primabuff®), soften hard water and clear dirty water. To reduce the effects of very salty water, combine water from several sources.

Table 4. Herbicide tolerance to water qualities.

Product (herbicide)	Water quality				
	Muddy	Saline	Hard	Alkaline (pH >8)	Acidic (pH <5)
2,4-D or MCPA amine	✓	✓	X	NR	–
2,4-D or MCPA ester	✓	Test	Test	✓	✓
2,4-DB	–	–	X	NR	–
Affinity® Force (carfentrazone-ethyl)	✓	✓	✓	X	NR
Associate® (metsulfuron-methyl 600)	✓	✓	✓	Marginal	X
Brodal® Options (diflufenican 500)	–	✓	✓	X	–
Chlorsulfuron	✓	✓	✓	Marginal	X
Dicamba	✓	✓	NR	NR	–
Diuron	✓	Test	✓	✓	–
Diuron + 2,4-D amine	✓	Test	X	NR	–
Fusilade® Forte (fluazifop-p-ethyl 128)	✓	✓	✓	NR	X
Glyphosate	X	✓	X	–	✓
Gramoxone® 360 Pro (paraquat 360)	X	✓	✓	✓	✓
Haloxyfop	✓	✓	✓	NR	✓
Legacy® MA (diflufenican + MCPA)	✓	X	X	NR	–
Lontrel® Advanced (clopyralid)	✓	✓	X	X	–
Simazine	✓	X	✓	NR	–
Trifluralin	–	✓	✓	✓	✓
Valor® (flumioxazin)	✓	✓	–	X	✓

Key

✓ okay to use, X do not use, – no data.

NR = not recommended, but if there is no other option, do not allow the chemical mixture to sit in the tank for any period. Spray out immediately.

Test = mix herbicides and water in proportion before use; if any instability is observed, do not use.

Using adjuvants, surfactants and oils with herbicides

Herbicides often need help to spread across the leaf and penetrate the leaf surface of target weeds to give the best results. Some herbicides have enough adjuvant and do not need additional surfactants to perform well. However, some do and this is usually detailed on the herbicide label.

An adjuvant is any additive that is intended to improve the effectiveness of the herbicide. Many products have been developed to help herbicides contact the target weed, then remain and penetrate the weed leaf. Always read the herbicide label before opening the container and follow the information printed there.

The APVMA classes adjuvants into 2 categories:

1. adjuvants that enhance product efficacy
2. adjuvants that improve the ease of application.

Adjuvants to enhance product efficacy

Extenders enhance the amount of time the active ingredient remains toxic by increasing resistance to environmental degradation. Examples include:

- ammonium sulfate
- menthene-based products.

Humectants increase the density/drying time of an aqueous spray deposit. Examples include:

- glycerol
- propylene glycol
- diethyl glycol.

Penetrants improve active ingredient transfer from the target surface to interior tissues. Examples include:

- mineral oil
- vegetable oil
- esterified vegetable oil
- organo-silicate surfactants
- acidified surfactants.

Stickers increase herbicide adhesion to target surfaces. Examples include:

- latex-based
- terpene/pinolene
- pyrrolidone-based.

Wetters/spreaders enhance adhesion to, and spray droplet spreading on, target surfaces by reducing the surface tension of the herbicide formulation and improving coverage. Examples include:

- non-ionic surfactants – non-reactive, i.e. they do not have a negative charge or a positive charge; they remain on the leaf once dry and allow re-wetting after rain, permitting additional herbicide uptake
- anionic surfactants – negative charge
- cationic surfactants – positive charge
- amphoteric surfactants
- organo-silicate surfactants
- acidified surfactants.

Adjuvants to make application easier

Acidifying/buffering agents adjust the pH of water and minimise herbicide decomposition through alkaline hydrolysis.

Anti-foaming/de-foaming agents reduce or suppress foam formation in the spray tank to prevent overflow.

Compatibility agents allow chemical mixing by preventing antagonism between different ingredients in the spray solution, for example, ammonium sulfate.

Factors affecting adjuvant use:

1. Crop safety – adding an adjuvant can reduce herbicide selectivity and thereby increase crop damage. This is not an issue for fallow and pre-emergent herbicides.
2. Effectiveness or activity – adjuvants are usually added to increase the effectiveness of herbicides. However, using the wrong type or rate can reduce effectiveness, such as decreasing herbicide retention on leaves.
3. Water hardness – hard water can lead to poor mixing with the chemical. This particularly occurs with emulsifiable concentrates. High levels of calcium and magnesium ions bind with amine formulations causing them to be less soluble and therefore less effective.
4. Water temperature – low water temperature can lead to gelling in the tank. High concentration herbicides might not mix and surfactants could perform poorly.

Drift control agents alter the spray solution's viscoelastic properties, yielding a coarser spray with greater mean droplet sizes. Examples include:

- polyacrylamides
- polysaccharides.

Dyes are commonly used for spot- or boom-spraying herbicides to detect missed spots or to avoid duplication.

Water conditioners prevent a reaction between hard water ions in spray solutions and suppress precipitate or salt formation, for example, ammonium sulfate.

Tips for tank-mixing herbicides

- Tank-mixing herbicides is a common practice to improve weed control and broaden the target weed spectrum. There could also be some advantages that help to avoid herbicide resistance problems.
- Many tank mixes are included on registered herbicide labels.
- Generally, provided herbicides are registered for a particular use, they might be tank-mixed if they are compatible and label mixing instructions are followed.
- Note that some herbicides, although being physically compatible, can be antagonistic to weed control. This information is usually outlined on herbicide labels under compatibility. Ratios for tank-mixing, crop safety, herbicide efficacy and special use of adjuvants also need to be considered.
- The order in which herbicides are mixed is also important. The mixing sequence is shown in Table 5.

Table 5. The sequence to be used when tank-mixing herbicides.

Step	Activity
1	Fill the spray tank to at least 70% full and run agitation.
2	Add water conditioning agents if required (e.g. LI 700, Liase® or Primabuff®).
3	Add water dispersible granules (WG) or dry flowable (DF) products (including those in water-soluble bags first).
4	Add wettable powders (WP).
5	Add flowables or suspension concentrates (e.g. atrazine-simazine liquids).
6	Add emulsifiable concentrates (EC) (e.g. Bromicide® MA, Kamba®, trifluralin).
7	Add water-soluble concentrates (e.g. glyphosate, Amicide® Advance 700, Gramoxone® 360 Pro, Spray.Seed® 250).
8	Add surfactants and oils (e.g. BS1000®, Hasten®).
9	Add soluble fertilisers.

Source: adapted from *Broadacre tank mix guide*, Nufarm Australia Ltd. (2023).

Table 6. Some commonly used adjuvants. Read the label before using a product.

Trade name	Constituent	Company	Claim
Acidifying/buffering agents			
Agri-Buffa®	Phosphate esters 430 g/L + polyalkylene oxide 100 g/L	Agrichem	Wetter, spreader and acidifier; compatible with most herbicides.
LI 700®	Soyal phospholipids 350 g/L + propionic acid 350 g/L	Nufarm	Wetter, spreader and acidifier; compatible with most herbicides except sulfonylureas.
Primabuff®	Onoxynol-9 266.2 g/L + phosphoric acid derivatives 375.1 g/L	Nufarm	Penetrant, buffering, acidifying and compatibility aid used with certain non-selectives.
Compatibility agents			
Liase®/Liquid Assist	Ammonium sulfate 417 g/L	Nufarm/Rutec	Minimises antagonism. For use with glyphosate herbicides.
Liquid Boost®	Ammonium sulfate 417 g/L	Rygel Australia	Minimises antagonism. For use with glyphosate herbicides.
Methylated seed oil (MSO)			
Activoil®	Fatty acid esters of canola oil 704 g/L	SST Australia Pty Ltd	Improves penetration. Used with certain post-emergent herbicides.
Adigor®	Methyl esters of canola oil, fatty acids solvent 440 g/L, liquid hydrocarbons 222 g/L	Syngenta	Adjuvant for use with Axial® 100 EC and other selective and non-selective herbicides as per label directions.
Hasten®	Fatty acid esters of canola oil 704 g/L + surfactant >15%	Victorian Chemical Co.	Wetting/spreading/penetrating agent for certain post-emergent herbicides.
Supa Stik® Oil	Canola oil 840 g/L	Agrichem	Improves droplet deposition and uptake. Used with selective and non-selective herbicides.
Mineral oil (MO)			
Ad-Here®	Mineral oil 970 g/L	Victorian Chemical Co.	Adjuvant for Express®, Select®, Sertin®186 EC.
Supercharge® Elite	Paraffin oil 471 g/L	Nufarm	To enhance the wetting, spreading and uptake of systemic herbicides through waxy leaf surfaces.
Mineral oil + surfactant (MOS)			
Hot-up®	Non-ionic 340 g/L + mineral oil 190 g/L + ammonium sulfate 140 g/L	Victorian Chemical Co.	Wetting/penetrating/reducing antagonism of non-selective herbicides.
Hotwire® Spraying Oil	Paraffinic oil 598 g/L + non-ionic surfactant 210 g/L	Adama	Spreading/wetting agent for many selective herbicides.
Uptake® Spraying Oil	Paraffinic oil 582 g/L + non-ionic surfactant 208 g/L	Corteva Agriscience	Spreading/wetting agent for many selective herbicides e.g. Mandate®.
Non-ionic surfactant (NIS)			
Activator®	Non-ionic surfactant 900 g/L	Nufarm	Wetting/spreading agent for most selective and non-selective herbicides.
Agral® 600	Non-ionic surfactant 600 g/L	Syngenta	Wetting/spreading agent for most selective and non-selective herbicides.
BS1000®/Deltawet® 1000	Alkoxylated alcohol 1000 g/L	Nufarm/Tasman Chemicals	Wetting/spreading agent for most selective and non-selective herbicides.
Wetspray® 1000	Non-ionic surfactant 1000 g/L	Adama	Wetting/spreading agent for most selective and non-selective herbicides.
Wetter TX®	Non-ionic surfactant 1040 g/L	Nufarm	Used with Roundup® when treating certain grasses.
Sticker/surfactant			
Bond® Adjuvant	Synthetic latex 450 g/L + non-ionic surfactant 100 g/L	Nufarm	Used when the addition of a sticker, spreader and deposit agent is required.

Timing herbicide applications with crop growth stages

Cereal growth stages – the Zadoks scale

The Zadoks growth scale is a decimal scale that describes the principal cereal crop growth stages (Table 7), labelled 0 to 9.

Each primary growth stage is further subdivided into secondary stages, extending the scale from 00 to 99. The first number represents the growth stage and the second number represents plant parts, e.g. Z12 indicates a young plant with only 2 leaves fully unfolded, commonly referred to as the 2-leaf stage.

A series of pairs of numbers can be used to further describe the growth stage. For example, Z14/21 indicates the main tiller with 4 fully unfolded leaves, commonly referred to as the 4-leaf stage, but this plant has one more tiller. Note that additional tillers are counted separately from the main tiller.

The Zadoks scale is based on the individual plant, not the general appearance of a crop. Therefore a representative selection of plants should be examined from a paddock to use the scale.

Growth terms used elsewhere in this guide, extracted from registered labels, and their Zadoks equivalents are:

3-leaf: three fully unfolded leaves on the main shoot only, Z13.

5-leaf: five fully unfolded leaves on the main shoot only, Z15.

Tillering – tiller formation period: plants past the seedling stage and before stem elongation, Z21 to Z29.

Jointing: crop becoming erect or booting up to the stage when the flag leaf is just visible, Z31 to Z37.

Boot: head plainly felt in stem before head emergence, Z40 to Z45.

The recommended timing for applying each herbicide is indicated in the chemical control tables in this guide. The terms 'early tillering' and 'late tillering' are not definitive and are commonly used in a general sense. The number of fully emerged main shoot or stem leaves, together with the number of tillers when there is more than one, is the only accurate measure of the growth stage of a cereal plant.

Principal growth stages

0. germination
1. seedling growth
2. tillering
3. stem elongation
4. booting
5. ear emergence
6. flowering
7. milk development
8. dough development
9. ripening

The main stages of interest to cereal producers applying herbicides are:

1. seedling growth
2. tillering
3. stem elongation
4. booting

Table 7. Crop growth stages and the Zadoks scale.

Crop growth stage					
2-leaf stage. Two leaves (L) have unfolded; third leaf present, yet to fully expand.	Start of tillering. First tiller (T1) appears from between a lower leaf and the main shoot. Usually 3 or 4 leaves are on the main tiller.	Tillering. Tillers come from the base where leaves join the stem and continue forming, usually until there are 5 leaves on the main shoot. Secondary roots are developing.	Fully tillered. Usually no more tillers form after the very young head starts forming in the main tiller. Tillering is completed when the first node is detected at the base of the main stem.	Start of jointing. Jointing or node formation starts at the end of tillering. Small swellings (joints) form at the bottom of the main tiller. Heads continue developing and can be seen by dissecting a stem.	Early to mid booting. The last leaf to form (the flag leaf) appears on top of the extended stem. The developing head can be felt as a swelling in the stem.
Zadoks scale					
2 leaves unfolded (Z12).	4 leaves unfolded (Z14). Main shoot and 1 tiller (Z21).	5 leaves on main shoot or stem (Z15). Main shoot and 1 tiller (Z21).	6 leaves on the main shoot or stem (Z16). Main shoot and 3 or more tillers and onwards (Z23–30).	First node formed at base of main tiller (Z31).	Z40–45.

Table 8. Growth stages for herbicide application. Read the label before using a product.

Example product (chemical)	Cereal growth stage – Zadoks scale							
	2-leaf	3-leaf	4-leaf	5-leaf–early till	Mid till	Late till	Full till–jointing	Booting
	12	13	14	15–21	25	29	30–36	40–49
2,4-D amine 700								
2,4-D ester								
2,4-DB								
Achieve® WG (tralkoxydim 400)								
Aggressor® AX (quizalofop-p-ethyl + cloquintocet-methyl)	CoAxial varieties only							
Agtryne® MA (terbutryn + MCPA)								
Aptitude® (metribuzin + carfentrazone-ethyl)								
Arcade® (prosulfocarb)	Wheat and barley only							
Associate® (metsulfuron-methyl)								
Atlantis® OD (mesosulfuron-methyl)		Wheat only						
Axial® Xtra (pinoxaden + cloquintocet-mexyl)								to Z49
Boxer Gold® (prosulfocarb + S-metolachlor)	Wheat and barley only							
Broadside® (bromoxynil + MCPA + dicamba)								
Broadstrike® (flumetsulam)								to Z83
Bromoxynil								
Bronco® MA-X (bromoxynil + MCPA)								
Chlorsulfuron								
Condor® (MCPA + pyraflufen-ethyl)	Low rate only at 2-leaf stage							
Decision® (diclofop-methyl + sethoxydim)								
Diflufenican + bromoxynil								
Diuron 900								
Ecopar® Forte (pyraflufen-ethyl)								
Enforcer® 242 (picloram + MCPA)								
FallowBoss® Tordon® (2,4-D amine + picloram + aminopyralid)								
Flight® EC (picolinafen + bromoxynil + MCPA)								
Frequency® (topramezone + cloquintocet-mexyl)								to Z32
Hotshot® (aminopyralid + fluroxypyr)								1st node
Hussar® OD (idosulfuron-methyl + mefenpyr-dimethyl)	Refer to label							
Igran® (terbutryn)								
Infinity® Ultra (pyrasulfotole + diflufenican)								
Intercept®/Intervix® (imazamox + imazapyr)	Wheat and barley							to Z31
Kamba® (dicamba)								
Kamba® M (MCPA + dicamba)								
Legacy® MA (diflufenican + MCPA)								
Lontrel® Advanced (clopyralid)								
Mandate® (clodinafop-propargyl)								
Mateno® Complete (aclonifen + pyroxasulfone + diflufenican)	Wheat and barley to 3 tillers							
MCPA LVE								
Monsoon® (bromoxynil + fluroxypyr)	Wheat and barley to Z39							
Paradigm® (florasulam + halauxifen)	Do not apply after Z39 for oats							
Picoflex® (picloram)					Z22 to 31			
Pixxaro® (fluroxypyr + halauxifen)								
Precept® (MCPA + pyrasulfotole)	Not barley			All cereals				
Priority® (florasulam)	Check label: mix partner dictates growth stage in this range							
Quadrant® (MCPA ester + bromoxynil + diflufenican + picolinafen)						Z28		
Rexade® (pyroxsulam + halauxifen)	Triticale and wheat only (not durum)							to Z31
Salve (aminopyralid + metsulfuron)								to Z31
Sentry® (imazapic + imazapyr)								
Starane® Advanced (fluroxypyr)								to Z39
Sulfosulfuron								
Talinor® (bicyclopyrone + bromoxynil + cloquintocet-mexyl)						to Z32		
Triathlon® (MCPA + bromoxynil + diflufenican)								
Velocity® (pyrasulfotole + bromoxynil)								

Recommended and preferred timing
Less preferred timing

The recommended application timing has been determined after significant research by chemical companies, aiming to minimise crop damage and maximise yield. Pay attention to 2 vital stages of crop development: at 3–5-leaf stage or when tillering starts; and at the start of jointing.

In many cereal crops:
3-leaf (on main stem) stage is before tillering.
5-leaf (on main stem) stage coincides with early tillering.
6–7-leaf (on main stem) stage coincides with mid to fully tillered stage.
Jointing or node formation indicates the start of the reproductive phase in the crop, and tillering can be said to be complete, i.e. fully tillered.

Identifying cereal seedlings

It is extremely important to accurately identify cereal plants before applying a herbicide for weed control. Cereal seedlings are identified by looking at 4 critical characteristics (Figure 2). This involves taking a close look at the junction of the leaf blade and the leaf sheath; a hand lens is useful.

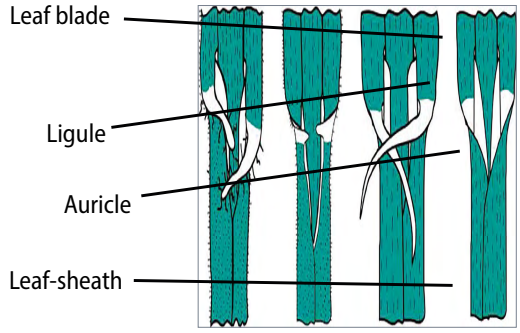


Figure 2. Identifying cereal seedlings.

	Wheat and triticale*	Rye	Barley	Oats and wild oats**
Leaf blade twist	Clockwise	Clockwise	Clockwise	Anticlockwise
Leaf hairiness	Hairy	Inconsistent	± Hairless	± Hairless
Ligule	Medium	Short	Medium	Medium
Auricle	Medium, blunt, hairy	Short, hairless	Long, pointed, hairless	Absent

* Wheat and triticale are difficult to distinguish by vegetative characters. It is possible to distinguish them during early growth by uprooting the seedling and observing the grain shell. Wheat grain shells are pale and oval. Triticale grain shells are darker and longer.

** Oats cannot be distinguished from wild oats during vegetative growth.

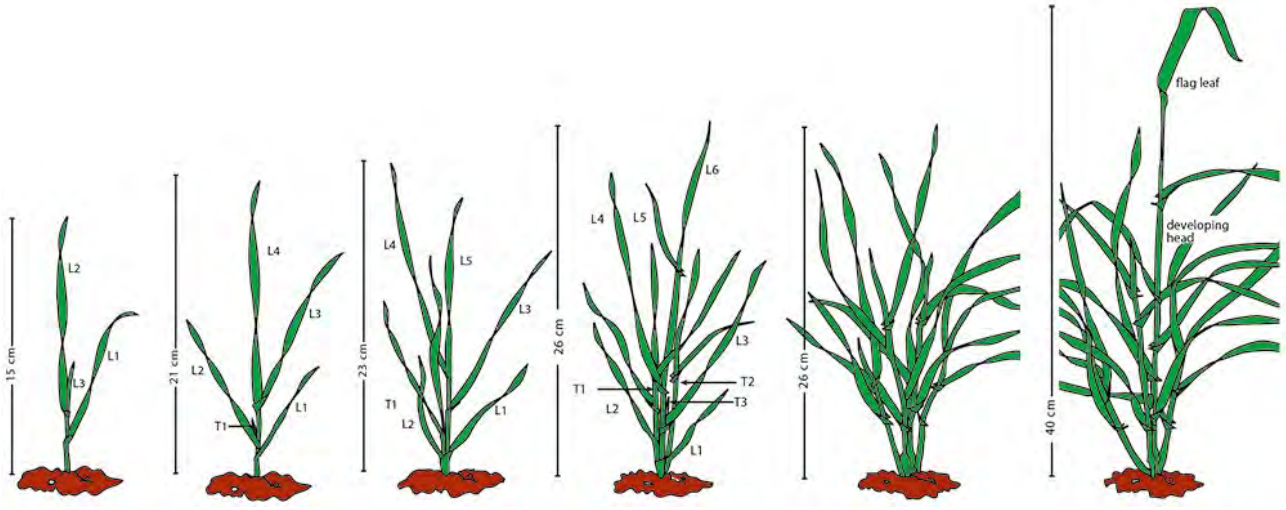


Figure 3. Cereal crop growth stages.

Canola crop growth stages

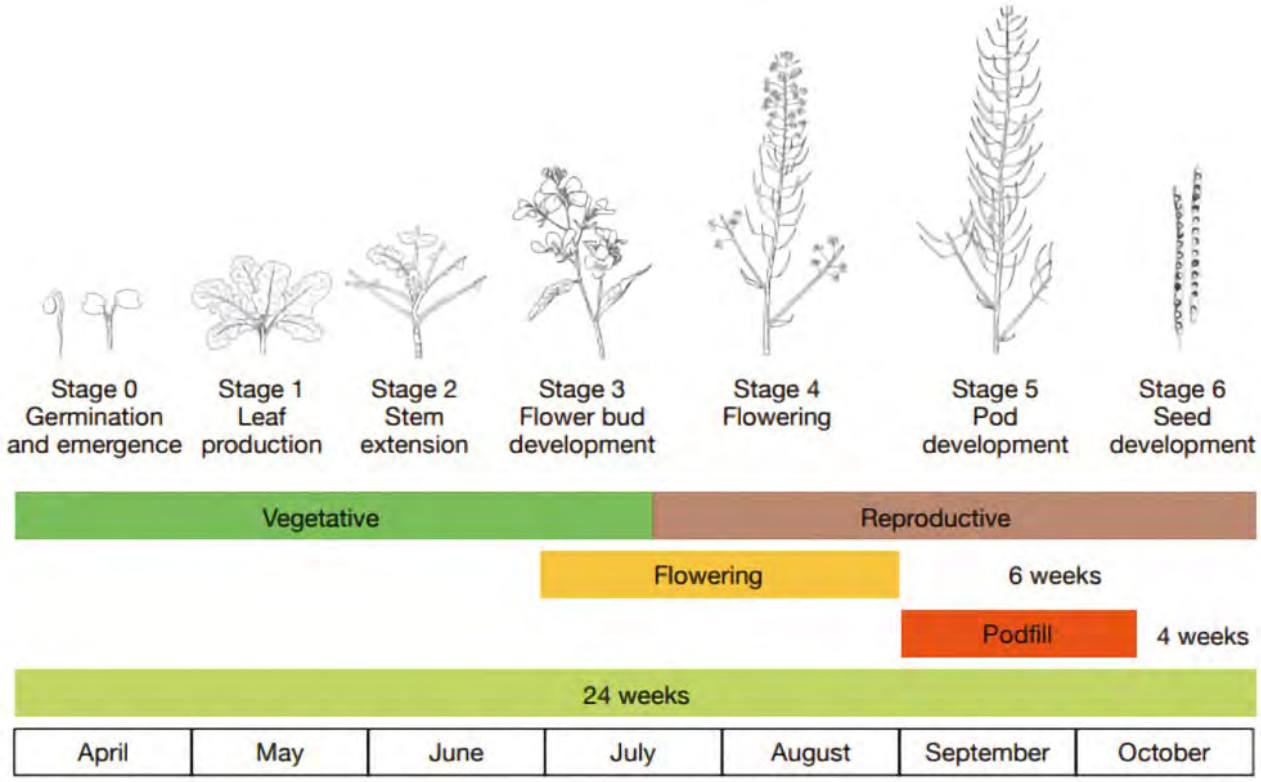
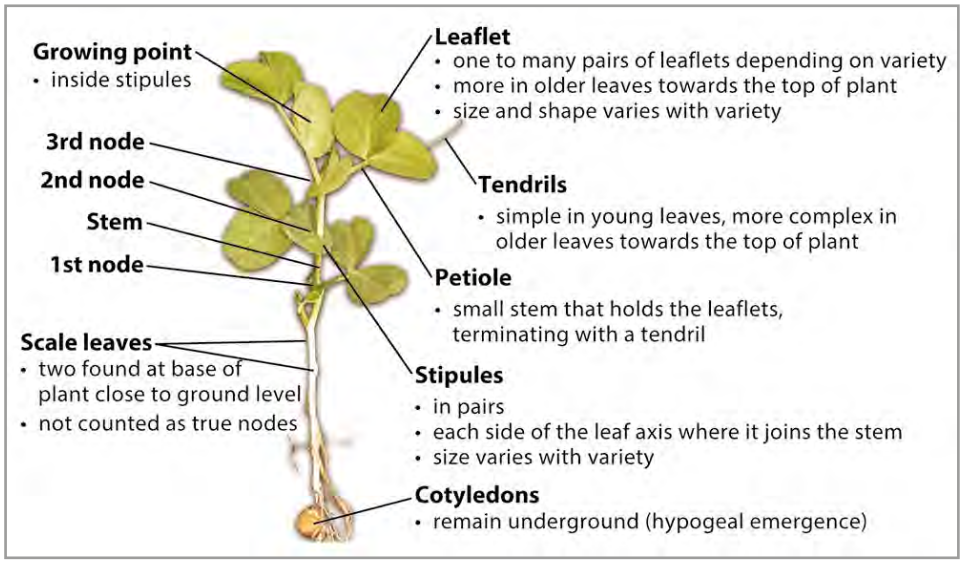


Figure 4. Canola crop growth stages.

Pulse crop growth stages



All pulse species have the same basic structure, with a main stem, which can be divided into units known as nodes. A node is made up of a petiole that has stipules where it joins the stem, and leaflets along its length. In some species, it terminates in a simple or more complex tendril. Two scale leaves appear first and the nodes, where they occur, are not counted as true nodes.

Figure 5. Field pea – conventional leaf type (*Pisum sativum*) e.g. PBA Percy$^{\Phi}$, Sturt$^{\Phi}$.

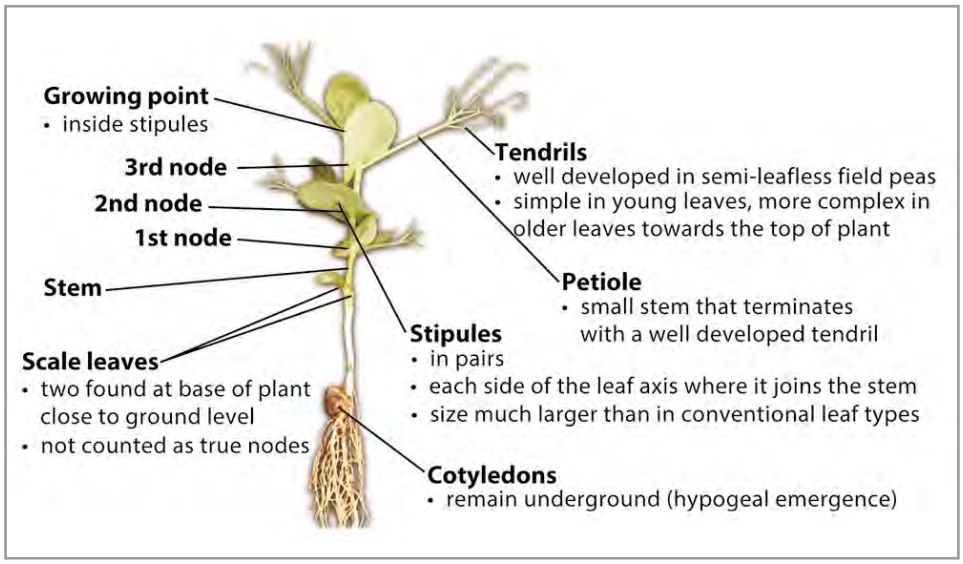


Figure 6. Field pea – semi-leafless leaf type (*Pisum sativum*) e.g. PBA Butler$^{\Phi}$, PBA Oura$^{\Phi}$ PBA Wharton$^{\Phi}$, Morgan$^{\Phi}$.

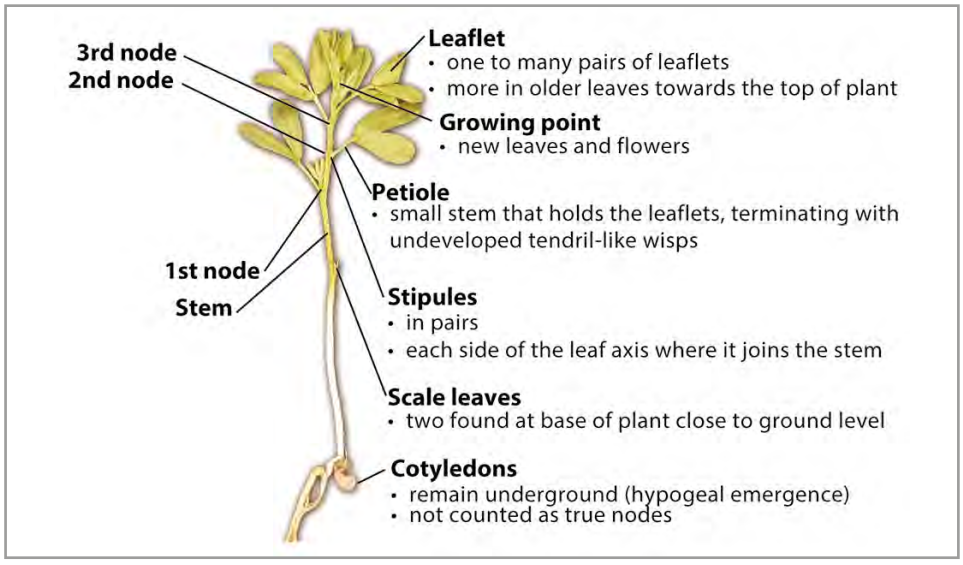


Figure 7. Lentil (*Lens culinaris*).

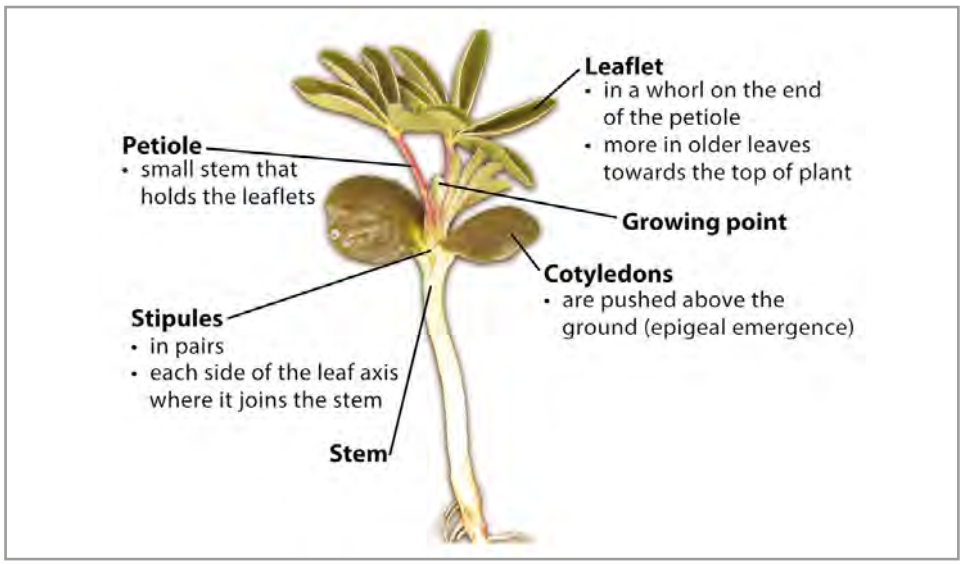


Figure 8. Lupin – albus (*Lupinus albus*, pictured) and narrow-leaf (*L. angustifolius*).

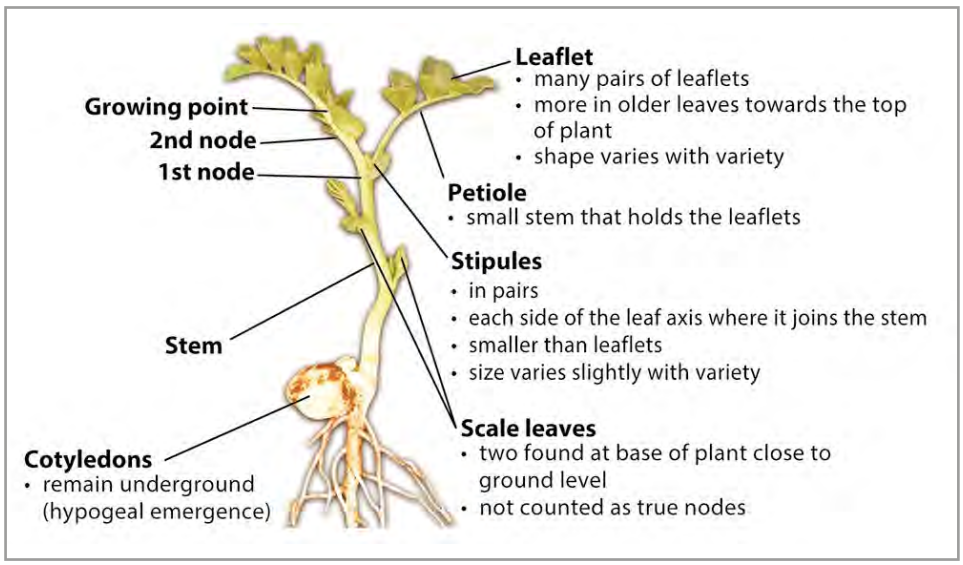


Figure 9. Chickpea (*Cicer arietinum*).

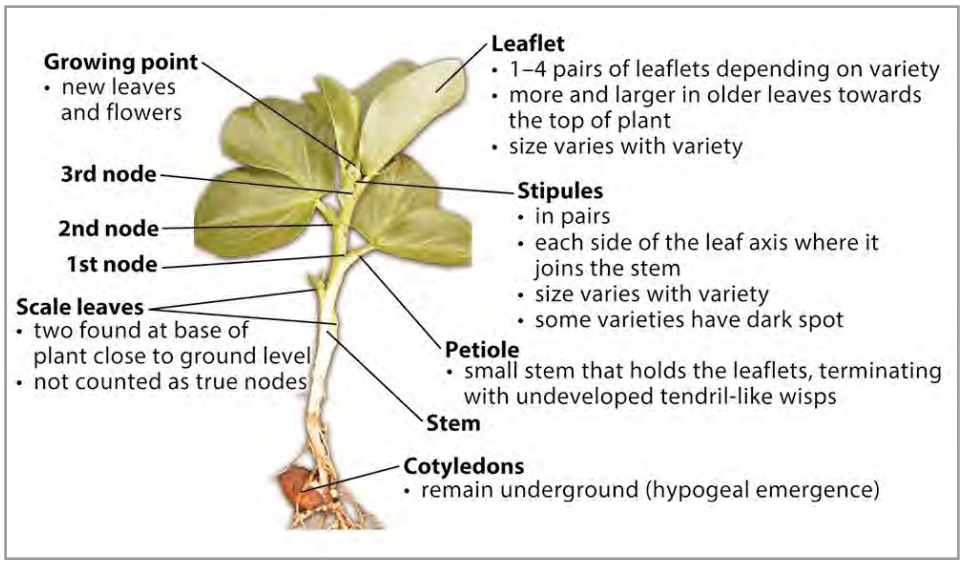


Figure 10. Faba bean (*Vicia faba*).

Herbicides for control and suppression

Table 9. Guidelines for crop rotations – fallow and pre-sowing weed control – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Specific details	Rate	Barley	Canola	Canola – IMI tolerant	Cereal rye	Chickpea	Cotton	Faba bean	Field pea	Lentil	Linseed	Lucerne	Lupin
2,4-D amine 700, **drift restrictions apply**	4	–	<0.5 L/ha	1d	14d	14d	–	7d	10d	7d	7d	7d	7d	7d	7d
	4	–	0.5–0.98 L/ha	1d	21d	21d	–	14d	14d	7d	14d	7d	7d	7d	14d
	4	–	0.98–1.5 L/ha	3d	28d	28d	–	21d	21d	10d	14d	10d	14d	10d	21d
2,4-D LV ester 680, **drift restrictions apply**	4	–	<0.51 L/ha	1d	14d	14d	–	7d	10d	7d	7d	7d	7d	7d	7d
	4	–	0.51–1 L/ha	1d	21d	21d	–	14d	14d	7d	14d	7d	7d	7d	14d
	4	–	1–1.6 L/ha	3d	28d	28d	–	21d	21d	10d	14d	10d	14d	10d	21d
Associate® (metsulfuron-methyl 600)	2	–	5–7 g/ha	6w	9mo	–	6w	9mo	–	9mo	9mo	–	9mo	9mo	9mo
Atrazine 900	5	–	0.65–0.87 kg/ha	–	–	–	–	–	–	–	✓	–	–	–	✓
Balance® 750 (isoxaflutole 750)	27	–	100 g/ha	10w	9mo	9m	–	0d	7m	9m	9m	21m	–	9m	–
Basta® (glufosinate-ammonium 200)	10	–	3.75 L/ha	14d	14d	14d	14d	14d	14d	14d	14d	14d	14d	14d	14d
Butafenacil 100	14	–	55–160 mL/ha*	1h	1h	1h	1h	1h	–	1h	1h	1h	–	–	1h
Dual Gold® (S-metolachlor 960)	15	–	1–2 L/ha	6mo	6mo	6mo	6mo	6mo	–	6mo	6mo	6mo	6mo	6mo	6mo
Express® (tribenuron-methyl 750)	2	–	15–25 g/ha	3d	–	–	–	–	–	–	–	–	–	–	–
Garlon® 600 (triclopyr 600)	4	–	80–160 mL/ha	7d	–	–	–	7d	14d	–	–	–	–	–	–
Grazon® Extra (triclopyr 300 + picloram 100 + aminopyralid 8)	4	NNSW	0.2 L/ha	2mo	2mo	2mo	–	4mo	–	4mo	–	–	–	6mo	–
	4	NNSW	0.3 L/ha	2mo	4mo	4mo	–	6mo	–	4mo	–	–	–	9mo	–
	4	NNSW	0.4 L/ha	4mo	4mo	4mo	–	6mo	–	6mo	–	–	–	9mo	–
	4	NNSW	0.6 L/ha	4mo	4mo	4mo	–	6mo	–	6mo	–	–	–	9mo	–
	4	SNSW	<0.5 L/ha	9mo	9mo	9mo	–	24mo	–	24mo	24mo	–	–	24mo	24mo
Haloxyfop 520	1	–	150 mL/ha	12w	–	–	12w	–	–	–	–	–	–	–	–
Hellcat® (glufosinate-ammonium 200 + carfentrazone-ethyl 3.6)	10 + 14	–	3.75 L/ha	14d	14d	–	–	14d	14d	14d	14d	14d	–	–	14d
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	NNSW	<0.75 L/ha	4mo	4mo	4mo	–	6mo	9mo	6mo	–	–	–	6mo	–
	4	SNSW	<0.5 L/ha	9mo	9mo	9mo	–	20mo	–	20mo	20mo	–	–	20mo	20mo
Impose® (imazapic 240)	2	NNSW	150–200 mL/ha	4/15mo	–	–	–	8mo	24mo	8mo	–	–	–	8mo	8mo
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	–	110 mL/ha	3d	3mo	3mo	–	3mo	4mo	3mo	3mo	3mo	–	3mo	3mo
Kamba®750 (dicamba 750)	4	–	0.135 L/ha	1d	7d	7d	1d	–	7d	–	–	–	–	–	7d
	4	–	0.185 L/ha	7d	10d	10d	7d	21d	7d	–	14d	–	–	–	14d
	4	–	0.375 L/ha	14d	14d	14d	14d	28d	14d	–	21d	–	–	–	21d
Lontrel® Advanced (clopyralid 600)	4	NNSW	<40 mL/ha	0d	0d	0d	0d	3mo	3mo	–	–	–	–	9mo	–
	4	NNSW	40–150 mL/ha	0d	0d	0d	0d	6mo	6mo	–	–	–	–	9mo	–
	4	NNSW	>150 mL/ha	0d	0d	0d	0d	–	–	–	–	–	–	–	–
	4	SNSW	<150 mL/ha	0d	0d	0d	0d	9mo	–	9mo	9mo	9mo	–	–	9mo
	4	SNSW	<150–250 mL/ha	0d	0d	0d	0d	12mo	–	12mo	12mo	12mo	–	–	12mo
	4	SNSW	>250 mL/ha	0d	0d	0d	0d	24mo	–	24mo	24mo	24mo	–	–	24mo

NNSW = northern NSW, SNSW = southern NSW, h = hours, d = days, w = weeks, mo = months, – = no information, mm = millimetres.
IMI-tolerant = imidazolinone-tolerant.

Read the label before using a product.

Maize	Medic	Millet	Oats	Pigeon pea	Safflower	Sorghum	Soybean	Triticale	Vetch	Wheat	Comments. Always refer to the label.
–	7d	–	3d	–	7d	3d	14d	1d	7d	1d	When applied to dry soil, at least 15 mm of rain must fall before the start of the plantback period.
–	7d	–	3d	–	14d	7d	14d	3d	7d	3d	
–	10d	–	7d	–	21d	10d	21d	7d	10d	7d	
–	7d	–	3d	–	7d	3d	14d	1d	7d	1d	When applied to dry soil, at least 15 mm of rain must fall before the start of the plantback period.
–	7d	–	3d	–	14d	7d	14d	3d	7d	3d	
–	10d	–	7d	–	21d	10d	21d	7d	10d	7d	
14mo	9mo	14mo	9mo	–	9mo	14mo	14mo	6w	–	10d	Applies to soil with pH 5.6–8.5. For pH >8.6, crop tolerance needs to be field tested before large scale use.
–	–	–	–	–	–	–	–	–	–	✓	Higher rate for longer fallow. ✓registered for these crops within a spraying/sowing window.
10w	21mo	–	10w	–	–	7mo	7mo	–	9mo	10w	Significant rainfall and time are required.
14d	14d	14d	14d	14d	14d	14d	14d	14d	14d	14d	–
–	–	–	1h	–	–	–	–	1h	–	1h	Plantbacks are for knifepoint seeding systems that provide separation. All other sowing methods 14 d. *130 mL/ha is the maximum rate for canola and pulses.
–	6mo	6mo	6mo	6mo	6mo	–	–	6mo	6mo	6mo	–
7 or 21d*	–	–	3d	–	–	7 or 21d*	7 or 21d*	–	–	3d	*For listed summer crops, if minimum soil temperatures at sowing depth are ≤15 °C for 3 consecutive days, plantback intervals should be extended to 21 days.
7d	–	–	–	–	–	7d	7d	–	–	7d	–
–	–	–	–	–	–	–	–	–	–	2mo	Plantbacks are for black cracking clay. During drought conditions, the plantback period might be significantly longer.
–	–	–	–	–	–	–	–	–	–	2mo	
–	–	–	–	–	–	–	–	–	–	4mo	
–	–	–	–	–	–	–	–	–	–	4mo	
–	24mo	–	–	–	–	–	–	–	–	9mo	
12w	–	12w	12w	–	–	–	–	12w	–	12w	–
14d	–	–	14d	–	–	14d	14d	–	–	14d	–
–	–	–	–	–	–	3mo	5mo	–	–	4mo	Plantbacks are for black cracking clay. During drought conditions, the plantback period might be significantly longer.
–	20mo	–	–	–	–	–	–	–	–	9mo	
4/15mo	–	–	–	–	–	18mo	–	–	–	4/15mo	36 months for non-specified crops. 4 months for IMI-tolerant cereals. Minimum re-cropping periods are influenced by many factors.
2mo	3mo	2mo	3d	–	–	2mo	4mo	3d	3mo	3d	Has not been tested for plantback in soil with pH >7.
1d	7d	1d	1d	5d	14d	1d	5d	1d	–	1d	When applied to dry soil, at least 15 mm of rain must fall before the start of the plantback period.
3d	14d	3d	7d	5d	21d	3d	5d	7d	–	7d	
7d	21d	7d	14d	10d	28d	7d	10d	14d	–	14d	
7d	–	–	0d	–	–	7d	3mo	0d	–	0d	Susceptible crops should not be sown for at least 2 years when more than 0.15 L/ha clopyralid has been used in northern NSW.
14d	–	–	0d	–	–	14d	6mo	0d	–	0d	
–	–	–	0d	–	–	–	–	0d	–	0d	
–	9mo	–	0d	–	–	–	–	0d	9mo	0d	–
–	12mo	–	0d	–	–	–	–	0d	12mo	0d	–
–	24mo	–	0d	–	–	–	–	0d	24mo	0d	–

Table 9. Guidelines for crop rotations – fallow and pre-sowing weed control – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Specific details	Rate	Barley	Canola	Canola – IMI tolerant	Cereal rye	Chickpea	Cotton	Faba bean	Field pea	Lentil	Linseed	Lucerne	Lupin
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	–	<1 (3*) L/ha	7d	–	–	–	7d	14d	–	–	–	–	–	–
	6 + 4	–	1–1.33 (3–4*) L/ha	7d	–	–	–	7d	28d	–	–	–	–	–	–
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	–	0.7–1 kg/ha	6mo	9mo	9mo	–	0mo	7mo	9mo	9mo	21mo	–	9mo	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	–	25 g/ha	7d	8mo	8mo	–	8mo	6mo	8mo	8mo	8mo	–	–	8mo
Picoflex® (picloram 240)	4	NNSW	85–110 mL/ha	2mo	4mo	4mo	–	6mo	12mo	4mo	–	–	–	9mo	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	NNSW	<600 mL/ha	1mo	1mo	1mo	–	7mo	4mo	7mo	–	–	–	–	–
	4	SNSW	<400 mL/ha	1mo	–	–	–	7mo	–	7mo	7mo	7mo	–	7mo	–
Priority® (florasulam 200)	2	–	15–25 mL/ha	7d	8mo	8mo	–	8mo	6mo	8mo	8mo	8mo	–	–	8mo
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	–	250–500 mL/ha	1d	14d	14d	–	7d	10d	7d	7d	7d	7d	7d	7d
	14 + 4	–	900 mL/ha	1d	21d	21d	–	14d	14d	7d	14d	7d	7d	7d	14d
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	NNSW	10 or 14 g/ha	4mo	9mo or 20mo	4mo	–	–	–	20mo	–	–	–	–	–
Sharpen® (saflufenacil 700)	14	–	17–34 g/ha	1h	6w	6w	16w	1h	6w	1h	1h	1h	16w	16w	1h
Shogun® (propaquizafop 100)	1	–	200–300 mL/ha	28d	–	–	28d	–	–	–	–	–	–	–	–
Starane® Advanced (fluroxypyr 333)	4	–	0.225 L/ha	7d	–	–	–	7d	14d	–	–	–	–	–	–
	4	–	0.45 L/ha	7d	–	–	–	7d	14d	–	–	–	–	–	–
	4	–	0.9 L/ha	7d	–	–	–	7d	28d	–	–	–	–	–	–
Striker® (oxyfluorfen 240)	14	–	75 mL/ha	0d	–	–	–	–	–	–	–	–	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	–	0.86 kg/ha	4mo	6mo	6mo	6mo	6mo	0d	6mo	6mo	6mo	6mo	6mo	6mo
	5	–	1.2 kg/ha	5mo	6mo	6mo	6mo	6mo	0d	6mo	6mo	6mo	6mo	6mo	6mo
Terrad'or® (tiafenacil 700)	14	–	15–40 g/ha	1h	7–14d*	7–14d*	–	1h	6w	1h	1h	1h	–	–	1h
Valor® (flumioxazin 500)	14	–	30 g/ha	1h	5mo	5mo	–	1h	1h	1h	1h	0mo	–	0mo	1h
	14	–	120 g/ha	1mo	9mo	9mo	–	0mo	–	0mo	0mo	0mo	–	3mo	1mo
	14	–	180 g/ha	2mo	9mo	9mo	–	0mo	–	0mo	0mo	3mo	–	4mo	2mo
	14	–	Up to 280 g/ha	3mo	9mo	9mo	–	1mo	2mo	0mo	1mo	4mo	–	6mo	3mo
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	–	100 mL/ha	1h	6w	6w	4mo	1h	6w	1h	1h	1h	4mo	4mo	1h
	14	–	200–240 mL/ha	1h	9mo	9mo	–	1mo	3mo	1mo	1mo	3mo	–	–	3mo

NNSW = northern NSW, SNSW = southern NSW, h = hours, d = days, w = weeks, mo = months, – = no information, mm = millimetres.
IMI-tolerant = imidazolinone-tolerant.

Plantback periods are a guide only based on label recommendations. The time indicated between application and safe crop rotation intervals will depend on several factors including rainfall (amount and intensity), soil type (pH, biological activity and organic carbon), soil type variability within a paddock, temperature and herbicide rate. Some crops are more sensitive to various herbicide groups than others. Always take a conservative approach to plantback periods, especially with sensitive or high input crops.

Read the label before using a product.

Maize	Medic	Millet	Oats	Pigeon pea	Safflower	Sorghum	Soybean	Triticale	Vetch	Wheat	Comments. Always refer to the label.
7d	–	–	–	–	–	7d	7d	–	–	7d	*For optical spot sprayers.
7d	–	–	–	–	–	7d	14d	–	–	7d	*For optical spot sprayers.
6mo	21mo	–	6mo	–	–	7mo	7mo	–	–	6mo	Must also meet the minimum rainfall requirement.
4mo	8mo	–	6w	–	–	4mo	6mo	7d	8mo	7d	Must also meet the minimum rainfall requirement.
	–	–	–	–	–	2mo	12mo	–	–	2mo	Times are for black cracking clay. For other soil types, regions and higher rates, conduct a susceptibility test before planting.
1mo	–	–	–	–	–	1mo	4mo	–	–	1mo	Plantbacks are for black cracking clay. During drought conditions, the plantback period might be significantly longer.
–	7mo	–	1mo	–	–	–	–	1mo	7mo	1mo	
4mo	8mo	6mo	6w	6mo	–	4mo	6mo	7d	8mo	7d	Must be used with a mix partner; also refer to partner plantback.
–	7d	–	3d	–	7d	3d	14d	1d	7d	1d	When applied to dry soil, at least 15 mm of rain must fall before the start of the plantback period.
–	7d	–	3d	–	14d	7d	14d	3d	7d	3d	
–	–	–	–	–	–	–	–	4mo	–	4mo	Times stated are for pH 5.6–8.5. Mix with glyphosate. For cereals, 50–100 mm, for non-CL canola <300 mm, use a longer period.
1h	16w	16w	1h	16w	16w	1d	1d	16w	16w	1h	–
–	–	–	–	–	–	–	–	–	–	–	–
7d	–	–	–	–	–	7d	7d	–	–	7d	Do not sow susceptible crops, including cotton and pulse crops, into irrigated fields with soil containing less than 25% clay content within 12 months of treatment.
7d	–	–	–	–	–	7d	7d	–	–	7d	
7d	–	–	–	–	–	7d	14d	–	–	7d	
–	–	–	0d	–	–	–	–	0d	–	0d	–
6mo	6mo	6mo	4mo	6mo	6mo	0d	3mo	6mo	6mo	4mo	Both rainfall and time requirements must be met.
6mo	6mo	6mo	5mo	6mo	6mo	0d	4mo	6mo	6mo	5mo	
1h	–	–	1h	–	–	1h	–	–	–	1h	*The plantback for 15–20 g/ha is 7 days and for 21–40 g/ha is 14 days.
1h	0mo	–	1h	1h	–	1h	1h	1h	1h	1h	*Durum wheat plantback is 1 hour at 30 g/ha, 1 month for up to 180 g/ha and 3 months for 280 g/ha.
–	3mo	–	1mo	–	–	–	–	1mo	1mo	0*	
–	4mo	–	2mo	–	–	–	–	2mo	1mo	1mo*	
1mo	6mo	–	3mo	1mo	–	1mo	0mo	3mo	2mo	2mo*	
1h	4mo	4mo	1h	4mo	4mo	1h	1h	1h	4mo	1h	–
–	–	–	1h	–	9mo	1mo	–	1h	–	1h	–

Rainfastness – stock and harvest withholding periods

Rainfastness: the time interval required between herbicide application and rainfall. Avoid applying foliar uptake herbicides when rain is imminent. Table 11 lists the time needed between spraying and rainfall for each herbicide to be effective. Always read the label before using a product.

Incorporation – pre-emergents: rainfast periods typically do not apply to pre-emergent products as they typically need some form of incorporation, usually cultivation, incorporation by sowing (IBS) and/or rainfall/ irrigation to activate.

Stock grazing or fodder production withholding periods: this is the period of time you must wait after spraying before allowing stock to graze the area or cut for stock feed to ensure the animal produce is free of herbicide residues. The maximum residue level (MRL) is the highest level of a pesticide residue that is legally tolerated in or on food or feed when pesticides are applied correctly.

Check the latest MRL data with individual companies for produce to be sold on export markets.

Harvest withholding periods: this is the period of time you must wait after spraying before harvesting grain to ensure that grain is free of herbicide residues.

Table 10. Rainfastness – stock withholding periods – harvest withholding periods – page 1 of 4.

Example trade name (active ingredient)	Rainfastness (hours)	Incorporation: pre-emergents	Stock withholding period (days/weeks)	Harvest withholding period (days/weeks)
2,4-D amine or ester, **drift restrictions apply**	6	–	7 d	NR
2,4-DB 500, **drift restrictions apply**	4	–	7 d	–
Achieve® WG (tralkoxydim 400)	0.5	–	14 d	NR
Affinity® Force (carfentrazone 240)	6	–	14 d	NR
Aggressor® AX (quizalofop-p-ethyl 185 + cloquintocet-mexyl 20)	3	–	14 d	NR
Agtryne® MA (terbutryn 275 + MCPA 160)	6	–	7 d	NR
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	1	–	14 d	NR
Arcade® (prosulfocarb 800)	NA	IBS and rain or irrigation within 10 days.	10 w	NR
Associate® (metsulfuron-methyl 600)	2	–	NR	Cereal NR. Chickpea 7 d.
Atlantis® OD (mesosulfuron-methyl 30)	8	–	4 w	8 w
Atrazine 900	6 foliar	20–30 mm rain or irrigation within 10 days.	TT canola (pre-em) 15 w; (post-em) 6 w. Other 28 d.	NR
Avadex® Xtra (tri-allate 500)	NA	Incorporation by cultivation or IBS is required. Rain will not incorporate. Refer to label.	Canola, cereals, mustards 12 w. Linseed, pulses, safflower 13 w. Additional 28 day slaughter interval.	NR
Axial® Xtra (pinoxaden 50 + cloquintocet-mexyl 12.5)	0.5	–	21 d	NR
Balance® 750 (isoxaflutole 750)	NA	15–30 mm rain or irrigation. UV stable.	Chickpea 6 w. Fallow 8 w.	NR
Basta® (glufosinate-ammonium 200)	6	–	Post-fallow application 8 w.	NR
Bladex® (cyanazine 900)	8	–	Do not graze treated immature crops or cut for stock feed.	NR
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	NA	IBS and rain or irrigation to wet soil within 10 days.	10 w	NR
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	3	–	8 w	NR
Broadstrike® (flumetsulam 800)	4	–	Cereals, pulses 4 w. Maize 14 d.	Cereals 4 w. Pulses NR.
Brodal® Options (diflufenican 500)	4	–	14 d	NR
Bromoxynil 200	3	–	8 w	NR

Table 10. Rainfastness – stock withholding periods – harvest withholding periods – page 2 of 4.

Example trade name (active ingredient)	Rainfastness (hours)	Incorporation: pre-emergents	Stock withholding period (days/weeks)	Harvest withholding period (days/weeks)
Bronco® MA-X (bromoxynil 280 + MCPA 280)	3	–	8 w	NR
Butafenacil 100	1	–	Fallow 1 d. Cereals 6 w. Canola and pulse 4 w.	NR
Callisto® (mesotrione 480)	NA	Knife-point press-wheel IBS within 3 days.	10 w	NR
Cheetah® Gold (diclofop-methyl 200 + sethoxydim 20 + fenoxaprop-p-ethyl 13.6)	4	–	7 w	NR
Chlorsulfuron 750	4	–	NR	NR
Condor® (MCPA 375 + pyraflufen-ethyl 10)	6	–	14 d	NR
CRUCIAL® (glyphosate 600)	1	–	Barley, canola, linseed, lupin 7 d. Wheat 5 d.	Barley, sorghum, pulses 7 d. Wheat, canola 5 d. Linseed 10 d. Other NR.
Decision® (diclofop-methyl 200 + sethoxydim 20)	2	–	7 w	NR
Devrinol-C® (napropamide 500)	NA	Mechanical incorporation within 2 hours.	12 w	NR
Diclofop-methyl 375	2	–	7 w	NR
Diflufenican 25 + bromoxynil 250	4	–	8 w	NR
Diuron 900	NA	Rain or irrigation to wet soil within 3–4 days.	Pulses 35 d. Other NR.	NR
Dual Gold® (S-metolachlor 960)	NA	Rain or irrigation to wet soil to 30–40 mm within 10 days.	Canola 10 w. Cereals 8 w. Sorghum 4 w.	NR
Ecopar® Forte (pyraflufen-ethyl 40)	6	–	Cereals 14 d. Faba, vetch, field pea 28 d.	NR
Elantra® Xtreme® (quizalofop-p-ethyl 200)	3	–	Canola, pulses 4 w.	Lupin 6 w. Field pea 9 w. Canola 11 w. Other pulses 12 w.
Enforcer® 242 (MCPA 420 + picloram 26)	4	–	7 d	NR
Express® (tribenuron-methyl 750)	2	–	NR	NR
Factor® WG (butroxydim 250)	0.5	–	14 d	NR
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	–	28 d. Refer to label.	NR
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4	–	8 w	NR
ForageMax® (halauxifen 100 + aminopyralid 50)	3	–	2 w	NR
Foxtrot® (fenoxyprop-p-ethyl 69 + cloquintocet-mexyl 34.5)	4	–	3 w	10 w
Frequency® (topramezone 60 + cloquintocet-mexyl 60)	2	–	6 w	NR
Fusilade® Forte (fluazifop-p-ethyl 128)	1	–	Canola, linseed, medic and vetch 21 d. Pulses 7 w. Lucerne 6 w.	Canola, linseed, lupin, pigeon pea, soybean 17 w. Faba bean 5 w. Chickpea, field pea 7 w.
Garlon® 600 (triclopyr 600)	1	–	NR	NR
Gramoxone® 360 Pro (paraquat 360)	1	–	Stock 1 d. Horses 7 d.	Pulses 7 d.
Grazon® Extra (triclopyr 300 + picloram 100 + aminopyralid 8)	1	–	Domestic grazing NR. ESI 3 d. EGI 42 d. Refer to label.	NR
Grindstone® (aminopyralid 240)	1	–	Determined by mix partner.	Determined by mix partner.
Guerrilla® (paraquat 300 + amitrole 12)	1	–	Stock 1 d. Horses 7 d. Remove stock 3 days before slaughter.	NR
Haloxyfop 520	1	–	Clover, medic 7 d. Lucerne 21 d. Oilseeds, pulses 28 d.	NR
Hammer® (carfentrazone-ethyl 400)	1	–	NR	NR
Hellcat® (glufosinate-ammonium 200 + carfentrazone-ethyl 3.6)	6	–	6 w	NR

Table 10. Rainfastness – stock withholding periods – harvest withholding periods – page 3 of 4.

Example trade name (active ingredient)	Rainfastness (hours)	Incorporation: pre-emergents	Stock withholding period (days/weeks)	Harvest withholding period (days/weeks)
Hotshot® (aminopyralid 10 + fluroxypyr 140)	1	–	Grazing 7 d. ESI 3 d. EGI 42 d.	NR
Hussar® OD (idosulfuron-methyl 100 + mefenpyr-dimethyl 300)	8	–	4 w	NR
Igran® (terbutryn 500)	6	–	7 d	Field pea 4 w.
Impose® (imazapic 240)	NA	Rain or irrigation to wet soil to 50 mm.	4 w	NR
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	4	–	4 w	NR
Intercept® (imazamox 33 + imazapyr 15)	2	–	IMI barley, faba bean, field pea, wheat 4 w. IMI canola 5 w.	NR
Kamba® M (MCPA 340 + dicamba 80)	4	–	7 d	7 d
Kamba®750 (dicamba 750)	4	–	7 d	7 d
Legacy® MA (MCPA 250 + diflufenican 25)	4	–	7 d. Refer to label for grazing precautions.	NR
Lontrel® Advanced (clopyralid 600)	3	–	Canola, cereals 7 d.	Cereals 10 w. Canola NR.
Luximax® (cinmethylin 750)	NA	10 mm rain or irrigation within 7–10 days; IBS within 3 days.	7 w	NR
Mandate® (clodinafop-propargyl 240 + cloquintocet-mexyl 60)	2	–	4 w	NR
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	NA	IBS incorporation and rain within 7–10 days. Do not use with discs for barley.	6 w	NR
MCPA amine and ester	6	–	7 d	NR
Monsoon® (bromoxynil 300 + fluroxypyr 150)	3	–	8 w	NR
Outlook® (dimethenamid-p 720)	NA	IBS and rain within 7 days.	Chickpea, field pea, lupin 15 w.	NR
Overwatch® (bixlozone 400)	NA	Requires moisture to activate.	8 w	NR
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	NA	20–30 mm rain within 3 weeks.	Chickpea 6 w. Fallow 8 w.	NR
Paradigm® (halauxifen 200 + florasulam 200)	3	–	2 w	NR
Pendimethalin 440	NA	24 h incorporation by cultivation. Rain after application assists.	–	NR
Picoflex® (picloram 240)	Refer mix partner.	–	Determined by mix partner.	Determined by mix partner.
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	1	–	14 d	NR
Precept® (MCPA 125 + pyrasulfotole 25)	2	–	4 w	NR
Priority® (florasulam 200)	Refer mix partner.	–	Determined by mix partner.	Determined by mix partner.
Prometryn 900	NA	20–30 mm rain or irrigation within 2–3 weeks.	Chickpea 9 w. Other NR.	NR
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	6	–	7 d	NR
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4	–	8 w	NR
Raptor® (imazamox 700)	2	–	Lucerne, pasture legumes 7 d. Soybean 4 w. Field pea 6 w.	NR
Reflex® (fomesafen 240)	NA	Requires rain after application for activation.	12 w	NR
Reglone® (diquat 200)	0.5	–	1 d	Canola, pigeon pea, soybean 4 d. Chickpea, faba bean, lentil 2 d. Other NR.
Rexade® (pyroxsulam 150 + halauxifen 50)	6	–	4 w	NR
Roundup Ready® PL (glyphosate 540)	2	–	Canola 7 or 14 d. Refer to label.	Pulses, wheat 7 d. Other NR.

Table 10. Rainfastness – stock withholding periods – harvest withholding periods – page 4 of 4.

Example trade name (active ingredient)	Rainfastness (hours)	Incorporation: pre-emergents	Stock withholding period (days/weeks)	Harvest withholding period (days/weeks)
Roundup Ultra®MAX (glyphosate 570)	1	–	Hay, silage 2 d. Wheat 5 d. Barley 7 d. Other NR.	Wheat 5 d. Barley, pulses 7 d. Other NR.
Rustler® (propyzamide 500)	NA	Requires 25 mm rain or irrigation after application.	Canola, pulses 12 w. Other 25 d.	Canola, pulses NR. Other 25 d.
Sakura® (pyroxasulfone 850)	NA	IBS and rain or irrigation within 10 days.	Triticale, wheat 6 w. Pulses 8 w.	NR
Salve (aminopyralid 375 + metsulfuron-methyl 300)	1	–	Cereal 21 d.	NR
Sencor® (metribuzin 480)	NA	Soil moisture before and follow-up rain or irrigation.	14 d	NR
Sentry® (imazapic 525 + imazapyr 175)	NA	IBS and 15–20 mm rain within 2 weeks.	Barley, canola 6 w. Wheat 4 w. Oats 8 w.	NR
Sharpen® (saflufenacil 700)	1	–	Pulses 7 d. Lucerne 4 w. Cereals, fallow 14 d.	Pulses 7 d. Cereals, other NR.
Shogun® (propaquizafop 100)	1	–	Legume pasture, lucerne, vetch 3 d. Fallow 2 w.	Canola, linseed 16 w. Faba bean 7 w. Lupin 15 w. Chickpea, field pea, lentil 12 w.
Simazine 900	NA	10–30 mm of rain or irrigation.	Chickpea 9 w. Faba bean 8 w. Canola 15 w.	NR
Sledge® (pyraflufen-ethyl 25)	2	–	7 d	Pulses 7 d, other NR.
Spinnaker® (imazethapyr 700)	2	–	14 d	NR
Spray.Seed® (paraquat 135 + diquat 115)	0.5	–	1 d	NR
Starane® Advanced (fluroxypyr 333)	1	–	7 d	NR
Status® (clethodim 240)	1	–	All pasture 14 d. Canola, pulses 21 d.	NR
Striker® (oxyfluorfen 240)	NA	–	Do not graze treated weeds.	NR
Sulfosulfuron 750	–	–	NR	NR
Talinor® (bromoxynil 175 + bicyclopyrone 37.5 + cloquintocet-mexyl 9.4)	2	–	8 w	NR
Tenet® (metazachlor 500)	NA	IBS with knife-point press-wheel and rain within 7–10 days.	13 w	NR
Terbyne® Xtreme® (terbuthylazine 875)	NA	20–30 mm rain or irrigation within 2–3 weeks.	Canola, fallow, pulses 6 w. Cereals 8 w. Lucerne 4 w.	NR
Terrad'or® (tiafenacil 700)	1 foliar	IBS with knife-point press-wheel for residual use.	Crops 8 w. Fallow: do not allow stock to graze treated weeds.	NR
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	1	–	Cereals 14 d. Pastures 28 d. ESI 3 d. Refer to label.	NR
Triasulfuron	6 foliar	Rain within 7–10 days improves residual control.	Pre-emergent 7 w. Post-emergent 14 d.	NR
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4	–	8 w	NR
TriflurX® (trifluralin 480)	NA	Incorporation by cultivation or IBS is required. Rain will not incorporate.	NR	NR
Ultro® (carbentamide 900)	NA	15–25 mm rain or irrigation within 2–3 weeks.	12 w	NR
Valor® (flumioxazin 500)	1 foliar	15–25 mm rain or irrigation within 3 weeks.	Cereal 6 w, pulses 12 w.	NR
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	2	–	6 w	NR
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	1	Apply to moist soil and follow-up rain or irrigation is needed.	Cereals 6 w. Fallow 5 w + ESI 30 d. Refer to label.	NR
Weedmaster® DST® (glyphosate 470)	6	–	Barley, canola 7 d. Wheat 5 d. Hay/silage 1 d. Other NR.	Canola, wheat 5 d. Barley, pulses, sorghum 7 d.

h = hours, d = days, w = weeks, mm = millimetres, NA = not applicable, NR = not required when used as directed, – = no information.
EGI = export grazing interval, ESI = export slaughter interval, IBS = incorporated by sowing. IMI = imidazolinone-tolerant, TT = triazine-tolerant.
Read the label before using a product.

Table 11. Herbicides for fallow commencement and/or maintenance – grass weed control.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Unit of use	Boom water rate (L/ha)	Wheat plantback	Annual ryegrass	Barley grass	Barnyard grass	Brome grass	Button grass	Cereals – volunteer	Feathertop Rhodes grass	Johnson grass	Liverseed grass
Balance® 750 (isoxaflutole 750)	27	g/ha	>50	10w + 100mm	–	–	100(S)	–	–	–	100	–	–
Biffo® (glufosinate-ammonium 200)	10	L/ha	100	14d	3.75	–	3.75	–	–	–	3.75	–	3.75
Butafenacil 100	14	mL/ha	75–150	1h	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	–	55–130* or 55–160^	–	–	55–130* or 55–160^
Dual Gold® (S-metolachlor 960)	15	L/ha	>60	6mo	–	–	1–2	–	–	–	1–2	–	1–2
Gramoxone® 360 Pro (paraquat 360)	22	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	–	0.835–1.67	–	–	0.835–1.67
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/ha	50–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	–	0.75–1.5	–	–	0.75–1.5
Haloxyfop 520	1	mL/ha	50–150	12w	–	–	150	–	150	–	150	–	150
Impose® (imazapic 240)	2	L/ha	>50	15/4 mo*	–	–	0.15–0.2	–	0.15–0.2	–	–	–	0.15–0.2
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	kg/ha	50	6mo + 100mm	1(S)	–	1	–	–	–	1	–	–
Shogun® (propaquizafop 100)	1	L/ha	50–150	28d	–	–	–	–	–	–	0.5	–	–
Spray.Seed® (paraquat 135 + diquat 115)	22	L/ha	50–200	1h	–	–	0.8–3.2	–	–	0.8–2.4	–	0.8–2.4	0.8–3.2
	22	L/ha	50–200	1h	0.6–3.2	0.6–3.2	–	0.6–3.2	–	0.6–3.2	–	–	–
Terrad'or® (tiafenacil 700)	14	g/ha	>80	1h	40*	15* or 40	40*	15*	–	15–20*	–	–	–
Valor® (flumioxazin 500)	14	g/ha	80–200	1–2mo	–	–	210–280	–	–	–	210–280	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	L/ha	80–250	1h	0.1	0.1	–	0.1	–	–	–	–	–
Weedmaster® DST® (glyphosate 470)	9	L/ha	80	6h	1.15–7	0.77–7	1.53–7	0.96–7	0.77–7	0.77–7	0.77–7	4.6–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	L/ha	80 max.	1h	0.95–1.25^	0.625–0.95^	0.625–1.3*	0.95–1.25^	0.625–1.3*	0.32–0.625* or 0.625–0.95^	–	1.2–1.9*	0.625–1.3*
CRUCIAL® (glyphosate 600)	9	L/ha	80	6h	0.9–5.5	0.6–5.5	1.2–5.5	0.75–5.5	0.6–5.5	0.6–5.5	0.6–5.5	3.6–5.5	0.6–5.5

h = hours, d = days, w = weeks, mo = months, mm = millimetres, fb = followed by, (S) = suppression, W = wheat, NR = not required, IMI W = imidazolinone-tolerant wheat.

MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

For spraying before sowing the crop (0–3 days), refer to plantback periods.

Read the label before using a product.

Nut grass	Phalaris – annual	Phalaris – perennial	Sorghum – volunteer	Stink grass/black grass	Summer grass	Vulpia/silver grass	Wild oats	Windmill grass	Winter grass	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	–	–	–	–	–	–	–	Warm, humid conditions provide best results.
–	55–130* or 55–160^	–	–	–	–	55–130* or 55–160^	55–130* or 55–160^	–	–	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
–	–	–	–	1–2	1–2	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	0.835–1.67	–	–	0.835–1.67	0.835–1.67	0.835–1.67	0.42–1.4	–	0.835–1.67	Must add an adjuvant.
–	–	–	–	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	–	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	–	–	150	150	–	–	150	–	Adjuvant MOS. Must be followed with a paraquat double knock in 7–14 days.
–	–	–	–	0.15–0.2	–	–	–	–	–	Northern NSW only. Adjuvant NR. *Plantback: W 15 mo + 500 mm, IMI W 4 mo + 200 mm.
–	1(S)	–	–	–	–	–	1(S)	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	–	–	–	–	–	–	–	Young, active weeds only. Must be followed with a paraquat double knock in 7–14 days. Adjuvant MSO.
–	–	0.8–1.2	0.8–3.2	0.8–2.4	–	–	–	–	–	Northern NSW.
–	–	–	–	–	0.6–3.2	0.6–3.2*	–	–	–	Southern NSW. Rates determined by cultivation, seeding method and growth stage. *Add NIS for vulpia.
–	15*	–	–	–	–	30*	20*	–	20*	Adjuvant MSO. *Requires glyphosate as a mix partner for control.
–	–	–	–	–	210–280	–	–	–	–	Pre-emergent control and some knockdown activity. Add a knockdown mix partner if required.
–	–	–	–	–	–	0.1	0.1	–	–	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.96–7	1.15–7	0.77–7	0.77–7	0.77–7	1.15–7	0.77–7	0.77–7	0.96–7	Rates and adjuvants vary with weed size and location.
1.9 fb 1.9*	0.625–0.95^	1.2–1.9*	0.425–1.3*	0.425–1.3*	0.425–1.3*	0.95–1.25^	0.32–0.625* or 0.625–0.95^	–	0.95–1.25^	Rates and adjuvants vary with weed size and location. *Northern NSW. ^Southern NSW.
1.8 fb 1.8	0.75–5.5	0.9–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.9–5.5	0.6–5.5	0.6–5.5	0.75–5.5	Rates and adjuvants vary with weed size and location.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 1 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Amaranth	Amsinckia	Bathurst burr	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Bladder ketmia	Boggabri weed	Caltrop/cat head	Canola – volunteer	Capeweed
2,4-D amine 700, **drift restrictions apply**	4	L/ha	50–250	1–7d	0.745–1.15	–	0.515–0.745	0.28–0.815*	–	0.515–0.745	0.745–1.15	–	0.28–0.815*	0.88–1.2	–
2,4-D LV ester 680, **drift restrictions apply**	4	L/ha	30–100	1–7d	0.8	–	0.8	–	–	–	–	–	0.62–0.8	0.9–1.3	0.53–0.8
Colex-D® (2,4-D choline 456), **reduced drift option**	4	L/ha	70–100	1–7d	1.14–1.77	1.14–1.77	0.79–1.14	0.43–1.5	0.43–1.5	0.79–1.14	1.14–1.77	–	0.43–1.25	1.35–1.84	–
Dropzone® (2,4-D amine 500), **reduced drift option**	4	L/ha	70–250	1–7d	0.7	1.37	0.7–1	0.4	1.37	0.7	1	–	0.4–1	1.2	1.37
Associate® (metsulfuron-methyl 600)	2	g/ha	>50	10d	–	5 or 7	–	–	5–7	–	–	–	–	5 or 7	5 or 7
Balance® 750 (isoxaflutole 750)	27	g/ha	>50	10w + 100mm	–	–	–	–	–	–	–	–	–	–	–
Basta® (glufosinate-ammonium 200)	10	L/ha	100	14d	3.75	3.75	–	–	3.75	–	3.75	–	3.75	–	–
Bromoxynil 200	6	L/ha	>50	Not stated	–	–	–	–	–	–	–	–	–	–	–
Butafenacil 100	14	mL/ha	75–150	1h	–	–	–	–	–	–	–	–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^
Express® (tribenuron-methyl 750)	2	g/ha	>50	3d	25	–	–	–	25*	–	–	25	25	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	L/ha	50–100	4mo	–	–	–	–	–	–	–	–	–	–	–
Garlon® 600 (triclopyr 600)	4	mL/ha	>50	7d	–	–	–	–	–	–	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67
Grazon® Extra (triclopyr 300 + picloram 100 + aminopyralid 8)	4	L/ha	70	2–4mo	–	–	–	–	–	0.2–0.4(S)	–	–	–	–	–
Grindstone® (aminopyralid 240)	4	mL/ha	50–100	4mo	–	–	–	–	16 or 24	7–15*(S)	–	–	–	–	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5
Hammer® (carfentrazone-ethyl 400)	14	mL/ha	50–150	1h	–	–	–	–	–	–	–	–	–	–	15–45
Hellcat® (glufosinate-ammonium 200 + carfentrazone-ethyl 3.6)	10 + 14	L/ha	>100	14d	3.75	–	–	3.75	–	–	3.75	–	3.75	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	L/ha	>80	4mo	–	–	–	–	0.5	–	–	–	–	–	–
Impose® (imazapic 240)	2	L/ha	>50	15/4 mo*	0.15–0.2	–	–	–	–	–	–	0.15–0.2	0.15–0.2	–	–
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	mL/ha	70–150	3d	–	–	–	–	–	–	110*	–	–	–	–
Kamba®750 (dicamba 750)	4	L/ha	>50	1–14d	0.105–0.16	–	–	–	0.105–0.16	–	–	–	0.105–0.16	–	0.105–0.16
	4	L/ha	>50	1–14d	0.215–0.375	–	0.215–0.375	–	0.185	0.215–0.375	–	–	0.215–0.375	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	L/ha	>50	7d	–	–	–	–	0.67–1* or 1	–	0.67*	–	0.67*	1	–

h = hours, d = days, w = weeks, mo = months, mm = millimetres, NR = not required, RH = relative humidity, (S) = suppression, W = wheat.
IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

Read the label before using a product.

Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Cow/peach/bell vine	Crassula/stonecrop	Datura/thornapple	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Comments. Always refer to the label.
0.39–0.515	–	–	–	–	–	0.28–0.815*	0.745–1.15	0.515–0.745	–	0.39–0.515	0.515–0.745	–	0.745–1.15	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
0.41	–	–	–	0.62–0.8	0.8	–	–	0.41–0.8	0.8	–	0.8	–	0.41–0.8	
0.6–0.79	–	–	–	0.79–1.14	–	0.275–2.3	–	0.79–1.14	–	0.6–0.79	0.79–1.14	–	1.14–1.77	
0.55–0.7	–	–	–	–	0.7–1.5	1	–	–	–	0.55–1.37	0.7–1.75	–	1	
5	5	5	–	5	–	–	–	–	5	5 or 7	–	–	–	Add glyphosate. Plantback is influenced by soil pH. Adjuvant NIS 1000.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	3.75	–	–	–	–	–	–	–	Warm, humid conditions provide best results.
–	–	–	–	–	–	1.5 or 2.1	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	–	–	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
–	–	–	–	–	–	–	–	20*	25*	–	–	–	–	Adjuvant NIS 1000. *Add glyphosate.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	Must add an adjuvant.
–	–	–	–	–	–	0.2–0.4	–	–	–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
–	16 or 24	–	–	16 or 24	–	7–15*	–	–	16 or 24	16 or 24	–	16 or 24	–	Northern NSW only. Add metsulfuron-methyl 600 and glyphosate. *Add picloram + triclopyr product.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	15–45	–	–	–	–	15–45	–	–	–	15–45	–	–	Add a knockdown mix partner if required. Adjuvant MOS.
–	–	–	–	–	–	3.75	–	–	–	–	–	–	–	Apply when temperature is <33 °C and RH is >50%. Add an antifoam agent.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Northern NSW only. Add glyphosate. Adjuvant: refer to glyphosate label.
–	–	–	–	–	–	0.15–0.2	–	–	–	–	–	–	–	Northern NSW only. Adjuvant NR. *Plantback: W 15 mo + 500 mm; IMI W 4 mo + 200 mm.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Do not follow a fallow application with an in-crop product containing pyrasulfotole. Adjuvant MSO. *For use with glyphosate.
–	–	–	–	–	–	–	–	0.105–0.16	–	0.105–0.16	–	–	–	Pre-cultivation. Add glyphosate.
–	–	–	–	0.135*	–	0.251–0.375	–	0.215–0.375	–	0.185–0.375	–	–	0.185–0.375	No till. *Add glyphosate.
–	–	–	1.3	–	–	0.67–1*	–	–	0.5 or 0.8	–	0.8^	–	0.5#	When using stand-alone, always add Uptake®. *Add glyphosate. ^Add MCPA LVE 570. #Use with a mix partner.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 2 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Amaranth	Amsinckia	Bathurst burr	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Bladder ketmia	Boggabri weed	Caltrop/cat head	Canola – volunteer	Capeweed
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	kg/ha	>50	6mo + 100mm	1	–	–	–	–	–	1(S)	–	1	–	0.7–1
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	g/ha	80–100	7d	–	–	–	–	–	–	–	–	–	–	–
Picoflex® (picloram 240)	4	mL/ha	50–100	2mo	315*	–	315*	–	–	85–165^(S)	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	L/ha	>80	1mo	–	–	0.4	–	–	–	–	–	–	–	–
Priority® (florasulam 200)	2	mL/ha	80–100	7d	25	–	20	–	20	–	15	–	15–25	–	–
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	L/ha	60–150	1–3d	–	0.25–0.5	0.5–0.9*	–	–	–	–	–	0.5–0.9*	–	0.25–0.5
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	g/ha	50–100	4mo	–	–	–	–	10# or 14	–	–	14	–	–	–
Sharpen® (saflufenacil 700)	14	g/ha	80–250	1h	17–26	–	–	–	17–26	17–26	17–26	–	17–26	17–26	17–26
Sledge® (pyraflufen-ethyl 25)	14	mL/ha	80–150	1h	50–100	–	–	–	–	–	–	–	50–100	50–100	50–100
Spray.Seed® (paraquat 135 + diquat 115)	22	L/ha	50–200	1h	–	–	0.8–2.4	0.8–2.4	0.8–2.4	0.8–2.4	0.8–2.4	0.8–1.2	0.8–2.4	–	–
	22	L/ha	50–200	1h	–	–	–	–	–	–	–	–	–	–	0.8–3.2
Starane® Advanced (fluroxypyr 333)	4	L/ha	>50	7d	–	–	0.45	–	0.3–0.45	–	0.3	–	0.3	–	–
Striker® (oxyfluorfen 240)	14	mL/ha	*	24h	75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.										
Terbyne® Xtreme® (terbuthylazine 875)	5	kg/ha	>50	4mo	–	–	–	–	–	–	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/ha	50–150	1h	15*	–	–	–	–	–	20	–	20*	15* or 20	15* or 20
Valor® (flumioxazin 500)	14	g/ha	80–200	0	30	–	–	–	30	–	30	–	30	30	30
	14	g/ha	80–200	1–2mo	210–280	–	–	–	–	–	210–280	–	210–280	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	L/ha	80–250	1h	0.1	0.1	–	–	0.1	0.1	–	–	0.1	0.1	0.1
Weedmaster® DST® (glyphosate 470)	9	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	L/ha	80 max.	1h	–	0.625–0.95†	0.625–1.3* or 1.2–1.9^	–	1.2–1.9*	–	0.625–1.3*	0.425–1.3*	0.425–1.3*	–	0.95–1.25^
CRUCIAL® (glyphosate 600)	9	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, w = weeks, mo = months, mm = millimetres, NR = not required, RH = relative humidity, (S) = suppression, W = wheat.
IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

Read the label before using a product.

Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Cow/peach/bell vine	Crassula/stonecrop	Datura/thornapple	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Comments. Always refer to the label.
–	–	–	–	–	0.7–1	1(S)	1	–	0.7–1	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	20–25*	–	–	–	–	–	–	–	25*	–	–	–	–	*For use with glyphosate.
–	–	–	–	–	–	85–165^ or 315*	–	315*	–	–	–	–	315*	*Add 2,4–D amine 625. ^Add triclopyr 750 + adjuvant.
–	0.4	–	–	–	–	–	–	–	0.3	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
–	15–25	–	25	–	–	15	–	15–20	–	–	–	15–25	–	Requires tank mixing with fluroxypyr and/or glyphosate.
–	0.9*	0.25–0.5	–	–	–	–	–	–	0.25–0.5	0.5^	0.25–0.5	–	–	Add glyphosate. *Southern NSW only. ^Curled dock only.
–	10	–	–	–	–	–	–	–	10	10 or 14	–	10	–	Mix with glyphosate. #Add MCPA + picloram.
–	17–26	–	–	–	–	–	17–26	–	–	–	26–34	–	17–26	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	–	–	–	–	–	–	–	–	50–100	–	50–100	–	50–100	Add a knockdown mix partner if required. Adjuvant MSO.
–	–	–	–	–	–	0.8–2.4	–	0.8–2.4	0.8–2.4	–	–	–	0.8–2.4	Northern NSW. Rates determined by cultivation, seeding method and growth stage.
0.8–3.2	–	–	0.8–3.2	–	–	–	–	–	–	–	0.8–3.2	0.8–1.2^#	–	Southern NSW. Rates determined by cultivation, seeding method and growth stage. #Add dicamba. ^Add metsulfuron.
–	–	–	0.6	–	–	0.3	–	0.3–0.45	–	–	–	–	–	Add glyphosate.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.														Add glyphosate. *Water rate is determined by mixing partner.
–	–	–	–	–	0.86–1.2	–	–	–	0.86–1.2	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	–	–	–	15* or 20	–	–	–	–	15*	15* or 20	15* or 20	*Add glyphosate.
–	–	–	–	–	–	30	–	–	30	–	30	–	–	Must add a knockdown herbicide partner. Adjuvant MSO.
–	–	–	–	–	–	210–280	–	–	–	–	–	–	–	Pre-emergent control and some knockdown activity; add a knockdown mix partner if required.
–	0.1	–	–	–	–	0.1	0.1	–	–	–	0.1	0.1	0.1	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.
–	–	–	–	–	–	–	–	0.625–1.3*	0.425–1.3^	1.2–1.9^	1.2–1.9^	–	–	*Northern NSW. ^Southern NSW. †Southern NSW with full soil disturbance by cultivation or sowing.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 3 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Field pea – volunteer	Fleabane	Fumitory	Heliotrope – white	Horehound	Khaki weed	Lentil – volunteer	London rocket	Loosestrife	Lentil – volunteer	Lupin – volunteer	Marshmallow
2,4-D amine 700, **drift restrictions apply**	4	L/ha	50–250	1–7d	0.39–0.515	0.28–0.815	0.28–0.815	–	0.515–0.745*	–	–	–	–	–	0.39–0.515	0.515–0.745
2,4-D LV ester 680, **drift restrictions apply**	4	L/ha	30–100	1–7d	–	–	0.8	–	–	–	–	–	–	–	0.41–0.8	–
Colex-D® (2,4-D choline 456), **reduced drift option**	4	L/ha	70–100	1–7d	0.6–0.79	1–1.69	0.43–1.25	–	0.79–1.14	1.5–2.3	–	1.5	–	–	0.6–0.79	0.79–1.14
Dropzone® (2,4-D amine 500), **reduced drift option**	4	L/ha	70–250	1–7d	0.55	2.1	0.4–2.1	1.37	–	1.37	–	1.37	–	–	0.55–1	0.7
Associate® (metsulfuron-methyl 600)	2	g/ha	>50	10d	7	–	5	–	–	–	–	–	–	–	5	–
Balance® 750 (isoxaflutole 750)	27	g/ha	>50	10w + 100mm	–	100	–	–	–	–	–	–	–	–	–	–
Basta® (glufosinate-ammonium 200)	10	L/ha	100	14d	–	3.75	–	–	–	–	–	–	–	–	–	–
Bromoxynil 200	6	L/ha	>50	Not stated	–	–	–	–	–	–	–	–	–	–	–	–
Butafenacil 100	14	mL/ha	75–150	1h	55–130* or 55–160^	100–130* or –160^	55–130* or 55–160^	–	–	–	–	–	–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^
Express® (tribenuron-methyl 750)	2	g/ha	>50	3d	–	–	–	–	–	–	–	–	–	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	L/ha	50–100	4mo	–	0.7	–	–	–	–	–	–	–	–	–	–
Garlon® 600 (triclopyr 600)	4	mL/ha	>50	7d	–	–	–	–	–	–	–	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	–	0.835–1.67	0.835–1.67	–	0.835–1.67	0.835–1.67
Grazon® Extra (triclopyr 300 + picloram 100 + aminopyralid 8)	4	L/ha	70	2–4mo	–	–	–	–	–	–	–	–	–	–	–	–
Grindstone® (aminopyralid 240)	4	mL/ha	50–100	4mo	–	–	–	–	–	–	–	–	–	–	–	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	–	0.75–1.5	0.75–1.5	–	0.75–1.5	0.75–1.5
Hammer® (carfentrazone-ethyl 400)	14	mL/ha	50–150	1h	–	–	–	–	–	–	–	–	–	–	–	15–45
Hellcat® (glufosinate-ammonium 200 + carfentrazone-ethyl 3.6)	10 + 14	L/ha	>100	14d	–	3.75	–	–	–	–	–	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	L/ha	>80	4mo	–	–	–	–	–	–	–	–	–	–	–	–
Impose® (imazapic 240)	2	L/ha	>50	15/4 mo*	–	–	–	–	–	–	–	–	–	–	–	–
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	mL/ha	70–150	3d	–	–	–	–	–	–	–	–	–	–	–	–
Kamba®750 (dicamba 750)	4	L/ha	>50	1–14d	0.105–0.16	–	–	–	–	–	–	–	–	–	–	–
	4	L/ha	>50	1–14d	–	–	–	–	0.215–0.375	0.215–0.375	–	–	–	–	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	L/ha	>50	7d	0.5#	–	0.8	–	–	–	–	–	–	–	–	1.3

h = hours, d = days, w = weeks, mo = months, mm = millimetres, NR = not required, RH = relative humidity, (S) = suppression, W = wheat.
IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

Read the label before using a product.

Medic	Melon – camel/afghan	Melon – paddy	Mexican poppy	Mintweed	Mustards	New Zealand spinach	Noogoora burr	Paterson's curse	Pigweed	Potato weed	Prickly lettuce	Rough poppy	Scarlet pimpernel	Comments. Always refer to the label.
0.39–0.515	0.745–1.15	0.745–1.15	0.745–1.15	–	0.28–0.815	0.28–0.815*	0.745–1.15	0.39–0.515	–	0.745–1.15	0.39–0.515	–	–	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
–	0.41–0.8	0.41–0.8	0.8	0.8	0.41–0.8	0.8	0.8	0.8	–	–	–	0.41–0.8	–	
0.6–0.79	1.14–1.77	1.14–1.77	1.14–1.77	–	0.43–1.25	0.43–1.25	1.14–1.77	0.6–0.79	–	–	0.6–0.79	–	–	
0.55	1	1	1–1.75	1.12	0.28–1.37	0.4–1.37	1	0.55–1.37	–	–	0.55	0.7	–	
5	–	–	–	–	5	–	–	5 or 7	–	–	5	5	–	Add glyphosate. Plantback is influenced by soil pH. Adjuvant NIS 1000.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	3.75	–	–	–	–	3.75(S)	–	3.75	–	–	–	–	Warm, humid conditions provide best results.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
55–130* or 55–160^	–	–	–	55–130* or 55–160^	55–130* or 55–160^	–	–	55–130* or 55–160^	55–130* or 55–160^	–	–	–	–	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
30	–	–	–	15*	–	20	–	–	20*	–	20* or 30	–	–	Adjuvant NIS 1000. *Add glyphosate.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Add glyphosate.
–	120–160	80–160	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MOS. Do not use oils if mixing with glyphosate.
0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	Must add an adjuvant.
–	0.2–0.4	0.2–0.4	–	–	–	–	–	–	–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
16 or 24	7–15*	7–15*	–	–	16 or 24	16 or 24	–	–	16 or 24	–	16 or 24	–	–	Northern NSW only. Add metsulfuron-methyl 600 and glyphosate. *Add picloram + triclopyr product.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	–	–	–	–	–	–	15–45	–	–	–	–	–	Add a knockdown mix partner if required. Adjuvant MOS.
–	–	3.75	–	–	–	–	3.75(S)	–	3.75	–	–	–	–	Apply when temperature is <33 °C and RH is >50%. Add an antifoam agent.
–	–	–	–	–	–	–	–	–	0.5	–	–	–	–	Northern NSW only. Add glyphosate. Adjuvant: refer to glyphosate label.
–	–	–	–	0.15–0.2	–	–	–	–	0.15–0.2	–	–	–	–	Northern NSW only. Adjuvant NR. *Plantback: W 15 mo + 500 mm, IMI W 4 mo + 200 mm.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0.105–0.16	–	–	–	0.105–0.16	0.105–0.16	–	0.105–0.16	0.105–0.16	–	–	0.105–0.16	–	–	Pre-cultivation. Add glyphosate.
–	–	–	–	0.215–0.375	–	0.185	0.215–0.375	–	–	–	–	–	–	No till.
–	–	–	–	–	0.8^	–	–	–	1 or 1*	–	1.3 or 0.67*	–	–	When using stand-alone, always add Uptake®. *Add glyphosate. ^Add MCPA LVE 570.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 4 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Field pea – volunteer	Fleabane	Fumitory	Heliotrope – white	Horehound	Khaki weed	Lentil – volunteer	London rocket	Loosestrife	Lentil – volunteer	Lupin – volunteer	Marshmallow
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	kg/ha	>50	6mo + 100mm	–	0.7–1	1	–	–	–	–	–	–	–	–	1
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	g/ha	80–100	7d	–	–	25*	–	–	–	–	–	–	–	–	–
Picoflex® (picloram 240)	4	mL/ha	50–100	2mo	–	220#	–	–	–	–	–	–	–	125–210^	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	L/ha	>80	1mo	–	–	–	–	–	–	–	–	–	–	–	0.3
Priority® (florasulam 200)	2	mL/ha	80–100	7d	15–25	–	–	–	–	–	15–25	–	–	–	15–25	25
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	L/ha	60–150	1–3d	–	–	–	–	–	–	–	–	–	–	–	0.5–0.9
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	g/ha	50–100	4mo	–	–	–	–	–	–	–	–	–	–	–	–
Sharpen® (saflufenacil 700)	14	g/ha	80–250	1h	17–26	–	–	17–26	–	26–34	–	–	–	–	–	17–26
Sledge® (pyraflufen-ethyl 25)	14	mL/ha	80–150	1h	–	–	–	50–100	–	–	–	–	50–100	–	–	50–100
Spray.Seed® (paraquat 135 + diquat 115)	22	L/ha	50–200	1h	–	0.8–2.4	0.8–2.4	–	–	–	–	–	–	–	–	–
	22	L/ha	50–200	1h	0.8–1.2^#	–	–	–	0.8–3.2	–	–	–	–	–	0.8–1.2^#	0.8–1.8†
Starane® Advanced (fluroxypyr 333)	4	L/ha	>50	7d	–	–	–	–	–	–	–	–	–	–	–	0.3 or 0.6
Striker® (oxyfluorfen 240)	14	mL/ha	*	24h	75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.											
Terbyne® Xtreme® (terbuthylazine 875)	5	kg/ha	>50	4mo	–	0.86–1.2	–	–	–	–	–	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/ha	50–150	1h	20*	–	15* or 30	15* or 40	–	–	–	–	–	–	20* or 30	15* or 20
Valor® (flumioxazin 500)	14	g/ha	80–200	1–2mo	–	–	–	–	–	–	–	–	–	–	–	30
	14	g/ha	80–200	1–2mo	–	210–280	–	–	–	–	–	–	–	–	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	L/ha	80–250	1h	0.1	0.1	–	0.1	–	0.1	–	–	–	–	0.1	0.1
Weedmaster® DST® (glyphosate 470)	9	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	L/ha	80 max.	1h	0.32–0.95†	–	0.32–0.95†	–	–	–	–	–	–	–	0.32–0.95†	–
CRUCIAL® (glyphosate 600)	9	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, w = weeks, mo = months, mm = millimetres, NR = not required, RH = relative humidity, (S) = suppression, W = wheat.
IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

Read the label before using a product.

Medic	Melon – camel/afghan	Melon – paddy	Mexican poppy	Mintweed	Mustards	New Zealand spinach	Noogoora burr	Paterson's curse	Pigweed	Potato weed	Prickly lettuce	Rough poppy	Scarlet pimpernel	Comments. Always refer to the label.
1	–	–	–	0.7–1	0.7–1	–	–	–	0.7–1	–	0.7–1	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	25*	–	–	–	–	–	–	–	–	–	–	*For use with glyphosate.
–	85–165^	85–165^	–	–	–	–	315*		–	–	–	–	–	*Add 2,4–D amine 625. ^Add triclopyr 750 + adjuvant. #Use with a mix partner.
–	–	–	0.3	–	–	–	0.4	–	0.3	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
–	–	–	–	–	–	–	20	–	15–20	–	25	–	–	Requires tank mixing with fluroxypyr and/or glyphosate.
0.25–0.5	0.5–0.9*	0.5–0.9*	–	–	0.5	–	–	0.25–0.5	0.5–0.9*	–	–	–	–	Add glyphosate. *Southern NSW only.
10	–	–	–	–	10	14	–	–	10 or 14	–	10 or 14	–	–	Mix with glyphosate.
17–26	–	–	–	–	–	–	–	17–26	–	–	17–26	–	17–26	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	80–160	80–160	–	–	–	–	–	–	–	–	50–100	–	–	Add a knockdown mix partner if required. Adjuvant MSO.
–	–	0.8–2.4	0.8–2.4	0.8–2.4	–	0.8–2.4	0.8–2.4	–	0.8–2.4	–	0.8–2.4	–	–	Northern NSW. Rates determined by cultivation, seeding method and growth stage.
0.8–3.2^#	–	–	–	–	0.8–3.2	–	–	–	–	–	–	0.8–3.2	0.8–3.2	Southern NSW. Rates determined by cultivation, seeding method and growth stage. #Add dicamba. ^Add metsulfuron. †Add oxyfluorfen.
–	–	–	–	–	–	–	0.45	–	0.225–0.45	–	0.6	–	–	Add glyphosate.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.														Add glyphosate. *Water rate is determined by mixing partner.
–	–	–	–	0.86–1.2	–	–	–	–	–	–	0.86–1.2	–	–	Pre-emergent only; add a knockdown mix partner if required.
15*	–	–	–	–	–	–	–	–	20*	–	15*	–	–	*Add glyphosate.
30	–	–	–	–	–	–	30	–	30	–	–	–	–	Must add a knockdown herbicide partner. Adjuvant MSO.
–	–	–	–	–	–	–	–	–	210–280	–	–	–	–	Pre-emergent control and some knockdown activity; add a knockdown mix partner if required.
0.1	–	–	–	–	0.1	–	–	0.1	–	–	0.1	–	0.1	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.
–	0.625–1.3*	0.61–1.25*#	0.625–1.3*	0.425–1.3*	0.425–1.3* or 0.95–1.25^	0.625–1.3*	0.625–1.3*	0.625–1.25^	0.625–1.3*	–	0.625–1.3*	–	–	*Northern NSW. ^Southern NSW. #Add triclopyr. †Southern NSW with full soil disturbance by cultivation or sowing.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 5 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Shepherd's purse	Sida	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush
2,4-D amine 700, **drift restrictions apply**	4	L/ha	50–250	1–7d	0.515–0.745	–	0.515–0.745(S)	0.515–0.745*	0.28–0.815	–	–	0.515–0.745	0.39–0.515	–
2,4-D LV ester 680, **drift restrictions apply**	4	L/ha	30–100	1–7d	0.8	–	0.8	–	–	–	–	–	0.41–0.8	–
Colex-D® (2,4-D choline 456), **reduced drift option**	4	L/ha	70–100	1–7d	0.79–1.14	2.3	0.79–1.14(S)	0.79–1.14	0.43–1.25	–	–	0.79–1.14	0.6–0.79	–
Dropzone® (2,4-D amine 500), **reduced drift option**	4	L/ha	70–250	1–7d	0.7	2.1	0.7–1.37	0.7–1.75	0.4–1.75	1.37	–	–	0.55–0.65	–
Associate® (metsulfuron-methyl 600)	2	g/ha	>50	10d	5	–	7(S)	5	5	5 or 7	–	5	5	–
Balance® 750 (isoxaflutole 750)	27	g/ha	>50	10w + 100mm	–	–	–	–	100	–	–	–	–	–
Basta® (glufosinate-ammonium 200)	10	L/ha	100	14d	–	–	–	–	3.75	–	–	–	–	–
Bromoxynil 200	6	L/ha	>50	Not stated	–	–	–	–	–	–	–	–	–	–
Butafenacil 100	14	mL/ha	75–150	1h	55–130* or 55–160^	–	–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	100–130* or –160^	55–130* or 55–160^	55–130* or 55–160^
Express® (tribenuron-methyl 750)	2	g/ha	>50	3d	–	–	–	–	25	–	–	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	L/ha	50–100	4mo	–	–	–	–	–	–	–	–	–	–
Garlon® 600 (triclopyr 600)	4	mL/ha	>50	7d	–	–	–	–	–	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	–
Grazon® Extra (triclopyr 300 + picloram 100 + aminopyralid 8)	4	L/ha	70	2–4mo	–	–	–	–	0.2–0.4	–	–	–	–	–
Grindstone® (aminopyralid 240)	4	mL/ha	50–100	4mo	–	–	–	–	7–15*	16 or 24	–	–	16 or 24	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	–
Hammer® (carfentrazone-ethyl 400)	14	mL/ha	50–150	1h	–	–	–	–	–	15–45	–	15–45	–	–
Hellcat® (glufosinate-ammonium 200 + carfentrazone-ethyl 3.6)	10 + 14	L/ha	>100	14d	–	–	–	–	3.75	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	L/ha	>80	4mo	–	–	–	–	–	–	–	–	–	–
Impose® (imazapic 240)	2	L/ha	>50	15/4 mo*	–	–	–	–	–	–	–	–	–	–
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	mL/ha	70–150	3d	–	–	–	–	110*	–	–	–	–	–
Kamba®750 (dicamba 750)	4	L/ha	>50	1–14d	–	–	–	0.105–0.16	0.105–0.16	–	–	–	–	–
	4	L/ha	>50	1–14d	–	0.251–0.375	–	0.185^	–	0.185–0.375	–	0.135*	0.185^–0.375	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	L/ha	>50	7d	0.8^	–	–	–	1.3 or 0.67*	0.5 or 0.8	–	–	0.5#	–

h = hours, d = days, w = weeks, mo = months, mm = millimetres, NR = not required, RH = relative humidity, (S) = suppression, W = wheat.
IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

Read the label before using a product.

Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.28–0.185	0.515–0.745	0.28–0.815	0.28–0.815	0.515–0.745	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
0.41–0.8	–	0.41–0.8	0.41–0.8	–	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
0.43–1.25	0.79–1.14	0.43–1.25	0.43–1.25	0.79–1.14	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
0.4–0.65	0.7–1.37	0.4–0.66	0.4	0.7–1.75	Add glyphosate. The benefits of low drift products can be negated with the wrong mix partner. *Seedlings only.
5	–	5 or 7	5	5 or 7	Add glyphosate. Plantback is influenced by soil pH. Adjuvant NIS 1000.
–	–	–	–	–	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	–	–	Warm, humid conditions provide best results.
–	–	–	–	–	–
55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
20	–	–	–	–	Adjuvant NIS 1000.
–	–	–	–	–	–
–	–	–	–	–	–
0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	Must add an adjuvant.
–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
16 or 24	–	–	16 or 24	16 or 24	Northern NSW only. Add metsulfuron-methyl 600 and glyphosate. *Add picloram + triclopyr product.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	15–45	–	–	Add a knockdown mix partner if required. Adjuvant MOS.
–	–	–	–	–	Apply when temperature is <33 °C and RH is >50%. Add an antifoam agent.
–	–	–	–	–	–
–	–	–	–	–	Northern NSW only. Adjuvant NR. *Plantback: W 15 mo + 500 mm, IMI W 4 mo + 200 mm.
–	–	–	–	–	Do not follow a fallow application with an in-crop product containing pyrasulfotole. Adjuvant MSO. *For use with glyphosate.
0.105–0.16	–	–	–	0.105–0.16	Pre-cultivation. Add glyphosate.
–	0.185	–	–	0.185	No till. *Add glyphosate. ^Add 2,4-D amine.
0.67 or 0.7	–	0.8^	0.8^	0.67*	When using stand-alone, always add Uptake®. *Add glyphosate. ^Add MCPA LVE 570. #Use with a mix partner.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Table 12. Herbicides for fallow commencement and/or maintenance – broadleaf weed control – page 6 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Shepherd's purse	Sida	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	kg/ha	>50	6mo + 100mm	0.7–1	–	–	–	0.7–1	1(S)	–	–	–	0.7–1
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	g/ha	80–100	7d	–	–	–	–	–	–	–	–	–	–
Picoflex® (picloram 240)	4	mL/ha	50–100	2mo	–	–	–	–	85–165^	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	L/ha	>80	1mo	–	–	–	–	0.3	–	–	–	–	–
Priority® (florasulam 200)	2	mL/ha	80–100	7d	–	–	–	–	25	15–25	–	–	–	–
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	L/ha	60–150	1–3d	–	–	–	–	0.5	–	–	0.5	–	–
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	g/ha	50–100	4mo	–	–	–	–	–	10 or 14	–	10	10*	–
Sharpen® (saflufenacil 700)	14	g/ha	80–250	1h	26–34	–	–	–	17–26	17–26	17–26	–	17–26	–
Sledge® (pyraflufen-ethyl 25)	14	mL/ha	80–150	1h	–	–	–	–	50–100	–	–	50–100	–	–
Spray.Seed® (paraquat 135 + diquat 115)	22	L/ha	50–200	1h	–	0.8–2.4	–	–	0.8–2.4	0.8–2.4	–	–	–	–
	22	L/ha	50–200	1h	0.8–3.2	–	–	–	–	0.8–3.2	0.8–3.2	1.2 fb 1.2, 1.2–1.8#, 1.8–3.2^	0.8–3.2	–
Starane® Advanced (fluroxypyr 333)	4	L/ha	>50	7d	–	–	–	–	0.6	0.3* or 0.9	–	–	–	–
Striker® (oxyfluorfen 240)	14	mL/ha	*	24h	75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.									
Terbyne® Xtreme® (terbuthylazine 875)	5	kg/ha	>50	4mo	0.86–1.2	–	–	–	0.86–1.2	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/ha	50–150	1h	–	–	–	15* or 40	20	15*	–	15* or 20	15*	–
Valor® (flumioxazin 500)	14	g/ha	80–200	1–2mo	30	–	–	–	30	30	–	30	–	–
	14	g/ha	80–200	1–2mo	–	–	–	–	210–280	–	–	–	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	L/ha	80–250	1h	0.1	–	–	–	0.1	0.1	0.1	–	0.1	–
Weedmaster® DST® (glyphosate 470)	9	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	L/ha	80 max.	1h	–	–	0.95–1.9†	1.2–1.9^	0.425–1.3*	0.32–0.95†	–	1.2–1.9^	0.425–1.3* or 0.95–1.25^	–
CRUCIAL® (glyphosate 600)	9	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, w = weeks, mo = months, mm = millimetres, fb = followed by, NR = not required, RH = relative humidity, (S) = suppression, W = wheat. IMI W = imidazolinone-tolerant wheat, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
For pre-sowing of crops in a seedbed salvage situation (0–3 d pre-sowing), refer to plantbacks.

Read the label before using a product.

Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.7–1	–	1	0.7–1	0.7–1	Pre-emergent only; add a knockdown mix partner if required.
–	–	–	–	–	–
–	–	–	–	–	^Add triclopyr 750 + adjuvant.
–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
–	15–25	–	–	15	Requires tank mixing with fluroxypyr and/or glyphosate.
0.25–0.5	–	0.25–0.5	0.25–0.5	–	Add glyphosate.
10*	–	–	10	10 or 14	Mix with glyphosate. *Add MCPA LVE 570.
17–26	–	26–34	17–26	26–34	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	–	50–100	–	50–100	Add a knockdown mix partner if required. Adjuvant MSO.
0.8–2.4	–	–	–	0.8–2.4	Northern NSW. Rates determined by cultivation, seeding method and growth stage.
0.8–3.2	0.8–3.2	0.8–3.2	0.8–3.2	0.8–3.2	Southern NSW. Rates determined by cultivation, seeding method and growth stage. #Add dicamba. ^Add metsulfuron.
–	–	–	–	0.3 or 0.3* or 0.9	Add glyphosate. *Add metsulfuron.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.					Add glyphosate. *Water rate is determined by mixing partner.
–	–	0.86–1.2	0.86–1.2	0.86–1.2	Pre-emergent only; add a knockdown mix partner if required.
–	15*	15* or 20	15* or 30	–	*Add glyphosate.
30	30	30	–	30	Must add a knockdown herbicide partner. Adjuvant MSO.
–	–	–	–	–	Pre-emergent control and some knockdown activity; add a knockdown mix partner if required.
0.1	–	0.1	0.1	0.1	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.
0.625–1.3*	–	0.95–1.25^	0.625–1.25^	0.625–1.3*	*Northern NSW. ^Southern NSW. †Southern NSW with full soil disturbance by cultivation or sowing.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many weeds have individual minimum rates and factors influence rate. Mix partners are listed on the label.

Notes


HAMMER,
WHEN YOU
NEED A
TOOL YOU
KNOW YOU
CAN TRUST
For over 20 years Hammer® 400EC Herbicide has proven to be effective time and time again on marshmallow and other tough broadleaf weeds in broadacre.
Real value in more ways than one. Fast acting, versatile and reliable.
HAMMER®
400EC HERBICIDE
fmccrop.com.au
ALWAYS READ AND FOLLOW LABEL DIRECTIONS. FMC and Hammer® are registered trademarks of FMC Corporation or an affiliate. © 2023 FMC Corporation All Rights Reserved. 02/2023
FMC

Table 13. Herbicides for fallow application with optical spot spray technology – grass weeds.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Annual ryegrass	Barley grass	Barnyard grass	Brome grass	Button grass	Cereals – volunteer	Feathertop Rhodes grass	Johnson grass	Liverseed grass	Nut grass	Phalaris – annual
Biffo® (glufosinate-ammonium 200)	10	L/100L	100	14d	10	–	10	–	–	–	10	–	10	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/100L	100	1h	–	–	2.08–6.25	–	–	–	–	–	–	–	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/100L	100	5d	–	–	1.9–5.6	–	–	–	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/100L	100	1h	40	40	40	40	–	40	–	–	–	–	40
Weedmaster® DST® (glyphosate 470)	9	L/100L	80	6h	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*
CRUCIAL® (glyphosate 600)	9	L/100L	100	6h	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*

h = hours, d = days, MSO = methylated seed oil.

Read the label before using a product.

Phalaris – perennial	Sorghum – volunteer	Stink grass/black grass	Summer grass	Vulpia/silver grass	Wild oats	Windmill grass	Winter grass	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	Warm, humid conditions provide best results.
–	–	–	–	–	–	–	–	Must add an adjuvant.
–	–	–	–	–	–	–	–	–
–	–	–	–	40	40	–	40	Add glyphosate and MSO.
2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	*Add Terrad'or® and MSO.
1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	*Add Terrad'or® and MSO.

Table 14. Herbicides for fallow application with optical spot spray technology – broadleaf weeds – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Amaranth	Amsinckia	Bathurst burr	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Bladder ketmia	Bluebell	Boggabri weed	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed
2,4-D amine 700, **drift restrictions apply**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	4.8	–	–	–	–	–
Colex-D® (2,4-D choline 456), **reduced drift option**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	6.16 or 12.32	–	–	–	–	–
Dropzone® (2,4-D amine 500), **reduced drift option**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	6.7	–	–	–	–	–
Biffo® (glufosinate-ammonium 200)	10	L/100L	100	14d	10	10	–	10	10	–	10	–	–	10	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/100L	100	1h	–	–	–	6.25	–	–	2.08–6.25	–	–	2.08–6.25	–	–	–	–	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/100L	100	5d	–	–	–	5.6	–	–	1.9–5.6	–	–	1.9–5.6	–	–	–	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	L/ha	100	7d	–	–	–	–	2–4*	–	–	–	–	2–4	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	L/100L	100	1mo	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/100L	100	1h	40	–	–	–	–	–	40	–	–	40	40	40	–	–	–
Weedmaster® DST® (glyphosate 470)	9	L/100L	80	6h	2.3*	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3*	2.3*	2.3*
CRUCIAL® (glyphosate 600)	9	L/100L	100	6h	1.8*	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8*	1.8*	1.8*

h = hours, d = days, mo = months, MSO = methylated seed oil.

Read the label before using a product.

Cleavers/bedstraw	Clover	Corn gromwell	Cow/peach/bell vine	Crassula/stonecrop	Cudweed	Datura/thornapple	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Heliotrope – white	Hexham scent	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–	4.8	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	6.16 or 12.32	–	–	–	Low rate for rosette to flowering. High rate for late flowering to mature or moisture stressed.
–	–	–	–	–	–	–	–	–	–	–	–	–	6.7	–	–	–	–
–	–	–	10	–	–	–	–	–	–	–	–	–	10	–	–	–	Warm, humid conditions provide best results.
–	–	–	–	–	–	–	–	–	–	–	–	–	4.17–6.25	–	–	–	Must add an adjuvant.
–	–	–	–	–	–	–	–	–	–	–	–	–	3.75–5.6	–	–	–	–
2–4*	–	–	–	–	–	2–4*	–	–	–	–	–	–	2–4	–	–	–	*Add Uptake®.
–	–	–	–	–	–	–	0.4–0.8	–	–	–	–	–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
–	–	–	40	–	–	–	–	–	40	40	40	40	–	40	40	–	Add glyphosate and MSO.
–	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	*Add Terrad'or® and MSO.
–	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	*Add Terrad'or® and MSO.

Table 14. Herbicides for fallow application with optical spot spray technology – broadleaf weeds – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Units of use	Boom water rate (L/ha)	Wheat plantback	Horehound	Lupin – volunteer	Marshmallow	Medic	Melon – camel/afghan	Melon – paddy	Mexican poppy	Mintweed	Mustards	New Zealand spinach	Noogoora burr	Paterson's curse	Peppercress	Pigweed	Plantain	Potato weed
2,4-D amine 700, **drift restrictions apply**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Colex-D® (2,4-D choline 456), **reduced drift option**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dropzone® (2,4-D amine 500), **reduced drift option**	4	L/100L	100	1–7d	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Biffo® (glufosinate-ammonium 200)	10	L/100L	100	14d	–	–	–	–	–	10	–	–	–	–	10(S)	–	–	10	–	–
Gramoxone® 360 Pro (paraquat 360)	22	L/100L	100	1h	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	L/100L	100	5d	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	L/ha	100	7d	–	–	2–4*	–	–	–	–	–	–	–	–	–	–	2–4*	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	L/100L	100	1mo	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Terrad'or® (tiafenacil 700)	14	g/100L	100	1h	–	40	40	40	40	40	–	–	–	–	–	–	–	40	–	–
Weedmaster® DST® (glyphosate 470)	9	L/100L	80	6h	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*	2.3*
CRUCIAL® (glyphosate 600)	9	L/100L	100	6h	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*	1.8*

h = hours, d = days, mo = months, MSO = methylated seed oil, (S) = suppression.

Read the label before using a product.

Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel	Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	–	4.8	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	6.16 or 12.32	–	–	–	–	–	–	–	–	–	Low rate for rosette to flowering. High rate for late flowering to mature or moisture stressed.
–	–	–	–	–	–	–	6.7	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	10	–	Warm, humid conditions provide best results.
–	–	–	–	–	–	–	4.17–6.25	–	–	–	–	4.17–6.25	–	–	–	–	Must add an adjuvant.
–	–	–	–	–	–	–	3.75–5.6	–	–	–	–	3.75–5.6	–	–	–	–	–
–	–	–	–	–	–	–	2–4	2–4*	–	–	–	–	–	–	–	2–4*	*Add Uptake®.
–	–	–	–	–	–	–	0.4–0.8	–	–	–	–	–	–	–	–	–	Add glyphosate. Adjuvant: refer to glyphosate label.
40	–	–	–	–	40	–	40	40	–	40	40	–	40	40	40	–	Add glyphosate and MSO.
2.3*	2.3*	–	2.3*	2.3*	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3*	2.3*	2.3* or 3.5–7	2.3*	2.3*	2.3*	2.3*	*Add Terrad'or® and MSO.
1.8*	1.8*	–	1.8*	1.8*	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8*	1.8*	1.8* or 2.75–5.5	1.8*	1.8*	1.8*	1.8*	*Add Terrad'or® and MSO.

Table 15. Herbicides for pre-sowing knockdown (0–3 days pre-sowing) – page 1 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop type	Unit of use	Boom water rate (L/ha)	Wheat plantback	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amaranth	Amsinckia
Butafenacil 100	14	Cereals, canola, pulse	mL/ha	75–150	1h	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	–	–	–
Express® (tribenuron-methyl 750)	2	Wheat, barley, oats	g/ha	>50	3d									25	–
Gramoxone® 360 Pro (paraquat 360)	22	All crops	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.42–1.4	0.835–1.67	0.835–1.4	0.835–1.4
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	All crops	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.42	0.75–1.5	0.75–1.5	0.75–1.5
Hammer® (carfentrazone-ethyl 400)	14	All crops	mL/ha	50–150	0h									–	–
Kamba®750 (dicamba 750), **no till**	4	All crops	L/ha	>50	1–14d									0.215–0.375	–
Kamba®750 (dicamba 750), **pre-cultivation**	4	All crops	L/ha	>50	1–14d									0.105–0.16	–
Priority® (florasulam 200)	2	Wheat, barley	mL/ha	80–100	7d									25	–
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	All crops	L/ha	60–150	1–3d	0.5	0.5	0.25–0.5	0.5	–	0.5	0.5	–	–	0.25–0.5
Sharpen® (saflufenacil 700)	14	Cereals, pulses	g/ha	80–250	1h									17–26	–
Sledge® (pyraflufen-ethyl 25)	14	Cereals	mL/ha	80–150	1h									50–100	–
Spray.Seed® (paraquat 135 + diquat 115)	22	All crops	L/ha	50–200	1h	–	–	–	0.8–2.4	0.8–2.4	–	0.8–2.4	–	–	–
	22	All crops	L/ha	50–200	1h	0.6–2.4	0.6–2.4	0.6–2.4	0.6–2.4	–	0.6–3.2	0.6–3.2	–	–	–
Striker® (oxyfluorfen 240)	14	All crops	mL/ha	30–200	24h									75	75
Terrad'or® (tiafenacil 700)	14	All crops	g/ha	50–150	1h	40*	15* or 40	15*	15–20*	15*	30*	20*	20*	15*	–
Valor® (flumioxazin 500)	14	Cereals, pulses	g/ha	80–200	1–2mo									30	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	Cereals, chickpea, faba bean, field pea	L/ha	80–250	1h	0.1	0.1	0.1	–	–	0.1	0.1	–	0.1	0.1
Weedmaster® DST® (glyphosate 470)	9	All crops	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	All crops	L/ha	80 max.	1h	0.95–1.25	0.625–0.95	0.95–1.25	0.32–0.95	0.625–0.95	0.95–1.25	0.625–0.95	0.625–1.25	–	0.625–0.96
CRUCIAL® (glyphosate 600)	9	All crops	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, mo = months, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000), refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Bindweed – Australian	Bindweed – black	Blackberry nightshade	Boggabri weed	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Comments. Always refer to the label.
–	–	–	–	55–130* or 55–160^	55–130* or 55–160^		–	–	–	–	–	–	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
–	25*	–	–	25	–	–	–	–	–	–	–	–	Adjuvant NIS 1000. *Add glyphosate.
0.835–1.4	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.4	Must add an adjuvant.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	–	–	–	–	15–45	–	–	–	–	–	–	Add a knockdown mix partner if required. Adjuvant MOS.
–	0.185	0.215–0.375	–	0.215–0.375	–	–	–	–	–	–	0.135*	–	*Add glyphosate.
–	0.105–0.16	–	–	0.105–0.16	–	0.105–0.16	–	–	–	–	–	–	Add glyphosate.
–	20	–	–	15–25	–	–	–	–	–	25	–	–	Requires tank mixing with fluroxypyr and/or glyphosate.
–	–	–	–	0.5–0.9*	–	0.25–0.5	–	0.9*	0.25–0.5	–	–	–	Add glyphosate. *Southern NSW only.
–	17–26	17–26	–	17–26	17–26	17–26	–	17–26	–	–	–	–	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	–	–	–	50–100	50–100	50–100	–	–	–	–	–	–	Add a knockdown mix partner if required. Adjuvant MSO.
0.8–2.4	0.8–2.4	0.8–2.4	0.8–1.2	0.8–2.4	–	–	–	–	–	–	–	–	Northern NSW.
–	–	–	–	–	–	0.8–3.2	0.8–3.2	–	–	0.8–3.2	–	–	Southern NSW. Rates determined by cultivation, seeding method and growth stage.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.													Add glyphosate.
–	–	–	–	20*	15* or 40	15* or 40	–	–	–	–	–	–	*Add glyphosate.
–	30	–	–	30	30	30	–	–	–	–	–	–	Must add a knockdown herbicide partner. Adjuvant MSO.
–	0.1	0.1	–	0.1	0.1	0.1	0.1	0.1	–	–	–	–	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many factors influence rate.
–	1.2–1.9	–	0.425–1.3	0.425–1.3	–	0.32–1.25	–	–	–	–	–	–	Many factors influence rate.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many factors influence rate.

Table 15. Herbicides for pre-sowing knockdown (0–3 days pre-sowing) – page 2 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop type	Unit of use	Boom water rate (L/ha)	Wheat plantback	Crassula/stonecrop	Cudweed	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory
Butafenacil 100	14	Cereals, canola, pulse	mL/ha	75–150	1h	–	–	55–130* or 55–160^	55–130* or 55–160^		–	–	55–130* or 55–160^	100–130* or –160^	55–130* or 55–160^
Express® (tribenuron-methyl 750)	2	Wheat, barley, oats	g/ha	>50	3d	–	–	25*	–	–	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	All crops	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.4
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	All crops	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5
Hammer® (carfentrazone-ethyl 400)	14	All crops	mL/ha	50–150	0h	15–45	–	–	–	15–45	–	–	–	–	–
Kamba®750 (dicamba 750), **no till**	4	All crops	L/ha	>50	1–14d	–	–	–	0.185–0.375	–	–	0.185–0.375	–	–	–
Kamba®750 (dicamba 750), **pre-cultivation**	4	All crops	L/ha	>50	1–14d	–	–	–	0.105–0.16	–	–	–	0.105–0.16	–	–
Priority® (florasulam 200)	2	Wheat, barley	mL/ha	80–100	7d	–	–	–	–	–	–	–	–	–	–
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	All crops	L/ha	60–150	1–3d	–	–	0.25–0.5	0.5^	0.25–0.5	–	–	–	–	–
Sharpen® (saflufenacil 700)	14	Cereals, pulses	g/ha	80–250	1h	17–26	–	–	–	26–34	–	17–26	17–26	–	–
Sledge® (pyraflufen-ethyl 25)	14	Cereals	mL/ha	80–150	1h	–	–	50–100	–	50–100	–	50–100	–	–	–
Spray.Seed® (paraquat 135 + diquat 115)	22	All crops	L/ha	50–200	1h	–	0.8–2.4	0.8–2.4	–	–	–	0.8–2.4	–	0.8–2.4	0.8–2.4
	22	All crops	L/ha	50–200	1h	–	–	–	–	0.8–3.2	0.8–1.2^#	–	0.8–1.2^#	–	–
Striker® (oxyfluorfen 240)	14	All crops	mL/ha	30–200	24h	75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.									
Terrad'or® (tiafenacil 700)	14	All crops	g/ha	50–150	1h	–	–	–	–	15*	15* or 20		20*	–	15* or 30
Valor® (flumioxazin 500)	14	Cereals, pulses	g/ha	80–200	1–2mo	–	–	30	–	30	–	–	–	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	Cereals, chickpea, faba bean, field pea	L/ha	80–250	1h	0.1	–	–	–	0.1	0.1	0.1	0.1	0.1	–
Weedmaster® DST® (glyphosate 470)	9	All crops	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	All crops	L/ha	80 max.	1h	–	–	0.425–1.3	0.625–1.9	1.2–1.9	–	–	0.32–0.95	–	0.32–0.95
CRUCIAL® (glyphosate 600)	9	All crops	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, mo = months, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000). Refer to Table 7 for example products.

Read the label before using a product.

Hexham scent	Horehound	Lentil – volunteer	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mintweed	Mustards	New Zealand spinach	Paterson's curse	Comments. Always refer to the label.
–	–	–	–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	–	55–130* or 55–160^	55–130* or 55–160^	–	55–130* or 55–160^	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
–	–	–	–	–	–	–	30	–	–	–	20	–	Adjuvant NIS 1000. *Add glyphosate.
0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	Must add an adjuvant.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Add NIS when dilution in tank is below 400 mL/100 L water.
–	–	–	–	–	–	15–45	–	–	–	–	–	15–45	Add a knockdown mix partner if required. Adjuvant MOS.
0.185	0.215–0.375	–	–	–	–	–	–	–	–	–	0.185	–	Add glyphosate.
–	–	–	–	–	–	–	0.105–0.16	–	–	0.105–0.16	–	0.105–0.16	Add glyphosate.
–	–	–	–	–	–	25	–	–	–	–	–	–	Requires tank mixing with fluroxypyr and/or glyphosate.
–	–	–	–	–	–	0.5–0.9	0.25–0.5	–	–	0.5	–	0.25–0.5	Add glyphosate. ^Curled dock only.
–	–	–	–	–	–	17–26	17–26	–	–	–	–	17–26	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	–	–	50–100	–	–	50–100	–	–	–	–	–	–	Add a knockdown mix partner if required. Adjuvant MSO.
0.8–2.4	–	–	–	–	–	–	–	0.8–2.4	0.8–2.4	–	0.8–2.4	–	Northern NSW.
–	0.8–3.2	–	–	–	0.8–1.2^#	0.8–1.8†	0.8–3.2^#	–	–	0.8–3.2	–	–	Southern NSW. Rates determined by cultivation, seeding method and growth stage. #Add dicamba. ^Add metsulfuron. †Add oxyfluorfen.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.													Add glyphosate.
–	–	–	–	–	20* or 30	15* or 20	15*	–	–	–	–	–	*Add glyphosate.
–	–	–	–	30	–	30	30	–	–	–	–	30	Must add a knockdown herbicide partner. Adjuvant MSO.
–	–	–	–	–	0.1	0.1	0.1	–	–	0.1	–	0.1	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many factors influence rate.
–	–	–	–	–	0.32–0.95	–	–	0.625–1.3	–	0.95–1.25	0.625–1.3	0.625–1.25	Many factors influence rate.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many factors influence rate.

Table 15. Herbicides for pre-sowing knockdown (0–3 days pre-sowing) – page 3 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop type	Unit of use	Boom water rate (L/ha)	Wheat plantback	Peppercress	Pigweed	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Sida	Skeleton weed	Sorrel
Butafenacil 100	14	Cereals, canola, pulse	mL/ha	75–150	1h	–	55–130* or 55–160^	–	–	–	–	55–130* or 55–160^	–	–	55–130* or 55–160^
Express® (tribenuron-methyl 750)	2	Wheat, barley, oats	g/ha	>50	3d	–	20*	–	20* or 30	–	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	22	All crops	L/ha	100–200	1h	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67
Guerrilla® (paraquat 300 + amitrole 12)	22 + 34	All crops	L/ha	100–200	1h	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5
Hammer® (carfentrazone-ethyl 400)	14	All crops	mL/ha	50–150	0h	–	–	–	–	–	–	–	–	–	–
Kamba®750 (dicamba 750), **no till**	4	All crops	L/ha	>50	1–14d	–	–	–	–	–	–	–	0.215–0.375	–	0.185^
Kamba®750 (dicamba 750), **pre-cultivation**	4	All crops	L/ha	>50	1–14d	–	–	–	0.105–0.16	–	–	–	–	–	0.105–0.16
Priority® (florasulam 200)	2	Wheat, barley	mL/ha	80–100	7d	–	15–20	–	–	–	–	–	–	–	–
Pyresta® Xtreme (pyraflufen-ethyl 2.1 + 2,4-D ester 600)	14 + 4	All crops	L/ha	60–150	1–3d	–	0.5–0.9*	–	–	–	–	–	–	–	–
Sharpen® (saflufenacil 700)	14	Cereals, pulses	g/ha	80–250	1h	–	–	–	17–26	–	17–26	26–34	–	–	–
Sledge® (pyraflufen-ethyl 25)	14	Cereals	mL/ha	80–150	1h	–	–	–	50–100	–	–	–	–	–	–
Spray.Seed® (paraquat 135 + diquat 115)	22	All crops	L/ha	50–200	1h	0.8–2.4	0.8–2.4	–	0.8–2.4	–	–	–	0.8–2.4	–	–
	22	All crops	L/ha	50–200	1h	–	–	–	–	0.8–3.2	0.8–3.2	0.8–3.2	–	–	–
Striker® (oxyfluorfen 240)	14	All crops	mL/ha	30–200	24h	75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.									
Terrad'or® (tiafenacil 700)	14	All crops	g/ha	50–150	1h	–	20*	–	15*	–	–	–	–	–	15* or 40
Valor® (flumioxazin 500)	14	Cereals, pulses	g/ha	80–200	1–2mo	–	30	–	–	–	–	30	–	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	Cereals, chickpea, faba bean, field pea	L/ha	80–250	1h	–	–	–	0.1	–	0.1	0.1	–	–	–
Weedmaster® DST® (glyphosate 470)	9	All crops	L/ha	80	6h	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7
Roundup Ultra®MAX (glyphosate 570)	9	All crops	L/ha	80 max.	1h	–	0.425–1.3	1.2–1.9	0.625–1.3	–	–	–	–	0.95–1.9	0.95–1.9
CRUCIAL® (glyphosate 600)	9	All crops	L/ha	80	6h	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5

h = hours, d = days, mo = months, fb = followed by, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000). Refer to Table 7 for example products.

Read the label before using a product.

Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	100–130* or –160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	55–130* or 55–160^	Mix with glyphosate, paraquat or paraquat + diquat. *Rates before canola and pulses. ^Rates before cereals.
–	25	–	–	–	–	–	20	–	–	–	–	Adjuvant NIS 1000. *Add glyphosate.
0.835–1.4	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	0.835–1.67	Must add an adjuvant.
0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	0.75–1.5	Adjuvant MSO when dilution in tank is below 400 mL/100 L water.
–	–	15–45	–	–	–	–	–	–	15–45	–	–	Add a knockdown mix partner if required. Adjuvant MOS.
–	–	0.185–0.375	–	0.135*	0.185^ or 0.185–0.375	–	–	0.185	–	–	0.185	*Add glyphosate. ^Add 2,4-D amine.
–	0.105–0.16	–	–	–	0.105–0.375	–	0.105–0.16	–	–	–	0.105–0.16	Add glyphosate.
–	25	15–25	–	–	–	–	–	–	–	–	15	Requires tank mixing with fluroxypyr and/or glyphosate.
–	0.5	–	–	0.5	–	–	0.25–0.5	–	0.25–0.5	0.25–0.5	–	Add glyphosate. *Southern NSW only.
–	17–26	17–26	17–26	–	17–26	–	17–26	–	26–34	17–26	26–34	Adjuvant MSO. Adding paraquat or glyphosate will broaden the weed spectrum.
–	50–100	–	–	50–100	–	–	–	–	50–100	–	50–100	Add a knockdown mix partner if required. Adjuvant MSO.
–	0.8–2.4	0.8–2.4	–	–	–	–	0.8–2.4	–	–	–	0.8–2.4	Northern NSW.
–	–	0.8–3.2	0.8–3.2	1.2 fb 1.2, 1.2–1.8#, 1.8–3.2^	0.8–3.2	–	0.8–3.2	0.8–3.2	0.8–3.2	0.8–3.2	0.8–3.2	Southern NSW. Rates determined by cultivation, seeding method and growth stage. #Add dicamba. ^Add metsulfuron.
75. Enhances brownout when used with glyphosate products. Striker® is registered for use on any weed listed on the partner product label.												Add glyphosate.
–	20	15*	–	15* or 20	15*	–	–	15*	15* or 20	15* or 30	–	*Add glyphosate.
–	30	30	–	30	–	–	30	30	30	–	30	Must add a knockdown herbicide partner. Adjuvant MSO.
–	0.1	0.1	0.1	–	0.1	–	0.1	–	0.1	0.1	0.1	Add glyphosate or paraquat. Can reduce glyphosate efficacy on grasses; increase glyphosate rate to compensate. Adjuvant MSO.
0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	0.77–7	Many factors influence rate.
0.95–1.25	0.425–1.3	0.32–0.625	–	0.95–1.9	0.625–1.25	–	0.625–1.3	–	0.95–1.25	0.625–1.25	0.625–1.3	Many factors influence rate.
0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	0.6–5.5	Many factors influence rate.

Table 16. Herbicides for pre-emergent and post-sowing, pre-emergent grass control in cereals.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Crop type	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Phalaris – perennial	Vulpia/silver grass	Wild oats	Winter grass	Comments. Always refer to the label.
Arcade® (prosulfocarb 800)	15	IBS	W, B	L/ha	>50	2.5(S) or 3	–	–	–	–	–	–	–	–
Avadex® Xtra (tri-allate 500)	15	PSI IBS	W, B, T	L/ha	50	1.6–2.4* or 3.2	1.6–2.4*(S)	1.6–2.4*(S)	1.6–2.4*	1.6–2.4*	1.6–2.4*	1.6	1.6–2.4*	*Add trifluralin.
	15	PSI IBS	W	L/ha	50	3.2*	3.2*(S)	3.2*(S)	3.2*	3.2*	3.2*	3.2*(S)	3.2*	*Add trifluralin.
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	W, T, O	L/ha	>50	2.5	2.5(S)	–	–	–	2.5	–	–	Can be applied split or as a single higher rate. Adding trifluralin can increase weed spectrum.
	15	IBS fb PSPE	W, B	L/ha	>50	1.75 fb 0.75 or 2.5–3(S)	1.75 fb 0.75(S)	–	–	–	1.75 fb 0.75	–	–	Can be applied split or as a single higher rate.
Callisto® (mesotrione 480)	27	IBS	Cereals	mL/ha	>50	–	–	–	–	–	–	–	–	–
Chlorsulfuron 750	2	PSI IBS	W, T	g/ha	>30	15 or 20	20*	20(S)	20*	–	–	–	–	Soil type influences rate and pH. *Add trifluralin.
Dual Gold® (S-metolachlor 960)	15	IBS PSPE	B, O	L/ha	>60	0.375–0.5(S)	–	–	–	–	–	–	–	–
Luximax® (cinmethylin 750)	30	IBS	W (not durum)	L/ha	70–150	0.5	0.5	0.5(S)	–	–	–	0.5(S)	–	Incorporate within 3 days.
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	32 + 15 + 12	IBS	W (not durum)	L/ha	70–100	0.75–1	0.75–1	1(S)	1	–	0.75–1	1(S)	–	–
	32 + 15 + 12	IBS	B	L/ha	70–100	0.75	0.75	–	–	–	0.75	–	–	Phytotoxicity considerations. Do not use on irrigated barley.
Overwatch® (bixlozone 400)	13	IBS	W, B	L/ha	60–100	1.25	1.25(S)	1.25(S)	1.25(S)	–	1.25	1.25(S)	–	Do not sow barley with disc seeders.
Pendimethalin 440	3	PSI	W, B	L/ha	50–200	0.9 or 1.4	–	–	–	–	–	0.9 or 1.4	–	Incorporation method influences rate.
	3	IBS	W, B	L/ha	50–200	1.35	–	–	–	–	–	1.35(S)	–	–
Sakura® (pyroxasulfone 850)	15	IBS	W (not durum), T	g/ha	50–100	118	118	118(S)	118	–	118	118(S)	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	IBS	IMI (W, B, O^)	g/ha	70	40–50(S)	40–50	40–50	40–50(S)	40–50(S)	–	40–50(S)	–	^Grain export restrictions apply.
Sulfosulfuron 750	2	PSI IBS	W, T	g/ha	40–100	25*	25(S) or *	25(S)	25*	–	–	25*^	–	*Add trifluralin. ^Add tri-allate.
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	W, B , O (all not irrigated)	kg/ha	>50	–	–	–	–	–	–	–	–	–
Triasulfuron	2	IBS	W	g/ha	50–100	10–15* or 35	–	–	35	–	–	–	–	*Add trifluralin.
TriflurX® (trifluralin 480)	3	PSI	W, B, T	L/ha	70–450	0.8	–	–	0.8	–	–	–	–	–
	3	IBS	W, B, T, (O max 2 L/ha)	L/ha	70–450	1.5–3	1.5–3	1.5–3	1.5–3	–	1.5–3	1.5–3	1.5–3	Rates vary depending on mix partner. Do not add tri-allate on oats.
Valor® (flumioxazin 500)	14	IBS	W (not durum)	g/ha	80	120*	120(S)*	120(S)*	120*	–	120*	120*	120*	*Add trifluralin and tri-allate.
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	W, B, T, O	mL/ha	80–250	200* or 240^(S)	–	–	–	–	–	–	–	*Apply 0–7 days before sowing. ^Apply 7–21 days before sowing.

Plantbacks: in a failed crop/re-sowing situation, plantbacks apply. Refer to the plantback table and the label.
B = barley, O = oats, T = triticale, W = wheat, IMI = imidazolinone-tolerant, (S) = suppression.
IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, fb = followed by.
Read the label before using a product.

GOT OVERWATCH®? NOW GOT IT IN LIQUID AND GRANULES

Now also available in a HIGH LOAD GRANULE (WG) as Overwatch® eXL Granules

When you have Overwatch® in the mix, you're ready for anything.

By delivering broad-spectrum control of many important weeds including up to 12 weeks residual activity on annual ryegrass, a nil re-cropping interval to wheat, barley, canola and select pulse crops, and the choice of a liquid (SC) or granule (WG) formulation, only Overwatch® gives you the flexibility you need.

Overwatch® eXL GRANULES

FMC

Table 17. Herbicides for pre-emergent and post-sowing, pre-emergent broadleaf control in cereals – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Crop type	Unit of use	Boom water rate (L/ha)	Amsinckia	Bindweed – Australian	Bindweed – black	Caltrop/cat head	Canola – volunteer	Capeweed	Chickpea – volunteer	Chickweed	Cleavers/bedstraw
Avadex® Xtra (tri-allate 500)	15	PSI IBS	W, B, T	L/ha	50	1.6–2.4*(S)	–	–	1.6–2.4*	–	–	–	–	–
	15	PSI IBS	W	L/ha	50	3.2	–	–	3.2(S)	–	–	–	–	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	Cereals	L/ha	>50	–	–	–	–	–	–	–	–	–
	15	IBS fb PSPE	W, B	L/ha	>50	–	–	–	–	–	–	–	–	–
Callisto® (mesotrione 480)	27	IBS	Cereals	mL/ha	>50	–	–	–	–	100–150(S) or 200	100–200	100–200	200(S)	100–200
Chlorsulfuron 750	2	PSI IBS	W, T	g/ha	>30	15	–	–	–	–	20	–	15	–
Dual Gold® (S-metolachlor 960)	15	IBS PSPE	Cereals	L/ha	>60	–	–	–	–	–	–	–	–	–
Luximax® (cinmethylin 750)	30	IBS	W (not durum)	L/ha	70–150	–	–	–	–	–	–	–	–	–
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	32 + 15 + 12	IBS	W (not durum)	L/ha	70–100	–	–	–	–	–	1(S)	–	–	–
	32 + 15 + 12	IBS	B	L/ha	70–100	–	–	–	–	–	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	W, B	L/ha	60–100	–	–	–	–	–	1.25(S)	–	–	1.25(S)
Pendimethalin 440	3	PSI	W, B	L/ha	50–200	–	–	–	–	–	–	–	–	–
	3	IBS	W, B	L/ha	50–200	–	–	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	W (not durum), T	g/ha	50–100	–	–	–	–	–	–	–	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	IBS	IMI (W, B, O^)	g/ha	70	–	–	40–50	–	40–50(S)*	40–50(S)	–	–	–
Sulfosulfuron 750	2	PSI IBS	W, T	g/ha	40–100	–	–	–	–	–	–	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	W, B, O (not irrigated)	kg/ha	>50	–	–	–	–	–	–	–	–	–
Triasulfuron	2	IBS	W	g/ha	50–100	30	–	30	–	–	35	–	–	–
TriflurX® (trifluralin 480)	3	PSI	W, B, T	L/ha	70–450	–	–	–	–	–	–	–	–	–
	3	IBS	W, B, T, (O max 2 L/ha)	L/ha	70–450	1.5–3	–	–	1.5–3	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	W (not durum)	g/ha	80	120(S)*	–	120(S)	120(S)*	120(S)	120(S)	–	–	120(S)*
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	Cereals (O – hay or fodder only)	mL/ha	80–250	200* or 240^	200* or 240^	200* or 240^	–	200* or 240^	200* or 240^	–	200(S)	200* or 240^

Plantbacks: in a failed crop/re-sowing situation, plantbacks apply. Refer to the plantback table and the label.
B = barley, O = oats, T = triticale, W = wheat, IMI = imidazolinone-tolerant, fb = followed by, (S) = suppression.
IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent.

Read the label before using a product.

Clover	Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Lentil – volunteer	Comments. Always refer to the label.
–	1.6–2.4*	–	–	1.6–2.4*(S)	–	–	–	–	–	–	1.6–2.4*	–	*Add trifluralin.
–	3.2	–	–	3.2(S)	–	–	–	–	–	–	3.2(S)	–	–
–	–	2.5	–	–	–	–	–	–	–	–	–	–	–
–	–	1.75 fb 0.75	–	–	–	–	–	–	–	–	–	–	–
–	–	–	200(S)	–	–	–	100–200	–	100–200	100–200	200(S)	100–200	Can be applied as a split application (130 mL pre-sowing followed by 70 mL PSPE).
–	20	–	–	15 or 20	20	–	–	20	–	–	15 or 20	–	Soil type influences rate and pH.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	0.75(S) or 1	–	1(S)	–	–	–	–	–	–	1(S)	–	–
–	–	0.75(S)	–	–	–	–	–	–	–	–	–	–	Phytotoxicity considerations. Do not use on irrigated barley.
–	–	–	–	–	–	–	–	–	–	–	–	–	Do not sow barley with disc seeders.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
40–50(S)	–	–	–	–	–	40–50(S)	–	–	–	–	40–50(S)	–	IMI varieties only. *IMI varieties only. ^Grain export restrictions apply.
–	–	–	–	–	–	–	–	–	–	–	25*	–	*Add trifluralin.
–	0.86–1.2	–	–	0.86–1.2	–	–	–	–	–	–	–	–	Low rate on light and/or high pH soil.
–	30 or 10–15*	30(S)	–	30 or 10–15*	–	–	–	–	–	–	30 or 10–15*	–	*Add trifluralin.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	1.5–3	–	–	1.5–3	–	–	–	–	–	–	1.5–3	–	Rates vary depending on mix partner. Do not add tri-allate on oats.
–	120*	120(S)	–	120(S)*	–	–	–	–	–	–	120*	–	*Add trifluralin and tri-allate.
–	–	200* or 240^	–	200* or 240^	–	–	–	–	–	200* or 240^	200* or 240^	–	*Apply 0–7 days before sowing. ^Apply 7–21 days before sowing.

Table 17. Herbicides for pre-emergent and post-sowing, pre-emergent broadleaf control in cereals – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Crop type	Unit of use	Boom water rate (L/ha)	Loosestrife	Lupin – volunteer	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Prickly lettuce	Rough poppy
Avadex® Xtra (tri-allate 500)	15	PSI IBS	W, B, T	L/ha	50	–	–	–	–	–	–	–	–	1.6–2.4*
	15	PSI IBS	W	L/ha	50	–	–	–	–	–	–	–	–	3.2
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	Cereals	L/ha	>50	–	–	–	–	–	–	–	–	–
	15	IBS fb PSPE	W, B	L/ha	>50	–	–	–	–	–	–	–	–	–
Callisto® (mesotrione 480)	27	IBS	Cereals	mL/ha	>50	100–200	100–200(S)	100–200(S)	–	–	–	100–200(S)	100–200	100–200(S)
Chlorsulfuron 750	2	PSI IBS	W, T	g/ha	>30	–	–	–	–	15	–	15	–	15 or 20
Dual Gold® (S-metolachlor 960)	15	IBS PSPE	Cereals	L/ha	>60	–	–	–	–	–	–	–	–	–
Luximax® (cinmethylin 750)	30	IBS	W (not durum)	L/ha	70–150	–	–	–	–	–	–	–	–	–
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	32 + 15 + 12	IBS	W (not durum)	L/ha	70–100	–	–	–	–	0.75(S)	–	–	–	–
	32 + 15 + 12	IBS	B	L/ha	70–100	–	–	–	–	0.75(S)	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	W, B	L/ha	60–100	1.25	–	–	–	–	–	–	1.25(S)	–
Pendimethalin 440	3	PSI	W, B	L/ha	50–200	–	–	–	–	–	–	–	–	–
	3	IBS	W, B	L/ha	50–200	–	–	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	W (not durum), T	g/ha	50–100	–	–	–	–	–	–	–	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	IBS	IMI (W, B, O*)	g/ha	70	–	–	–	–	40–50	–	40–50(S)	–	–
Sulfosulfuron 750	2	PSI IBS	W, T	g/ha	40–100	–	–	–	–	–	–	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	W, B, O (not irrigated)	kg/ha	>50	–	–	0.86–1.2	–	0.86–1.2	–	–	0.86–1.2	–
Triasulfuron	2	IBS	W	g/ha	50–100	–	–	30	35(S)	10–15* or 30	–	30	10–15* or 30	30
TriflurX® (trifluralin 480)	3	PSI	W, B, T	L/ha	70–450	–	–	–	–	–	–	–	–	–
	3	IBS	W, B, T, (O max 2 L/ha)	L/ha	70–450	–	–	–	–	–	–	–	–	1.5–3
Valor® (flumioxazin 500)	14	IBS	W (not durum)	g/ha	80	–	–	–	–	120(S)	120(S)	–	120(S)	120*
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	Cereals (O – hay or fodder only)	mL/ha	80–250	–	–	–	200* or 240^	200* or 240^	–	–	200* or 240^	–

Plantbacks: in a failed crop/re-sowing situation, plantbacks apply. Refer to the plantback table and the label.
B = barley, O = oats, T = triticale, W = wheat, IMI = imidazolinone-tolerant, fb = followed by, (S) = suppression.
IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent.

Read the label before using a product.

Scarlet pimpernel	Shepherd's purse	Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	1.6–2.4*(S)	–	–	–	–	–	–	–	1.6–2.4*	*Add trifluralin.
–	–	–	–	3.2(S)	–	–	–	–	–	–	–	3.2	–
–	–	–	–	–	–	–	2.5	–	–	–	–	–	–
–	–	–	–	–	–	–	1.25–2.5	–	–	–	–	–	–
–	100–200	–	100–200	100–150(S) or 200	100–200	–	–	–	100–200	100–200	100–200	100–200(S)	Can be applied as a split application (130 mL pre-sowing followed by 70 mL PSPE).
15	15 or 20	15	–	20	–	20(S)	–	–	–	–	15	15 or 20	Soil type influences rate and pH.
–	–	–	–	–	–	–	0.15–0.25	–	–	–	–	–	–
–	–	–	–	–	–	–	0.5	–	–	–	–	–	Incorporate within 3 days.
–	–	–	–	–	–	–	0.75–1	–	–	–	–	–	–
–	–	–	–	–	–	–	0.75	–	–	–	–	–	Phytotoxicity considerations. Do not use on irrigated barley.
–	–	–	1.25	–	–	–	–	–	–	1.25(S)	–	1.25	Do not sow barley with disc seeders.
–	–	–	–	–	–	–	–	–	–	–	–	0.9 or 1.4	Incorporation method influences rate.
–	–	–	–	–	–	–	–	–	–	–	–	1.35	–
–	–	–	–	–	–	–	118	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	40–50	–	40–50	IMI varieties only. *Grain export restrictions apply.
–	–	–	–	–	–	–	–	–	–	–	25	25*	*Add trifluralin.
–	0.86–1.2	–	0.86–1.2	–	–	–	0.86–1.2	0.86–1.2	–	–	0.86–1.2	0.86–1.2	Low rate on light and/or high pH soil.
–	30	–	30	35	–	30(S)	–	30	–	35(S)	10–15* or 30	10–15* or 35	*Add trifluralin.
–	–	–	–	–	–	–	–	–	–	–	–	0.8	–
–	–	–	–	1.5–3	–	–	–	–	–	–	–	1.5–3	Rates vary depending on mix partner. Do not add tri-allate on oats.
–	–	–	120(S)	120(S)*	–	–	120(S)	–	–	120(S)	–	120*	*Add trifluralin and tri-allate.
–	200* or 240^	–	200* or 240^	–	–	200* or 240^	200* or 240^	200* or 240^	–	200* or 240^	200* or 240^	200* or 240^	*Apply 0–7 days before sowing. ^Apply 7–21 days before sowing.

Table 18. Herbicides for grass weed control in wheat and barley – early post-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Wild oats	Comments. Always refer to the label.
Grass control products. High levels of herbicide resistance to Groups 1 and 2 selective herbicides are common in most grass weeds. Do not rely on these products as your only management tool. Ensure you have an integrated weed management (IWM) plan in place. It is recommended to get your weeds tested for resistance; consult your advisor for location specific information.											
Achieve® WG (tralkoxydim 400)	1	12–22	g/ha	50–150	380–500	–	–	–	380–500(S)	300–500	Rate is influenced by crop and weed size. Adjuvant MOS.
Arcade® (prosulfocarb 800)	15	11–25	L/ha	>70	3(S)	–	–	–	–	–	–
Atlantis® OD (mesosulfuron-methyl 30), **wheat only**	2	>13	mL/ha	50–80	330(S)	330(S)	330(S)	–	330	330	Adjuvant NIS or MSO.
Axial® Xtra (pinoxaden 50 + cloquintocet-mexyl 12.5)	1	12–49	L/ha	50–100	0.5–0.6(S)	–	–	–	0.4–0.5	0.3–0.4	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	00–25	L/ha	>50	2.5–3(S)	–	–	–	–	–	–
Cheetah® Gold (diclofop-methyl 200 + sethoxydim 20 + fenoxaprop-p-ethyl 13.6)	1	12–22	L/ha	50–150	1	–	–	–	1(S)	1	Adjuvant MOS or MSO.
Decision® (diclofop-methyl 200 + sethoxydim 20)	1	12–21	L/ha	50–150	1	–	–	–	–	–	Adjuvant MOS, MO or MSO.
Diclofop-methyl 375	1	W 12–21 B 15–21	L/ha	80	1	–	–	–	–	1.5–2	–
Foxtrot® (fenoxyprop-p-ethyl 69 + cloquintocet-mexyl 34.5)	1	W 12–21 B 15–21	L/ha	80	–	–	–	–	0.635–0.8	0.475–0.635	–
Mandate® (clodinafop-propargyl 240 + cloquintocet-mexyl 60)	1	12–24	mL/ha	50–100	160–210	–	–	–	85–160	65–125	Adjuvant MSO, MO or MOS.
CoAXium tolerant barley											
Aggressor® AX (quizalofop-p-ethyl 185 + cloquintocet-mexyl 20)	1	12–29	mL/ha	>70	200	100	200	100	–	100	Do not apply to non-aggressor barley varieties. Must use with an adjuvant: MSO or NIS.

B = barley, W = wheat, (S) = suppression.
MO = mineral oil, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
Read the label before using a product.

Seasonal Conditions Monitoring Program

State Seasonal Update: Conditions & Outlook

The **State Seasonal Update** is produced monthly and is the official point of reference of seasonal conditions across NSW for producers, government, stakeholders and the public.

Combined Drought Indicator: Latest NSW Drought Maps

Is an interactive tool that provides a snapshot of current seasonal conditions for NSW, factoring in rainfall, soil moisture and pasture/crop growth indices.

Seasonal Conditions Information Portal

Uses a technology that allows fast, stable transfer of data and information direct from the EDIS system to your computer. The portal contains several downloadable features from the **NSW Combined Drought Indicator.**

Farm Tracker Mobile Application

Farm Tracker is a tool you can use to record seasonal conditions. You can:

1. Complete a simple crop, pasture or animal survey
2. Keep and manage a photo diary of your farm
3. Monitor the same paddock over many years

Have your say

Complete this survey and tell us what is important to you as we continue to improve our Seasonal Conditions monitoring program. Eg. improved local accuracy of data and climate networks, better ways of communicating, or strengthening linkages to drought management and relief measures.

Department of Primary Industries and Regional Development

www.dpi.nsw.gov.au

NSW GOVERNMENT

Table 19. Herbicides for grass and broadleaf weed control in wheat and barley – early post-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Bindweed – black	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer
Chlorsulfuron 750	2	W 00, B >12	g/ha	>30	15–25	–	–	–	–	–	15	20	–	–	15	–
Frequency® (topramezone 60 + cloquintocet-mexyl 60)	27	12–32	mL/ha	80–150	–	–	–	–	–	200(S)	–	200	–	200	200	–
Hussar® OD (idosulfuron-methyl 100 + mefenpyr-dimethyl 300)	2	13–25	mL/ha	50–80	75–100(S)	–	–	75–100(S)	–	75–100(S)	–	75(S)	–	–	75	–
Intercept®/Intervix® (imazamox 33 + imazapyr 15)	2	W 13–31 B15–31*	L/ha	>70	0.6–0.75(S)	0.375–0.75	0.375–0.75	–	0.6–0.75(S)	0.375–0.75	–	–	–	–	0.6–0.75	–
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	32 + 15 + 12	W 11–23 **(not durum)**	L/ha	70–100	0.75–1	1(S)	–	–	0.75–1	–	–	–	0.75(S) or 1	1	–	–
		B 13–23	L/ha	70–100	0.75	–	–	–	0.75	–	–	–	0.75(S)	–	–	–
Rexade® (pyroxsulam 150 + halauxifen 50), **wheat only**	2 + 4	13–31	g/ha	80–100	100(S)	100(S)	100	100	100(S)	100	–	100*	100	100*	–	100
Sentry® (imazapic 525 + imazapyr 175)	2	W 14–37*	g/ha	>70	40(S)	40	40	40	40(S)	40	40	40	40	40	–	–
Sulfosulfuron 750, **wheat only**	2	11–15/22	g/ha	40–100	–	25(S)	20 or 25(S)	–	25	25(S)	25	–	20	–	–	–

B = barley, W = wheat, CL = Clearfield, IMI = imidazolinone-tolerant, (S) = suppression.

MSO = methylated seed oil, NIS = non-ionic surfactant.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

grasses broadleaf weeds

Read the label before using a product.

Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Comments. Always refer to the label.
15	–	–	20	–	15 or 20	–	–	20	–	–	20	Rate, plantbacks and crop safety are heavily influenced by soil pH.
–	–	–	–	–	200	–	–	–	–	200	200	Must be used with bromoxynil or MCPA LVE. Adjuvant MSO.
–	100(S)	75	75(S)	75(S)	75	–	–	–	75(S)	–	75	Do not apply to barley unless no other weed control option is viable. Adjuvant NIS 1000.
–	0.6–0.75(S)	–	–	–	–	–	–	–	–	–	0.6–0.75	Add MCPA LVE or clopyralid to enhance control. Adjuvant MSO. *CL Plus wheat and CL barley only.
0.75	–	–	–	0.75	1	–	–	–	–	–	1	–
0.75	–	–	–	0.75	–	–	–	–	–	–	–	Phytotoxicity considerations. Do not use on irrigated barley.
–	100	–	–	–	100	–	100	–	100	100*(S)	100	Adjuvant NIS 1000. *Requires mix partner.
–	40	40	40	40	40	40(S)	–	–	40(S)	–	40	Add MCPA LVE to enhance control. Adjuvant MSO. *Single gene IMI wheat only.
–	–	–	–	–	–	–	–	–	20	–	–	Adjuvant MSO. Rate, plantbacks and crop safety are heavily influenced by soil pH.

Table 19. Herbicides for grass and broadleaf weed control in wheat and barley – early post-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Lentil – volunteer	London rocket	Loosestrife	Lupin – volunteer	Marshmallow	Medic	Mustards	Paterson's curse	Prickly lettuce	Rough poppy	Scarlet pimpernel
Chlorsulfuron 750	2	W 00, B >12	g/ha	>30	–	–	–	–	–	–	15	15	–	20	15
Frequency® (topramezone 60 + cloquintocet-mexyl 60)	27	12–32	mL/ha	80–150	–	–	–	–	–	–	–	–	–	–	200
Hussar® OD (idosulfuron-methyl 100 + mefenpyr-dimethyl 300)	2	13–25	mL/ha	50–80	–	–	–	75	–	75	75	100	–	–	–
Intercept®/Intervix® (imazamox 33 + imazapyr 15)	2	W 13–31 B 15–31*	L/ha	>70	–	–	–	–	0.6–0.75	–	0.375–0.75	–	–	–	–
Mateno® Complete (aclonifen 400 + pyroxasulfone 100 + diflufenican 66)	32 + 15 + 12	W 1–23 (not durum)	L/ha	70–100	–	–	0.75(S) or 1	–	–	–	0.75	–	0.75–1	–	–
		B 13–23	L/ha	70–100	–	–	0.75(S)	–	–	–	0.75	–	0.75	–	–
Rexade® (pyroxsulam 150 + halauxifen 50), **wheat only**	2 + 4	13–31	g/ha	80–100	100	–	–	100(S)	100*(S)	100	100*	–	100*	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	W 14–37*	g/ha	>70	–	20 or 40	–	–	–	40(S)	20–40	40	40(S)	–	–
Sulfosulfuron 750, **wheat only**	2	11–15/22	g/ha	40–100	–	–	–	–	–	–	25(S)	–	–	–	–

B = barley, W = wheat, CL = Clearfield, IMI = imidazolinone-tolerant, (S) = suppression.
MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Shepherd's purse	Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
20	20	–	–	–	–	–	–	15	–	15 or 20	15	20	Rate, plantbacks and crop safety are heavily influenced by soil pH.
200	–	200	–	200	200	–	–	200	200	200	200	200	Must be used with bromoxynil or MCPA LVE. Adjuvant MSO.
75	–	100(S)	100	–	–	–	75(S)	75	75(S)	100	75	75	Do not apply to barley unless no other weed control option is viable. Adjuvant NIS 1000.
–	–	–	0.6–0.75(S)	0.6–0.75(S)	0.6–0.75	–	–	–	–	0.375–0.75	0.375–0.75	–	Add MCPA LVE or clopyralid to enhance control. Adjuvant MSO. *CL Plus wheat and CL barley only.
–	–	1	1(S)	–	–	–	0.75–1	–	–	1	–	0.75(S)	–
–	–	–	–	–	–	–	0.75	–	–	–	–	0.75(S)	Phytotoxicity considerations. Do not use on irrigated barley.
–	–	100*	100*	–	100	–	–	100	100(S)	100*	–	100	Adjuvant NIS 1000. *Requires mix partner.
20–40	–	40(S)	40	–	–	40	–	–	40(S)	20–40	40	40	Add MCPA LVE to enhance control. Adjuvant MSO. *Single gene IMI wheat only.
–	–	–	–	–	–	–	–	–	–	20	20	–	Adjuvant MSO. Rate, plantbacks and crop safety are heavily influenced by soil pH.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 1 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Amsinckia	Bindweed – black	Blackberry nightshade	Boggabri weed	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	–	–	0.5	–	–	–	0.5	–	–	–	–	–
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	–	–	–	–	–	2.1–3.2	2.1–3.2	–	–	–	–	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	85	–	–	85–100	85	–	–	–	85–100*	–	85–100
Agtryne® MA (terbutryn 275 + MCPA 160)	5 + 4	13–15	L/ha	50–100	1	–	–	–	–	1	1	–	–	–	–	1
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	5 + 14	13–25	g/ha	50–150	–	–	–	–	–	200	–	–	–	–	–	–
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50	5 or 7	–	–	–	–	–	5	5	5	–	5	–
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50	0.75–1	1–1.4	–	–	1.4	0.75–1	–	–	–	–	–	1–1.4
Broadstrike® (flumetsulam 800)	2	W 13–31, B 21–31	g/ha	50–150	25	–	–	–	25	25*	25	–	–	–	–	–
Bromoxynil 200	6	12–31	L/ha	50–200	0.63*	0.525* or 0.7 * or 0.9–1.2^	–	–	0.525*	0.525* or 0.9–1.2^	0.9–1.2^	0.525*	–	0.7*	–	0.525*
	6	13–30	L/ha	50–200	1.4–2.1	1.4–2.1	–	–	–	1.4–2.1	–	–	–	1.4–2.1	–	1.4–2.1
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	1–1.43	1–1.43	–	–	–	1–1.43	1–1.43	–	–	0.54	–	1–1.43
Condor® (MCPA 375 + pyraflufen-ethyl 10)	4 + 14	12–29	L/ha	80–150	–	–	–	–	0.8–1.6	0.8–1.6	–	–	–	0.8–1.6	–	–
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100	0.75	0.5–1	–	–	0.5–0.75	0.5–1	0.5–0.75	–	1(S)	–	–	0.5–0.75
Diuron 900	5	12–22	kg/ha	40–70	0.5	–	–	–	–	0.5	0.5	–	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	12–29	L/ha	70–150	–	–	–	–	0.2–0.4	0.2–0.4	–	0.2*	0.2*	0.2–0.4	–	–
Enforcer® 242 (MCPA 420 + picloram 26)	4	22–30	L/ha	>50	–	1	–	–	–	–	–	–	–	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	–	0.3	–	–	–	–	–	–	–	–	–	–
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	–	–	–	–	0.36	0.36–0.72	0.36–0.72	–	–	–	–	0.72
Galaxy® (pyrasulfotole 75)	27	12–31	mL/ha	50–150	300	250–335	–	–	250	250	–	250	–	335	–	250
	27	13–31	mL/ha	50–150	300^ or 500*	250–335^	–	–	250^ or 335*	250^ or 250^# or 335*#	–	335* or 335^	–	335^ or 500*	–	250^ or 335*
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	–	20–32	–	22	–	–	–	–	–	–	16	–
	4	13–31	mL/ha	50–100	–	–	–	–	–	–	–	20	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	13–31	L/ha	>80	–	0.5–0.75	–	–	–	–	–	0.75	–	–	–	–
Igran® (terbutryn 500)	5	13–21	L/ha	50–100	0.55–0.85^ or 0.85	0.44*	–	–	–	0.55–0.85^ or 0.85	0.55–0.85*	–	–	–	–	0.55–0.85^ or 0.6* or 0.85
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	12–30	mL/ha	70–150	–	–	–	–	–	110	–	–	–	–	–	–

Read the label before using a product.

Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	Comments. Always refer to the label.
–	–	–	–	–	0.5	–	–	0.5	–	–	–	Do not exceed 0.5 L/ha on young cereals.
–	–	2.1–3.2	–	–	2.1–3.2	–	–	2.1–3.2	–	–	–	–
85	–	–	85–100	85*	–	85*	–	85	–	–	85*	Add MCPA 750. *Add dicamba.
1	1.5	–	–	–	1	–	–	1	1	–	–	–
–	–	–	–	–	–	–	–	200	–	–	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	5	5 or 7	–	–	–	7	–	5	–	–	–	Tank mix partners will broaden the weed spectrum.
–	–	0.75–1	–	–	–	–	–	1–1.4	–	–	–	Rate increases with crop growth stage.
–	25(S)*	–	–	–	25–50	–	–	–	–	–	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
–	0.525* or 0.9–1.2^	–	–	0.525*	–	0.7*	0.9–1.2^	0.525* or 0.9–1.2^	–	–	0.525*(S)	Can cause transient yellowing. *Add Galaxy and MSO. ^Add Frequency® and MSO.
–	–	–	–	–	1.4–2.1	–	–	2.1	–	–	–	2,4-D amine or MCPA LVE might assist. Do not spray if temperature is >20 °C.
–	–	–	–	–	1–1.43	–	–	1–1.43	1–1.43	–	–	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	–	–	0.8–1.6	–	–	–	–	–	–	–	–	Adjuvant NIS. Can cause some phytotoxicity.
–	0.5–0.75	–	0.5–0.75(S)	–	1	0.75(S)	–	0.75(S)	1(S)	–	–	Can cause transient yellowing.
–	0.5	–	–	–	–	–	–	–	0.5	–	–	–
–	0.2*	–	0.2–0.4	0.2*	–	–	–	0.2*	–	–	–	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	0.3	–	–	–	–	0.3	–	0.3*	–	–	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
0.36–0.54	0.72(S)	–	–	–	–	–	–	0.54–0.72(S)	–	–	–	Rate increases with weed size and crop growth stage.
–	250	–	–	250	–	335	–	250	–	–	250(S)	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
–	250^ or 500*	–	–	250^ or 250^# or 335*#	–	335* or 335*# or 335^ or 335^#	–	250^ or 335*	–	–	335*# or 335^#	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid. †Add bromicide 200.
–	16–32	16 or 22	–	16–32	–	32	32	–	–	–	–	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	–	20	–	20	–	–	–	–	–	Southern NSW only. Add fluroxypyr.
	0.5–0.75*	–	–	0.75	–	0.75	0.75*	–	–	–	–	Northern NSW only. *Add a mix partner.
0.44–0.6*	0.44–0.6* or 0.85	–	–	0.44*	–	0.44 –0.6*	–	0.3–0.44* or 0.55–0.85^ or 0.85	0.55–0.85^	–	–	*Add triasulfuron. ^Add MCPA amine or 2,4-D amine.
–	–	–	–	–	–	–	–	–	–	–	–	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 2 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Amsinckia	Bindweed – black	Blackberry nightshade	Boggabri weed	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	–	1.7	–	–	–	1–1.7	1–1.7	–	1.7	–	1.7	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	–	185	–	–	–	105* or 185^	105* or 185^	–	0.185^	–	0.185	–
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	–	–	–	–	0.5	0.5–1	0.5–1	–	1(S)	–	–	1
Lontrel® Advanced (clopyralid 600)	4	12–30	mL/ha	50–100	–	–	–	–	–	125–150 or 50–150*	–	50* or 125	–	–	–	–
MCPA amine 750	4	12–14	L/ha	30–120	0.33	–	–	–	–	0.33	0.33	–	–	–	–	0.33
	4	15–37	L/ha	30–120	–	0.97–1.35	–	–	0.66–0.96	1.45	0.66	–	–	–	–	–
MCPA LVE 570	4	13–32	L/ha	30–120	–	–	–	–	1.3	1.49 wheat only	0.44–1.4	–	–	–	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50	–	0.67 or 0.7	–	–	–	–	–	–	–	0.8* or 0.9–1	–	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100	–	–	–	–	25*	25*(S)	–	25*	–	25*	–	–
Picoflex® (Picloram 240)	4	22–31†	mL/ha	50–100	–	95# or 110^	–	–	–	–	–	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	0.4–0.6	–	–	–	–	–	0.4	–	0.4	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	W 13–31, B 15–31	L/ha	50–100	1.5–2	–	–	–	1–2	1*	–	1*	–	1.5–2	–	1–2
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	25	15–25	–	–	25	15–25	25	15–25	–	15–25	–	25
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	0.8–1	1–1.2	–	–	0.6	0.6–1.2	0.6–1.2	–	1(S)	0.8–1	–	0.8–1
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100	–	10# or 14	–	14	–	–	–	10	–	–	–	–
Sencor® (metribuzin 480), **barley only**	5	B 13–8 weeks	L/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–
Starane® Advanced (fluroxypyr 333)	4	13–39	L/ha	>50	–	0.3(S) or * or 0.45	–	–	–	–	–	–	–	0.3–0.6	–	–
Talinor® (bromoxynil 175 + bicyclopyrone 37.5 + cloquintocet-mexyl 9.4)	6 + 27	12–32	L/ha	75–150	–	0.5–1	–	–	0.5–1	0.5–1	0.5–1	0.5–0.75	0.75	0.75–1(S)	–	0.5–0.75
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	4	13–31	mL/ha	>80	–	200*	–	–	–	–	–	200	–	200*	–	–
Triasulfuron	2	13–22	g/ha	30–100	–	10*	–	–	–	–	–	–	–	–	–	–
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	–	–	–	–	0.5	0.5–1	–	–	1(S)	–	–	1
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150	0.6–1	0.5–1	–	–	0.5–1	0.5–1	–	0.5–1(S)	–	0.6–1	–	0.5–1

B = barley, W = wheat, (S) = suppression only.
AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, UAN = urea ammonium nitrate.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	Comments. Always refer to the label.
–	–	1–1.7	–	–	1.7	–	–	–	1–1.7	–	–	–
–	–	105* or 185	–	–	0.185	–	–	–	0.105* or 0.185	–	–	Refer to label for growth stages and mix partner combinations. *Add MCPA amine. ^Add MCPA or 2,4-D amine.
0.5–0.75	1	1(S)	1(S)	–	1(S)	–	–	0.75	1(S)	1(S)	–	Rate increases with crop growth stage and weed size. Add MCPA for radish control.
–	–	–	–	50* or 125	–	40–50* or 70	150	–	–	–	125	Weed size and mix partner determine rates and timing. *There are many mix partners.
–	0.33	–	0.33	–	–	–	–	–	–	–	–	Add diuron 900 to control small weeds.
–	1.45	–	–	–	0.66–1.35	–	–	0.93	0.8	–	–	Rate increases with crop growth stage and weed size.
–	0.44–0.6*	–	–	–	0.88–1.4	–	–	0.44–0.6* or 0.965	–	–	–	Rate increases with crop growth stage and weed size. *Add mix partner.
	0.5^ or 0.8	–	0.8*	–	0.5^	0.5^	–	0.8	–	–	–	Add Uptake® or an NIS. *Add MCPA LVE. ^Add a tank mix partner.
–	25	–	–	25*	–	25*	25*	25	–	–	25*	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
–	–	95#	–	–	–	–	–	–	95#	–	–	†Growth stage determined by mix partner. ^Add MCPA 750. #Add 2-4,D amine.
–	0.2–0.3	–	–	–	–	–	0.3	0.3	–	–	–	Adjuvant MOS.
0.6–1.2	1.5–2	–	–	1*	–	1–2 or 1*	–	1–2	–	–	1*	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
–	25	–	25	15–25	25	20–25	–	15–25	25	–	15–25	Must be tank mixed with another herbicide. Weed size and mix partner dictate rate. *Mix partner dictates growth stage.
–	0.8–1	1(S)	–	–	0.8–1	–	–	0.8–1.2	0.8–1.2	1(S)	–	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
–	10	10 or 14	–	10	–	–	–	–	–	–	–	Northern NSW only. ^Growth stage for stand-alone use only. #Add MCPA + picloram.
–	–	–	–	–	–	–	–	–	–	–	–	–
–	0.3* or 0.9	–	–	–	–	–	–	–	–	–	–	Adjuvant: weed specific. *Add metsulfuron-methyl (not durum).
–	0.5–0.75	–	0.75–1	0.5–0.75	–	0.5–0.75	0.75–1(S)	0.5–0.75	–	–	0.5–0.75	Do not mix with UAN or AMS fertilisers. Adjuvant MSO.
–	200	–	–	200	–	200	200	200	–	–	–	Adjuvant MOS. *Add fluroxypyr.
–	10–13*	–	–	10*	–	10*	–	–	–	–	–	*Add terbutryn.
0.5–0.7	1	1(S)	1(S)	–	1(S)	–	–	0.75	1(S)	1(S)	–	Can cause transient yellowing.
–	0.5–1	–	–	0.5–1	–	0.5(S) 0.67–1	–	0.5–1	–	–	0.5–1(S)	Add MCPA LVE for improved control.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 3 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Pigweed
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	–	–	–	–	–	–	–	0.5	–	–	–	–
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	–	–	–	–	2.1–3.2	–	2.1–3.2	2.1–3.2	–	2.1–3.2	–	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	–	–	85*	65–100	–	–	85–100	–	65–100	–	–
Agtryne® MA (terbutryn 275 + MCPA 160)	5 + 4	13–15	L/ha	50–100	–	–	–	–	–	–	–	1–1.5	–	1	–	–
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	5 + 14	13–25	g/ha	50–150	–	–	–	–	200	–	–	200	–	–	–	–
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50	–	–	–	5	–	5	–	5	–	5 or 7	–	–
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30*	L/ha	>50	–	–	–	–	–	–	–	0.75–1	–	–	–	–
Broadstrike® (flumetsulam 800)	2	W 13–31, B 21–31	g/ha	50–150	–	–	–	25	15/25*	–	–	25	–	25(S) or 25*	25(S) or 25*	–
Bromoxynil 200	6	12–31	L/ha	50–200	–	–	0.525*	0.525*	–	0.7*	–	0.525*	–	0.525*	–	–
	6	13–30	L/ha	50–200	–	–	–	–	–	–	2.1	2.1	–	2.1	–	–
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	–	–	–	–	–	–	1–1.43	1–1.43	–	1–1.43	1–1.43	–
Condor® (MCPA 375 + pyraflufen-ethyl 10)	4 + 14	12–29	L/ha	80–150	–	–	–	0.8–1.6	0.8–1.6	–	–	0.8–1.6	–	–	–	–
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100	–	–	–	0.5–1(S)	–	–	–	0.5–1	–	0.5–0.75	1.1	–
Diuron 900	5	12–22	kg/ha	40–70	–	–	–	–	–	–	–	0.5	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	12–29	L/ha	70–150	–	–	–	0.2–0.4	–	0.2*	–	0.2–0.4	–	0.2*	–	–
Enforcer® 242 (MCPA 420 + picloram 26)	4	22–30	L/ha	>50	–	–	–	–	–	–	–	1	1(S)	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	–	–	–	–	–	–	–	0.3*	0.3	–	–	–
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	–	–	–	0.72(S)	–	–	–	0.36–0.72	–	–	–	–
Galaxy® (pyrasulfotole 75)	27	12–31	mL/ha	50–150	–	–	250	250	–	335	–	250	–	250	–	–
	27	13–31	mL/ha	50–150	–	–	250^	250^ or 335*	–	335^ or 670*	–	250^ or 335*	–	250^ or 335*	–	–
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	–	–	–	–	–	16	–	16	22	–	–	16 or 22
	4	13–31	mL/ha	50–100	–	–	–	20	–	–	–	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	13–31	L/ha	>80	–	–	–	–	–	–	–	–	–	–	–	–
Igran® (terbutryn 500)	5	13–21	L/ha	50–100	0.3–0.44^	0.44*	–	0.55–0.85^ or 0.6*	–	0.44*	0.44–0.6*	0.3–0.44* or 0.55–0.85^	–	0.3* or 0.55–0.85^ or 0.85	–	–

B = barley, W = wheat, (S) = suppression only.

AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, UAN = urea ammonium nitrate.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Comments. Always refer to the label.
–	–	0.5	–	–	–	–	–	–	–	–	0.5	–	Do not exceed 0.5 L/ha on young cereals.
2.1–3.2	2.1–3.2	–	–	2.1–3.2	–	–	2.1–3.2	2.1–3.2	2.1–3.2	–	2.1–3.2	–	–
–	85	85	–	85	–	–	85	85	85	65–85	–	85–100	Add MCPA 750. *Add dicamba.
–	–	1	1.5	–	–	–	–	1.5	–	–	1.5	1.5	–
–	200	–	–	200	–	–	–	–	–	200	–	200	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	–	5	–	5	7(S)	5	5	5 or 7	–	–	–	–	Tank mix partners will broaden the weed spectrum.
–	–	–	–	–	–	–	–	0.75–1	–	–	–	–	*Rate increases with crop growth stage.
–	–	–	–	25	–	–	–	25*	–	–	–	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
–	0.525*	–	0.9–1.2^	0.525* or 0.9–1.2^	–	–	0.525* or 0.9–1.2^	0.525*	0.9–1.2^	0.9–1.2^	0.7*	–	Can cause transient yellowing. *Add Galaxy and MSO. ^Add Frequency® and MSO.
–	–	1.4	–	1.4–2.1	–	1.4–2.1	1.4–2.1	2.1	–	–	1.4–2.1	–	2,4-D amine or MCPA LVE might assist. Do not spray if temperature is >20 °C.
–	–	1–1.43	–	1–1.43	–	–	1–1.5	1–1.43	–	–	1–1.43	–	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	0.8–1.6	–	–	–	–	–	–	–	–	–	–	–	Adjuvant NIS. Can cause some phytotoxicity.
–	1(S)	0.5–0.75	–	1	1(S)	1(S)	1(S)	0.5–0.75	–	–	1	1(S)	Can cause transient yellowing.
–	–	–	–	–	–	–	–	0.5	–	–	0.5	–	–
–	0.2–0.4	–	–	–	–	0.2*	0.2*	0.2*	–	0.2*	–	–	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
–	–	–	–	–	1	–	1	1	–	–	1	–	–
–	–	–	–	–	–	–	0.3	0.3	–	–	0.3 or 0.3*	–	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
–	0.3–0.72	–	–	0.36–0.72	–	–	0.72(S)	0.72(S)	–	–	0.72	0.72	Rate increases with weed size and crop growth stage.
–	250	–	–	250	–	–	250	250	–	–	335	–	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
–	250^ or 335*	–	–	250^	–	–	250^ or 335*	250^ or 500*	–	335*# or 335^#	335^	–	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid.
–	16–32	–	–	–	–	–	20–32	16–32	–	–	16–32	–	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	–	–	–	–	–	–	–	–	–	–	Southern NSW only. Add fluroxypyr.
–	0.75	–	–	–	–	–	0.5–0.75*	0.5–0.75*	–	–	0.5–0.75*	–	Northern NSW only. *Add a mix partner.
–	0.44*	0.55–0.85^ or 0.85	–	0.44*	–	–	0.85	0.55–0.85^ or 0.6*	–	–	–	0.55–0.85^ or 0.85	*Add triasulfuron. ^Add MCPA amine or 2,4-D amine.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 4 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Pigweed
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	12–30	mL/ha	70–150	–	–	–	–	–	–	–	–	–	–	–	–
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	–	–	–	–	–	–	–	1–1.7	1.7	–	–	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	–	–	–	–	–	–	–	105* or 185^	185	–	–	–
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	–	1(S)	–	1(S)	–	–	–	0.5–1	–	1(S)	1(S)	–
Lontrel® Advanced (clopyralid 600)	4	12–30	mL/ha	50–100	–	–	75	50* or 125	–	50* or 75	–	–	–	–	–	–
MCPA amine 750	4	12–14	L/ha	30–120	–	–	–	0.46	–	–	–	0.33–0.46	–	–	–	–
	4	15–37	L/ha	30–120	–	–	–	–	–	–	–	0.66	–	0.66–0.96	–	–
MCPA LVE 570	4	13–32	L/ha	30–120	0.965	–	–	–	–	–	–	0.49–0.88	–	1.49 wheat only	–	–
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50	–	–	–	–	0.67 or 0.7	–	–	0.8*	–	–	–	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100	–	25*	–	25*	25	25*	25	25*	–	–	–	–
Picoflex® (picloram 240)	4	22–31†	mL/ha	50–100	–	–	–	–	–	–	–	95# or 110^	85* or 95# or 110(S)^	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	–	–	–	0.3	0.3	0.2–0.3	–	–	–	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	W 13–31, B 15–31	L/ha	50–100	–	–	–	1–2	–	1* or 2	–	1–2	–	1–2	–	–
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	–	–	–	20–25	25	15–25	15–25	15–25	15	25	–	15
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	0.8–1	1(S)	–	1(S)	1(S)	–	0.8–1	0.6–1.2	–	0.8–1.2	1.2	–
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100	–	–	–	–	–	10	–	10	14	–	–	10 or 14
Sencor® (metribuzin 480), **barley only**	5	B 13–8 weeks	L/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–
Starane® Advanced (fluroxypyr 333)	4	13–39	L/ha	>50	–	–	–	0.9	–	–	–	0.3–0.9*	–	–	–	–
Talinor® (bromoxynil 175 + bicyclopyrone 37.5 + cloquintocet-mexyl 9.4)	6 + 27	12–32	L/ha	75–150	–	–	0.5–0.75	0.5–0.75	–	0.5–0.75	–	0.5–1	–	0.5–0.75	–	–
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	4	13–31	mL/ha	>80	–	–	–	–	200*	200	200	–	–	–	–	–
Triasulfuron	2	13–22	g/ha	30–100	6.5*	–	–	–	–	10*	10–13*	6.5–10*	–	–	–	–
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	–	1(S)	–	1(S)	1(S)	–	–	0.5–1	–	1(S)	1(S)	–
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150	–	–	0.5–1	0.5–1	–	0.5(S) 0.67–1	–	0.5–1	–	0.5–1	–	–

B = barley, W = wheat, (S) = suppression only.
AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, UAN = urea ammonium nitrate.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Comments. Always refer to the label.
–	–	–	–	–	–	–	110	–	–	–	–	–	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
1.7	–	–	–	–	–	1–1.7	–	1–1.7	–	–	1–1.7	–	–
–	–	–	–	–	–	1	–	105* or 185	–	–	185^	–	Refer to label for growth stages and mix partner combinations. *Add MCPA amine. ^Add MCPA or 2,4-D amine.
–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–	1(S)	1(S)	–	–	1	1	Rate increases with crop growth stage and weed size. Add MCPA for radish control.
–	50–75*	–	–	–	250*	–	50*	–	–	50*	25–50* or 125	–	Weed size and mix partner determine rates and timing. *There are many mix partners.
–	–	–	0.3	–	–	–	–	0.33	–	–	–	–	Use the lower rate and add diuron 900 to control small weeds.
1.35	–	0.46–0.96	–	–	0.96–1.35	–	–	–	–	–	0.66–1.35	–	Rate increases with crop growth stage and weed size.
–	–	–	–	0.44–0.6*	0.965–1.4	–	0.44–0.6*	–	0.44–0.6*	–	0.74–1.4	–	Rate increases with crop growth stage and weed size. *Add mix partner.
–	0.5^	–	–	0.8*	–	–	0.5–0.8*	0.5^ or 0.8	–	–	0.5^	–	Add Uptake® or an NIS. *Add MCPA LVE. ^Add a tank mix partner.
–	25*	–	–	25*	–	–	25*	25*	–	25 or 25*	–	25(S)	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
–	–	–	–	–	110^	–	85* or 95# or 110(S)^	95# or 110^	–	–	95# or 110^	–	†Growth stage determined by mix partner. *Add MCPA 750, metsulfuron and NIS 1000. ^Add MCPA 750. #Add 2-4,D amine.
–	0.4	–	–	–	–	–	0.4	–	–	0.3	–	–	Adjuvant MOS.
–	1–2	–	–	–	–	–	1–2	1.5–2(S)	–	1*	–	–	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
–	15–25	25	–	20–25	15–25	–	15–25	15–25	–	25	15–25	–	Must be tank mixed with another herbicide. Weed size and mix partner dictate rate. *Mix partner dictates growth stage.
–	0.6–1.2	0.8–1.2	1(S)	0.6–1.2	1(S)	0.8–1	1.2	0.8–1.2	–	–	0.8–1.2	0.8–1	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
–	10 or 14	–	–	–	–	–	–	10 or 14	–	10	10*	–	Northern NSW only. *Add MCPA LVE 570. ^Growth stage for stand-alone use only.
–	–	–	–	–	–	–	–	–	–	–	–	0.15	–
–	0.3	–	–	0.3–0.9*	–	–	0.6	0.3* or 0.9	–	–	–	–	Adjuvant: weed specific. *Add metsulfuron-methyl (not durum).
–	0.5–0.75	–	–	0.5–0.75	–	–	0.5–0.75	0.5–1	–	0.5–0.75	0.75–1	–	Do not mix with UAN or AMS fertilisers. Adjuvant MSO.
–	200*	–	–	–	–	–	200^	200^	–	200	200^	–	Adjuvant MOS. *Add fluroxypyr. ^Add fluroxypyr + MCPA LVE.
–	–	–	–	10*	–	–	–	–	–	–	–	–	*Add terbutryn.
–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–	1(S)	1(S)	–	–	1(S)	1	Can cause transient yellowing.
–	0.5–1	–	–	0.5–1	–	–	0.5–1	0.5–1	–	–	0.67–1	–	Add MCPA LVE for improved control.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 5 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	0.5	–	–	0.5	–	Do not exceed 0.5 L/ha on young cereals.
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	2.1–3.2	–	–	2.1–3.2	2.1–3.2	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
Agtryne® MA (terbutryn 275 + MCPA 160)	5 + 4	13–15	L/ha	50–100	1	–	–	1	1.5	–
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	5 + 14	13–25	g/ha	50–150	200	–	200	200	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50	5	–	–	5	5 or 7	Tank mix partners will broaden the weed spectrum.
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50	–	–	0.75–1	–	0.75–1	Rate increases with crop growth stage.
Broadstrike® (flumetsulam 800)	2	W 13–31, B 21–31	g/ha	50–150	15–25	–	15* or 25(S)	15–25	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
Bromoxynil 200	6	12–31	L/ha	50–200	0.525* or 0.9–1.2^	0.525*(S) or 0.9–1.2^	0.525* or 0.7* or 0.9–1.2^	0.525*	0.7* or 0.9–1.2^	Can cause transient yellowing *Add Galaxy and MSO. ^Add Frequency® and MSO.
	6	13–30	L/ha	50–200	2.1	–	2.1	2.1	2.1	2,4-D amine or MCPA LVE might assist. Do not spray if temperature is >20 °C.
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	1–1.43	–	1–1.43	1–1.43	1–1.43	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
Condor® (MCPA 375 + pyraflufen-ethyl 10)	4 + 14	12–29	L/ha	80–150	–	–	0.8–1.6	0.8–1.6	–	Adjuvant NIS. Can cause some phytotoxicity.
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100	0.5–0.75	1(S)	0.5–1 or 0.5*	0.5–0.75	1	Can cause transient yellowing. *Add MCPA LVE.
Diuron 900	5	12–22	kg/ha	40–70	–	–	0.5	0.5	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	12–29	L/ha	70–150	0.2*	–	0.15–0.4	0.2–0.4	0.2*	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
Enforcer® 242 (MCPA 420 + picloram 26)	4	22–30	L/ha	>50	1	–	1	1	1(S)	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	0.3*	–	0.3*	0.3*	0.3*(S)	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	0.36–0.72	–	0.36–0.72	0.36–0.72	–	Rate increases with weed size and crop growth stage.
Galaxy® (pyrasulfotole 75)	27	12–31	mL/ha	50–150	250	250	250 or 335	250	335	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
	27	13–31	mL/ha	50–150	250^ or 335*	335*# or 335^#	250–670^ or 335–670*	250^ or 335*	335* or 335^	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid.
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	16	32	–	16	16–32	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
	4	13–31	mL/ha	50–100	–	20	–	–	–	Southern NSW only. Add fluroxypyr.
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	13–31	L/ha	>80	–	0.75	–	–	0.5–0.75*	Northern NSW only. *Add a mix partner.
Igran® (terbutryn 500)	5	13–21	L/ha	50–100	0.3* or 0.55–0.85^	0.6*	0.44–0.6* or 0.55–0.85^	0.3–0.44* or 0.55–0.85^	0.6*(S)	*Add triasulfuron. ^Add MCPA amine or 2,4-D amine.
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	12–30	mL/ha	70–150	–	–	110	–	110	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.

Table 20. Herbicides for broadleaf weed control in wheat and barley – early post-emergence – page 6 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	1–1.7	1–1.7	1–1.7	1–1.7	1–1.7	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	0.105* or 0.185	0.105* or 0.185	105*	0.105* or 0.185^	0.105* or 0.185	Refer to label for growth stages and mix partner combinations. *Add MCPA amine. ^Add MCPA or 2,4-D amine.
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	0.35* or 0.5–1	1(S)	0.5–1^	0.35* or 0.5–1	0.75(S)	Rate increases with crop growth stage and weed size. *West of Newell Hwy only. ^Add MCPA for radish control.
Lontrel® Advanced (clopyralid 600)	4	12–30	mL/ha	50–100	–	40–50* or 50	–	–	–	Weed size and mix partner determine rates and timing. *There are many mix partners.
MCPA amine 750	4	12–14	L/ha	30–120	0.3	–	0.33–0.46	0.33–0.46	–	Use the lower rate and add diuron 900 to control small weeds.
	4	15–37	L/ha	30–120	0.66	–	0.66	0.66	–	Rate increases with crop growth stage and weed size.
MCPA LVE 570	4	13–32	L/ha	30–120	0.44–0.6* or 0.615–0.965	–	0.44–0.6* or 0.965–1.4	0.44–0.6* or 0.44–1.3	0.44–0.6*	Rate increases with crop growth stage and weed size. *Add mix partner.
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50	0.67 – 0.8*	–	0.8*	0.8*	0.8*	Add Uptake® or an NIS. *Add MCPA LVE.
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100	25*	25*	25*	25*	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
Picoflex® (picloram 240)	4	22–31†	mL/ha	50–100	110^	–	95# or 110^	95# or 110^	–	†Growth stage determined by mix partner. ^Add MCPA 750. #Add 2-4,D amine.
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	–	–	–	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	W 13–31, B 15–31	L/ha	50–100	1–2	1*	1–2	1–2	1–2	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	15–25	15–25	15–25	15–25	15–25	Must be tank mixed with another herbicide. Weed size and mix partner dictate rate. *Mix partner dictates growth stage.
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	0.6–1.2	1(S)	0.6–1.2	0.6–1.2	0.8–1.2	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100	10*	–	–	10	10 or 14	Northern NSW only. *Add MCPA LVE 570. ^Growth stage for stand-alone use only.
Sencor® (metribuzin 480), **barley only**	5	B 13–8 weeks	L/ha	50–100	–	–	–	–	–	–
Starane® Advanced (fluroxypyr 333)	4	13–39	L/ha	>50	0.3–0.9*	–	0.3–0.9*	0.3–0.9*	0.3*	Adjuvant: weed specific. *Add metsulfuron-methyl (not durum).
Talinor® (bromoxynil 175 + bicyclopyrone 37.5 + cloquintocet-mexyl 9.4)	6 + 27	12–32	L/ha	75–150	0.5–1	0.5–0.75	0.5–1.2	0.5–1	0.5–1	Do not mix with UAN or AMS fertilisers. Adjuvant MSO.
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	4	13–31	mL/ha	>80	–	200	–	–	–	Adjuvant MOS.
Triasulfuron	2	13–22	g/ha	30–100	6.5*	13*	10–13*	6.5*	–	*Add terbutryn.
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	0.35* or 0.5–1	1(S)	0.5–1	0.35* or 0.5–1	0.75(S)	Can cause transient yellowing. *West of Newell Hwy only.
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150	0.5–1	0.5–1(S)	0.5–1	0.5–1	0.5(S) 0.67–1	Add MCPA LVE for improved control.

B = barley, W = wheat, (S) = suppression only.
AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, UAN = urea ammonium nitrate.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
Read the label before using a product.

Table 21. Herbicides for weed control in wheat and barley – late post-emergence – page 1 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Amaranth	Amsinckia	Bindweed – black	Blackberry nightshade	Caltrop/cat head	Canola – volunteer	Capeweed
Grass control products. High levels of herbicide resistance to Groups 1 and 2 selective herbicides are common in most grass weeds. Do not rely on these products as your only management tool.																	
Axial® Xtra (pinoxaden 50 + cloquintocet-mexyl 12.5)	1	12–49	L/ha	50–100	0.5–0.6(S)	–	–	0.4–0.5	–	0.3–0.4							
Mandate® (clodinafop-propargyl 240 + cloquintocet-mexyl 60), **wheat only**	1	12–37	mL/ha	50–110	160–210	–	–	85–160	–	65–125							
Grass and broadleaf control products																	
Sentry® (imazapic 525 + imazapyr 175), **wheat only***	2	14–37	g/ha	>70	40(S)	40	40	40	40(S)	40	–	40	40	–	–	40	40
Broadleaf control products																	
2,4-D amine 700, **drift restrictions apply**	4	31–43	L/ha	50–250							0.5–0.98	0.98	0.98	0.5–0.98	0.715–1.5	–	0.98–1.5
2,4-D LV ester 680, **drift restrictions apply**	4	31–37	L/ha	30–100							0.8	–	–	–	0.62–0.8	–	0.53–0.8
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150							–	–	85	–	–	85–100	85
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150							–	25	–	–	–	25	25*
Lontrel® Advanced (clopyralid 600)	4	13–45	mL/ha	50–100							–	–	–	–	–	–	50–150* or 75–150
MCPA amine 750	4	15–37	L/ha	30–120							–	–	0.97–1.35	–	–	0.66–0.96	1.45
MCPA LVE 570	4	15–39	L/ha	30–120							–	–	–	–	–	1.3	1.49 wheat only
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50							–	–	0.67 or 0.7	–	–	–	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100							–	–	–	–	–	25*	25*(S)
	4 + 2	31–43* or 31–49	g/ha	80–100							–	–	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80							–	–	0.4–0.6	–	–	–	–
Triasulfuron	2	Up to 59	g/ha	30–100							–	–	–	–	–	–	–

W = wheat, B = barley, IMI = Imidazolinone-tolerant varieties, (S) = suppression only.
MO = mineral oil, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Charlock	Chickpea – volunteer	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Comments. Always refer to the label.
Ensure you have an integrated weed management (IWM) plan in place. It is recommended to get your weeds tested for resistance; consult your advisor for location specific information.															
															–
															Adjuvant MSO, MO or MOS.
–	–	40	40	40	40	40	–	40(S)	–	–	40(S)	–	40	–	Add MCPA LVE to enhance control. Adjuvant MSO. *Single gene IMI wheat only.
0.5–1.25	–	–	1.1	–	–	–	0.98–1.25	1.25	–	0.5–1.5	–	1.5	0.5–1.5	0.98–1.5	–
0.41	–	–	0.62–0.8	0.8	–	0.8	–	0.8	–	0.4–0.8	–	–	0.8	–	–
–	–	85–100*	–	85–100	85	–	–	85–100	85*	0.41–0.8	85*	–	85	–	Add MCPA 750. *Add dicamba.
25	–	–	–	–	–	25(S)*	–	–	–	–	–	–	–	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
–	50* or 125	–	–	–	–	–	–	–	50* or 125	–	40–50* or 75	150	–	–	*There are many mix partners.
0.66	–	–	–	–	–	1.45	–	–	–	0.66–1.35	–	–	0.93	0.8	Rate increases with crop growth stage and weed size.
0.44–1.4	–	–	–	–	–	0.44–0.6*	–	–	–	0.88–1.4	–	–	0.44–0.6* or 0.965	–	Rate increases with crop growth stage and weed size. *Add Frequency®.
–	–	0.8* or 0.9–1	–	–	–	0.5^ or 0.8	–	0.8*	–	0.5^	0.5^	–	0.8	–	Add Uptake® or an NIS. *Add MCPA LVE. ^Add a tank mix partner.
–	25*	25*	–	–	–	25	–	–	25*	–	25*	25*	25	–	Crop growth stage influences mix partner rate. *Add MCPA LVE.
–	25 or 25*	–	–	–	–	25	–	–	–	–	–	–	25	–	Adjuvant W MOS, B NIS. *Add 2,4-D amine 720.
–	0.4	0.4	–	–	–	0.2–0.3	–	–	–	–	–	0.3	0.3	–	Adjuvant MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 21. Herbicides for weed control in wheat and barley – late post-emergence – page 2 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Horehound	Lentil – volunteer	London rocket	Loosestrife	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse
Grass and broadleaf control products															
Sentry® (imazapic 525 + imazapyr 175), **wheat only***	2	14–37	g/ha	>70	–	–	20 or 40	–	–	–	40(S)	–	20–40	–	40
Broadleaf control products															
2,4-D amine 700, **drift restrictions apply**	4	31–43	L/ha	50–250	1.25–1.5	–	0.98	–	0.715–1.5	–	–	1.25	0.5–1.25	0.98–1.5	–
2,4-D LV ester 680, **drift restrictions apply**	4	31–37	L/ha	30–100	–	–	–	–	0.41–0.8	–	–	0.8	0.41–0.8	0.8	0.8
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	85*	–	–	85*	65–100	–	–	85–100	–	65–100
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	–	–	–	25	15/25*	–	–	25	–	25(S) or 25*
Lontrel® Advanced (clopyralid 600)	4	13–45	mL/ha	50–100	–	–	–	–	50* or 125	–	50* or 75	–	–	–	–
MCPA amine 750	4	15–37	L/ha	30–120	–	–	–	–	–	–	–	–	0.66	–	0.66–0.96
MCPA LVE 570	4	15–39	L/ha	30–120	–	–	0.965	–	–	–	–	–	0.49–0.88	–	1.49 wheat only
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50	–	–	–	–	–	0.67 or 0.7	–	–	0.8*	–	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100	–	25*	–	25*	25*	25	25*	25	25*	–	–
	4 + 2	31–43* or 31–49	g/ha	80–100	–	–	–	–	–	25	–	25	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	–	–	–	–	0.3	0.3	0.2–0.3	–	–	–
Triasulfuron	2	Up to 59	g/ha	30–100	–	–	–	–	–	–	–	–	–	–	–

W = wheat, B = barley, IMI = Imidazolinone-tolerant varieties, (S) = suppression only.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Peppercress	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Sida	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Comments. Always refer to the label.
–	–	40(S)	–	–	20–40	–	–	–	40(S)	40	–	–	40	Add MCPA LVE to enhance control. Adjuvant MSO. Single gene IMI wheat only.
–	–	–	0.98	–	0.98–1.5	1.5	0.98–1.5	1.25–1.5	1.25–1.5	1.25	–	–	0.5–1.5	–
–	–	–	0.8	–	0.8	–	0.8	–	–	–	–	–	0.41–0.8	–
–	–	85	85	–	85	–	–	–	85	85	85	65–85	–	Add MCPA 750. *Add dicamba.
25(S) or 25*	–	–	–	–	25	–	–	–	–	25*	–	–	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
–	–	75*	–	–	–	–	250*	–	50*	–	–	50* or 75	25–50* or 150	*There are many mix partners.
–	1.35	–	0.46–0.96	–	–	–	0.96–1.35	–	–	–	–	–	0.66–1.35	Rate increases with crop growth stage and weed size.
–	–	–	–	–	0.44–0.6*	–	0.965–1.4	–	0.44–0.6*	–	0.44–0.6*	–	0.74–1.4	Rate increases with crop growth stage and weed size. *Add Frequency®.
–	–	0.5^	–	–	0.8*	–	–	–	0.5–0.8*	0.5^ or 0.8	–	–	0.5^	Add Uptake® or an NIS. *Add MCPA LVE. ^Add a tank mix partner.
–	–	25*	–	–	25*	–	–	–	25*	25*	–	25 or 25*	–	Crop growth stage influences mix partner rate. *Add MCPA LVE.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant W MOS, B NIS. *Add 2,4-D amine 720.
–	–	0.4	–	–	–	–	–	–	0.4	–	–	0.3	–	Adjuvant MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 21. Herbicides for weed control in wheat and barley – late post-emergence – page 3 of 3.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Grass and broadleaf control products											
Sentry® (imazapic 525 + imazapyr 175), **wheat only***	2	14–37	g/ha	>70	–	–	40(S)	20–40	40	40	Add MCPA LVE to enhance control. Adjuvant MSO. *Single gene IMI wheat only.
Broadleaf control products											
2,4-D amine 700, **drift restrictions apply**	4	31–43	L/ha	50–250	–	0.5–0.98	0.98–1.25	0.715–1.5	0.5–1.25	1.25	–
2,4-D LV ester 680, **drift restrictions apply**	4	31–37	L/ha	30–100	–	0.41–0.8	–	0.41–0.8	0.41–0.8	0.8	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	85–100	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	15 or 25	–	15* or 25(S)	15–25	–	Adjuvant W MOS or NIS, B NIS. *Apply with a partner herbicide.
Lontrel® Advanced (clopyralid 600)	4	13–45	mL/ha	50–100	–	–	40–50* or 50	–	–	–	*There are many mix partners.
MCPA amine 750	4	15–37	L/ha	30–120	–	0.66	–	0.66	0.66	–	Rate increases with crop growth stage and weed size.
MCPA LVE 570	4	15–39	L/ha	30–120	–	0.44–0.6* or 0.615–0.965	–	0.44–0.6* or 0.965–1.4	0.44–0.6* or 0.44–1.3	0.44–0.6*	Rate increases with crop growth stage and weed size. *Add Frequency®.
Monsoon® (bromoxynil 300 + fluroxypyr 150)	6 + 4	13–39	L/ha	>50	–	0.67 – 0.8*	–	0.8*	0.8*	0.8*	Add Uptake® or an NIS. *Add MCPA LVE.
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–37	g/ha	80–100	25(S)	25*	25*	25*	25*	–	Crop growth stage influences mix partner rate. *Add MCPA LVE.
	4 + 2	31–43* or 31–49	g/ha	80–100	25(S)	–	–	25 or 25*	–	–	Adjuvant W MOS, B NIS. *Add 2,4-D amine 720.
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	–	–	–	–	–	–
Triasulfuron	2	Up to 59	g/ha	30–100	–	–	–	15	–	–	Adjuvant MO.

W = wheat, B = barley, IMI = Imidazolinone-tolerant varieties, (S) = suppression only.
MO = mineral oil, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
Read the label before using a product.

UNLOCK SOMETHING INCREDIBLE

Utrisha® N

NUTRIENT EFFICIENCY BIOSTIMULANT

ENHANCED NITROGEN MANAGEMENT

Utrisha® N can convert atmospheric nitrogen to a plant-available form inside the leaf.

This ground-breaking foliar-applied technology supplies supplemental nitrogen to the crop throughout the growing season, giving growers more flexibility with their nitrogen management strategies.

Utrisha® N is a biological solution that works with a variety of crops for improved plant health and increased yield potential.

Embrace a balanced future

CORTEVA™ agriscience biologicals

Call **1800 700 096** or visit **corteva.com.au**

Table 22. Herbicides for weed control in oats – early post-emergence – page 1 of 4.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Amaranth	Amsinckia	Bindweed – black	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop
Grass and broadleaf control products																		
Chlorsulfuron 750	2	12–23	g/ha	>30	15–25	–	15	20	–	–	–	15	–	15	–	–	20	–
Broadleaf control products																		
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250		0.5	–	–	–	–	–	0.5	–	–	–	–	–	–
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80		2.1–3.2	–	–	–	–	2.1–3.2	2.1–3.2	–	–	–	–	–	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150		–	–	85	–	85–100	85	–	–	–	85–100*	–	85–100	85
Agtryne® MA (terbutryn 275 + MCPA 160)	5 + 4	13–15	L/ha	50–100		–	1	–	–	–	1	1	–	–	–	–	1	1
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	5 + 14	13–25	g/ha	50–150		–	–	–	–	–	200	–	–	–	–	–	–	–
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50		–	0.75–1	1–1.4	–	1.4	0.75–1	–	–	–	–	–	1–1.4	–
Broadstrike® (flumetsulam 800)	2	21–31	g/ha	50–150		–	25	–	–	25	25*	25	–	–	–	–	–	–
Bromoxynil 200	6	13–30	L/ha	50–200		–	1.4–2.1	1.4–2.1	–	–	1.4–2.1	–	–	–	1.4–2.1	–	1.4–2.1	–
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200		–	1–1.43	1–1.43	–	–	1–1.43	1–1.43	–	–	0.54	–	1–1.43	–
Condor® (MCPA 375 + pyraflufen-ethyl 10)	4 + 14	12–29	L/ha	80–150		–	–	–	–	0.8–1.6	0.8–1.6	–	–	–	0.8–1.6	–	–	–
Diuron 900	5	12–22	kg/ha	40–70		–	0.5	–	–	–	0.5	0.5	–	–	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	12–29	L/ha	70–150		–	–	–	–	0.2–0.4	0.2–0.4	–	–	–	0.2–0.4	–	–	–
Enforcer® 242 (MCPA 420 + picloram 26)	4	22–30	L/ha	>50		–	–	1	–	–	–	–	–	–	–	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100		–	–	0.3	–	–	–	–	–	–	–	–	–	–
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150		–	–	–	–	0.36	0.36–0.72	0.36–0.72	–	–	–	–	0.72	0.36–0.54
Galaxy® (pyrasulfotole 75)	27	13–31	mL/ha	50–150		–	500*	335*	–	335*	335*^	–	335*	500*	–	335*	–	–
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100		–	–	20–32	–	–	–	–	32	–	–	–	–	–
	4	13–31	mL/ha	50–100		–	–	–	–	–	–	–	–	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	13–31	L/ha	>80		–	–	0.5–0.75	–	–	–	–	0.75	–	–	–	–	–
Igran® (terbutryn 500)	5	13–21	L/ha	50–100		–	0.55–0.85	0.44*	–	–	0.55–0.85	0.55–0.85*	–	–	–	–	0.55–0.85	0.44–0.6*

(S) = suppression only. NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	London rocket	Loosestrife	Lupin – volunteer	Marshmallow	Comments. Always refer to the label.
15 or 20	–	–	–	20	–	–	20	–	–	–	–	–	–	–	Rate, plantbacks and crop safety are heavily influenced by soil pH.
–	–	–	–	0.5	–	–	0.5	–	–	–	–	–	–	–	Do not exceed 0.5 L/ha on young cereals.
–	2.1–3.2	–	–	2.1–3.2	–	–	2.1–3.2	–	–	–	–	–	–	2.1–3.2	–
–	–	85–100	85*	–	85*	–	85	–	–	85*	–	–	85*	65–100	Add MCPA 750. *Add dicamba.
1.5	–	–	–	1	–	–	1	1	–	–	–	–	–	–	Not suitable for some varieties.
–	–	–	–	–	–	–	200	–	–	–	–	–	–	200	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	0.75–1	–	–	–	–	–	1–1.4	–	–	–	–	–	–	–	Rate increases with crop growth stage.
25(S)*	–	–	–	25–50	–	–	–	–	–	–	–	–	25	15/25*	Adjuvant NIS. Can cause transient yellowing. *Apply with a partner herbicide.
–	–	–	–	1.4–2.1	–	–	2.1	–	–	–	–	–	–	–	Add 2,4-D amine or MCPA LVE. Do not spray if temperature is >20 °C.
–	–	–	–	1–1.43	–	–	1–1.43	1–1.43	–	–	–	–	–	–	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	–	0.8–1.6	–	–	–	–	–	–	–	–	–	–	0.8–1.6	0.8–1.6	Adjuvant NIS. Can cause some phytotoxicity.
0.5	–	–	–	–	–	–	–	0.5	–	–	–	–	–	–	–
–	–	0.2–0.4	–	–	–	–	–	–	–	–	–	–	0.2–0.4	–	400 mL/ha is the maximum rate at Z12. Add MCPA amine 750.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	0.3	–	–	–	–	0.3	–	0.3*	–	–	–	–	–	–	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
0.72(S)	–	–	–	–	–	–	0.54–0.72(S)	–	–	–	–	–	0.72(S)	–	Rate increases with weed size and crop growth stage.
500*	–	–	335*^	–	335*	–	335*	–	–	335*^	–	–	335*	–	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add clopyralid.
–	–	–	32	–	32	32	–	–	–	–	–	–	–	–	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	20	–	20	–	–	–	–	–	–	–	20	–	Southern NSW only. Add fluroxypyr.
–	–	–	0.75	–	0.75	0.75*	–	–	–	–	–	–	–	–	Northern NSW only. Add MCPA LVE. *Add a mix partner.
0.44–0.6*	–	–	0.44*	–	0.44*	–	0.55–0.85	0.55–0.85	–	–	0.3–0.44*	0.44*	–	–	Not suitable for some varieties. *Add triasulfuron.

Table 22. Herbicides for weed control in oats – early post-emergence – page 2 of 4.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Amaranth	Amsinckia	Bindweed – black	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	12–30	mL/ha	70–150		–	–	–	–	–	110	–	–	–	–	–	–	–
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50		–	–	1.7	–	–	1–1.7	1–1.7	–	1.7	–	1.7	–	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50		–	–	185	–	–	105* or 185^	105* or 185^	–	185^	–	185	–	–
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50		–	–	–	–	0.5	0.5–1	0.5–1	–	1(S)	–	–	1	0.5–0.75
Lontrel® Advanced (clopyralid 600)	4	12–30	mL/ha	50–100		–	–	–	–	–	50–150* or 75–100	–	50* or 125	–	–	–	–	–
MCPA amine 750	4	12–39	L/ha	30–120		–	0.33	–	–	–	0.33	0.33	–	–	–	–	0.33	–
	4	15–39	L/ha	30–120		–	–	0.97–1.35	–	0.66–0.96	1.45	0.66	–	–	–	–	–	–
MCPA LVE 570	4	13–37	L/ha	30–120		–	–	–	–	1.3	–	0.44–1.4	–	–	–	–	–	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–39	g/ha	80–100		–	–	–	–	25*	25*(S)	–	25*	–	–	–	–	–
Picoflex® (picloram 240)	4	22–31†	mL/ha	50–100		–	–	95# or 110^	–	–	–	–	–	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80		–	–	0.4–0.6	–	–	–	–	0.4	–	0.4	–	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	13–31	L/ha	50–100		–	1.5–2	–	–	1–2	1*	–	1*	–	1.5–2	–	1–2	–
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100		25	25	15–25	25	25	15–25	25	15–25	–	15–25	–	25	25
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100		–	0.8–1	1–1.2	–	0.6	0.6–1.2	0.6–1.2	–	1(S)	0.8–1	–	0.8–1	–
Starane® Advanced (fluroxypyr 333)	4	13–39	L/ha	>50		–	–	0.3(S)	–	–	–	–	–	–	0.3–0.6	–	–	–
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	4	13–31	mL/ha	>80		–	–	200*	–	–	–	–	–	–	200*	–	–	–
Triasulfuron	2	13–22	g/ha	30–100		–	–	10^	–	–	–	–	–	–	–	–	–	–
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100		–	–	–	–	0.5	0.5–1	–	–	1(S)	–	–	1	0.5–0.7

(S) = suppression only. AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	London rocket	Loosestrife	Lupin – volunteer	Marshmallow	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
–	1–1.7	–	–	1.7	–	–	–	1–1.7	–	–	–	–	–	–	–
–	105* or 185	–	–	185	–	–	–	105* or 185	–	–	–	–	–	–	*Add MCPA amine. ^Add MCPA or 2,4-D amine.
1	1(S)	1(S) 1(S)	–	1(S)	–	–	0.75	1(S)	1(S)	–	–	1(S)	1(S)	–	Rate increases with crop growth stage and weed size.
–	–	–	50* or 125	–	50*	150	–	–	–	125	–	–	50* or 125	–	*There are many mix partners.
0.33	–	0.33	–	–	–	–	–	–	–	–	–	–	0.46	–	Rate increases with crop growth stage and weed size.
1.45	–	–	–	0.66–1.35	–	–	0.93	0.8	–	–	–	–	–	–	–
–	–	–	–	0.88–1.4	–	–	0.965	–	–	–	0.965	–	–	–	Rate increases with crop growth stage and weed size.
26	–	–	25*	–	25*	25*	25	–	–	25*	–	–	25*	25	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
–	95#	–	–	–	–	–	–	95#	–	–	–	–	–	–	†Growth stage determined by mix partner. #Add 2,4-D amine. ^Add MCPA 750.
0.2–0.3	–	–	–	–	–	0.3	0.3	–	–	–	–	–	–	0.3	Adjuvant MOS.
1.5–2	–	–	1*	–	1–2 or 1*	–	1–2	–	–	1*	–	–	1–2	–	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
25	–	25	15–25	25	20–25	–	15–25	25	–	15–25	–	–	20–25	25	Must be tank mixed with another herbicide (not 2,4-D). Weed size and mix partner determine rate. *Mix partner dictates growth stage.
0.8–1	1(S)	–	–	0.8–1	–	–	0.8–1.2	0.8–1.2	1(S)	–	0.8–1	1(S)	1(S)	1(S)	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
0.9	–	–	–	–	–	–	–	–	–	–	–	–	0.9	–	Adjuvant: weed specific.
200	–	–	200	–	200	200	200	–	–	–	–	–	–	200*	Adjuvant MOS. *Add fluroxypyr.
10–13^	–	–	10^	–	10^	–	–	–	–	–	6.5^	–	–	–	^Add terbutryn.
1	1(S)	1(S)	–	1(S)	–	–	0.75	1(S)	1(S)	–	–	1(S)	1(S)	1(S)	Can cause transient yellowing.

Table 22. Herbicides for weed control in oats – early post-emergence – page 3 of 4.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel
Grass and broadleaf control products																	
Chlorsulfuron 750	2	12–23	g/ha	>30	–	–	15	–	15	–	–	–	20	15	20	–	–
Broadleaf control products																	
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	–	–	0.5	–	–	–	–	–	0.5	–	–	–	–
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	–	2.1–3.2	2.1–3.2	–	2.1–3.2	–	2.1–3.2	2.1–3.2	–	–	2.1–3.2	–	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	–	85–100	–	65–100	–	–	85	85	–	85	–	–
Agtryne® MA (terbutryn 275 + MCPA 160)	5 + 4	13–15	L/ha	50–100	–	–	1–1.5	–	1	–	–	–	1	1.5	–	–	–
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90)	5 + 14	13–25	g/ha	50–150	–	–	200	–	–	–	–	200	–	–	200	–	–
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50	–	–	0.75–1	–	–	–	–	–	–	–	–	–	–
Broadstrike® (flumetsulam 800)	2	21–31	g/ha	50–150	–	–	25	–	25(S) or 25*	25(S) or 25*	–	–	–	–	25	–	–
Bromoxynil 200	6	13–30	L/ha	50–200	–	2.1	2.1	–	2.1	–	–	–	1.4	–	1.4–2.1	–	1.4–2.1
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	–	1–1.43	1–1.43	–	1–1.43	1–1.43	–	–	1–1.43	–	1–1.43	–	–
Condor® (MCPA 375 + pyraflufen-ethyl 10)	4 + 14	12–29	L/ha	80–150	–	–	0.8–1.6	–	–	–	–	0.8–1.6	–	–	–	–	–
Diuron 900	5	12–22	kg/ha	40–70	–	–	0.5	–	–	–	–	–	–	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	12–29	L/ha	70–150	–	–	0.2–0.4	–	–	–	–	0.2–0.4	–	–	–	–	–
Enforcer® 242 (MCPA 420 + picloram 26)	4	22–30	L/ha	>50	–	–	1	1(S)	–	–	–	–	–	–	–	1	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	–	–	0.3*	0.3	–	–	–	–	–	–	–	–	–
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	–	–	0.36–0.72	–	–	–	–	0.3–0.72	–	–	0.36–0.72	–	–
Galaxy® (pyrasulfotole 75)	27	13–31	mL/ha	50–150	670*	–	335*	–	335*	–	–	335*	–	–	–	–	–
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	–	–	–	–	–	–	–	32	–	–	–	–	–
	4	13–31	mL/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140)	4	13–31	L/ha	>80	–	–	–	–	–	–	–	0.75	–	–	–	–	–

(S) = suppression only. NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	15	–	15 or 20	15	20	Rate, plantbacks and crop safety are heavily influenced by soil pH.
–	–	–	–	0.5	–	0.5	–	–	0.5	–	Do not exceed 0.5 L/ha on young cereals.
2.1–3.2	2.1–3.2	2.1–3.2	–	2.1–3.2	–	2.1–3.2	–	–	2.1–3.2	2.1–3.2	–
85	85	85	65–85	–	85–100	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
–	1.5	–	–	1.5	1.5	1	–	–	1	1.5	Not suitable for some varieties.
–	–	–	200	–	200	200	–	200	200	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	0.75–1	–	–	–	–	–	–	0.75–1.0	–	0.75–1	Rate increases with crop growth stage.
–	25*	–	–	–	–	15–25	–	15* or 25(S)	15–25	–	Can cause transient yellowing. Adjuvant NIS. *Apply with a partner herbicide.
1.4–2.1	2.1	–	–	1.4–2.1	–	2.1	–	2.1	2.1	2.1	Add 2,4-D amine or MCPA LVE.
1–1.5	1–1.43	–	–	1–1.43	–	1–1.43	–	1–1.43	1–1.43	1–1.43	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	–	–	–	–	–	–	–	0.8–1.6	0.8–1.6	–	Adjuvant NIS. Can cause some phytotoxicity.
–	0.5	–	–	0.5	–	–	–	0.5	0.5	–	–
–	–	–	–	–	–	–	–	0.15–0.4	0.2–0.4	–	400 mL/ha is the maximum rate at Z12. Add MCPA amine 750.
1	1	–	–	1	–	1	–	1	1	1(S)	–
0.3	0.3	–	–	0.3 or 0.3*	–	0.3*	–	0.3*	0.3*	0.3*(S)	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
0.72(S)	0.72(S)	–	–	0.72	0.72	0.36–0.72	–	0.36–0.72	0.36–0.72	–	Rate increases with weed size and crop growth stage.
335*	500*	–	–	–	–	335*	335*#	335–670*	335*	335*	Refer to label for mix partner rate and weed size. *Add MCPA LVE. #Add clopyralid.
20–32	20–32	–	–	–	–	–	32	–	–	–	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	–	–	–	–	20	–	–	–	Southern NSW only. Add fluroxypyr.
0.5–0.75*	0.5–0.75*	–	–	0.5–0.75*	–	–	0.75	–	–	–	Northern NSW only. Add MCPA LVE. *Add a mix partner.

Table 22. Herbicides for weed control in oats – early post-emergence – page 4 of 4.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel
Igran® (terbutryn 500)	5	13–21	L/ha	50–100	0.44*	0.44–0.6*	0.33–0.44* or 0.55–0.85	–	0.55–0.85	–	–	–	–	–	0.44*	–	–
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125)	27 + 12	12–30	mL/ha	70–150	–	–	–	–	–	–	–	–	–	–	–	–	–
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	–	–	1–1.7	1.7	–	–	1.7	–	–	–	–	–	1–1.7
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	–	–	105* or 185^	185	–	–	–	–	–	–	–	–	1
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	–	–	0.5–1	–	1(S)	1(S)	–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–
Lontrel® Advanced (clopyralid 600)	4	12–30	mL/ha	50–100	75	–	–	–	–	–	–	50–75*	–	–	–	250*	–
MCPA amine 750	4	12–39	L/ha	30–120	–	–	0.33–0.46	–	–	–	–	–	–	0.3	–	–	–
	4	15–39	L/ha	30–120	–	–	0.66	–	0.66–0.96	–	1.35	–	0.46–0.96	–	–	0.96–1.35	–
MCPA LVE 570	4	13–37	L/ha	30–120	–	–	0.49–0.88	–	–	–	–	–	–	–	–	0.965–1.4	–
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–39	g/ha	80–100	25*	25	25*	–	–	–	–	25*	–	–	25*	–	–
Picoflex® (Picloram 240)	4	22–31†	mL/ha	50–100	–	–	95# or 110^	85* or 95# or 110(S)^	–	–	–	–	–	–	–	110^	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	0.3	0.2–0.3	–	–	–	–	–	0.4	–	–	–	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	13–31	L/ha	50–100	1* or 2	–	1–2	–	1–2	–	–	1–2	–	–	–	–	–
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	15–25	–	15–25	15	25	–	–	15–25	25	–	20–25	15–25	–
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	–	0.8–1	0.6–1.2	–	0.8–1.2	1.2	–	0.6–1.2	0.8–1.2	1(S)	0.6–1.2	1(S)	0.8–1
Starane® Advanced (fluroxypyr 333)	4	13–39	L/ha	>50	–	–	0.3–0.9*	–	–	–	–	0.3	–	–	0.3–0.9*	–	–
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30)	4	13–31	mL/ha	>80	200	200	–	–	–	–	–	200*	–	–	–	–	–
Triasulfuron	2	13–22	g/ha	30–100	10*	10–13*	6.5–10*	–	–	–	–	–	–	–	10*	–	–
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	–	–	0.5–1	–	1(S)	1(S)	–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–

(S) = suppression only. AMS = ammonium sulfate, MO = mineral oil, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.5–0.75*	0.55–0.85*	–	–	–	0.55–0.85	0.55–0.85	0.6*	0.44–0.6*	0.33–0.44* or 0.55–0.85	–	Not suitable for some varieties. *Add triasulfuron.
110	–	–	–	–	–	–	–	110	–	110	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
–	1–1.7	–	–	1–1.7	–	1–1.7	1–1.7	1–1.7	1–1.7	1–1.7	–
–	105* or 185	–	–	185^	–	105* or 185	105* or 185	105*	105* or 185^	105* or 185	*Add MCPA amine. ^Add MCPA or 2,4-D amine.
1(S)	1(S)	–	–	1	1	0.35^ or 0.5–1	1(S)	0.5–1.0*	0.35^ or 0.5–1	0.75(S)	Rate increases with crop growth stage and weed size. *Add MCPA for radish control. ^West of the Newell Highway.
50*	–	–	50* or 75	25–50*	–	–	40–50*	–	–	–	*There are many mix partners.
–	0.33	–	–	–	–	0.3	–	0.33–0.46	0.33–0.46	–	Rate increases with crop growth stage and weed size.
–	–	–	–	0.66–1.35	–	0.66	–	0.66	0.66	–	–
–	–	–	–	0.74–1.4	–	0.615–0.965	–	0.965–1.4	0.615–1.3	–	Rate increases with crop growth stage and weed size.
25*	25*	–	–	–	25(S)	–	25*	25*	25*	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
85* or 95# or 110^	95# or 110^	–	–	95# or 110^	–	110^	–	95# or 110^	95# or 110^	85* or 95(S)# or 110(S)^	†Growth stage determined by mix partner. ^Add MCPA 750. *Add MCPA 750, metsulfuron and NIS 1000. #Add 2,4-D amine.
0.4	–	–	0.3	–	–	–	–	–	–	–	Adjuvant MOS.
1–2	1.5–2(S)	–	1.6*	–	–	1–2	1*	1–2	1–2	1–2	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
15–25	15–25	–	25	15–25	–	15–25	15–25	15–25	15–25	15–25	Must be tank mixed with another herbicide (not 2,4-D). Weed size determines rate and mix partner. *Mix partner dictates growth stage.
1.2	0.8–1.2	–	–	0.8–1.2	0.8–1	0.6–1.2	1(S)	0.6–1.2	0.6–1.2	0.8–1.2	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
0.6	0.9	–	–	–	–	0.3–0.9*	–	0.3–0.9*	0.3–0.9*	0.9	Adjuvant: weed specific. *Add MCPA LVE.
200^	200^	–	200	200^	–	–	200	–	–	–	Adjuvant MOS. *Add fluroxypyr. ^Add fluroxypyr + MCPA LVE.
–	–	–	–	–	–	6.5*	13*	10–13*	6.5*	–	Adjuvant MO. *Add terbutryn.
1(S)	1(S)	–	–	1(S)	1	0.35* or 0.5–1	1(S)	0.5–1.0	0.5–1.0	0.75(S)	Can cause transient yellowing. *West of Newell Hwy only.

Table 23. Herbicides for broadleaf weed control in oats – late post-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Amaranth	Amsinckia	Bindweed – black	Blackberry nightshade	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen
2,4-D amine 700, **drift restrictions apply**	4	30–37	L/ha	50–250	0.5–0.98	0.98	0.98	0.5–0.98	0.715–1.15	–	0.98–1.15	0.5–1.15	–	–	1.1	–	–	–	0.98–1.15	–	–	0.5–1.15
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	–	85	–	–	85–100	85	–	–	85–100*	–	85–100	85	–	–	85–100	85*	–
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	25	–	–	–	25	25*	25	–	–	–	–	–	25(S)*	–	–	–	25–50
Lontrel® Advanced (clopyralid 600)	4	13–45	mL/ha	50–100	–	–	–	–	–	–	75 or 75–150*	–	50* or 125	–	–	–	–	–	–	–	50* or 125	–
MCPA amine 750	4	30–37	L/ha	30–120	–	–	0.97–1.35	–	–	0.66–0.96	1.45	0.66	–	–	–	–	–	1.45	–	–	–	–
MCPA LVE 570	4	15–37	L/ha	30–120	–	–	–	–	–	1.3	–	0.44–1.4	–	–	–	–	–	–	–	–	–	0.88–1.4
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–39	g/ha	80–100	–	–	–	–	–	25*	25*(S)	–	25*	25*	–	–	–	25	–	–	25*	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	–	0.4–0.6	–	–	–	–	–	0.4	0.4	–	–	–	0.2–0.3	–	–	–	–
Triasulfuron	2	Up to 59	g/ha	30–100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(S) = suppression only.
MOS = mineral oil plus surfactant, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Lentil – volunteer	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Prickly lettuce	Rough poppy	Shepherd's purse	Sida	Comments. Always refer to the label.
–	1.15	0.5–1.15	0.98–1.15	–	0.98	–	–	0.715–1.15	–	–	1.15	0.5–1.15	0.98–1.5	–	–	–	0.98	0.98–1.15	1.15	–
85*	–	85	–	85*	–	–	–	85*	65–100	–	–	85–100	–	65–100	–	85	85	85	–	Add MCPA 750. *Add dicamba.
–	–	–	–	–	–	–	–	25	15/25*	–	–	25	–	25(S) or 25*	25(S) or 25*	–	–	25	–	Adjuvant NIS. *Apply with a partner herbicide.
40* or 75	150	–	–	125	–	–	75	50*	–	50* o 75	–	–	–	–	–	50–75*	–	–	–	*There are many mix partners.
–	–	0.93	–	–	–	–	–	–	–	–	–	0.66	–	0.66–0.96	–	–	0.46–0.96	–	–	Rate increases with crop growth stage and weed size.
–	–	0.965	–	–	0.965	–	–	–	–	–	–	0.49–0.88	–	–	–	–	–	–	–	Rate increases with crop growth stage and weed size.
25*	25*	25	–	25*	–	25*	–	25*	25	25*	25	25*	–	–	–	25*	–	25*	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
–	0.3	0.3	–	–	–	–	–	–	0.3	0.3	0.2–0.3	–	–	–	–	0.4	–	–	–	Adjuvant MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 23. Herbicides for broadleaf weed control in oats – late post-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Skeleton weed	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
2,4-D amine 700, **drift restrictions apply**	4	30–37	L/ha	50–250	0.98–1.15	–	–	–	–	0.5–1.15	–	0.5–0.98	0.98–1.15	0.715–1.15	0.5–1.15	1.15	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	85	85	85	65–85	–	85–100	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	–	25*	–	–	–	–	15–25	–	15* or 25(S)	15–25	–	Adjuvant NIS. *Apply with a partner herbicide.
Lontrel® Advanced (clopyralid 600)	4	13–45	mL/ha	50–100	250*	50*	–	–	75–50	25*	–	–	40* or 50	–	–	–	*There are many mix partners.
MCPA amine 750	4	30–37	L/ha	30–120	0.96–1.35	–	–	–	–	0.6–1.35	–	–	–	0.6	0.6	–	Rate increases with crop growth stage and weed size.
MCPA LVE 570	4	15–37	L/ha	30–120	0.965–1.4	–	–	–	–	0.74–1.4	–	0.615–0.965	–	0.965–1.4	0.615–1.3	–	Rate increases with crop growth stage and weed size.
Paradigm® (halauxifen 200 + florasulam 200)	4 + 2	13–39	g/ha	80–100	–	25*	1.4–2.1	–	25 or 25*	–	25(S)	25*	1.4–2.1	1.4–2.1	1.4–2.1	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
Pixxaro® (fluroxypyr 250 + halauxifen 16.25)	4	13–39	L/ha	>80	–	0.4	–	–	0.3	–	–	–	–	–	–	–	Adjuvant MOS.
Triasulfuron	2	Up to 59	g/ha	30–100	–	–	–	–	–	–	–	–	–	10–15	–	–	Adjuvant MO. Can cause transient yellowing.

(S) = suppression only.
MO = mineral oil, MOS = mineral oil plus surfactant, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
Read the label before using a product.

NSW GOVERNMENT

NSW DPIRD Agronomy PODCAST

Bringing you the latest research and developments in agriculture

NSW DPIRD works hand-in-hand with farmers, being the largest rural research provider in Australia.

The NSW DPIRD Agronomy podcasts deliver timely and relevant information to help growers and industry better manage and understand challenges in their farming systems.

Available on all good streaming services

SOUNDCLOUD

Spotify

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 1 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Amaranth	Amsinckia	Bindweed – black	Blackberry nightshade	Boggabri weed	Caltrop/cat head	Canola – volunteer
Grass control products. High levels of herbicide resistance to Groups 1 and 2 selective herbicides are common in most grass weeds. Do not rely on these products as your only management tool.																	
Achieve® WG (tralkoxydim 400)	1	12–22	g/ha	50–150	380–500	–	–	380–500(S)	–	300–500							
Diclofop-methyl 375	1	12–21	L/ha	80	1	–	–	–	–	1.5–2							
Foxtrot® (fenoxyprop-p-ethyl 69 + cloquintocet-mexyl 34.5)	1	12–24	L/ha	50–100	–	–	–	0.635–0.8	–	0.475–0.635							
Grass and broadleaf control products																	
Chlorsulfuron 750	2	T: 00, CR:>12	g/ha	>30	15–25	–	–	–	–	–	–	15	20	–	–	–	–
Rexade® (pyroxsulam 150 + halauxifen 50), **triticale only**	2 + 4	13–31	g/ha	80–100	100(S)	100(S)	100	100	100(S)	100	–	–	100*	–	–	–	100
Sulfosulfuron 750	2	11–15/22	g/ha	40–100	–	25(S)	20 or 25(S)	–	25	25(S)	–	25	–	–	–	–	20
Broadleaf control products																	
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250							0.5	–	–	0.5	–	–	–
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80							2.1–3.2	–	–	–	–	–	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150							–	–	85	–	–	–	–
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90), **triticale only**	5 + 14	13–25	g/ha	50–150							–	–	–	–	–	–	–
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50							–	5 or 7	–	–	–	–	–
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50							–	0.75–1	1–1.4	–	–	–	–
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150							–	25	–	–	–	–	–
Bromoxynil 200	6	13–30	L/ha	50–200							–	1.4–2.1	1.4–2.1	–	–	–	–
Bromoxynil 200, **triticale only**	6	12–31	L/ha	50–200							–	0.63	0.525 or 0.7	–	–	–	–
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200							–	1–1.43	1–1.43	–	–	–	–
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100							–	0.75	0.5–1	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40), **triticale only**	14	12–29	L/ha	70–150							–	–	–	–	–	–	0.2–0.4
Enforcer® 242 (MCPA 420 + picloram 26), **triticale only**	4	22–30	L/ha	>50							–	–	1	–	–	–	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100							–	–	0.3	–	–	–	–
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150							–	–	–	–	–	–	–
Galaxy® (pyrasulfotole 75), **triticale only**	27	12–31	mL/ha	50–150							–	300	250–335	–	–	–	–
	27	13–31	mL/ha	50–150							–	300^ or 500*	250–335^	–	–	–	–
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100							–	–	20–32	–	22	–	22
	4	13–31	mL/ha	50–100							–	–	–	–	–	–	–

Read the label before using a product.

Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Comments. Always refer to the label.
Ensure you have an integrated weed management (IWM) plan in place. It is recommended to get your weeds tested for resistance. Consult your advisor for location specific information.														
														Rate is influenced by crop growth stage and weed size. Adjuvant MOS.
														Do not spray if temperature is >25 °C. Adjuvant NIS.
														Rate is influenced by crop growth stage and weed size.
–	15	–	15	–	–	20	–	15 or 20	–	–	–	20	–	Rate, plantbacks and crop safety are heavily influenced by soil pH.
100*	–	100	–	100	–	–	–	100	–	–	100	–	100	Adjuvant NIS 1000. *Requires mix partner.
–	–	–	–	–	–	–	–	–	–	–	–	–	20	Rate, plantbacks and crop safety are heavily influenced by soil pH. Adjuvant MSO.
–	0.5	–	–	–	–	–	–	–	–	–	–	0.5	–	Do not exceed 0.5 L/ha on young cereals.
2.1–3.2	2.1–3.2	–	–	–	–	–	–	–	2.1–3.2	–	–	2.1–3.2	–	–
85	–	–	–	85–100*	–	85–100	85	–	–	85–100	85*	–	85*	Add MCPA 750. *Add dicamba.
200	–	–	–	–	–	–	–	–	–	–	–	–	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	5	5	5	–	5	–	–	5	5 or 7	–	–	–	7	Tank mix partners will broaden the weed spectrum.
0.75–1	–	–	–	–	–	1–1.4	–	–	0.75–1	–	–	–	–	Rate increases with crop growth stage.
25*	25	–	–	–	–	–	–	25(S)*	–	–	–	25–50	–	Adjuvant NIS. *Apply with a partner herbicide.
1.4–2.1	–	–	–	1.4–2.1	–	1.4–2.1	–	–	–	–	–	1.4–2.1	–	Add 2,4-D amine or MCPA amine. Do not spray if temperature is >20 °C.
0.525	–	0.525	–	0.7	–	0.525	–	0.525	–	–	0.525	–	0.7	–
1–1.43	1–1.43	–	–	0.54	–	1–1.43	–	–	–	–	–	1–1.43	–	Application rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
0.5–1	0.5–0.75	–	1(S)	–	–	0.5–0.75	–	0.5–0.75	–	0.5–0.75(S)	–	1	0.75(S)	Can cause transient yellowing.
0.2–0.4	–	0.2*	0.2*	0.2–0.4	–	–	–	0.2*	–	0.2–0.4	0.2*	–	–	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	0.3	–	–	–	–	Northern NSW only. Adjuvant NIS 1000.
0.36–0.72	0.36–0.72	–	–	–	–	0.72	0.36–0.54	0.72(S)	–	–	–	–	–	Rates increase with weed size and crop growth stage.
250	–	250	250	335	335	250	250	250	–	–	250	–	335	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
250^ or 250^# or 335*#	–	335* or 335^	335* or ^	335^ or 500*	335^ or 500*	250^ or 335*	250^ or 335*	250^ or 500*	–	–	250^ or 250^# or 335*#	–	335* or 335*# or 335^ or 335^#	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid.
–	–	–	–	–	16	–	–	16–32	16 or 22	–	16–32	–	32	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	–	–	–	–	–	–	–	–	20	–	20	Southern NSW only. Add fluroxypyr.

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 2 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Amaranth	Amsinckia	Bindweed – black	Blackberry nightshade	Boggabri weed	Caltrop/cat head	Canola – volunteer
Hotshot® (aminopyralid 10 + fluroxypyr 140), **triticale only**	4	13–31	L/ha	>80							–	–	0.5–0.75	–	–	–	–
Igran® (terbutryn 500), **triticale only**	5	13–21	L/ha	50–100							–	0.55–0.85	0.44*	–	–	–	–
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125), **triticale only**	27 + 12	12–30	mL/ha	70–150							–	–	–	–	–	–	–
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50							–	–	1.7	–	–	–	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50							–	–	0.185	–	–	–	–
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50							–	–	–	–	–	–	–
Lontrel® Advanced (clopyralid 600), **triticale only**	4	12–30	mL/ha	50–100							–	–	–	–	–	–	–
MCPA amine 750	4	12–14	L/ha	30–120							–	0.33	–	–	–	–	–
MCPA amine 750, **triticale only**	4	15–37	L/ha	30–120							–	–	0.97–1.35	–	–	–	–
MCPA LVE 570	4	13–37	L/ha	30–120							–	–	–	–	–	–	–
Paradigm® (halauxifen 200 + florasulam 200), **triticale only**	4 + 2	13–37	g/ha	80–100							–	–	–	–	–	–	25*^
Picoflex® (picloram 240), **triticale only**	4	22–31†	mL/ha	50–100							–	–	95# or 110^	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25), **triticale only**	4	13–39	L/ha	>80							–	–	0.4–0.6	–	–	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	13–31	L/ha	50–100							–	1.5–2	–	–	–	–	–
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100							25	25	15–25	–	–	25	25
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100							–	0.8–1	1–1.2	–	–	–	–
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100							–	–	10# or 14	–	14	–	–
Starane® Advanced (fluroxypyr 333), **triticale only**	4	13–39	L/ha	>50							–	–	0.3(S) or * or 0.45	–	–	–	–
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30), **triticale only**	4	13–31	mL/ha	>80							–	–	200*	–	–	–	–
Triasulfuron, **triticale only**	2	13–22	g/ha	30–100							–	–	10*	–	–	–	–
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100							–	–	–	–	–	–	–
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150							–	0.6–1	0.5–1	–	–	–	–

CR = cereal rye, T = triticale, IMI = imidazolinone-tolerant varieties, (S) = suppression only. grasses broadleaf weeds
AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Capeweed	Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Comments. Always refer to the label.
–	–	0.75	–	–	–	–	–	0.5–0.75*	–	–	0.75	–	0.75	*Add a mix partner.
0.55–0.85	0.55–0.85*	–	–	–	–	0.55–0.85	0.44–0.6*	0.44–0.6*	–	–	0.44*	–	0.44*	Add MCPA or 2,4-D. *Add triasulfuron.
110	–	–	–	–	–	–	–	–	–	–	–	–	–	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
1–1.7	1–1.7	–	1.7	–	1.7	–	–	–	1–1.7	–	–	1.7	–	–
0.105* or 0.185^	0.105* or 0.185^	–	0.185^	–	0.185	–	–	–	0.105* or 0.185^	–	–	0.185	–	*Add MCPA amine. ^Add MCPA or 2,4-D amine.
0.5–1	0.5–1	–	1(S)	–	–	1	0.5–0.75	1	1(S)	1(S)	–	1(S)	–	Application rate increases with crop growth stage and weed size.
50–150* or 150	–	50* or 125	–	–	–	–	–	–	–	–	50	–	40–50* or 75	*There are many mix partners.
0.33	0.33	–	–	–	–	0.33	–	0.33	–	0.33	–	–	–	Use the lower rate and add diuron 900 to control small weeds.
1.45	0.66	–	–	–	–	–	–	1.45	–	–	–	–	–	Application rate increases with crop growth stage and weed size.
–	0.44–1.4	–	–	–	–	–	–	–	–	–	–	0.88–1.4	–	Application rate increases with crop growth stage and weed size.
25(S) or 25*	–	25*	–	25*	–	–	–	25	–	–	25*	–	25*	Adjuvant: refer to label. Crop growth stage influences mix partner rate. *Add MCPA LVE. ^Non-IMI varieties.
–	–	–	–	–	–	–	–	–	95#	–	–	–	–	†Growth stage determined by mix partner. ^Add MCPA 750. #Add 2,4-D amine.
–	–	0.4	–	0.4	–	–	–	0.2–0.3	–	–	–	–	–	Adjuvant MOS.
1*	–	1*	–	1.5–2	–	1–2	–	1.5–2	–	–	1*	–	1–2 or 1*	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
15–25	25	15–25	–	15–25	–	25	–	25	–	25	15–25	25	20–25	Must be tank mixed with another herbicide. Weed size determines rate and mix partner. *Mix partner dictates growth stage.
0.6–1.2	0.6–1.2	–	1(S)	0.8–1	–	0.8–1	–	0.8–1	1(S)	–	–	0.8–1	–	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
–	–	10	–	–	–	–	–	10	10 or 14	–	10	–	–	Northern NSW only. ^Growth stage for stand-alone use only. #Add MCPA + picloram.
–	–	–	–	0.6	–	–	–	0.3* or 0.9	–	–	–	–	–	Adjuvant is weed specific. Add MCPA LVE. *Add metsulfuron.
–	–	200	–	200*	–	–	–	200	–	–	200	–	200	Adjuvant MOS. *Add fluroxypyr.
–	–	–	–	–	–	–	–	10–13*	–	–	10*	–	10*	*Add terbutryn.
0.5–1	–	–	1(S)	–	–	1	0.5–0.7	1	1(S)	1(S)	–	1(S)	–	Can cause transient yellowing.
0.5–1	–	0.5–1(S)	–	0.6–1	–	0.5–1	–	0.5–1	–	–	0.5–1	–	0.5(S) 0.67–1	Add MCPA LVE for improved control.

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 3 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mintweed	Mustards
Grass and broadleaf control products																		
Chlorsulfuron 750	2	T: 00, CR:>12	g/ha	>30	–	20	–	–	–	–	–	–	–	–	–	–	–	15
Rexade® (pyroxsulam 150 + halauxifen 50), **triticale only**	2 + 4	13–31	g/ha	80–100	100*(S)	100	–	–	100	–	–	–	100(S)	100*(S)	100	–	–	100*
Sulfosulfuron 750	2	11–15/22	g/ha	40–100	–	–	–	–	–	–	–	–	–	–	–	–	–	25(S)
Broadleaf control products																		
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	–	0.5	–	–	–	–	–	–	–	–	–	–	–	0.5
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	–	2.1–3.2	–	–	–	–	–	–	–	2.1–3.2	–	2.1–3.2	–	2.1–3.2
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	85	–	–	85*	–	–	–	85*	65–100	–	–	–	85–100
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90), **triticale only**	5 + 14	13–25	g/ha	50–150	–	200	–	–	–	–	–	–	–	200	–	–	–	200
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50	–	5	–	–	–	–	–	–	5	–	5	–	–	5
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50	–	1–1.4	–	–	–	–	–	–	–	–	–	–	–	0.75–1
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	–	–	–	–	–	–	–	25	15/25*	–	–	–	25
Bromoxynil 200	6	13–30	L/ha	50–200	–	2.1	–	–	–	–	–	–	–	–	–	2.1	–	2.1
Bromoxynil 200, **triticale only**	6	12–31	L/ha	50–200	–	0.525	–	–	0.525(S)	–	–	0.525	0.525	–	0.7	–	–	0.525
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	–	1–1.43	–	1–1.43	–	–	–	–	–	–	–	–	–	–
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100	–	0.75(S)	1(S)	–	–	–	–	–	0.5–1(S)	–	–	–	–	0.5–1
Ecopar® Forte (pyraflufen-ethyl 40), **triticale only**	14	12–29	L/ha	70–150	–	0.2*	–	–	–	–	–	–	0.2–0.4	–	0.2*	–	–	0.2–0.4
Enforcer® 242 (MCPA 420 + picloram 26), **triticale only**	4	22–30	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	–	1
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	0.3	–	0.3*	–	–	–	–	–	–	–	–	–	–	0.3*
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	–	0.54–0.72(S)	–	–	–	–	–	–	0.72(S)	–	–	–	–	0.36–0.72
Galaxy® (pyrasulfotole 75), **triticale only**	27	12–31	mL/ha	50–150	–	250	–	–	250(S)	–	–	250	250	–	335	–	–	250
	27	13–31	mL/ha	50–150	–	250^ or 335*	–	–	335*# or 335^#	–	–	250^	250^ or 335*	–	335^ or 670*	–	–	250^ or 335*
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	32	–	–	–	–	–	–	–	–	–	16	–	–	16
	4	13–31	mL/ha	50–100	–	–	–	–	–	–	–	–	20	–	–	–	–	–
Hotshot® (aminopyralid 10 + fluroxypyr 140), **triticale only**	4	13–31	L/ha	>80	0.75*	–	–	–	–	–	–	–	–	–	–	–	–	–
Igran® (terbutryn 500), **triticale only**	5	13–21	L/ha	50–100	–	0.55–0.85	0.55–0.85	–	–	0.3–0.44*	0.44*	–	–	–	0.44*	0.44–0.6*	–	0.33–0.44* or 0.55–0.85

CR = cereal rye, T = triticale, (S) = suppression only.
MSO = methylated seed oil, NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

New Zealand spinach	Paterson's curse	Peppercress	Pigweed	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Comments. Always refer to the label.
–	15	–	–	–	–	20	15	20	–	–	–	–	–	Rate, plantbacks and crop safety are heavily influenced by soil pH.
–	–	–	–	–	100*	–	–	–	–	–	100*	100*	–	Adjuvant NIS 1000. *Requires mix partner.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Rate, plantbacks and crop safety are heavily influenced by soil pH. Adjuvant MSO.
–	–	–	–	–	–	0.5	–	–	–	–	–	–	–	Do not exceed 0.5 L/ha on young cereals.
–	2.1–3.2	–	–	2.1–3.2	2.1–3.2	–	–	2.1–3.2	–	–	2.1–3.2	2.1–3.2	2.1–3.2	–
–	65–100	–	–	–	85	85	–	85	–	–	85	85	85	Add MCPA 750. *Add dicamba.
–	–	–	–	–	200	–	–	200	–	–	–	–	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
–	5 or 7	–	–	–	–	5	–	5	7(S)	5	5	5 or 7	–	Tank mix partners will broaden the weed spectrum.
–	–	–	–	–	–	–	–	–	–	–	–	0.75–1	–	Rate increases with crop growth stage.
–	25(S) or 25*	25(S) or 25*	–	–	–	–	–	25	–	–	–	25*	–	Adjuvant NIS. *Apply with a partner herbicide.
–	2.1	–	–	–	–	1.4	–	1.4–2.1	–	1.4–2.1	1.4–2.1	2.1	–	Add 2,4-D amine or MCPA amine. Do not spray if temperature is >20 °C.
–	0.525	–	–	–	0.525	–	–	0.525	–	–	0.525	0.525	–	–
–	1–1.43	1–1.43	–	–	–	1–1.43	–	1–1.43	–	–	1–1.5	1–1.43	–	Application rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	0.5–0.75	1.1	–	–	1(S)	0.5–0.75	–	1	1(S)	1(S)	1(S)	0.5–0.75	–	Can cause transient yellowing.
–	0.2*	–	–	–	0.2–0.4	–	–	–	–	0.2*	0.2*	0.2*	–	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
1(S)	–	–	–	–	–	–	–	–	1	–	1	1	–	–
0.3	–	–	–	–	–	–	–	–	–	–	0.3	0.3	–	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
–	–	–	–	–	0.3–0.72	–	–	0.36–0.72	–	–	0.72(S)	0.72(S)	–	Rates increase with weed size and crop growth stage.
–	250	–	–	–	250	–	–	250	–	–	250	250	–	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
–	250^ or 335*	–	–	–	250^ or 335*	–	–	250^	–	–	250^ or 335*	250^ or 500*	–	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid.
22	–	–	16 or 22	–	16–32	–	–	–	–	–	20–32	16–32	–	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	Southern NSW only. Add fluroxypyr.
–	–	–	–	–	0.75	–	–	–	–	–	0.5–0.75*	0.5–0.75*	–	*Add a mix partner.
–	0.55–0.85	–	–	–	–	–	–	0.44*	–	–	0.5–0.75*	0.55–0.85*	–	Add MCPA or 2,4-D. *Add triasulfuron.

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 4 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mintweed	Mustards
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125), **triticale only**	27 + 12	12–30	mL/ha	70–150	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	–	–	1–1.7	–	–	–	–	–	–	–	–	–	–	1–1.7
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	–	–	0.105* or 0.185	–	–	–	–	–	–	–	–	–	–	0.105* or 0.185^
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	–	0.75	1(S)	1(S)	–	–	1(S)	–	1(S)	–	–	–	–	0.5–1
Lontrel® Advanced (clopyralid 600), **triticale only**	4	12–30	mL/ha	50–100	150	–	–	–	–	–	–	75	50* or 125	–	50* or 75	–	–	–
MCPA amine 750	4	12–14	L/ha	30–120	–	–	–	–	–	–	–	–	0.46	–	–	–	–	0.33–0.46
	4	15–37	L/ha	30–120	–	0.93	–	–	–	–	–	–	–	–	–	–	–	0.66
MCPA LVE 570	4	13–37	L/ha	30–120	–	0.965	–	–	–	0.965	–	–	–	–	–	–	–	0.49–0.88
Paradigm® (halauxifen 200 + florasulam 200), **triticale only**	4 + 2	13–37	g/ha	80–100	25*	25	–	–	25*	–	25*	–	25*	25	25*	25	–	25*
Picoflex® (picloram 240), **triticale only**	4	22–31†	mL/ha	50–100	–	–	95#	–	–	–	–	–	–	–	–	–	95#	95# or 110^
Pixxaro® (fluroxypyr 250 + halauxifen 16.25), **triticale only**	4	13–39	L/ha	>80	0.3	0.3	–	–	–	–	–	–	–	0.3	0.3	0.2–0.3	–	–
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	13–31	L/ha	50–100	–	1–2	–	–	1*	–	–	–	1–2	–	1* or 2	–	–	1–2
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	–	15–25	25	–	15–25	–	–	–	20–25	25	15–25	15–25	–	15–25
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	–	0.8–1.2	0.8–1.2	1(S)	–	0.8–1	1(S)	–	1(S)	1(S)	–	0.8–1	–	0.6–1.2
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	10	–	–	10
Starane® Advanced (fluroxypyr 333), **triticale only**	4	13–39	L/ha	>50	–	–	–	–	–	–	–	–	0.9	–	–	–	–	0.3–0.9#
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30), **triticale only**	4	13–31	mL/ha	>80	200	200	–	–	–	–	–	–	–	200*	200	200	–	–
Triasulfuron, **triticale only**	2	13–22	g/ha	30–100	–	–	–	–	–	6.5*	–	–	–	–	10*	10–13*	–	6.5–10*
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	–	0.75	1(S)	1(S)	–	–	1(S)	–	1(S)	1(S)	–	–	–	0.5–1
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150	–	0.5–1	–	–	0.5–1(S)	–	–	0.5–1	0.5–1	–	0.5(S) 0.67–1	–	–	0.5–1

(S) = suppression only.
AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

New Zealand spinach	Paterson's curse	Peppercress	Pigweed	Plantain	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	110	–	–	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
1.7	–	–	–	1.7	–	–	–	–	–	1–1.7	–	1–1.7	–	–
0.185	–	–	–	–	–	–	–	–	–	0.185^	–	0.105* or 0.185^	–	*Add MCPA amine. ^Add MCPA or 2,4-D amine.
–	1(S)	1(S)	–	–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–	1(S)	1(S)	–	Application rate increases with crop growth stage and weed size.
–	–	–	–	–	75*	–	–	–	250*	–	50*	–	–	*There are many mix partners.
–	–	–	–	–	–	–	–	–	–	–	–	0.33	–	Use the lower rate and add diuron 900 to control small weeds.
–	0.66–0.96	–	–	–	–	0.46–0.96	–	–	0.96–1.35	–	–	–	–	Application rate increases with crop growth stage and weed size.
–	–	–	–	–	–	–	–	–	0.965–1.4	–	–	–	–	Application rate increases with crop growth stage and weed size.
–	–	–	–	–	25*	–	–	25*	–	–	25*	25*	–	Adjuvant: refer to label. Crop growth stage influences mix partner rate. *Add MCPA LVE.
85* or 95# or 110(S)^	–	–	–	–	–	–	–	–	110^	–	85* or 95# or 110(S)^	95# or 110^	–	†Growth stage determined by mix partner. #Add 2,4-D amine. *Add MCPA 750, metsulfuron and NIS 1000. ^Add MCPA 750.
–	–	–	–	–	0.4	–	–	–	–	–	0.4	–	–	Adjuvant MOS.
–	1–2	–	–	–	1–2	–	–	–	–	–	1–2	1.5–2(S)	–	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
15	25	–	15	–	15–25	25	–	20–25	15–25	–	15–25	15–25	–	Must be tank mixed with another herbicide. Weed size determines rate and mix partner. *Mix partner dictates growth stage.
–	0.8–1.2	1.2	–	–	0.6–1.2	0.8–1.2	1(S)	0.6–1.2	1(S)	0.8–1	1.2	0.8–1.2	–	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
14	–	–	10 or 14	–	10 or 14	–	–	–	–	–	–	10 or 14	–	Northern NSW only. ^Growth stage for stand-alone use only.
–	–	–	–	–	0.3	–	–	0.3–0.9#	–	–	0.6	0.3* or 0.9	–	Adjuvant is weed specific. Add MCPA LVE. *Add metsulfuron. #Add metsulfuron or MCPA LVE.
–	–	–	–	–	200*	–	–	–	–	–	200^	200^	–	Adjuvant MOS. *Add fluroxypyr. ^Add fluroxypyr + MCPA LVE.
–	–	–	–	–	–	–	–	10*	–	–	–	–	–	*Add terbutryn.
–	1(S)	1(S)	–	–	0.5–1	1(S)	1(S)	0.5–1	1(S)	–	1(S)	1(S)	–	Can cause transient yellowing.
–	0.5–1	–	–	–	0.5–1	–	–	0.5–1	–	–	0.5–1	0.5–1	–	Add MCPA LVE for improved control.

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 5 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Grass and broadleaf control products													
Chlorsulfuron 750	2	T: 00, CR:>12	g/ha	>30	–	–	–	15	–	15 or 20	15	20	Rate, plantbacks and crop safety are heavily influenced by soil pH.
Rexade® (pyroxsulam 150 + halauxifen 50), **triticale only**	2 + 4	13–31	g/ha	80–100	100	–	–	100	100(S)	100*	–	100	Adjuvant NIS 1000. *Requires mix partner.
Sulfosulfuron 750	2	11–15/22	g/ha	40–100	–	–	–	–	–	20	20	–	Rate, plantbacks and crop safety are heavily influenced by soil pH. Adjuvant MSO.
Broadleaf control products													
2,4-D amine 700, **drift restrictions apply**	4	15–31	L/ha	50–250	–	0.5	–	0.5	–	–	0.5	–	Do not exceed 0.5 L/ha on young cereals.
2,4-DB 500, **drift restrictions apply**	4	15–33	L/ha	>80	–	2.1–3.2	–	2.1–3.2	–	–	2.1–3.2	2.1–3.2	–
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	65–85	–	85–100	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
Aptitude® (metribuzin 375 + carfentrazone-ethyl 90), **triticale only**	5 + 14	13–25	g/ha	50–150	200	–	200	200	–	200	200	–	MCPA amine can be added for improved control. Do not use MCPA LVE or any other ester formulations.
Associate® (metsulfuron-methyl 600)	2	13–37	g/ha	>50	–	–	–	5	–	–	5	5 or 7	Tank mix partners will broaden the weed spectrum.
Broadside® (MCPA 280 + bromoxynil 140 + dicamba 40)	4 + 6 + 4	13–30	L/ha	>50	–	–	–	–	–	0.75–1	–	0.75–1	Rate increases with crop growth stage.
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	–	–	15–25	–	15* or 25(S)	15–25	–	Adjuvant NIS. *Apply with a partner herbicide.
Bromoxynil 200	6	13–30	L/ha	50–200	–	1.4–2.1	–	2.1	–	2.1	2.1	2.1	Add 2,4-D amine or MCPA amine. Do not spray if temperature is >20 °C.
Bromoxynil 200, **triticale only**	6	12–31	L/ha	50–200	–	0.7	–	0.525	0.525(S)	0.525 or 0.7	0.525	0.7	–
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	13–30	L/ha	50–200	–	1–1.43	–	1–1.43	–	1–1.43	1–1.43	1–1.43	Application rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
Diflufenican 25 + bromoxynil 250	12 + 6	12–29	L/ha	50–100	–	1	1(S)	0.5–0.75	1(S)	0.5–1 or 0.5*	0.5–0.75	1	Can cause transient yellowing. *Add MCPA LVE.
Ecopar® Forte (pyraflufen-ethyl 40), **triticale only**	14	12–29	L/ha	70–150	0.2*	–	–	0.2*	–	0.15–0.4	0.2–0.4	0.2*	200 mL/ha is the maximum rate at Z12. Add MCPA amine 750. *Add metsulfuron-methyl 600.
Enforcer® 242 (MCPA 420 + picloram 26), **triticale only**	4	22–30	L/ha	>50	–	1	–	1	–	1	1	1(S)	–
FallowBoss® Tordon® (2,4-D amine 300 + picloram 75 + aminopyralid 7.5)	4	14–31	L/ha	50–100	–	0.3 or 0.3*	–	0.3*	–	0.3*	0.3*	0.3*(S)	Northern NSW only. Adjuvant NIS 1000. *Add 2,4-D amine.
Flight® EC (bromoxynil 210 + MCPA 350 + picolinafen 35)	4 + 6 + 12	13–28	L/ha	50–150	–	0.72	0.72	0.36–0.72	–	0.36–0.72	0.36–0.72	–	Rates increase with weed size and crop growth stage.
Galaxy® (pyrasulfotole 75), **triticale only**	27	12–31	mL/ha	50–150	–	335	–	250	250	250 or 335	250	335	Must add bromoxynil 200. Refer to label for mix partner rate and weed size.
	27	13–31	mL/ha	50–150	335*# or 335^#	335^	–	250^ or 335*	335*# or 335^#	250–670^ or 335–670*	250^ or 335*	335* or 335^	Refer to label for mix partner rate and weed size. *Add MCPA LVE. ^Add bromoxynil MA. #Add clopyralid.
Grindstone® (aminopyralid 240)	4	13–31	mL/ha	50–100	–	16–32	–	16	32	–	16	16–32	Northern NSW only. Must have a mix partner. Mix partner determines application timing.
	4	13–31	mL/ha	50–100	–	–	–	–	20	–	–	–	Southern NSW only. Add fluroxypyr.
Hotshot® (aminopyralid 10 + fluroxypyr 140), **triticale only**	4	13–31	L/ha	>80	–	0.5–0.75*	–	–	0.75	–	–	0.5–0.75*	*Add a mix partner.

Table 24. Herbicides for weed control in cereal rye and triticale – early post-emergence – page 6 of 6.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Igran® (terbutryn 500), **triticale only**	5	13–21	L/ha	50–100	–	–	0.55–0.85	0.55–0.85	0.6*	0.44–0.6*	0.33–0.44* or 0.55–0.85	–	Add MCPA or 2,4-D. *Add triasulfuron.
Infinity® Ultra (pyrasulfotole 250 + diflufenican 125), **triticale only**	27 + 12	12–30	mL/ha	70–150	–	–	–	–	–	110	–	110	Requires good coverage. If weeds are shaded, increase water rate. Can mix with MCPA. Adjuvant MSO.
Kamba® M (MCPA 340 + dicamba 80)	4	21–30	L/ha	>50	–	1–1.7	–	1–1.7	1–1.7	1–1.7	1–1.7	1–1.7	–
Kamba®750 (dicamba 750)	4	15–30	mL/ha	>50	–	0.185^	–	0.105* or 0.185^	0.105* or 0.185^	0.105*	0.105* or 0.185^	0.105* or 0.185^	*Add MCPA amine. ^Add MCPA or 2,4-D amine.
Legacy® MA (MCPA 250 + diflufenican 25)	4 + 12	13–30	L/ha	>50	–	1	1	0.35* or 0.5–1	1(S)	0.5–1	0.5–1	0.75(S)	Application rate increases with crop growth stage and weed size. *Add MCPA for radish control.
Lontrel® Advanced (clopyralid 600), **triticale only**	4	12–30	mL/ha	50–100	50* or 75	25–50* or 150	–	–	40* or 50	–	–	–	*There are many mix partners.
MCPA amine 750	4	12–14	L/ha	30–120	–	–	–	–	–	0.33–0.46	0.33–0.46	–	Use the lower rate and add diuron 900 to control small weeds.
	4	15–37	L/ha	30–120	–	0.66–1.35	–	–	–	0.66	0.66	–	Application rate increases with crop growth stage and weed size.
MCPA LVE 570	4	13–37	L/ha	30–120	–	0.74–1.4	–	0.615–0.965	–	0.965–1.4	0.615–1.3	–	Application rate increases with crop growth stage and weed size.
Paradigm® (halauxifen 200 + florasulam 200), **triticale only**	4 + 2	13–37	g/ha	80–100	25 or 25*	–	25(S)	25*	25*	25*	25*	–	Adjuvant: refer to label. Crop growth stage influences mix partner rate. *Add MCPA LVE.
Picoflex® (picloram 240), **triticale only**	4	22–31†	mL/ha	50–100	–	95# or 110^	–	110^	–	95# or 110^	95# or 110^	85* or 95(S)# or 110(S)^	†Growth stage determined by mix partner. *Add MCPA 750, metsulfuron and NIS 1000. ^Add MCPA 750. #Add 2,4-D amine.
Pixxaro® (fluroxypyr 250 + halauxifen 16.25), **triticale only**	4	13–39	L/ha	>80	0.3	–	–	–	–	–	–	–	Adjuvant MOS.
Precept® (MCPA 125 + pyrasulfotole 25)	4 + 27	13–31	L/ha	50–100	1.6*	–	–	1–2	1*	1–2	1–2	1–2	Adjuvant AMS, MSO or MOS. *Add clopyralid for control.
Priority® (florasulam 200)	2	13–37*	mL/ha	80–100	25	15–25	–	15–25	15–25	15–25	15–25	15–25	Must be tank mixed with another herbicide. Weed size and mix partner dictate rate. *Mix partner dictates growth stage.
Quadrant® (MCPA ester 250 + bromoxynil 240 + diflufenican 20 + picolinafen 10)	4 + 6 + 12 + 12	13–28	L/ha	50–100	–	0.8–1.2	0.8–1	0.6–1.2	1(S)	0.6–1.2	0.6–1.2	0.8–1.2	Weed size determines rate. Can cause transient yellowing. Temperatures >20 °C can increase effects.
Salve (aminopyralid 375 + metsulfuron-methyl 300)	4 + 2	13–31^	g/ha	50–100	10	10*	–	10*	–	–	10	10 or 14	Northern NSW only. *Add MCPA LVE 570. ^Growth stage for stand-alone use only.
Starane® Advanced (fluroxypyr 333), **triticale only**	4	13–39	L/ha	>50	–	–	–	0.3–0.9#	–	0.3–0.9#	0.3–0.9#	0.3*	Adjuvant is weed specific. Add MCPA LVE. *Add metsulfuron. #Add metsulfuron or MCPA LVE.
Trezac® (aminopyralid 25 + halauxifen 30 + cloquintocet-mexyl 30), **triticale only**	4	13–31	mL/ha	>80	200	200^	–	–	200	–	–	–	Adjuvant MOS. ^Add fluroxypyr + MCPA LVE.
Triasulfuron, **triticale only**	2	13–22	g/ha	30–100	–	–	–	6.5*	13*	10–13*	6.5*	–	*Add terbutryn.
Triathlon® (MCPA 250 + bromoxynil 150 + diflufenican 25)	4 + 6 + 12	13–30	L/ha	50–100	–	1(S)	1	0.35* or 0.5–1	1(S)	0.5–1	0.5–1	0.75(S)	Can cause transient yellowing. *West of Newell Hwy only.
Velocity® (bromoxynil 210 + pyrasulfotole 37.5)	27 + 6	12–31	L/ha	50–150	–	0.67–1	–	0.5–1	0.5–1(S)	0.5–1	0.5–1	0.5(S) 0.67–1	Add MCPA LVE for improved control.

CR = cereal rye, T = triticale, (S) = suppression only.

AMS = ammonium sulfate, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.

NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Table 25. Herbicides for weed control in cereal rye and triticale – late post-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Amaranth	Amsinckia	Bindweed – black	Blackberry nightshade	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Chickpea – volunteer	Cleavers/bedstraw	Clover
2,4-D amine 700, **drift restrictions apply**	4	31–43	L/ha	50–250	0.5–0.98	0.98	0.98	0.5–0.98	0.715–1.5	–	0.98–1.5	0.5–1.25	–	–	1.1
2,4-D LV ester 680, **drift restrictions apply**	4	31–37	L/ha	30–100	0.8	–	–	–	0.62–0.8	–	0.53–0.8	0.41	–	–	0.62–0.8
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	–	85	–	–	85–100	85	–	–	85–100*	–
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	25	–	–	–	25	25*	25	–	–	–
Lontrel® Advanced (clopyralid 600), **triticale only**	4	12–45	mL/ha	50–100	–	–	–	–	–	–	50–150* or 75–150	–	50* or 125	–	–
MCPA amine 750, **triticale only**	4	15–37	L/ha	30–120	–	–	0.97–1.35	–	–	0.66–0.96	1.45	0.66	–	–	–
MCPA LVE 570	4	15–39	L/ha	30–120	–	–	–	–	–	1.3	–	0.44–1.4	–	–	–
Paradigm® (halauxifen 200 + florasulam 200), **triticale only**	4 + 2	13–37	g/ha	80–100	–	–	–	–	–	25*^	25*(S)	–	25*	25*	–
	4 + 2	31–43* or 31–49	g/ha	80–100	–	–	–	–	–	–	–	–	25 or 25*	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25), **triticale only**	4	13–39	L/ha	>80	–	–	0.4–0.6	–	–	–	–	–	0.4	0.4	–

(S) = suppression only. IMI = imidazolinone-tolerant.
MOS = mineral oil plus surfactant, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fleabane	Fumitory	Hexham scent	Horehound	Lentil – volunteer	London rocket	Comments. Always refer to the label.
–	–	–	0.98–1.25	1.25	–	0.5–1.5	–	1.5	0.5–1.5	0.98–1.5	1.25–1.5	–	0.98	–
0.8	–	0.8	–	0.8	–	0.4–0.8	–	–	0.8	–	–	–	–	–
85–100	85	–	–	85–100	85*	–	85*	–	85	–	–	85*	–	Add MCPA 750. *Add dicamba.
–	–	25(S)*	–	–	–	25	–	–	–	–	–	–	–	Adjuvant MOS or NIS. *Apply with a partner herbicide.
–	–	–	–	–	50* or 125	–	40–50* or 75	150	–	–	–	–	–	*There are many mix partners.
–	–	1.45	–	–	–	–	–	–	0.93	–	–	–	–	Rate increases with crop growth stage and weed size.
–	–	0.44–0.6*	–	–	–	0.88–1.4	–	–	0.44–0.6* or 0.965	–	–	–	0.965	Rate increases with crop growth stage and weed size. *Add Frequency®.
–	–	25	–	–	25*	–	25*	25*	25	–	–	25*	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE. ^Non-IMI-tolerant varieties.
–	–	25	–	–	–	–	–	–	25	–	–	–	–	Adjuvant: refer to label. *Add 2,4-D amine 720 but only before Z43.
–	–	0.2–0.3	–	–	–	–	–	0.3	0.3	–	–	–	–	Adjuvant MOS.

Table 25. Herbicides for weed control in cereal rye and triticale – late post-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Crop growth stage (Zadoks)	Unit of use	Boom water rate (L/ha)	Loosestrife	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Prickly lettuce	Rough poppy
2,4-D amine 700, **drift restrictions apply**	4	31–43	L/ha	50–250	–	0.715–1.5	–	–	1.25	0.5–1.25	0.98–1.5	–	–	–	0.98
2,4-D LV ester 680, **drift restrictions apply**	4	31–37	L/ha	30–100	–	0.41–0.8	–	–	0.8	0.41–0.8	0.8	0.8	–	–	0.8
Affinity® Force (carfentrazone 240)	14	>13	mL/ha	50–150	–	85*	65–100	–	–	85–100	–	65–100	–	85	85
Broadstrike® (flumetsulam 800)	2	61–83	g/ha	50–150	–	25	15/25*	–	–	25	–	25(S) or 25*	25(S) or 25*	–	–
Lontrel® Advanced (clopyralid 600), **triticale only**	4	12–45	mL/ha	50–100	–	50* or 125	–	75	–	–	–	–	–	50–75*	–
MCPA amine 750, **triticale only**	4	15–37	L/ha	30–120	–	–	–	–	–	0.66	–	0.66–0.96	–	–	0.46–0.96
MCPA LVE 570	4	15–39	L/ha	30–120	–	–	–	–	–	0.49–0.88	–	–	–	–	–
Paradigm® (halauxifen 200 + florasulam 200), **triticale only**	4 + 2	13–37	g/ha	80–100	25*	25*	25	25*	25	25*	–	–	–	25*	–
	4 + 2	31–43* or 31–49	g/ha	80–100	–	–	25	–	25	–	–	–	–	–	–
Pixxaro® (fluroxypyr 250 + halauxifen 16.25), **triticale only**	4	13–39	L/ha	>80	–	–	0.3	0.3	0.2–0.3	–	–	–	–	0.4	–

(S) = suppression only. MOS = mineral oil plus surfactant, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Shepherd's purse	Sida	Skeleton weed	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.98–1.5	1.5	0.98–1.5	1.25–1.5	1.25–1.5	1.25	–	–	0.5–1.5	–	0.5–0.98	0.98–1.25	0.715–1.5	0.5–1.25	1.25	–
0.8	–	0.8	–	–	–	–	–	0.41–0.8	–	0.41–0.8	–	0.41–0.8	0.41–0.8	0.8	–
85	–	–	–	85	85	85	65–85	–	85–100	85	85*	100	85	85	Add MCPA 750. *Add dicamba.
25	–	–	–	–	25*	–	–	–	–	15–25	–	15* or 25(S)	15–25	–	Adjuvant MOS or NIS. *Apply with a partner herbicide.
–	–	250*	–	50*	–	–	50* or 75	25–50* or 150	–	–	40* or 50	–	–	–	*There are many mix partners.
–	–	0.96–1.35	–	–	–	–	–	0.66–1.35	–	–	–	0.66	0.66	–	Rate increases with crop growth stage and weed size.
0.44–0.6*	–	0.965–1.4	–	0.44–0.6*	–	0.44–0.6*	–	0.74–1.4	–	0.44–0.6* or 0.615–0.965	–	0.44–0.6* or 0.965–1.4	0.44–0.6* or 0.965–1.4	–	Rate increases with crop growth stage and weed size. *Add Frequency®.
25*	–	–	–	25*	25*	–	25 or 25*	–	25(S)	25*	25*	25*	25*	–	Crop growth stage influences mix partner rate. Adjuvant: refer to label. *Add MCPA LVE.
–	–	–	–	–	–	–	–	–	25(S)	–	–	25 or 25*	–	–	Adjuvant: refer to label. *Add 2,4-D amine 720.
–	–	–	–	0.4	–	–	0.3	–	–	–	–	–	–	–	Adjuvant MOS.

Table 26. Herbicides for weed control in canola – pre-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation type	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amaranth	Amsinckia	Bindweed – black	Caltrop/cat head	Capeweed	Charlock	Chickweed
Imidazolinone-tolerant canola varieties only																			
Sentry® (imazapic 525 + imazapyr 175)	2	IBS	g/ha	70	40–50(S)	40–50	40–50	40–50(S)*	40–50(S)	–	40–50(S)	–	–	–	40–50	–	40–50(S)	–	–
Triazine-tolerant (TT) canola varieties only																			
Atrazine 900	5	PSI, IBS, PSPE	kg/ha	55	1.1–2.2(S)	1.1–2.2(S)	1.1–2.2(S)	–	–	1.1–2.2	1.1–2.2(S)	–	–	–	–	–	1.1–2.2	1.1–2.2	–
Simazine 900	5	PSI, IBS, PSPE	kg/ha	50–200	1.1–2.2(S)	1.1–2.2(S)	1.1–2.2(S)	–	–	1.1–2.2	1.1–2.2(S)	–	–	–	–	–	1.1–2.2	1.1–2.2	–
Tenet® (metazachlor 500)	15	IBS	L/ha	80–250	0.75–1	1(S)	1(S)	–	–	–	–	–	–	–	–	–	1(S)	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS, PSPE	kg/ha	>50	0.86–1.2(S)	–	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	–	–	–	–
All canola varieties																			
Avadex® Xtra (tri-allate 500)	15	PSI, IBS	L/ha	50	1.6–2.4* or 3.2	1.6–2.4*(S)	1.6–2.4*(S)	–	1.6–2.4*	1.6–2.4*	1.6	1.6–2.4*	–	1.6–2.4*(S)	–	1.6–2.4(S)*	–	–	–
Devrinol-C® (napropamide 500)	0	IBS	kg/ha	Not stated	1.75–2.25	–	–	–	–	–	–	1.75–2.25	1.75–2.25	–	–	–	–	–	–
Dual Gold® (S-metolachlor 960)	15	IBS, PSPE	L/ha	>60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	1.25	1.25(S)	1.25(S)	–	1.25(S)	1.25	1.25(S)	–	–	–	–	–	1.25(S)	–	–
Pendimethalin 440	3	IBS	L/ha	50–200	1.5–2.25	–	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	–	–	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1	1	1	–	1	1	1		–	–	–	–	–	–	–
Tenet® (metazachlor 500)	15	IBS	L/ha	80–250	1.5–1.8	1.8	1.8	–	–	–	1.8	–	–	–	–	–	1.8	–	1.8
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	1.7	–	–	–	1.7	–	–	1.2–1.7	1.2–1.7	–	–	1.2–1.7	–	–	–

IMI = imidazolinone-tolerant, mm = millimetres, (S) = suppression.
IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent.
grasses broadleaf weeds

Read the label before using a product.

Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Deadnettle	Erodium/stork's bill	Fleabane	Fumitory	London rocket	Loosestrife	Medic	Mustards	Paterson's curse	Pigweed	Prickly lettuce	Rough poppy	Shepherd's purse	Comments. Always refer to the label.
–	40–50(S)	–	–	–	40–50(S)	–	40–50(S)	–	–	40 or 55(S)	40–50	40–50(S)	–	–	–	–	*Non-IMI varieties only.
–	1.1–2.2	1.1–2.2	–	–	–	–	1.1–2.2	1.1–2.2	–	–	1.1–2.2	1.1–2.2	–	–	–	1.1–2.2	Do not exceed 3 kg of active ingredient per year.
–	1.1–2.2	1.1–2.2	–	–	–	–	1.1–2.2	1.1–2.2	–	–	1.1–2.2	1.1–2.2	–	–	–	1.1–2.2	Do not exceed 3 kg of active ingredient per year.
–	–	–	–	–	–	1	–	–	–	1(S)	–	–	–	–	–	–	Must add a low rate of a registered triazine.
–	–	0.86–1.2	–	0.86–1.2	–	–	–	–	–	0.86–1.2	0.86–1.2	–	–	0.86–1.2	–	0.86–1.2	Use lower rate for lighter soil. Do not exceed 1.2 kg/ha per crop.
–	–	1.6–2.4*	–	1.6–2.4*(S)	–	–	1.6–2.4*	–	–	–	–	–	–	–	1.6–2.4*	–	*Add trifluralin.
–	–	–	–	–	–	–	–	–	–	–	–	–	1.75–2.25	–	–	–	Must be incorporated within 4 hours.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1.25(S)	–	–	–	–	–	–	–	–	1.25	–	–	–	–	1.25(S)	–	–	Sow at 15 mm deep.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	1.8(S)	–	1.8(S)	1.8	1.8	1.8	–	–	–	–	–	–	–	–	–	1.8	Refer to label for soil type and rate interaction.
–	–	–	–	–	–	–	1.2–1.7	–	–	–	–	–	1.2–1.7	–	–	–	Soil type influences rate.

Table 26. Herbicides for weed control in canola – pre-emergence – page 2 of 2. Read the label before using a product.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Imidazolinone-tolerant canola varieties only														
Sentry® (imazapic 525 + imazapyr 175)	2	IBS	g/ha	70	–	–	–	–	–	–	40–50	–	40–50	–
Triazine-tolerant (TT) canola varieties only														
Atrazine 900	5	PSI, IBS, PSPE	kg/ha	55	–	–	1.1–2.2	–	–	1.1–2.2	1.1–2.2(S)	1.1–2.2	–	Do not exceed 3 kg of active ingredient per year.
Simazine 900	5	PSI, IBS, PSPE	kg/ha	50–200	–	–	1.1–2.2	–	–	1.1–2.2	1.1–2.2(S)	1.1–2.2	–	Do not exceed 3 kg of active ingredient per year.
Tenet® (metazachlor 500)	15	IBS	L/ha	80–250	–	–	–	–	–	–	–	–	–	Must add a low rate of a registered triazine.
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS, PSPE	kg/ha	>50	–	0.86–1.2	0.86–1.2(S)	–	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Do not exceed 1.2 kg/ha per crop.
All canola varieties														
Avadex® Xtra (tri-allate 500)	15	PSI, IBS	L/ha	50	–	–	1.6–2.4*(S)	–	–	–	–	–	1.6–2.4*	*Add trifluralin.
Devrinol-C® (napropamide 500)	0	IBS	kg/ha	Not stated	–	1.75–2.25	–	–	–	–	–	–	–	Must be incorporated within 4 hours.
Dual Gold® (S-metolachlor 960)	15	IBS, PSPE	L/ha	>60	–	–	–	–	0.15–0.25	–	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	–	1.25	–	–	–	–	1.25(S)	–	1.25	Sow at 15 mm deep.
Pendimethalin 440	3	IBS	L/ha	50–200	–	–	–	–	–	–	–	–	1.5–2.25	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	–	–	–	–	–	–	–	–	–	–
Tenet® (metazachlor 500)	15	IBS	L/ha	80–250	1.8(S)	1.8	–	1.8(S)	1.8	–	–	–	1.8	Refer to label for soil type and rate interaction.
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	–	–	–	–	–	–	–	–	1.7	–

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, mm = millimetres, (S) = suppression.

ADAMA

Tenet®

Flexible weed control in canola.

Tenet® 500 SC herbicide from ADAMA Australia provides greater flexibility for weed control programs in conventional and herbicide-tolerant canola.

- Alternative mode of action in canola (Group K/Group 15)
- Can be applied pre-sowing (IBS) or post-emergence
- Controls or suppresses 20 annual grass and broadleaf weeds (pre-sowing)
- Revised use patterns for improved crop safety
- Enhances control of emerged annual ryegrass and wild oats when applied with Platinum® Xtra 360
- Ideal partner to broaden weed spectrum and increase efficacy against key weeds

Scan here for more information

HERBICIDE

ADAMA.COM

Table 27. Herbicides for weed control in canola – post-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Apply at crop growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amaranth	Amsinckia	Bindweed – black	Canola – volunteer
Imidazolinone-tolerant canola varieties only															
Intercept® (imazamox 33 + imazapyr 15)	2	2–6-leaf	L/ha	>70	0.6–0.75(S)	0.6–0.75	0.6–0.75	–	–	0.6–0.75(S)	0.6–0.75	–	–	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	2–6-leaf	g/ha	70	40 or 55(S)	40 or 55	40 or 55	40 or 55*	40 or 55	40 or 55(S)	40 or 55	–	40 or 55	40 or 55	40 or 55*
Glufosinate-ammonium-tolerant (Liberty Link) canola varieties only															
Liberty® (glufosinate-ammonium 200)	10	2-leaf to early stem elongation	L/ha	80–100	2 fb 2 or 3 fb 3	1.5 fb 1.5	1.5 fb 1.5	1.5 fb 1.5	–	1.5 fb 1.5	1.5 fb 1.5	–	1.5 fb 1.5	–	–
Triazine-tolerant (TT) canola varieties only															
Atrazine 900	5	After 2–3-leaf	kg/ha	110	–	–	–	–	0.555–1.1	–	–	–	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	Early post-emergent	kg/ha	>50	–	–	–	–	0.66–1.2(S)	0.66–1.2(S)	–	–	–	–	–
All canola varieties															
Diclofop-methyl 375	1	Post-emergent	L/ha	80	1	–	–	–	–	–	1.5–2	–	–	–	–
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125	–	–	–	–
Factor® WG (butroxydim 250)	1	4-leaf to stem elongation	g/ha	50–100	80	80	80	80	80	–	80	–	–	–	–
ForageMax® (halauxifen 100 + aminopyralid 50)	4	4–8-leaf	mL/ha	80–200	–	–	–	–	–	–	–	100	–	–	–
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Not after 6-leaf	L/ha	50–100	0.41	0.41	–	0.41	0.41	–	0.41	–	–	–	–
Haloxyfop 520, **do not use on canola destined for export**	1	2–6-leaf before stem elongation	mL/ha	50–150	75–100	50–75	50–75	75–100	50–75	–	37.5–100	–	–	–	–
Lontrel® Advanced (clopyralid 600)	4	2–8-leaf	mL/ha	50–100	–	–	–	–	–	–	–	–	–	–	–
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25	–	–	–	–
Status® (clethodim 240)	1	Before stem elongation	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5	–	–	–	–
Tenet® (metazachlor 500)	15	1–3-leaf	L/ha	80–250	0.75	–	–	–	–	–	0.75	–	–	–	–

CL = Clearfield, fb = followed by, IMI = imidazolinone-tolerant, (S) = suppression, TT = triazine-tolerant, WHP = withholding period.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Capeweed	Charlock	Chickpea – volunteer	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Erodium/stork's bill	Faba bean – volunteer	Fat hen	Field pea – volunteer	Fumitory	Lentil – volunteer	Comments. Always refer to the label.
0.3–0.5*	0.6–0.75	0.3–0.5*	0.6–0.75(S)	–	–	–	–	0.3–0.5*	–	0.3–0.5*	0.6–0.75	0.3–0.5*	Adjuvant MSO. *Add clopyralid.
–	–	–	40 or 55	40 or 55	40 or 55	40 or 55	40 or 55(S)	–	–	–	40 or 55	–	Can be mixed with clopyralid and clethodim. Adjuvant MSO. *Non-IMI varieties only.
1.5 fb 1.5	–	1.5 fb 1.5	–	1.5 fb 1.5	1.5 fb 1.5	1.5 fb 1.5	–	–	–	1.5 fb 1.5	1.5 fb 1.5	1.5 fb 1.5	Two applications are required 7–14 days apart. Mild, humid conditions are best. Reduced control can occur at <10 °C.
–	–	–	–	–	–	–	–	–	–	–	–	–	Do not exceed 3 kg active ingredient per year. Adjuvant MSO or MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO.
–	–	–	–	–	–	–	–	–	–	–	–	–	Do not spray if temperature is >25 °C. Adjuvant NIS.
–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO or NIS.
–	–	–	–	–	–	–	–	–	–	–	–	–	Must be combined with clethodim or a fop herbicide. Adjuvant MSO.
100	–	100	100	100	–	–	–	100	100	100	75	100	Adjuvant MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
150	–	125	–	–	–	–	–	125	–	75	–	125	–
–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant NIS or MSO.
–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO or MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	Must add clethodim at the highest registered rate. Adjuvant MSO.

Table 27. Herbicides for weed control in canola – post-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Apply at crop growth stage	Unit of use	Boom water rate (L/ha)	London rocket	Loosestrife	Lucerne	Lupin – volunteer	Marshmallow	Medic	Mexican poppy	Mustards	Paterson's curse	Prickly lettuce	Rough poppy
Imidazolinone-tolerant canola varieties only															
Intercept® (imazamox 33 + imazapyr 15)	2	2–6-leaf	L/ha	>70	–	–	–	0.3–0.75*	0.6–0.75	0.3–0.5*	–	0.3–0.75	–	–	–
Sentry® (imazapic 525 + imazapyr 175)	2	2–6-leaf	g/ha	70	20, 40 or 55	–	–	–	–	40 or 55(S)	–	20, 40 or 55	40 or 55	–	–
Glufosinate-ammonium-tolerant (Liberty Link) canola varieties only															
Liberty® (glufosinate-ammonium 200)	10	2-leaf to early stem elongation	L/ha	80–100	–	1.5 fb 1.5	–	1.5 fb 1.5	–	1.5 fb 1.5	–	–	–	1.5 fb 1.5	–
Triazine-tolerant (TT) canola varieties only															
Atrazine 900	5	After 2–3-leaf	kg/ha	110	–	–	–	–	–	–	–	0.5–1.1	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	Early post-emergent	kg/ha	>50	–	–	–	–	–	–	–	–	–	–	–
All canola varieties															
Diclofop-methyl 375	1	Up to harvest WHP	L/ha	80	–	–	–	–	–	–	–	–	–	–	–
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Up to harvest WHP	mL/ha	>50	–	–	–	–	–	–	–	–	–	–	–
Factor® WG (butroxydim 250)	1	4-leaf to start of stem elongation	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	–
ForageMax® (halauxifen 100 + aminopyralid 50)	4	4–8-leaf	mL/ha	80–200	–	–	–	100	100	100	75	–	–	100	100
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Not after 6-leaf	L/ha	50–100	–	–	–	–	–	–	–	–	–	–	–
Haloxyfop 520, **do not use on canola destined for export**	1	2–6-leaf before stem elongation	mL/ha	50–150	–	–	–	–	–	–	–	–	–	–	–
Lontrel® Advanced (clopyralid 600)	4	2–8-leaf	mL/ha	50–100	–	–	75	125	–	75	–	–	–	–	–
Shogun® (propaquizafop 100)	1	Up to harvest WHP	L/ha	50–150	–	–	–	–	–	–	–	–	–	–	–
Status® (clethodim 240)	1	Before stem elongation	L/ha	50–150	–	–	–	–	–	–	–	–	–	–	–
Tenet® (metazachlor 500)	15	1–3-leaf	L/ha	80–250	–	–	–	–	–	–	–	–	–	–	–

CL = Clearfield, fb = followed by, IMI = imidazolinone-tolerant, (S) = suppression, TT = triazine-tolerant, WHP = withholding period.
MOS = mineral oil plus surfactant, MSO = methylated seed oil.

Read the label before using a product.

Shepherd's purse	Skeleton weed	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Vetch	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	0.6–0.75(S)	0.6–0.75(S)	0.3–0.5* or 0.6–0.75	–	–	–	–	0.3–0.75	0.3–0.75	–	Adjuvant MSO. *Add clopyralid.
20, 40 or 55	–	–	40 or 55	–	–	–	40 or 55	–	40 or 55(S)	20, 40 or 55	20, 40 or 55	40 or 55	Can be mixed with clopyralid and clethodim. Adjuvant MSO.
–	–	–	1.5 fb 1.5	–	1.5 fb 1.5	1.5 fb 1.5	1.5 fb 1.5	–	1.5 fb 1.5	3 fb 3(S)	–	1.5 fb 1.5	Two applications are required 7–14 days apart. Mild, humid conditions are best. Reduced control can occur at <10 °C.
–	–	–	–	–	–	–	–	0.5–1.1	–	0.5–1.1	0.5–1.1	–	Do not exceed 3 kg active ingredient per year. Adjuvant MSO or MOS.
–	–	–	0.6–1.2(S)	–	–	–	–	–	–	0.6–1.2	–	–	Adjuvant MSO.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
100	–	100	–	–	–	100	–	–	100	–	–	–	Adjuvant MOS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	150	–	–	–	75	75–150	–	–	50	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 28. Herbicides for weed control in glyphosate-tolerant canola varieties – post-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Apply at crop growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amsinckia	Bindweed – black	Capeweed	Chickpea – volunteer	Chickweed	Cudweed	Deadnettle	Dock
Optimum GLY® canola varieties only																				
CRUCIAL® (glyphosate 600)	9	Cotyledon to early bloom	L/ha	80	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8
Weedmaster® DST® (glyphosate 470)	9		L/ha	80	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3
Roundup Ready® canola varieties only																				
CRUCIAL® (glyphosate 600)	9	Emergence to 6-leaf	L/ha	80	1	1	1	1	1	1	1	1	–	–	1	1	–	–	–	–
Roundup Ready® PL (glyphosate 540)	9		L/ha	50–80	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	–	–	1.15	1.15	–	–	–	–
Roundup Ready® with PLANTSHIELD® (glyphosate 690)	9		L/ha	50–80	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	–	–	0.9	0.9	–	–	–	–
Weedmaster® DST® (glyphosate 470)	9		L/ha	80	1.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TruFlex® canola varieties only																				
CRUCIAL® (glyphosate 600)	9	Emergence to 1st flower	L/ha	80	1–1.5	1–1.5	1–1.5	1–1.5	1–1.5	1–1.5	1–1.5	1–1.5	–	–	1–1.5	1–1.5	–	–	–	–
Roundup Ready® PL (glyphosate 540)	9		L/ha	50–80	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	–	–	1.15–1.67	1.15–1.67	–	–	–	–
Roundup Ready® with PLANTSHIELD® (glyphosate 690)	9		L/ha	50–80	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	–	–	0.9–1.3	0.9–1.3	–	–	–	–
Weedmaster® DST® (glyphosate 470)	9		L/ha	80	1.3–1.9	1.3–1.9	1.3–1.9	1.3–1.9	1.3–1.9	1.3–1.9	1.3–1.9	1.3–1.9	–	–	1.3–1.9	1.3–1.9	–	–	–	–

grasses broadleaf weeds

Read the label before using a product.

Erodium/stork's bill	Field pea – volunteer	Fumitory	Lentil – volunteer	Lupin – volunteer	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Prickly lettuce	Skeleton weed	Sow thistle/milk thistle	Spiny emex	Sub clover	Thistle (see label for species)	Toad rush	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	1–1.8	Maximum of 2 applications. Minimum of 14 days between applications.
1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	1.3–2.3	Do not use as the only method of weed control if glyphosate-resistant weeds are suspected or present.
–	1	–	1	1	–	–	1	–	1	–	–	–	–	–	1	–	1	1	–	Maximum of 2 applications. Minimum of 14 days between applications.
–	1.15	–	1.15	1.15	1.15	–	1.15	–	1.15	–	–	–	–	1.15	1.15	1.15	1.15	1.15	–	
–	0.9	–	0.9	0.9	0.9	–	0.9	–	0.9	–	–	–	–	0.9	0.9	0.9	0.9	0.9	–	Do not use as the only method of weed control if glyphosate-resistant weeds are suspected or present.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
–	1–1.5	–	1–1.5	1–1.5	1–1.5	–	1–1.5	–	1–1.5	–	–	–	–	1–1.5	1–1.5	–	1–1.5	1–1.5	–	2–3 applications. Minimum of 14 days between applications.
–	1.15–1.67	–	1.15–1.67	1.15–1.67	1.15–1.67	–	1.15–1.67	–	1.15–1.67	–	–	–	–	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	1.15–1.67	–	
–	0.9–1.3	–	0.9–1.3	0.9–1.3	0.9–1.3	–	0.9–1.3	–	0.9–1.3	–	–	–	–	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	0.9–1.3	–	Do not use as the only method of weed control if glyphosate-resistant weeds are suspected or present.
–	1.3–1.9	–	1.3–1.9	1.3–1.9	1.3–1.9	–	1.3–1.9	–	1.3–1.9	–	–	–	–	1.3–1.9	1.3–1.9	–	1.3–1.9	1.3–1.9	–	

Table 29. Herbicides for weed control in linseed – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Wild oats	Amaranth	Amsinckia	Bindweed – black	Caltrop/cat head	Canola – volunteer	Capeweed	Charlock	Cleavers/bedstraw
Pre-emergent weed control																		
Avadex® Xtra (tri-allate 500)	15	PSI, IBS	L/ha	50	–	–	–	–	–	1.6	–	–	–	–	–	–	–	–
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	1.2–1.7	–	–	–	1.2–1.7	–	1.2–1.7	–	–	1.2–1.7	–	–	–	–
Post-emergent weed control – grass weeds. High levels of herbicide resistance to Groups 1 and 2 selective herbicides are common in most grass weeds. Do not rely on these products as your only management tool.																		
Diclofop-methyl 375	1	Post-emergent	L/ha	80	1	–	–	–	–	1.5–2								
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	80–180								
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–100	0.41	0.41	–	0.41	0.41	0.41								
Haloxyfop 520	1	From 2-leaf to bud development	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	37.5–100								
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	0.25–0.3								
Post-emergent weed control – broadleaf weeds																		
Bromoxynil 200	6	Crop 50–150 mm tall	L/ha	50–200							–	1.4–2.1	1.4–2.1	–	–	1.4–2.1	–	1.4–2.1
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	Crop 50–150 mm tall	L/ha	50–200							–	1–1.43	1–1.43	–	–	1–1.43	1–1.43	0.54
Enforcer® 242 (MCPA 420 + picloram 26)	4	Crop 80–200 mm tall	L/ha	>50							–	–	0.67–0.84	–	–	–	–	–
MCPA amine 750	4	Crop 100–150 mm tall	L/ha	>70							–	–	–	–	0.46–0.73	–	0.46–0.73	–
Picoflex® (picloram 240)	4	Crop 80–200 mm tall	mL/ha	50–100							–	–	70–90	–	–	–	–	–

IBS = incorporated by sowing, PSI = pre-sowing incorporated, (S) = suppression, mm = millimetres.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000). Refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Corn gromwell	Fat hen	Fumitory	Hexham scent	Lupin – volunteer	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Peppercress	Pigweed	Rough poppy	Shepherd's purse	Skeleton weed	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	1.2–1.7	–	–	–	–	–	–	–	1.2–1.7	–	–	–	Application rate is determined by soil type.
Ensure you have an integrated weed management (IWM) plan in place. It is recommended to get your weeds tested for resistance; consult your advisor for location specific information.														
														Do not spray if temperature is >25 °C. Adjuvant NIS.
														Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
														–
														Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
														Adjuvant NIS or MSO.
1.4–2.1	1.4–2.1	2.1	–	–	2.1	2.1	–	2.1	–	–	1.4	1.4–2.1	–	Do not spray if temperature is >20 °C.
1–1.43	1–1.43	1–1.43	1–1.43	–	1–1.43	1–1.43	–	1–1.43	1–1.43	–	1–1.43	1–1.43	–	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
–	–	–	–	–	–	0.67–0.84	0.67–0.84(S)	–	–	–	–	–	0.67–0.84	Rate increases with crop growth stage and weed size.
–	0.46–0.73	–	–	0.46–0.73	–	0.46–0.73	–	0.46–0.73	–	–	0.46–0.73	–	–	Rate increases with crop growth stage and weed size.
–	–	–	–	–	–	70–90	70–90 (S)	–	–	–	–	–	70–90	Add MCPA 750.

Table 29. Herbicides for weed control in linseed – page 2 of 2. Read the label before using a product.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Unit of use	Boom water rate (L/ha)	Sorrel	Sow thistle/milk thistle	Spiny emex	Thistle (see label for species)	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Pre-emergent weed control														
Avadex® Xtra (tri-allate 500)	15	PSI, IBS	L/ha	50	–	–	–	–	–	–	–	–	–	–
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	–	–	–	–	–	–	–	–	1.7	Application rate is determined by soil type.
Post-emergent weed control – grass weeds. High levels of herbicide resistance to Groups 1 and 2 selective herbicides are common in most grass weeds. Do not rely on these products as your only management tool. Ensure you have an integrated weed management (IWM) plan in place. It is recommended to get your weeds tested for resistance; consult your advisor for location specific information.														
Diclofop-methyl 375	1	Post-emergent	L/ha	80										Do not spray if temperature is >25 °C. Adjuvant NIS.
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100										Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–100										–
Haloxyfop 520	1	From 2-leaf to bud development	mL/ha	50–150										Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150										Adjuvant NIS or MSO.
Post-emergent weed control – broadleaf weeds														
Bromoxynil 200	6	Crop 50–150 mm tall	L/ha	50–200	1.4–2.1	1.4–2.1	2.1	1.4–2.1	–	2.1	2.1	2.1	2.1	Do not spray if temperature is >20 °C.
Bronco® MA-X (bromoxynil 280 + MCPA 280)	6 + 4	Crop 50–150 mm tall	L/ha	50–200	–	–	1–1.43	1–1.43	1–1.43	1–1.43	1–1.43	1–1.43	1–1.43	Rate increases with crop growth stage and weed size. Do not spray if temperature is >20 °C.
Enforcer® 242 (MCPA 420 + picloram 26)	4	Crop 80–200 mm tall	L/ha	>50	–	–	0.67–0.84	0.67–0.84	–	–	0.67–0.84	0.67–0.84	0.67–0.84(S)	Rate increases with crop growth stage and weed size.
MCPA amine 750	4	Crop 100–150 mm tall	L/ha	>70	–	–	–	0.46–0.73	0.46–0.73	0.46–0.73	0.46–0.73	0.46–0.73	0.46–0.73	Rate increases with crop growth stage and weed size.
Picoflex® (picloram 240)	4	Crop 80–200 mm tall	mL/ha	50–100	–	–	70–90	70–90	–	–	70–90	70–90	70–90 (S)	Add MCPA 750.

IBS = incorporated by sowing, PSI = pre-sowing incorporated, (S) = suppression, mm = millimetres.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000). Refer to Table 7 for example products.

Table 30. Herbicides for weed control in safflower. Read the label before using a product.

Note: example trade names shown. Others may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amaranth	Caltrop/cat head	Fumitory	Pigweed	Wireweed/hogweed	Comments. Always refer to the label.
Pre-emergent weed control																			
Avadex® Xtra (triallate 500)	15	PSI	–	L/ha	50	–	–	–	–	–	–	1.6	–	–	–	–	–	–	–
Pendimethalin 440	3	PSI, IBS	–	L/ha	50–200	1.5–2.25	–	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	1.5–2.25	Use lower rate for lighter soil.
TriflurX® (trifluralin 480)	3	PSI, IBS	–	L/ha	70–450	1.2–1.7	–	–	–	1.2–1.7	–	1.2–1.7	1.2–1.7	1.2–1.7	1.2–1.7	1.2–1.7	1.2–1.7	1.2–1.7	Soil type influences rate.
Post-emergent weed control																			
Diclofop-methyl 375	1	Post-emergent	2 to 4–leaf	L/ha	80	1	–	–	–	–	–	1.5–2	–						Do not spray if temperature is >25 °C. Adjuvant NIS.
Shogun® (propaquizafop 100)	1	Post-emergent	3–leaf to early tiller	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25	–						Adjuvant NIS or MSO.

IBS = incorporated by sowing, PSI = pre-sowing incorporated, (S) = suppression.
MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Table 31. Herbicides for weed control in chickpea – pre-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amaranth	Amsinckia	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Caltrop/cat head
Avadex® Xtra (tri-allate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	1.6	–	–	–	–	–	–	–
Balance® 750 (isoxaflutole 750)	27	PSPE	g/ha	>50	–	–	–	–	100*	–	–	–	–	–	–	–	–
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2(S)	–	–	–	–	–	–	–	–	1.7 or 2.2	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	2.5	–	–	–	2.5	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	–
Outlook® (dimethenamid-p 720)	15	IBS	L/ha	70–120	1	–	–	–	–	–	–	–	–	–	–	–	–
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	IBS	kg/ha	>50	1(S)	–	–	1(S)	–	1(S)	–	–	–	–	–	–	–
	5 + 27	PSPE	kg/ha	>50	1(S)	–	–	1(S)	–	1(S)	–	–	–	–	–	–	–
Pendimethalin 440	3	IBS	L/ha	50–200	1.5–2.25	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	–	–
Prometryn 900	5	PSPE	kg/ha	50–100	–	–	–	0.83(S)	–	–	–	–	–	–	0.83(S)	–	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	–
	14	PSPE	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1–2	1–2	1–2	1–2	1–2	1–2	1–2	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	118	118	118(S)	118	118	118(S)	–	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	0.28–0.58(S)	–	–	–	–	–	0.28–0.58	–	0.28–0.58	–	–	–	–
Simazine 900	5	PSI, IBS, PSPE	kg/ha	50–100	0.8 – 1.1^	0.8 – 1.1^	0.8–1.1^(S)	0.8(S)*	0.8–1.1^(S)	–	–	–	–	–	0.8*(S)	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	–	–	–
	5	PSPE	kg/ha	>50	0.6–0.86(S)	–	–	0.6–0.86(S)	0.6–0.86(S)	0.6–0.86(S)	–	–	–	–	–	–	–
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	1.2–1.7	–	–	1.2–1.7	–	–	1.2–1.7	1.2–1.7	–	–	–	–	1.2–1.7
Ultro® (carbentamide 900)	23	IBS, PSPE	kg/ha	50–150	1.1(S)	1.1(S)	1.1(S)	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	–	–	–	–	–	–	–	180(S)	–	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	200(S)	–	–	–	–	–	–	–	200	200	200	–	–

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
grasses broadleaf weeds

Read the label before using a product.

Canola – volunteer	Capeweed	Charlock	Chickweed	Cleavers/bedstraw	Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle	Dock	Erodium/stork's bill	Fat hen	Fleabane	Fumitory	Horehound	London rocket	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	100	–	–	–	–	100	–	100*	–	–	–	–	–	–	–	Do not use on light or gravelly soil. *Add simazine.
–	1.7 or 2.2	–	1.7 or 2.2	–	–	1.7 or 2.2	–	1.7 or 2.2	–	–	1.7 or 2.2	–	1.7 or 2.2(S)	–	–	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
–	–	–	–	–	–	2.5	–	–	–	–	–	–	–	–	–	–
–	0.83–1.1	–	–	–	–	0.83–1.1	–	–	–	0.83–1.1	–	–	–	–	–	Use lower rate for lighter soil.
–	0.55–0.83	–	–	–	–	0.55–0.83	–	–	–	0.55–0.83	–	–	–	–	–	Use lower rate for lighter soil.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Will only provide suppression in high weed populations.
–	1	–	–	–	1	–	–	–	–	–	–	1	1(S)	–	–	Sow at 50 mm deep. Use lower rate on lighter soil.
–	1	–	–	–	0.7–1	1	–	0.7–1	–	–	–	1	1	–	1	Sow at 50 mm deep. Use lower rate on lighter soil.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	0.83	–	–	–	–	–	–	–	Add simazine.
–	0.75–1.5(S)	–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	–	–	Lower rates generally provide suppression and shorter residual.
–	0.9–1.25(S)	–	–	–	–	0.9–1.25(S)	–	0.9–1.25	–	–	–	0.5–1.25(S)	0.5–0.9(S) or 0.5–1.25	–	–	Lower rates generally provide suppression and shorter residual.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Use higher rates for heavier soil and weed burdens.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	0.28–0.58	0.28–0.58	0.28–0.58	–	0.28–0.58	–	–	0.28–0.58	0.28–0.58	0.28–0.58	0.28–0.58	–	0.28–0.58	0.28–0.58	–	Southern NSW only. Soil type influences rate. Do not apply to sandy soil. Sow at 50 mm deep.
0.8–1.1^ non-TT	0.8–1.1^	–	–	–	0.8–1.1^	–	–	0.8*	–	–	–	–	0.8* or 0.8–1.1^	–	–	*Add prometryn. ^Add trifluralin (incorporate within 4 h).
–	–	–	–	–	0.86–1.2	–	–	0.86–1.2	–	–	–	–	–	–	–	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8. For PSPE, apply to soil within 2 days after sowing.
–	–	–	–	–	0.6–0.86	–	–	0.6–0.86	–	–	–	–	–	–	–	
–	–	–	–	–	–	–	–	–	–	–	–	–	1.2–1.7(S)	–	–	Soil type influences rate.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control. Sow 30–50 mm deep.
180(S)	180(S)	–	180(S)	180(S)	–	180(S)	–	–	–	–	–	180(S)	180(S)	–	–	Can cause crop damage in light soil.
200		–	–	200	–	200	–	200	–	–	–	200	200	–	–	Apply to light soil.

Table 31. Herbicides for weed control in chickpea – pre-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Marshmallow	Medic	Mexican poppy	Mustards	New Zealand spinach	Pigweed	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Sorrel	Sow thistle/milk thistle
Avadex® Xtra (tri-allate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	–	–	–	–	–	–	–
Balance® 750 (isoxaflutole 750)	27	PSPE	g/ha	>50	–	100	–	100	–	–	100	–	–	–	–	100
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	–	–	–	1.7 or 2.2	–	–	1.7 or 2.2	1.7 or 2.2	–	–	–	1.7 or 2.2
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–
Outlook® (dimethenamid-p 720)	15	IBS	L/ha	70–120	–	–	–	–	–	–	–	–	–	–	–	–
Palmero® TX (terbuthylazine 750 + isoxaflutole 75)	5 + 27	IBS	kg/ha	>50	–	1(S)	–	–	–	–	–	–	–	–	–	–
	5 + 27	PSPE	kg/ha	>50	1	1	–	0.7–1	–	–	0.7–1	–	–	0.7–1	–	0.7–1
Pendimethalin 440	3	IBS	L/ha	50–200	–	–	–	–	–	–	–	–	–	–	–	–
Prometryn 900	5	PSPE	kg/ha	50–100	–	–	–	0.83	–	–	0.83	–	–	0.83	–	0.83
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	0.5–0.75(S) or 0.5–1.5	–	–	0.5–0.75(S) or 0.5–1.5	–	–	–	–	0.5–0.75(S) or 0.5–1.5
	14	PSPE	L/ha	>50	–	–	–	0.5–0.9(S) or 0.5–1.25	–	–	0.5–1.25	–	–	–	–	0.5–1.25
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	–	–	–	–	–	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	–	–	–	0.28–0.58	–	–	–	0.28–0.58	0.28–0.58	0.28–0.58	0.28–0.58	0.28–0.58
Simazine 900	5	PSI, IBS, PSPE	kg/ha	50–100	–	–	–	0.8*	–	–	0.8* or 0.8–1.1(S)	0.8–1.1^	–	0.8* or 0.8–1.1(S)	–	0.8* or 0.8–1.1
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	–	0.86–1.2	–	0.86–1.2	–	–	0.86–1.2	–	–	0.86–1.2	–	0.86–1.2
	5	PSPE	kg/ha	>50	–	0.6–0.86	–	0.6–0.86	–	–	0.6–0.86	–	–	0.6–0.86	–	0.6–0.86
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	–	–	–	–	–	1.2–1.7	–	–	–	–	–	–
Ultro® (carbentamide 900)	23	IBS, PSPE	kg/ha	50–150	–	–	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	180(S)	180(S)	–	180(S)	180(S)	–	–	–	180(S)
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	–	–	200	200	–	–	200	–	–	200	–	200

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.

Read the label before using a product.

Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–
100*(S)	–	–	100*(S)	–	100	100	100	100*(S)	Do not use on light or gravelly soil. *Add simazine.
1.7 or 2.2	1.7 or 2.2	–	–	–	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2	1.7 or 2.2(S)	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
–	–	–	–	2.5	–	–	–	–	–
0.83–1.1	–	–	–	0.83–1.1	–	0.83–1.1	0.83–1.1	–	Use lower rate for lighter soil.
0.55–0.83	–	–	–	0.55–0.83	–	0.55–0.83	–	–	Use lower rate for lighter soil.
–	–	–	–	–	–	–	–	–	–
1(S)	–	–	–	–	–	–	0.55–0.84	–	Sow at 50 mm deep. Use lower rate for lighter soil.
1(S)	–	–	–	0.7–1	0.7–1	1	0.7–1	0.7–1	
–	–	–	–	–	–	–	–	1.5–2.25	–
–	–	–	–	–	0.83	–	0.83	0.83	Add simazine.
0.75–1.5(S)	–	–	–	0.75–1.5(S)	–	0.5–0.75(S) or 0.5 –1.5	0.5–0.75(S) or 0.5 –1.5	–	Lower rates generally provide suppression and shorter residual.
0.9–1.25(S)	–	–	–	0.9–1.25(S)	–	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	
–	–	–	–	–	–	–	–	–	–
–	–	–	–	118	–	–	–	–	–
0.28–0.58	0.28–0.58	0.28–0.58(S)	–	0.28–0.58	–	0.28–0.58	0.28–0.58	0.28–0.58	Southern NSW only. Soil type influences rate. Do not apply to sandy soil. Sow at 50 mm deep.
–	–	–	–	–	0.8* or 0.8–1.1 or ^	–	0.8–1.1^	0.8* or 0.8–1.1(S) or ^	*Add prometryn. ^Add trifluralin (incorporate within 4 h).
0.86–1.2(S)	–	–	–	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8. For PSPE apply to soil within 2 days after sowing.
0.6–0.86(S)	–	–	–	0.6–0.86	0.6–0.86	0.6–0.86(S)	0.6–0.86	0.6–0.86	
–	–	–	–	–	–	–	–	1.2–1.7	Soil type influences rate.
–	–	–	–	–	–	–	–	–	–
–	–	–	–	180(S)	–	180(S)	–	180(S)	Can cause crop damage in light soil.
–	–	–	200	200	200	200	200	200	Apply to light soil.

Table 32. Herbicides for weed control in chickpea – post-emergence. Read the label before using a product.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Canola – volunteer	Charlock	Cleavers/bedstraw	Lupin – volunteer	Marshmallow	Mustards	Shepherd's purse	Turnip weed	Wild radish	Wild turnip	Comments. Always refer to the label.
Broadstrike® (flumetsulam 800)	2	4–6 branches	g/ha	50–150	–	–	–	–	–	–	–	25	25	25	25	25	25	25	25	25	25 (S)	25	Can cause crop discolouration, stunting and/or delayed flowering. Do not tank mix or add adjuvants.
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125												Adjuvant MSO or NIS.
Factor® WG (butroxydim 250)	1	Post-emergent	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180												Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–100	–	–	0.5	–	–	–	–												–
Haloxyfop 520	1	2-leaf–bud formation	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100												Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25												Adjuvant NIS or MSO.
Status® (clethodim 240)	1	Not after full flower	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5												Adjuvant MSO or MOS.

(S) = suppression.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

GET THE EARLY ADVANTAGE

Intrepid Edge®

Jemvelva® active

INSECTICIDE

POWER AND CONSISTENCY

Intrepid Edge offers TWO unique modes of action to achieve fast, long-lasting selective control of chewing pests in Mung beans, Maize & Chickpeas.

- Not a Group 28 - Contains MoA groups 5 & 18.
- Fast acting – quickly stop chewing pests.
- Activity on all growth stages, including adults.

Protect your crop early with the powerful, long-lasting control of Intrepid Edge.

CORTEVA™ agriscience

corteva.com.au

Table 33. Herbicides for weed control in faba bean – pre-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amsinckia	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Canola – volunteer	Capeweed
Avadex® Xtra (tri-allate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	1.6	–	–	–	–	–	–	–
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2(S)	–	–	–	–	–	–	–	1.7 or 2.2	–	1.7 or 2.2
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	2.5	–	–	–	2.5	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	0.83–1.1
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	0.55–0.83
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	1.25	1.25(S)	1.25(S)	1.25(S)	1.25	1.25(S)	–	–	–	–	–	–	1.25(S)
Pendimethalin 440	3	IBS	L/ha	50–200	1.5–2.25	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	–	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	0.75–1.5(S)
	14	PSPE	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	0.9–1.25(S)
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1–2	1–2	1–2	1–2	1–2	1–2	1–2	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	0.28–0.58(S)	–	–	–	–	–	0.28–0.58	0.28–0.58	–	–	–	–	0.28–0.58
Simazine 900	5	IBS, PSPE	kg/ha	50–100	1 or 1.4	1 or 1.4	1 or 1.4	0.5 or 0.8*	–	0.8–2.2(S)*	–	–	–	–	–	0.5 or 0.8*	1 or 1.4
Spinnaker® (imazethapyr 700)	2	PSPE	g/ha	50–100	70	70	–	–	–	70	–	70–100	–	–	–	–	70–100
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	–	–	–
	5	PSPE	kg/ha	>50	0.6–0.86(S)	–	–	0.6–0.86(S)	0.6–0.86(S)	0.6–0.86(S)	–	–	–	–	–	–	–
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	1.1–1.7	1.1–1.7	1.1–1.7	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	–	–	–	–	–	–	180(S)	–	180(S)	180(S)
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	200(S)	–	–	–	–	–	–	200	200	200	–	200	200

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
grasses broadleaf weeds

Read the label before using a product.

Charlock	Chickpea – volunteer	Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle	Dock	Erodium/stork's bill	Fat hen	Fleabane	Fumitory	Horehound	Loosestrife	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	1.7 or 2.2	–	–	–	–	1.7 or 2.2	–	1.7 or 2.2	–	–	1.7 or 2.2	–	1.7 or 2.2(S)	–	–	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
–	–	–	–	–	–	2.5	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	0.83–1.1	–	–	–	0.83–1.1	–	–	–	–	–	Use lower rate for lighter soil.
–	–	–	–	–	–	0.55–0.83	–	–	–	0.55–0.83	–	–	–	–	–	–
–	–	–	1.25(S)	–	–	–	–	–	–	–	–	–	–	–	1.25	Sow at 30 mm deep.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	–	–	Lower rates generally provide suppression and shorter residual.
–	–	–	–	–	–	0.9–1.25(S)	–	0.9–1.25	–	–	–	0.5–1.25(S)	0.5–0.9(S) or 0.5–1.25	–	–	Lower rates generally provide suppression and shorter residual. Can cause transient phytotoxicity.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Use higher rates for heavier soil and weed burdens.
0.28–0.58	0.28–0.58	–	–	–	0.28–0.58	–	–	0.28–0.58	0.28–0.58	–	0.28–0.58	–	0.28–0.58	0.28–0.58	–	Soil type influences rate. Do not apply to sandy soil. Sow at 50 mm deep.
–	–	–	–	–	1 or 1.4	–	–	1 or 1.4	–	–	–	–	1 or 1.4	–	–	Use lower rate for lighter soil. *Add trifluralin.
–	–	70–100	–	–	–	–	–	70	–	–	–	–	–	–	–	Some weeds might not be completely controlled, but growth will be suppressed.
–	–	–	–	–	0.86–1.2	–	–	0.86–1.2	–	–	–	–	–	–	–	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
–	–	–	–	–	0.6–0.86	–	–	0.6–0.86	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control.
–	–	180(S)	180(S)	–	–	180(S)	–	–	–	–	–	180(S)	180(S)	–	–	Can cause crop damage in light soil.
–	–	–	200	–	–	200	–	200	–	–	–	200	200	–	–	Apply 0–7 days before sowing. Light soil and 15 mm rainfall in 7–10 days are needed for ryegrass control.

Table 33. Herbicides for weed control in faba bean – pre-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Sorrel	Soursob/oxalis	Sow thistle/milk thistle
Avadex® Xtra (triallate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	–	–	–	–	–	–	–
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	–	–	1.7 or 2.2	–	–	1.7 or 2.2	1.7 or 2.2	–	–	–	–	1.7 or 2.2
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	–	–	–	–	–	1.25(S)	–	–	–	–	–	1.25
Pendimethalin 440	3	IBS	L/ha	50–200	–	–	–	–	–	–	–	1.5–2.25	–	–	–	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	0.5–0.75(S) or 0.5–1.5	–	–	0.5–0.75(S) or 0.5–1.5	–	–	–	–	–	0.5–0.75(S) or 0.5–1.5
	14	PSPE	L/ha	>50	–	–	0.5–0.9(S) or 0.5–1.25	–	–	0.5–1.25	–	–	–	–	–	0.5–1.25
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	–	–	–	–	–	–	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	–	–	0.28–0.58	–	–	–	0.28–0.58	0.28–0.58	0.28–0.58	0.28–0.58	–	0.28–0.58
Simazine 900	5	IBS, PSPE	kg/ha	50–100	1 or 1.4	–	0.5 or 0.8*	–	–	–	–	–	–	–	0.5 or 0.8*	–
Spinnaker® (imazethapyr 700)	2	PSPE	g/ha	50–100	–	–	70	–	70	70–100	–	–	70	–	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2	–	0.86–1.2	–	–	0.86–1.2	–	–	0.86–1.2	–	–	0.86–1.2
	5	PSPE	kg/ha	>50	0.6–0.86	–	0.6–0.86	–	–	0.6–0.86	–	–	0.6–0.86	–	–	0.6–0.86
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	–	–	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	180(S)	180(S)	–	180(S)	180(S)	–	–	–	–	180(S)
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	–	200	200	–	–	200	–	–	200	–	–	200

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.

Read the label before using a product.

Spiny emex	Stinging nettle	Sub clover	Thistle (see label for species)	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–
1.7 or 2.2	1.7 or 2.2	–	–	–	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2	1.7 or 2.2(S)	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
–	–	–	–	2.5	–	–	–	–	–
0.83–1.1	–	–	–	0.83–1.1	–	0.83–1.1	0.83–1.1	–	Use lower rate for lighter soil.
0.55–0.83	–	–	–	0.55–0.83	–	0.55–0.83	0.55–0.83	–	–
–	–	–	–	–	–	1.25(S)	–	1.25	Sow at 30 mm deep.
–	–	–	–	–	–	–	–	–	–
0.75–1.5(S)	–	–	–	0.75–1.5(S)	–	0.5–0.75(S) or 0.5–1.5	0.5–0.75(S) or 0.5–1.5	–	Lower rates generally provide suppression and shorter residual.
0.9–1.25(S)	–	–	–	0.9–1.25(S)	–	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	Lower rates generally provide suppression and shorter residual. Can cause transient phytotoxicity.
–	–	–	–	–	–	–	–	–	–
0.28–0.58	0.28–0.58	0.28–0.58(S)	–	0.28–0.58	–	0.28–0.58	0.28–0.58	0.28–0.58	Soil type influences rate. Do not apply to sandy soil. Sow at 50 mm deep.
–	–	–	0.5 or 0.8*	–	–	–	–	0.5 or 0.8*	Use lower rate for lighter soil. *Add trifluralin.
70	70	–	–	70	70	70	70	70(S)	Some weeds might not be completely controlled, but growth will be suppressed.
0.86–1.2(S)	–	–	–	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
0.6–0.86(S)	–	–	–	0.6–0.86	0.6–0.86	0.6–0.86(S)	0.6–0.86	0.6–0.86	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	180(S)	–	180(S)	–	180(S)	Can cause crop damage in light soil.
–	–	–	200	200	200	200	200	200	Apply 0–7 days before sowing. Light soil and 15 mm rainfall in 7–10 days are needed for ryegrass control.

Table 34. Herbicides for weed control in faba bean – post-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Capeweed	Charlock	Cleavers/bedstraw	Fumitory	Marshmallow	Mustards
Ecopar® Forte (pyraflufen-ethyl 40)	14	3–5-leaf	L/ha	70–150	–	–	–	–	–	–	–	0.4	–	0.4(S)	–	0.4(S)	–
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125						
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180						
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–150	0.41	0.41	–	0.41	0.41	–	0.41						
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100						
Intercept® (imazamox 33 + imazapyr 15), **IMI-tolerant varieties only**	2	BBCH 13–18	L/ha	>70	0.6–0.75(S)	0.375–0.75	0.375–0.75	–	–	0.6–0.75(S)	0.375–0.75	–	0.6–0.75	0.6–0.75(S)	0.6–0.75	0.6–0.75	0.375–0.75
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25						
Status® (clethodim 240)	1	Up to full flower	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5						

BBCH = international scientific standard for growth stage identification (BBCH growth stage), IMI = imidazolinone-tolerant, (S) = suppression.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Prickly lettuce	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Toad rush	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.4(S)	0.4(S)	–	–	–	0.4(S)	–	–	Adjuvant NIS 1000. Severe crop damage can occur.
								Adjuvant MSO or NIS.
								Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
								–
								Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
–	–	0.6–0.75(S)	0.6–0.75	0.6–0.75(S)	0.3–0.75	0.3–0.75	–	Adjuvant MSO.
								Adjuvant NIS or MSO.
								Adjuvant MSO or MOS.

Table 35. Herbicides for weed control in field pea – pre-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amsinckia	Bindweed – Australian	Bindweed – black	Blackberry nightshade	Canola – volunteer	Capeweed	Charlock
Avadex® Xtra (tri-allate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	1.6	–	–	–	–	–	–	–	–
Bladex® (cyanazine 900)	5	PSI, IBS	kg/ha	80–200	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2(S)	–	–	–	–	–	–	–	1.7 or 2.2	–	1.7 or 2.2	–
	5	PSPE	kg/ha	80–200	1.1 or 1.7	1.1 or 1.7(S)	1.1 or 1.7(S)	–	–	–	–	–	–	–	1.1 or 1.7	–	1.1 or 1.7	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	2.5	–	–	–	2.5	–	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	0.83–1.1	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	0.55–0.83	–
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	1.25	1.25(S)	1.25(S)	1.25(S)	1.25	1.25(S)	–	–	–	–	–	–	1.25(S)	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	0.75–1.5(S)	–
	14	PSPE	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	0.9–1.25(S)	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1–2	1–2	1–2	1–2	1–2	1–2	1–2	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	118	118	118(S)	118	118	118(S)	–	–	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	0.28–0.73(S)	–	–	–	–	–	0.28–0.73	0.28–0.73	–	–	–	–	0.28–0.73	0.28–0.73
Spinnaker® (imazethapyr 700)	2	PSPE	g/ha	50–100	70	70	–	–	–	70	–	70–100	–	–	–	–	70–100	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	–	–	–	–
	5	PSPE	kg/ha	>50	0.6–0.86(S)	–	–	0.6–0.86(S)	0.6–0.86(S)	0.6–0.86(S)	–	–	–	–	–	–	–	–
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	1.2–1.7	–	–	1.2–1.7	–	–	–	–	–	–	–	–	–	–
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	1.1–1.7	1.1–1.7	1.1–1.7	–	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	–	–	–	–	–	–	180(S)	–	180(S)	180(S)	–
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	200(S)	–	–	–	–	–	–	200	200	200	–	200	200	–

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
grasses broadleaf weeds

Read the label before using a product.

Chickweed	Cleavers/bedstraw	Clover	Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle	Dock	Erodium/stork's bill	Fat hen	Fleabane	Fumitory	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–
1.7 or 2.2	–	–	–	1.7 or 2.2	–	1.7 or 2.2	–	–	1.7 or 2.2	–	1.7 or 2.2(S)	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
1.1 or 1.7	–	–	–	1.1 or 1.7	–	1.1 or 1.7	–	–	1.1 or 1.7	–	1.1 or 1.7(S)	Use lower rate for lighter soil.
–	–	–	–	2.5	–	–	–	–	–	–	–	–
–	–	–	–	0.83–1.1	–	–	–	0.83–1.1	–	–	–	Use lower rate for lighter soil.
–	–	–	–	0.55–0.83	–	–	–	0.55–0.83	–	–	–	–
–	1.25(S)	–	–	–	–	–	–	–	–	–	–	Sow at 30 mm deep.
–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	–	–	–	–	0.75–1.5(S)	0.75–1.5(S)	Lower rates generally provide suppression and shorter residual.
–	–	–	–	0.9–1.25(S)	–	0.9–1.25	–	–	–	0.5–1.25(S)	0.5–0.9(S) or 0.5–1.25	–
–	–	–	–	–	–	–	–	–	–	–	–	Use higher rates for heavier soil and weed burdens.
–	–	–	–	–	–	–	–	–	–	–	–	–
0.28–0.73	–	0.28–0.73	0.28–0.73	–	–	0.28–0.73	0.28–0.73	–	–	–	0.28–0.73	Soil type influences rate. There are extensive crop safety considerations, including variety.
70–100	–	–	–	–	–	70	–	–	–	–	–	Some weeds might not be completely controlled, but growth will be suppressed.
–	–	–	0.86–1.2	–	–	0.86–1.2	–	–	–	–	–	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
–	–	–	0.6–0.86	–	–	0.6–0.86	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	1.2–1.7(S)	Soil type influences rate.
–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control.
180(S)	180(S)	–	–	180(S)	–	–	–	–	–	180(S)	180(S)	Can cause crop damage in light soil.
–	200	–	–	200	–	200	–	–	–	200	200	Apply 0–7 days before sowing. Light soil and 15 mm rainfall in 7–10 days are needed for ryegrass control.

Table 35. Herbicides for weed control in field pea – pre-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Horehound	Loosestrife	Medic	Mexican poppy	Mustards	New Zealand spinach	Paterson's curse	Prickly lettuce	Rough poppy	Scarlet pimpernel	Shepherd's purse	Sorrel	Sow thistle/milk thistle
Avadex® Xtra (tri-allate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	–	–	–	–	–	–	–	–
Bladex® (cyanazine 900)	5	PSI, IBS	kg/ha	80–200	–	–	–	–	1.7 or 2.2	–	–	1.7 or 2.2	1.7 or 2.2	–	–	–	1.7 or 2.2
	5	PSPE	kg/ha	80–200	–	–	–	–	1.1 or 1.7	–	–	1.1 or 1.7	1.1 or 1.7	–	–	–	1.1 or 1.7
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	–	–	–
Overwatch® (bixlozone 400)	13	IBS	L/ha	60–100	–	1.25	–	–	–	–	–	1.25(S)	–	–	–	–	1.25
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	0.5–0.75(S) or 0.5–1.5	–	–	0.5–0.75(S) or 0.5–1.5	–	–	–	–	0.5–0.75(S) or 0.5–1.5
	14	PSPE	L/ha	>50	–	–	–	–	0.5–0.9(S) or 0.5–1.25	–	–	0.5–1.25	–	–	–	–	0.5–1.25
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	–	–	–	–	–	–	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE	L/ha	50–100	0.28–0.73	–	–	–	0.28–0.73	–	–	–	0.28–0.73	0.28–0.73	0.28–0.73	0.28–0.73	0.28–0.73
Spinnaker® (imazethapyr 700)	2	PSPE	g/ha	50–100	–	–	–	–	70	–	70	70–100	–	–	70	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	–	–	0.86–1.2	–	0.86–1.2	–	–	0.86–1.2	–	–	0.86–1.2	–	0.86–1.2
	5	PSPE	kg/ha	>50	–	–	0.6–0.86	–	0.6–0.86	–	–	0.6–0.86	–	–	0.6–0.86	–	0.6–0.86
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	–	–	–	–	–	–	–	–	–	–	–	–	–
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	–	–	–	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	–	180(S)	180(S)	–	180(S)	180(S)	–	–	–	180(S)
Voraxor® (saflufenacil 250 + trifludimoxazin 125)	14	IBS	mL/ha	80–250	–	–	–	200	200	–	–	200	–	–	200	–	200

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.

Read the label before using a product.

Spiny emex	Stinging nettle	Sub clover	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–
1.7 or 2.2	1.7 or 2.2	–	–	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2	1.7 or 2.2(S)	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
1.1 or 1.7	1.1 or 1.7	–	–	1.1 or 1.7	1.1 or 1.7(S)	1.1 or 1.7	1.1 or 1.7(S)	Use lower rate for lighter soil.
–	–	–	2.5	–	–	–	–	–
0.83–1.1	–	–	0.83–1.1	–	0.83–1.1	0.83–1.1	–	Use lower rate for lighter soil.
0.55–0.83	–	–	0.55–0.83	–	0.55–0.83	0.55–0.83	–	–
–	–	–	–	–	1.25(S)	–	1.25	Sow at 30 mm deep.
0.75–1.5(S)	–	–	0.75–1.5(S)	–	0.5–0.75(S) or 0.5–1.5	0.5–0.75(S) or 0.5–1.5	–	Lower rates generally provide suppression and shorter residual.
0.9–1.25(S)	–	–	0.9–1.25(S)	–	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	–
–	–	–	–	–	–	–	–	–
–	–	–	118	–	–	–	–	–
0.28–0.73	0.28–0.73	0.28–0.73(S)	0.28–0.73	–	0.28–0.73	0.28–0.73	0.28–0.73	Soil type influences rate. There are extensive crop safety considerations, including variety.
70	70	–	70	70	70	70	70	Some weeds might not be completely controlled, but growth will be suppressed.
0.86–1.2(S)	–	–	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
0.6–0.86(S)	–	–	0.6–0.86	0.6–0.86	0.6–0.86(S)	0.6–0.86	0.6–0.86	–
–	–	–	–	–	–	–	1.2–1.7	Soil type influences rate.
–	–	–	–	–	–	–	–	–
–	–	–	180(S)	–	180(S)	–	180(S)	Can cause crop damage in light soil types.
–	–	–	200	200	200	200	200	Apply 0–7 days before sowing. Light soil and 15 mm rainfall in 7–10 days are needed for ryegrass control.

Table 36. Herbicides for weed control in field pea – post-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Blackberry nightshade	Canola – volunteer	Capeweed	Charlock	Chickweed
Bladex® (cyanazine 900)	5	2nd node–first flower	kg/ha	80–200	0.85 or 1.1	0.85–1.1(S)	0.85–1.1(S)	–	–	–	–	–	0.85 or 1.1	–	0.85 or 1.1	–	0.85 or 1.1
Broadstrike® (flumetsulam 800)	2	2–6 node	g/ha	50–150	–	–	–	–	–	–	–	25	–	25	–	25	–
Brodal® Options (diflufenican 500)	12	3rd node–flowering	mL/ha	50–100	–	–	–	–	–	–	–	200(S)	–	–	200(S)	125–150* or 200	200(S)
Diclofop-methyl 375	1	Post-emergent	L/ha	80	1	–	–	–	–	–	1.5–2	–	–	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	2–5 node	L/ha	70–150	–	–	–	–	–	–	–	–	–	–	0.4	–	–
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125	–	–	–	–	–	–
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180	–	–	–	–	–	–
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–100	–	–	0.5	–	–	–	–	–	–	–	–	–	–
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100	–	–	–	–	–	–
Intercept® (imazamox 33 + imazapyr 15), **IMI-tolerant varieties only**	2	3–6 node	L/ha	>70	0.6–0.75(S)	0.375–0.75	0.375–0.75	–	–	0.6–0.75(S)	0.375–0.75	–	–	–	–	0.6–0.75	–
MCPA amine 750	4	3rd node–flowering	L/ha	30–120	–	–	–	–	–	–	–	–	–	–	–	80 or 100	–
Raptor® (imazamox 700)	2	Not after 4th node	g/ha	>50	–	45	45	45	–	–	45	–	–	–	–	–	–
Sencor® (metribuzin 480)	5	PSPE–3 node	L/ha	50–100	0.28–0.73(S)	–	–	–	–	–	–	0.28–0.73	–	–	0.28–0.73	0.28–0.73	–
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25	–	–	–	–	–	–
Spinnaker® (imazethapyr 700)	2	Post-emergent	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	–	–	–
Status® (clethodim 240)	1	Up to 7 node/early branching	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5	–	–	–	–	–	–

IMI = imidazolinone-tolerant, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, (S) = suppression.
PSPE = post-sowing, pre-emergent. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Cleavers/bedstraw	Corn gromwell	Crassula/stonecrop	Deadnettle	Dock	Erodium/stork's bill	Fat hen	Fumitory	Loosestrife	Lupin – volunteer	Marshmallow	Mustards	Paterson's curse	Prickly lettuce	Rough poppy	Shepherd's purse	Skeleton weed	Comments. Always refer to the label.
–	–	0.85 or 1.1	0.85 or 1.1	–	–	0.85 or 1.1	0.85–1.1(S)	–	–	–	0.85 or 1.1	–	0.85 or 1.1	0.85 or 1.1	–	–	Use higher rate for high weed pressure.
25	–	–	–	–	–	–	–	–	25	25	25	–	–	–	25	–	Can cause crop discolouration, stunting and/or delayed flowering. Do not tank mix or add adjuvants.
–	200(S)	200(S)	200	–	–	–	–	200(S)	–	200(S)	150–200	200(S)	125–150* or 200	200(S)	200(S)	200(S)	Has residual activity. *Can add MCPA amine to assist control.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Do not spray if temperature is >25 °C. Adjuvant NIS.
0.4(S)	–	–	–	–	–	–	–	–	–	0.4(S)	–	–	0.4(S)	–	–	–	Add diflufenican or metribuzin.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO or NIS.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
0.6–0.75(S)	–	–	–	–	–	–	0.6–0.75	–	–	0.6–0.75	0.375–0.75	–	–	–	–	–	Adjuvant MSO.
–	–	–	–	–	–	–	–	–	–	–	–	–	80 or 100	–	–	–	Add diflufenican. Rate increases with weed size.
45(S)	–	–	45	–	45	–	–	–	45	–	45	–	–	–	45(S)	–	Adjuvant NIS 1000. There are extensive crop safety considerations.
–	0.28–0.73	–	0.28–0.73	0.28–0.73	0.28–0.73	–	0.28–0.73	–	–	–	0.28–0.73	–	–	0.28–0.73	0.28–0.73	–	Soil type influences rate. There are extensive crop safety considerations, including variety.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant NIS or MSO.
–	–	–	70	–	–	–	–	–	–	–	70	–	–	–	–	–	Check label for suitable varieties. Adjuvant NIS. Some weeds might not be completely controlled, but growth will be suppressed.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Adjuvant MSO or MOS.

Table 36. Herbicides for weed control in field pea – post-emergence – page 2 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Unit of use	Boom water rate (L/ha)	Sorrel	Sow thistle/milk thistle	Spiny emex	Stinging nettle	Sub clover	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Bladex® (cyanazine 900)	5	2nd node–first flower	kg/ha	80–200	–	0.85 or 1.1	0.85 or 1.1	0.85 or 1.1	–	–	0.85 or 1.1	0.85–1.1(S)	0.85 or 1.1	0.85–1.1(S)	Use higher rate for high weed pressure.
Broadstrike® (flumetsulam 800)	2	2–6 node	g/ha	50–150	–	–	–	–	–	–	25	25(S)	25	–	Can cause crop discolouration, stunting and/or delayed flowering. Do not tank mix or add adjuvants.
Brodal® Options (diflufenican 500)	12	3rd node–flowering	mL/ha	50–100	200(S)	–	–	200(S)	–	200(S)	200	200	150–200	200(S)	Has residual activity. Can add MCPA amine to assist control.
Diclofop-methyl 375	1	Post-emergent	L/ha	80	–	–	–	–	–	–	–	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	2–5 node	L/ha	70–150	–	0.4(S)	–	–	–	–	–	0.4(S)	–	–	Add diflufenican or metribuzin.
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	–	–	–	–	–	–	–	–	–	–	–
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	–	–	–	–	–	–	–	–	–	–	–
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	50–100	–	–	–	–	–	–	–	–	–	–	–
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	–	–	–	–	–	–	–	–	–	–	–
Intercept® (imazamox 33 + imazapyr 15), **IMI-tolerant varieties only**	2	3–6 node	L/ha	>70	–	–	0.6–0.75(S)	0.6–0.75(S)	0.6–0.75	–	–	0.3–0.75	0.3–0.75	–	Adjuvant MSO.
MCPA amine 750	4	3rd node–flowering	L/ha	30–120	–	–	–	–	–	–	–	–	–	–	Add diflufenican. Rate increases with weed size.
Raptor® (imazamox 700)	2	Not after 4th node	g/ha	>50	–	–	45(S)	–	–	–	45	45(S)	45	45(S)	Adjuvant NIS 1000. There are extensive crop safety considerations.
Sencor® (metribuzin 480)	5	PSPE–3 node	L/ha	50–100	0.28–0.73	0.28–0.73	0.28–0.73	–	–	0.28–0.73	–	0.28–0.73	0.28–0.73	0.28–0.73	Soil type influences rate. There are extensive crop safety considerations, including variety.
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	–	–	–	–	–	–	–	–	–	–	–
Spinnaker® (imazethapyr 700)	2	Post-emergent	g/ha	50–100	–	–	–	–	–	70	–	–	–	70(S)	Check label for suitable varieties. Adjuvant NIS.
Status® (clethodim 240)	1	Up to 7 node/early branching	L/ha	50–150	–	–	–	–	–	–	–	–	–	–	–

IMI = imidazolinone-tolerant, MSO = methylated seed oil, NIS = non-ionic surfactant, (S) = suppression. PSPE = post-sowing, pre-emergent.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
Read the label before using as product.

Department of Primary Industries and Regional Development

NSW WeedWise

Got weeds ? Get WeedWise !

ONLINE OR IN THE APP STORES

weeds.dpi.nsw.gov.au

Over 300 weed profiles in your pocket!

Close to one million views a year

"brilliant...this app is very, very helpful"

Table 37. Herbicides for weed control in lentil – pre-emergence – page 1 of 2.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Bindweed – black	Blackberry nightshade	Canola – volunteer	Capeweed	Chickweed	Cleavers/bedstraw
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2(S)	–	–	–	–	–	1.7 or 2.2	–	1.7 or 2.2	1.7 or 2.2	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	2.5	–	–	–	2.5	–	–	–	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	0.83–1.1	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	–	0.55–0.83	–	–
Pendimethalin 440	3	IBS	L/ha	50–200	1.5–2.25	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	–	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	–	0.75–1(S)	–	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1–2	1–2	1–2	1–2	1–2	1–2	1–2	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	118	118	118(S)	118	118	118(S)	–	–	–	–	–	–	–
Simazine 900	5	IBS, PSPE	kg/ha	50–100	1 or 1.4	1 or 1.4	1 or 1.4	0.5 or 0.8*	–	0.8–2.2(S)*	–	–	–	0.5 or 0.8*	1 or 1.4	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	–	–	–
TriflurX® (trifluralin 480)	3	PSI	L/ha	70–450	0.8–1.2	–	–	0.8–1.2	–	0.8–1.2	–	–	–	–	–	–	–
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	1.1–1.7	1.1–1.7	1.1–1.7	–	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	–	–	–	–	120(S)	–	120(S)	120(S)	120(S)	120(S)

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
grasses broadleaf weeds

Read the label before using a product.

Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle	Erodium/stork's bill	Fat hen	Fleabane	Fumitory	Medic	Mustards	New Zealand spinach	Prickly lettuce	Rough poppy	Shepherd's purse	Soursob/oxalis	Sow thistle/milk thistle	Comments. Always refer to the label.
–	1.7 or 2.2	–	1.7 or 2.2	–	1.7 or 2.2	–	1.7 or 2.2(S)	–	1.7 or 2.2	–	1.7 or 2.2	1.7 or 2.2	–	–	1.7 or 2.2	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
–	2.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	0.83–1.1	–	–	0.83–1.1	–	–	–	–	–	–	–	–	–	–	–	Use lower rate for lighter soil.
–	0.55–0.83	–	–	0.55–0.83	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	0.75–1(S)	0.75–1(S)	0.75–1(S)	–	–	0.75–1(S)	0.75–1(S)	–	0.5–0.75(S)–1	–	0.5–0.75(S)–1	–	–	–	0.5–0.75(S)–1	Lower rates generally provide suppression and shorter residual. Can cause transient phytotoxicity.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Use higher rates for heavier soil and weed burdens.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1 or 1.4	–	–	1 or 1.4	–	–	–	1 or 1.4	1 or 1.4	0.5 or 0.8*	–	–	–	–	0.5 or 0.8*	–	Use lower rate for lighter soil. *Add trifluralin.
0.86–1.2	–	–	0.86–1.2	–	–	–	–	0.86–1.2	0.86–1.2	–	0.86–1.2	–	0.86–1.2	–	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Soil type influences rate. Apply 1–4 weeks before sowing and incorporate by cultivation.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control.
–	120(S)	–	–	–	–	–	–	–	120(S)	120(S)	120(S)	–	–	–	120(S)	Can damage crops in light soil. Avoid rolling.

Table 37. Herbicides for weed control in lentil – pre-emergence – page 2 of 2. Read the label before using a product.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Spiny emex	Stinging nettle	Thistle (see label for species)	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
Bladex® (cyanazine 900)	5	PSI, IBS, PSPE	kg/ha	80–200	1.7 or 2.2	1.7 or 2.2	–	–	1.7 or 2.2	1.7 or 2.2(S)	1.7 or 2.2	1.7 or 2.2(S)	Add trifluralin for improved ryegrass control. Use lower rate for lighter soil.
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	–	–	–	2.5	–	–	–	–	–
Diuron 900	5	IBS	kg/ha	40–70	0.83–1.1	–	–	0.83–1.1	–	0.83–1.1	0.83–1.1	–	Use lower rate for lighter soil.
	5	PSPE	kg/ha	40–70	0.55–0.83	–	–	0.55–0.83	–	0.55–0.83	0.55–0.83	–	–
Pendimethalin 440	3	IBS	L/ha	50–200	–	–	–	–	–	–	–	1.5–2.25	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	0.75–1(S)	–	–	0.75–1(S)	–	0.5–0.75(S) or 0.5–1	0.5–0.75(S) or 0.5–1	0.5–0.75(S) or 0.5–1	Lower rates generally provide suppression and shorter residual. Can cause transient phytotoxicity.
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	–	–	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	–	–	–	118	–	–	–	–	–
Simazine 900	5	IBS, PSPE	kg/ha	50–100	–	–	0.5 or 0.8*	–	–	–	–	0.5 or 0.8*	Use lower rate for lighter soil. *Add trifluralin.
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
TriflurX® (trifluralin 480)	3	PSI	L/ha	70–450	–	–	–	–	–	–	–	0.8–1.2	Soil type influences rate. Apply 1–4 weeks before sowing and incorporate by cultivation.
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	–	–	–	–	–	–	–	–	–
Valor® (flumioxazin 500)	14	IBS	g/ha	>80	–	–	–	120(S)	–	120(S)	–	120(S)	Can damage crops in light soil types. Avoid rolling.

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.

Department of Primary Industries and Regional Development

Weekly Commodities Report

https://www.dpi.nsw.gov.au/agriculture/commodity-report

Barley

Cows

Cotton

Young Cattle

Lamb

Sorghum

Oilseeds

Wheat

Pulses

Wool

Table 38. Herbicides for weed control in lentil – post-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Canola – volunteer	Capeweed	Charlock	Chickweed
Broadstrike® (flumetsulam 800)	2	4–8-leaf	g/ha	50–150	–	–	–	–	–	–	–	25	25	–	25	–
Brodal® Options (diflufenican 500)	12	2-leaf–primary budding	mL/ha	50–100	–	–	–	–	–	–	–	200(S)	–	200(S)	200	200(S)
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125					
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180					
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100					
Intercept® (imazamox 33 + imazapyr 15), **IMI-tolerant varieties only**	2	3–6 node	L/ha	>70	0.6–0.75(S)	0.375–0.75	0.375–0.75	–	–	0.6–0.75(S)	0.375–0.75	–	–	–	0.6–0.75	–
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25					
Status® (clethodim 240)	1	Up to 7 node/early branching	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5					

IMI = imidazolinone-tolerant, MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant, (S) = suppression.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Cleavers/bedstraw	Corn gromwell	Crassula/stonecrop	Deadnettle	Fumitory	Loosestrife	Lupin – volunteer	Marshmallow	Mustards	Paterson's curse	Prickly lettuce	Rough poppy	Shepherd's purse	Skeleton weed	Sorrel	Spiny emex	Comments. Always refer to the label.
25	–	–	–	–	–	25	25	25	–	–	–	25	–	–	–	Can cause crop discolouration, stunting and/or delayed flowering. Adjuvant MOS or NIS.
–	200(S)	200(S)	200	–	200(S)	–	200(S)	150–200	200(S)	200	200(S)	200(S)	200(S)	200(S)	–	Has residual activity.
																Adjuvant MSO or NIS.
																Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
																Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
0.6–0.75(S)	–	–	–	0.6–0.75	–	–	0.6–0.75	0.375–0.75	–	–	–	–	–	–	0.6–0.75(S)	Adjuvant MSO.
																Adjuvant NIS or MSO.
																Adjuvant MSO or MOS.

Table 39. Herbicides for weed control in lupin – pre-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Phalaris – annual	Vulpia/silver grass	Wild oats	Winter grass	Amaranth	Caltrop/cat head	Capeweed	Deadnettle	Fleabane	Fumitory	Medic
Avadex® Xtra (triallate 500)	15	PSI	L/ha	30–100	–	–	–	–	–	1.6	–	–	–	–	–	–	–	–
Boxer Gold® (prosulfocarb 800 + S-metolachlor 120)	15	IBS	L/ha	>50	2.5	–	–	–	2.5	–	–	–	–	–	–	–	–	–
Outlook® (dimethenamid-p 720)	15	IBS	L/ha	70–120	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Pendimethalin 440	3	IBS	L/ha	50–200	1.5–2.25	–	–	–	1.5–2.25(S)	1.5–2.25(S)	–	–	–	–	–	–	–	–
Reflex® (fomesafen 240), **narrow-leaf lupin only**	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	0.75–1.5(S)	–	0.75–1.5(S)	0.75–1.5(S)	–
	14	PSPE	L/ha	>50	–	–	–	–	–	–	–	–	–	0.9–1.25(S)	0.9–1.25	0.5–1.25(S)	0.5–0.9(S) or 0.5–1.25	–
Rustler® (propyzamide 500)	3	IBS	L/ha	Not stated	1–2	1–2	1–2	1–2	1–2	1–2	1–2	–	–	–	–	–	–	–
Sakura® (pyroxasulfone 850)	15	IBS	g/ha	50–100	118	118	118(S)	118	118	118(S)	–	–	–	–	–	–	–	–
Simazine 900	5	PSPE	kg/ha	50–100	0.8–2.2*	0.8–2.2*	0.8–2.2(S)*	–	–	0.8–2.2(S)*	–	–	–	0.8–2.2*	–	–	0.8–2.2*	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	0.86–1.2	–	–	0.86–1.2
	5	PSPE	kg/ha	>50	0.6–0.86(S)	–	–	0.6–0.86(S)	0.6–0.86(S)	0.6–0.86(S)	–	–	–	–	0.6–0.86	–	–	0.6–0.86
TriflurX® (trifluralin 480)	3	PSI, IBS	L/ha	70–450	1.2–1.7	–	–	1.2–1.7	–	–	1.2–1.7	1.2–1.7	1.2–1.7	–	–	–	1.2–1.7(S)	–
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	1.1–2.3	1.1–2.3	1.1–2.3	–	–	–	–	–	–	–	–	–	–	–

IBS = incorporated by sowing, PSI = pre-sowing incorporated, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
grasses broadleaf weeds

Read the label before using a product.

Mustards	Pigweed	Prickly lettuce	Shepherd's purse	Soursob/oxalis	Sow thistle/milk thistle	Spiny emex	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	2.5	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	Will only provide suppression in high weed populations.
–	–	–	–	–	–	–	–	–	–	–	1.5–2.25	–
0.5–0.75(S) or 0.5–1.5	–	0.5–0.75(S) or 0.5–1.5	–	–	0.5–0.75(S) or 0.5–1.5	0.75–1.5(S)	0.75–1.5(S)	–	0.5–0.75(S) or 0.5–1.5	0.5–0.75(S) or 0.5–1.5	–	Lower rates generally provide suppression and shorter residual.
0.5–0.9(S) or 0.5–1.25	–	0.5–1.25	–	–	0.5–1.25	0.9–1.25(S)	0.9–1.25(S)	–	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	0.5–0.9(S) or 0.5–1.25	–
–	–	–	–	–	–	–	–	–	–	–	–	Use higher rates for heavier soil and weed burdens.
–	–	–	–	–	–	–	118	–	–	–	–	–
0.8–2.2*	–	–	–	0.8–2.2*(S)	–	–	–	0.8–2.2*	–	0.8–2.2*	0.8–2.2*	*0.8–1.1 kg/ha on light soil, 1.3–2.2 kg/ha on heavy soil.
0.86–1.2	–	0.86–1.2	0.86–1.2	–	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
0.6–0.86	–	0.6–0.86	0.6–0.86	–	0.6–0.86	0.6–0.86(S)	0.6–0.86	0.6–0.86	0.6–0.86(S)	0.6–0.86	0.6–0.86	–
–	1.2–1.7	–	–	–	–	–	–	–	–	–	1.2–1.7	Soil type influences rate.
–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control.

Table 40. Herbicides for weed control in lupin – post-emergence.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Gowth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Capeweed	Charlock	Chickweed	Corn gromwell	Crassula/stonecrop
Brodal® Options (diflufenican 500)	12	2-leaf–primary budding	mL/ha	50–100	–	–	–	–	–	–	–	200 (S)	200 (S)	200	200 (S)	200 (S)	200 (S)
Diclofop-methyl 375	1	Post-emergent	L/ha	80	1	–	–	–	–	–	1.5–2						
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125						
Factor® WG (butroxydim 250)	1	Post-emergent	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180						
Fusilade® Forte (fluazifop-p-ethyl 128)	1	Post-emergent	L/ha	>50	0.4 or 0.82	0.4 or 0.82	0.4 or 0.82	–	0.4 or 0.82	–	0.4 or 0.82						
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100						
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25						
Status® (clethodim 240)	1	Up to 80% flower	L/ha	50–150	0.15–0.5	0.175–0.5	0.175–0.5	0.2–0.5	0.15–0.5	0.25–0.5	0.175–0.5						

(S) = suppression. MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Deadnettle	Loosestrife	Marshmallow	Mustards	Paterson's curse	Prickly lettuce	Rough poppy	Shepherd's purse	Skeleton weed	Sorrel	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
200	200 (S)	200 (S)	150–200	200 (S)	200	200 (S)	200 (S)	200 (S)	200 (S)	200 (S)	200	200	150–200	200 (S)	Has residual activity.
															Do not spray if temperature is >25 °C. Adjuvant NIS.
															Adjuvant MSO or NIS.
															Adjuvant MSO. *Must be combined with clethodim or a fop herbicide.
															Low rate for 2–5-leaf weeds, high rate for 5-leaf to early tillering weeds.
															Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
															Adjuvant NIS or MSO.
															Adjuvant MSO or MOS.

Table 41. Herbicides for weed control in vetch.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Herbicide group	Incorporation/growth stage	Unit of use	Boom water rate (L/ha)	Annual ryegrass	Barley grass	Brome grass	Cereals – volunteer	Phalaris – annual	Vulpia/silver grass	Wild oats	Amsinckia	Canola – volunteer	Capeweed	Cleavers/bedstraw	Corn gromwell	Crassula/stonecrop	Cudweed	Deadnettle
Pre-emergent weed control																			
Diuron 900	5	IBS	kg/ha	40–70	–	–	–	–	–	–	–	–	–	0.83–1.1	–	–	0.83–1.1	–	–
	5	PSPE	kg/ha	40–70	–	–	–	–	–	–	–	–	–	0.55–0.83	–	–	0.55–0.83	–	–
Reflex® (fomesafen 240)	14	IBS	L/ha	>50	–	–	–	–	–	–	–	–	–	0.75–1.5(S)	–	–	0.75–1.5(S)	0.75–1.5(S)	–
	14	PSPE	L/ha	>50	–	–	–	–	–	–	–	–	–	0.5–0.9(S)	–	–	0.5–0.9(S)	–	–
Terbyne® Xtreme® (terbuthylazine 875)	5	IBS	kg/ha	>50	0.86–1.2(S)	–	–	–	0.86–1.2(S)	0.86–1.2(S)	0.86–1.2(S)	–	–	–	–	0.86–1.2	–	–	0.86–1.2
Ultro® (carbentamide 900)	23	IBS	kg/ha	50–150	1.1–1.7	1.1–1.7	1.1–1.7	–	–	–	–	–	–	–	–	–	–	–	–
Post-emergent weed control																			
Broadstrike® (flumetsulam 800)	2	4–8-leaf	g/ha	50–150	–	–	–	–	–	–	–	25	25	–	25	–	–	–	–
Ecopar® Forte (pyraflufen-ethyl 40)	14	3–5-leaf	L/ha	70–150	–	–	–	–	–	–	–	–	–	0.4	0.4(S)	–	–	–	–
Elantra® Xtreme® (quizalofop-p-ethyl 200)	1	Post-emergent	mL/ha	>50	150–190	125	150–190	125	–	–	65 or 125								
Factor® WG (butroxydim 250)	1	Up to flowering	g/ha	50–100	80–180	80–180	80–180*	80–180*	80–180*	–	80–180								
Haloxyfop 520	1	2-leaf–before flowering	mL/ha	50–150	75–100	50–75	50–75	75–100	75–100	–	37.5–100								
Shogun® (propaquizafop 100)	1	Post-emergent	L/ha	50–150	0.3–0.45	0.2	0.3	0.2	–	–	0.25–0.3								

IBS = incorporated by sowing, PSPE = post-sowing, pre-emergent, (S) = suppression, mm = millimetres.
MOS = mineral oil plus surfactant, MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.
grasses broadleaf weeds

Read the label before using a product.

Erodium/stork's bill	Field pea – volunteer	Fleabane	Fumitory	Marshmallow	Medic	Mustards	Prickly lettuce	Shepherd's purse	Sow thistle/milk thistle	Spiny emex	Toad rush	Turnip weed	Wild radish	Wild turnip	Wireweed/hogweed	Comments. Always refer to the label.
0.83–1.1	–	–	–	–	–	–	–	–	–	0.83–1.1	0.83–1.1	–	0.83–1.1	0.83–1.1	–	Use lower rate for lighter soil.
0.55–0.83	–	–	–	–	–	–	–	–	–	0.55–0.83	0.55–0.83	–	0.55–0.83	0.55–0.83	–	–
–	0.75–1.5(S)	0.75–1.5(S)	–	–	–	0.5–0.75(S) or 0.5–1.5	0.5–0.75(S) or 0.5–1.5	–	0.5–0.75(S) or 0.5–1.5	0.75–1.5(S)	0.75–1.5(S)	–	0.5–0.75(S) or 0.5–1.5	0.5–0.75(S) or 0.5–1.5	–	Lower rates generally provide suppression and shorter residual. Can cause transient phytotoxicity.
–	–	0.5–0.9	0.5–0.89(S) or 0.9	–	–	0.5–0.89(S) or 0.9	0.5–0.9	–	0.5–0.9	0.5–0.9(S)	0.5–0.9(S)	–	0.5–0.89(S) or 0.9	0.5–0.89(S) or 0.9	0.5–0.89(S) or 0.9	–
–	–	–	–	–	0.86–1.2	0.86–1.2	0.86–1.2	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	0.86–1.2(S)	0.86–1.2	0.86–1.2	Non-irrigated crops only. Use lower rate for lighter soil. Sow 30 mm, preferably 50 mm, deep. Do not use >0.86 kg/ha if soil pH >8.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Apply in a tank mix to improve control.
–	–	–	–	25	–	25	–	25	–	–	–	25	25(S)	25	–	Popany vetch only. Crop discolouration, stunting and/or delayed flowering can occur. Adjuvant MOS or NIS.
–	–	–	–	0.4(S)	–	–	0.4(S)	–	0.4(S)	–	–	–	0.4(S)	–	–	Adjuvant NIS. Severe crop damage can occur.
																Adjuvant MSO or NIS.
																Adjuvant MSO. *Must be combined with a fop herbicide.
																Weed size determines rate, adjuvant type and mix partner. Adjuvant MSO or MOS.
																Adjuvant NIS or MSO.

Pre-harvest desiccation or salvage spraying of winter crops

Pre-harvest desiccation or salvage spraying is required in some years to dry down weeds and assist with the timely harvesting of winter crops. Situations do arise due to late establishing weeds combined with wet and prolonged springs or harvest periods, where salvage spraying might be necessary.

Weeds such as bindweed, fat hen, melons, New Zealand spinach, prickly lettuce, skeleton weed and sow thistle/milk thistle can interfere with harvesting, while weed seeds from black/field bindweed, Mexican poppy, rough poppy and saffron thistle can contaminate grain.

Table 42. Herbicides for harvest aid or salvage spraying.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Use	Rate	Barley	Canola	Chickpea	Faba bean	Field pea	Lentil
2,4-D amine 700, **drift restrictions apply**	Harvest aid/salvage spray	L/ha	1.1–1.5	–	–	–	–	–
2,4-D LV ester 680, **drift restrictions apply**	Harvest aid/salvage spray	L/ha	1.7	–	–	–	–	–
Dropzone® (2,4-D amine 500), **reduced drift option**	Harvest aid/salvage spray	L/ha	1.5–2.1	–	–	–	–	–
Gramoxone® 360 Pro (paraquat 360)	In-crop spray-topping	mL/ha	–	–	280 or 560	280 or 560	280 or 560	280 or 560
Reglone® (diquat 200)	Pre-harvest crop desiccation	L/ha	–	1.5–3	2–3	2–3	2–3	2–3
	Pre-harvest weed control	L/ha	1–3	–	–	–	–	–
Sharpen® (saflufenacil 700)	Harvest aid/weed control	g/ha	34	–	34*	34*	34*	34*
Sledge® (pyraflufen-ethyl 25)	Harvest aid/prevent weed seed set	mL/ha	200	–	200	200	200	200
Not all glyphosate products are registered for this use; refer to the label of the specific product you intend to use.								
CRUCIAL® (glyphosate 600)	Harvest aid/weed control and regrowth	L/ha	1.54	1.1–3.2	0.45–0.95* or 0.6–1.6	0.6–1.6	0.6–1.6	0.6–1.6
Roundup Ultra®MAX (glyphosate 570)	Harvest aid/weed control and regrowth	L/ha	1.65	1.2–3.4	0.645–1.7	0.3–1.7	0.3–1.7	0.645–1.7
Weedmaster® DST® (glyphosate 470)	Harvest aid/weed control and regrowth	L/ha	1.9	1.4–4.1	0.58–2.1* or 0.77–2.1	0.77–2.1	0.77–2.1	0.77–2.1

d = days, NR = not required.
MSO = methylated seed oil, NIS = non-ionic surfactant.
NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Warning: when spraying, use extreme caution and consider the possibility of spray drift onto susceptible plants e.g. cotton, canola, lucerne, grapevines, horticultural crops, and kurrajong trees.

Application timing often depends on crop type and situation. These can also vary between one product and another. Refer to the product label for specific guidance.

Read the label before using a product.

Linseed	Lupin	Oats	Wheat	Harvest WHP	Application	Comments. Always refer to the label.
–	–	1.1–1.5	1.1–1.5	NR	Ground/aerial	Significant buffer zone considerations. Beware of sensitive crops nearby.
–	–	1.7	1.7	NR	Ground/aerial	Significant buffer zone considerations. Beware of sensitive crops nearby.
–	–	1.5–2.1	1.5–2.1	NR	Ground/aerial	Reduced buffer zones.
–	280 or 560	–	–	7 d	Ground	Must add an adjuvant.
2–3	2–3	–	–	Chickpea, faba bean, lentil 2 d. Canola 4 d. Other NR.	Ground/aerial	Use higher rate for dense or weedy crops. Requires an adjuvant: add NIS or NIS 1000 unless otherwise stated.
–	–	1–3	2 or 3	NR	Ground/aerial	Use higher rate for dense or weedy crops. Requires an adjuvant: add NIS or NIS 1000 unless otherwise stated.
–	34*	–	34	Pulses 7 d. Cereals NR.	Refer to label	Must add MSO for all uses. Requires good coverage. Might affect lentil and triticale germination. Do not use on lentil or triticale seed crops. *Add glyphosate or paraquat.
–	200	–	200	–	–	Can be added to glyphosate or paraquat for pulses.
–	0.6–1.6	1.1–3.2 (hay/ silage)	1.1–3.2	Refer to label.	Ground/aerial	Do not use on crops intended for seed or sprouting. Do not use on malting barley. *Add metsulfuron-methyl for chickpea.
–	–	–	0.85–3.4	Wheat 5 d. Barley, legumes 7 d. Other NR.	Ground/aerial	Do not use on crops intended for seed or sprouting. Do not use on malting barley.
–	0.77–2.1	1.4–4.1 (hay/ silage)	1.4–4.1	Refer to label.	Ground/aerial	Do not use on crops intended for seed or sprouting. Do not use on malting barley. *Add metsulfuron-methyl for chickpea.

Foliar fungicides for winter crops

Table 43. Foliar fungicides for winter cereals.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	Crop	WHP (weeks) W = wheat B = barley		Price/L	Rate/ha	Barley scald	Crown rust	Leaf rust	Net blotch	Powdery mildew
		Grazing	Harvest							
Accolade® (azoxystrobin 250)	Wheat	3	6	$16.25	mL/ha	–	–	160–320* or 320–640^	–	160–320* or 320–640^
	Barley	3	6	$16.25	mL/ha	160* or 320–640^	–	320–640^	320–640^	160–320* or 320–640^
Amistar® Xtra (azoxystrobin 200 + cyproconazole 80)	Wheat	3	6	$20.00	mL/ha	–	–	400–800	–	400–800
	Barley	3	6	$20.00	mL/ha	–	–	200–800	200–800	400–800
Aviator® Xpro® (prothioconazole 150 + bixafen 75)	Wheat	4	NR	$43.06	mL/ha	–	–	–	–	300–500
	Barley	4	NR	$43.06	mL/ha	300–500	–	400–500	300–500	300–500
Elatus® Ace (propiconazole 250 + benzovindiflupyr 40)	Wheat	10 days	NR	$42.99	mL/ha	–	–	500	–	500
	Barley	10 days	NR	$42.99	mL/ha	500	–	500	500	500
Epoxiconazole 125	Wheat	6 + ESI	6	$20.00	mL/ha	–	–	500	–	250
	Barley	6 + ESI	6	$20.00	mL/ha	250	–	250–500	250–500	250
Impact® Endure (flutriafol 500)	Wheat	7	7	$32.00	mL/ha	–	–	125–250	–	–
	Barley	7	7	$32.00	mL/ha	–	–	–	–	125–250
Maxentis® Opti (prothioconazole 150 + azoxystrobin 200)	Wheat	3	5	$22.50	mL/ha	–	–	–	–	–
	Barley	3	5	$22.50	mL/ha	200–400	–	–	200–400	–
Opera® (pyraclostrobin 85 + epoxiconazole 62.5)	Wheat	3 + ESI	NR	$35.00	L/ha	–	–	0.5–1	–	0.5
	Barley	3 + ESI	NR	$35.00	L/ha	0.5	–	0.5	0.5–1	0.5–1
	Oats	3 + ESI	NR	$35.00	L/ha	–	–	–	–	–
Proline® (prothioconazole 480)	Wheat	2	5	$48.00	mL/ha		–	70–130*		70–130*
	Barley	2	5	$48.00	mL/ha	70–130*	–	70–130*	70–130*^ or 70–160#	70–130*
	Oats	2	5	$48.00	mL/ha	–	–	130*	–	–
Prosaro® (prothioconazole 210 + tebuconazole 210)	Wheat	2	5	$26.00	mL/ha	–	–	150–300	–	150–300
	Barley	2	5	$26.00	mL/ha	150–300	–	150–300	150–300	150–300
	Oats	2	5	$26.00	mL/ha	–	–	300	–	–
Radial® Opti (azoxystrobin 320 + epoxiconazole 250)	Wheat	3 + ESI	NR	$34.50	mL/ha	–	–	125–250	–	–
	Barley	3 + ESI	NR	$34.50	mL/ha	–	–	–	125–250	–
	Oats	3 + ESI	NR	$34.50	mL/ha	–	–	125	–	–
Revystar® (mefentrifluconazole 100 + fluxapyroxad 50)	Wheat	4 + ESI	NR	$64.75	mL/ha	–	–	750	–	–
	Barley	4 + ESI	NR	$64.75	mL/ha	750	–	750	750	750
	Oats	4 + ESI	NR	$64.75	mL/ha	–	–	–	–	–
Tazer® Xpert (azoxystrobin 80 + epoxiconazole 31.25)	Wheat	3	NR	$25.00	L/ha	–	–	1–2 or 0.5*	–	1–2
	Barley	3	NR	$25.00	L/ha	1–2	–	1–2 or 0.5–1*	1–2 or 0.5–1*	1–2 or 0.5–1*
	Oats	3	NR	$25.00	L/ha	–	–	–	–	–
Tebuconazole 430	Wheat	2	5	$11.50	mL/ha	–	–	145–290	–	–
	Barley	2	5	$11.50	mL/ha	145	–	–	–	145–290
	Oats	2	5	$11.50	mL/ha	–	145–290	–	–	–
Tilt® 500 (propiconazole 500)	Wheat	1	4	$17.00	mL/ha	–	–	75–250	–	75–250
	Barley	1	4	$17.00	mL/ha	250	–	125–250	125–250	–
	Oats	1	4	$17.00	mL/ha	–	125–250	–	–	75–250
Triadimefon 500	Wheat	Do not use	4	$32.06	g/ha	–	–	125–250	–	–
	Barley	Do not use	4	$32.06	g/ha	–	–	–	–	250
Veritas® Opti (tebuconazole 370 + azoxystrobin 222)	Wheat	3 + ESI	6	$30.00	mL/ha	–	–	170–340	–	–
	Barley	3 + ESI	6	$30.00	mL/ha	170	–	170–340	170–340	170–340

ESI = Export slaughter interval, NR = not required when used as directed.

MSO = methylated seed oil, NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Septoria nodorum blotch	Septoria tritici blotch	Stem rust	Stripe rust	Yellow spot	Aerial application	Comments. Always refer to the label.
160–320* or 320–640^	160–320*	160–320*	160–320* or 320–640^	160–320*	Yes	*Add tebuconazole. ^Add epoxiconazole.
–	–	–	–	–	Yes	*Add tebuconazole. ^Add epoxiconazole.
–	–	400–800	400–800	400–800	Yes	–
–	–	–	–	–	Yes	Adjuvant: barley, MSO improves control at lower rate.
300–500	300–500	–	300–500	300–500	Yes	–
–	–	–	–	–	Yes	Yes
500	500	500	500	500	No	–
–	–	–	–	–	No	–
250–500	–	–	250–500	–	Yes	Adjuvant NIS can assist.
–	–	–	–	–	Yes	Adjuvant NIS can assist.
125–250	125–250	–	125–250	–	Yes	Adjuvant NIS.
–	–	–	–	–	Yes	Adjuvant NIS.
–	200–400	–	–	–	Yes	–
–	–	–	–	–	Yes	–
0.5	–	0.5	0.5	–	Yes	Adjuvant NIS.
–	–	–	–	–	Yes	Adjuvant NIS.
–	0.5	–	–	–	Yes	Adjuvant NIS.
70–130*	70–160	70–130*	70–130*	70–130	Yes	Adjuvant required for some diseases. *Add tebuconazole.
–	–	–	–	–	Yes	Adjuvant required for some diseases. *Add tebuconazole. ^For spot form net blotch. #For net form net blotch.
130*	–	130*	–	–	Yes	Adjuvant required for some diseases. *Add tebuconazole.
150–300	–	150–300	150–300	150–300	Yes	Adjuvant required for some diseases.
–	–	–	–	–	Yes	Adjuvant required for some diseases.
150–300	–	300	–	–	Yes	Adjuvant required for some diseases.
–	125–250		–	–	Yes	Adjuvant MSO or NIS an assist with some diseases. MSO can cause transient damage.
–	–	–	–	–	Yes	Adjuvant MSO or NIS an assist with some diseases. MSO can cause transient damage.
–	125		–	–	Yes	Adjuvant MSO or NIS an assist with some diseases. MSO can cause transient damage.
750	750	–	750	750 (S)	Yes	–
–	–	–	–	–	Yes	–
750*	–	–	–	–	Yes	*Septoria blotch and red leather leaf of oats.
1–2	1 or 0.5*	1–2 or 0.5*	1–2 or 0.5*	1–2	Yes	*Adjuvant MSO can assist with some diseases at low application rates.
–	–	1–2 or 0.5–1*	–	–	Yes	*Adjuvant MSO can assist with some diseases at low application rates.
–	0.5–1	1 or 0.5*	–	–	Yes	*Adjuvant MSO can assist with some diseases at low application rates.
145–290	290	145–290	145–290	145–290	Yes	Adjuvant MSO can assist.
–	–	–	–	–	Yes	Adjuvant MSO can assist.
–	–	145–290	–	–	Yes	Adjuvant MSO can assist.
75–250	125–250	250	125–250	125–250	Yes	Adjuvant not required.
–	–	–	–	–	Yes	Adjuvant not required.
–	125–250	250	–	–	Yes	Adjuvant not required.
–	125–250*	–	125–250	–	Yes	Adjuvant not required. *Southern NSW.
–	–	–	–	–	Yes	–
170–340	170–340	170–340	170–340	170–340	Yes	Apply up to twice per season for the low rate, once for the high rate.
–	–	–	–	–	Yes	Apply up to twice per season for the low rate, once for the high rate.

Prices are an average retail (excluding GST) guide only. They were correct on 21 November 2024 but will vary according to location, availability and quantity purchased.

Table 44. Foliar fungicides for canola and pulses.

Example trade name (active ingredient). Note: other products may be available at different concentrations.	WHP		Rate/ha	Anthracnose	Ascochyta	Black spot	Blackleg	Botrytis
	Grazing	Harvest						
Aviator® Xpro® (prothioconazole 150 + bixafen 75)	All 4 w	All 4 w	L/ha	–	0.4–0.6 chickpea, faba bean, lentil	0.6 field pea	0.55–0.65 canola	0.6 faba bean; 0.4–0.6 lentil
Bravo® Weather Stik (chlorothalonil 720)	All 14 d	All 14 d	L/ha	–	1–2 chickpea, lentil	–	–	1.4–2.3 faba bean, 1–2 lentil
Dithane® Rainshield® NeoTec® (mancozeb 750)	All 14 d	All 4 w	kg/ha	1–2.2 lupin	1–2.2 chickpea, faba bean, field pea, lentil	1–2.2 field pea	–	1–2.2 chickpea, field pea, faba bean, lupin, lentil
Echo® 900 (chlorothalonil 900)	All 14 d	All 14 d	L/ha	–	0.8–1.6 chickpea, lentil	–	–	1.2–1.9 faba bean, 0.8–1.6 lentil
Maxentis® Opti (prothioconazole 150 + azoxystrobin 200)	Canola 2w	Canola NR.	mL/ha	–	–	–	–	–
Miravis® Star (fludioxonil 150 + pydiflumetofen 100)	All NR	All 6 w	L/ha	–	0.25–0.5 pulses		0.9–1 canola	0.75–1 pulses
Nosclex® 800 (procymidone 800)	Canola NR, lentil 21 d	Canola 9 w, lentil 21d	L/ha	–	–	–	–	0.3 lentil
Orius® (tebuconazole 430)	Field pea 3 d, faba bean 21 d	Field pea 3 d, faba bean 14 d	mL/ha	–	–	–	–	–
Prosaro® (prothioconazole 210 + tebuconazole 210)	All NR	All 14 d	mL/ha	–	–	–	375–450 canola	–
Revystar® (mefentrifluconazole 100 + fluxapyroxad 50)	Canola 4 w	Canola NR.	L/ha	–	–	–	0.75 canola	–
Rovral® Liquid (iprodione 250)	6 w	6 w	L/ha	–	–	–	–	–
Spin Flo® (carbendazim 500)	All 28 d	All 28 d	mL/ha	–	–	–	–	500 chickpea, faba bean
Veritas® Opti (tebuconazole 370 + azoxystrobin 222)	Canola NR, pulses 4 w	Canola 14 d, pulses 4 w	L/ha	–	0.4–0.54 chickpea, faba bean, lentil	0.4–0.54 field pea	0.54 canola	0.4–0.54 chickpea, field pea, faba bean, lupin, lentil

d = days, w = weeks, NR = not required when used as directed.

NIS = non-ionic surfactant. NIS products might indicate a specific concentration (i.e. NIS 1000); refer to Table 7 for example products.

Read the label before using a product.

Cercospora	Powdery mildew	Rust	Sclerotinia	Aerial application	Comments. Always refer to the label.
0.4–0.6 faba bean	0.65 canola	0.6 faba bean	0.55–0.8 canola	Yes	Target disease determines rate and application timing.
–	–	1.4–2.3 faba bean	–	Yes	Do not mix with adjuvants.
1–2.2 faba bean	–	1–2.2 faba bean, field pea, lentil	–	Yes	Adjuvant: any registered adjuvant at label rates. Protectant product, requires coverage and repeat applications.
–	–	1.2–1.9 faba bean	–	Yes	Do not mix with adjuvants.
–	–	–	500–600	Yes	Requires good coverage.
0.75–1 faba bean	–	–	0.75–1 canola, pulses	Yes	Crop timing depends on disease and infection timing. Adjuvant not required.
–	–	–	0.6 canola	Yes	Application should precede infection. Timing influenced by crop/disease. Adjuvant NIS.
145 faba bean*	145 field pea	145 faba bean*	–	Yes	Target disease determines rate and application timing. *Add NIS.
–	–	–	375–450 canola	Yes	Target disease determines rate and application timing.
–	–	–	0.75–1 canola	Yes	–
–	–	–	2 canola	Yes	Apply at 20–50% flowering. Avoid water with pH >7.
–	–	–	–	No	Maximum 2 sprays, >14 days apart. Adjuvant NIS.
0.16 faba bean	–	0.16 faba bean	0.54 canola	Yes	Do not apply >1.08 L/ha to pulses per season. Maximum 2 sprays. Target disease determines rate and application timing.

Retail prices of chemicals used on winter crops

Table 45. Retail prices of chemicals used on winter crops – page 1 of 2.

Product name	Active ingredient	Company	Price/L or kg (ex GST)*	Commonly used rate	Price/ha
2,4-D amine 700	2,4-D amine 700 g/L	Various	$8.29	0.5 L	$4.15
2,4-D LV ester 680	2,4-D LV ester 680 g/L	Various	$10.40	0.8 L	$8.32
2,4-DB 500	2,4-DB 500 g/L	Various	$21.65	2.1 L	$45.47
Achieve® WG	Tralkoxydim 400 g/kg	Nufarm	$50.00	400 g	$20.00
Affinity® Force	Carfentrazone 240 g/L	FMC	$180.00	85 mL	$15.30
Aggressor® AX	Quizalofop-p-ethyl 185 g/L + cloquintocet-mexyl 20 g/L	Sipcam Australia	$70.00	100 mL	$7.00
Agtryne® MA	Terbutryn 275 g/L + MCPA 160 g/L	Nufarm	$17.50	1.0 L	$17.50
Aptitude®	Metribuzin 375 g/kg + carfentrazone-ethyl 90 g/kg	FMC	na	200 g	na
Arcade®	Prosulfocarb 800 g/L	Syngenta	$10.00	3.0 L	$30.00
Associate®	Metsulfuron-methyl 600 g/kg	Nufarm	$65.00	5 g	$0.33
Atlantis® OD	Mesosulfuron-methyl 30 g/L	Bayer CropScience	$85.00	330 mL	$28.05
Atrazine 900	Atrazine 900 g/kg	Various	$9.90	1.1 kg	$10.89
Avadex® Xtra	Tri-allate 500 g/L	Nufarm	$12.00	1.6 L	$19.20
Axial® Xtra	Pinoxaden 100 g/L + cloquintocet-mexyl 25 g/L	Syngenta	$70.00	0.5 L	$35.00
Balance® 750	Isoxaflutole 750 g/kg	Bayer CropScience	$130.00	0.1 kg	$13.00
Basta®	Glufosinate-ammonium 200 g/L	BASF	$19.90	3.75 L	$74.63
Bladex®	Cyanazine 900 g/kg	AgNova Technologies	$80.00	1.7 kg	$85.00
Boxer Gold®	Prosulfocarb 800 g/L + S-metolachlor 120 g/L	Syngenta	$10.20	2.5 L	$25.50
Broadside®	MCPA 280 g/L + bromoxynil 140 g/L + dicamba 40 g/L	Nufarm	$30.00	0.75 L	$22.50
Broadstrike®	Flumetsulam 800 g/kg	Corteva Agriscience	$370.00	25 g	$9.25
Brodal® Options	Diflufenican 500 g/L	Bayer CropScience	$43.86	0.2 L	$8.77
Bromoxynil 200	Bromoxynil 200 g/L	Various	$11.00	1.4 L	$15.40
Bronco® MA-X	Bromoxynil 280 g/L + MCPA 280 g/L	Adama Australia	$21.25	1.0 L	$21.25
Butafenacil	Butafenacil 200 g/L	Titan Ag	$70.00	700 mL	$4.90
Callisto®	Mesotrione 480 g/L	Syngenta	$78.78	0.1 L	$7.88
Cheetah® Gold	Diclofop-methyl 200 g/L + sethoxydim 20 g/L + fenoxaprop-p-ethyl 13.6 g/L	Sipcam Australia	$20.50	1.0 L	$20.50
Chlorsulfuron 750	Chlorsulfuron 750 g/kg	FMC	$100.00	20 g	$2.00
Colex-D®	2,4-D choline 456 g/L	Corteva Agriscience	$14.75	1.0 L	$14.75
Condor®	MCPA 375 g/L + pyraflufen-ethyl 10 g/L	Sipcam Australia	$21.00	1.0 L	$21.00
CRUCIAL®	Glyphosate 600 g/L	Nufarm	$7.00	1.2 L	$8.40
Decision®	Diclofop-methyl 200 g/L + sethoxydim 20 g/L	Sipcam Australia	$26.00	1.0 L	$26.00
Devrinol-C®	Napropamide 500 g/kg	UPL	$49.00	1.75 kg	$85.75
Diclofop-methyl 375	Diclofop-methyl 375 g/L	FMC	$17.16	1.5 L	$25.74
Diflufenican + bromoxynil	Diflufenican 25 g/L + bromoxynil 250 g/L	Various	$16.90	0.75 L	$8.45
Diuron 900	Diuron 900 g/kg	Adama Australia	$13.00	0.5 kg	$6.50

Read the label before using a product.

Product name	Active ingredient	Company	Price/L or kg (ex GST)*	Commonly used rate	Price/ha
Dropzone®	2,4-D amine 500 g/L	Nufarm	$8.75	1.0 L	$8.75
Dual Gold®	S-metolachlor 960 g/L	Syngenta	$14.50	0.2 L	$2.90
Ecopar® Forte	Pyraflufen-ethyl 40 g/L	Sipcam Australia	$50.00	0.4 L	$20.00
Elantra® Xtreme®	Quizalofop-p-ethyl 200 g/L	Sipcam Australia	$25.00	0.25 L	$6.25
Enforcer® 242	Picloram 26 g/L + MCPA 420 g/L	Nufarm	$8.50	1.0 L	$8.50
Express®	Tribenuron-methyl 750 g/kg	FMC	$130.00	25 g	$3.25
Factor® WG	Butroxydim 250 g/kg	Nufarm	$97.00	130 g	$12.61
FallowBoss® Tordon®	Picloram + 2,4-D g/L	Corteva Agriscience	$17.50	0.3 L	$5.25
Flight® EC	Picolinafen 35 g/L + bromoxynil 210 g/L + MCPA 350 g/L	Nufarm	$26.25	0.41 L	$12.92
ForageMax®	Halauxifen 100 g/L + aminopyralid 50 g/L	Corteva Agriscience	$270.00	100 mL	$27.00
Foxtrot®	Fenoxaprop-p-ethyl 69 g/L + cloquintocet-mexyl 34.5 g/L	FMC	$40.00	635 mL	$2.54
Frequency®	Topramezone 60 g/L + cloquintocet-mexyl 60 g/L	BASF	$67.00	0.2 L	$13.40
Fusilade® Forte	Fluazifop-p 212 g/L	Syngenta	$64.50	0.41 L	$26.04
Galaxy®	Pyrasulfotole 75 g/L	Nufarm	$39.90	0.250 L	$9.98
Garlon® 600	Triclopyr 600 g/L	Corteva Agriscience	$17.50	0.12 L	$2.10
Gramoxone® 360 Pro	Paraquat 360 g/L	Syngenta	$4.95	1.0 L	$4.95
Grazon® Extra	Triclopyr 300 g/L + picloram 100 g/L + aminopyralid 8 g/L	Corteva Agriscience	$36.00	0.3 L	$10.80
Grindstone®	Aminopyralid 240 g/L	Adama Australia	$210.00	22 mL	$4.62
Guerrilla®	Paraquat 300 g/L + amitrole 12 g/L	Imtrade CropScience	$8.00	1.0 L	$8.00
Haloxyfop 520	Haloxyfop 520 g/L	Various	$40.00	0.75 L	$3.45
Hammer®	Carfentrazone-ethyl 400 g/L	FMC	$175.00	0.03 L	$5.25
Hellcat®	Glufosinate-ammonium 200 g/L + carfentrazone-ethyl 3.6 g/L	AgNova Technologies	$15.65	na	na
Hotshot®	Aminopyralid 10 g/L + fluroxypyr 140 g/L	Corteva Agriscience	$23.72	0.5 L	$11.86
Hussar®	Iodosulfuron-methyl-sodium 100 g/L	Bayer CropScience	$288.72	0.075 L	$22.05
Igran®	Terbutryn 500 g/L	Nufarm	$16.50	0.85 L	$14.03
Impose®	Imazapic 240 g/L	Adama Australia	$25.00	0.2 L	$5.00
Infinity® Ultra	Pyrasulfotole 250 g/L + diflufenican 125 g/L	Bayer CropScience	$109.00	0.11 L	$11.99
Intercept®	Imazamox 33 g/L + imazapyr 15 g/L	Nufarm	$25.00	0.5 L	$12.50
Kamba® M	MCPA 340 g/L + dicamba 80 g/L	Nufarm	$15.00	1.0 L	$15.00
Kamba®750	Dicamba 750 g/L	Nufarm	$25.00	0.18 L	$4.50
Legacy® MA	MCPA 250 g/L + diflufenican 25 g/L	Adama Australia	$12.25	0.75 L	$9.19
Liberty®	Glufosinate-ammonium 200 g/L	BASF	$18.00	1.5 L	$27.00
Lontrel® Advanced	Clopyralid 600 g/kg	Corteva Agriscience	$40.00	0.075 L	$3.00
Luximax®	Cinmethylin 750 g/L	BASF	$92.50	0.5 L	$46.25
Mandate®	Cloquintocet-mexyl 60 g/L + clodinafop-propargyl 240 g/L	Adama Australia	$30.00	85 mL	$2.55

Table 45. Retail prices of chemicals used on winter crops – page 2 of 2.

Product name	Active ingredient	Company	Price/L or kg (ex GST)*	Commonly used rate	Price/ha
Mateno® Complete	Aclonifen 400 g/L + pyroxasulfone 100 g/L + diflufenican 66 g/L	Bayer CropScience	$70.00	0.75 L	$52.50
MCPA amine 750	MCPA 750 g/L	Various	$10.50	0.46 L	$4.83
MCPA LVE 570	MCPA LVE 570 g/L	Various	$8.50	0.7 L	$5.95
Monsoon®	Bromoxynil 300 g/L + fluroxypyr 150 g/L	Adama Australia	na	0.8 L	na
Outlook®	Dimethenamid-p 720 g/L	BASF	$69.00	1.0 L	$69.00
Overwatch®	Bixlozone 400 g/L	FMC	$34.81	1.25 L	$43.51
Palmero® TX	Terbuthylazine 750 + isoxaflutole 75 g/L	Adama Australia	$42.00	1.0 kg	$42.00
Paradigm®	Halauxifen-methyl 200 g/kg + florasulam 200 g/kg	Corteva Agriscience	$544.00	25 g	$13.60
Pendimethalin 440	Pendimethalin 440 g/L	Various	$16.00	1.4 L	$22.40
Picoflex	Picloram (present as potassium salt) 240 g/L	Adama Australia	$33.00	85 mL	$2.81
Pixxaro®	Fluroxypyr 250 g/L + halauxifen 16.25 g/L	Corteva Agriscience	$43.73	0.3 L	$13.12
Precept®	Pyrasulfotole 50 g/L + MCPA 125 g/L	Bayer CropScience	$18.36	1.0 L	$18.36
Priority®	Florasulam 200 g/L	Adama Australia	$225.45	0.02 L	$4.51
Prometryn 900	Prometryn 900 g/kg	Various	$19.77	0.83 kg	$16.41
Pyresta® Xtreme	Pyraflufen-ethyl 2.1 g/L + 2,4-D LV ester 600 g/L	Sipcam Australia	$17.00	0.5 L	$8.50
Quadrant®	MCPA ester 250 g/L + bromoxonil 240 g/L + diflufenican 20 g/L + picolinafen 10 g/L	Adama Australia	$21.00	1.0 L	$21.00
Raptor®	Imazamox 700 g/kg	BASF	$250.00	45 g	$11.25
Reflex®	Fomesafen 240 g/L	Syngenta	$20.00	0.75 L	$15.00
Reglone®	Diquat 200 g/L	Syngenta	$7.50	2.0 L	$15.00
Rexade®	Pyroxsulam 150 g/kg + halauxifen 50 g/kg	Corteva Agriscience	$330.00	100 g	$33.00
Roundup Ready® PL	Glyphosate 540 g/L	Bayer CropScience	$7.56	1.15 L	$8.69
Roundup Ready® with PLANTSHIELD®	Glyphosate 690 g/kg	Bayer CropScience	$9.43	1.3 kg	$12.26
Roundup Ultra®MAX	Glyphosate 570 g/L	Bayer CropScience	$8.41	1.0 L	$8.41
Rustler®	Propyzamide 500 g/L	FMC	$25.00	1.0 L	$25.00
Sakura®	Pyroxasulfone 850 g/kg	Bayer CropScience	$250.00	118 g	$29.50
Salve	Aminopyralid 375 g/kg + metsulfuron-methyl 300 g/kg	Grow Choice	$430.00	10 g	$4.30
Sencor®	Metribuzin 750 g/kg	Bayer CropScience	$55.00	280 mL	$15.40
Sentry®	Imazapic 525 g/kg + imazapyr 175 g/kg	Nufarm	$205.00	40 g	$8.20
Sharpen®	Saflufenacil 700 g/kg	BASF	$475.00	17 g	$8.09
Shogun®	Propaquizafop 100 g/L	Adama Australia	$35.00	0.3 L	$105.00
Simazine 900	Simazine 900 g/kg	Various	$10.60	1.1 kg	$11.66
Sledge®	Pyraflufen-ethyl 25 g/L	Sipcam Australia	$85.00	0.1 L	$8.50
Spinnaker®	Imazethapyr 700 g/kg	BASF	$110.00	70 g	$7.70
Spray.Seed®	Paraquat 135 g/L + diquat 115 g/L	Syngenta	$8.75	1.6 L	$14.00
Starane® Advanced	Fluroxypyr 333 g/L	Corteva Agriscience	$24.00	0.45 L	$10.80

Read the label before using a product.

Product name	Active ingredient	Company	Price/L or kg (ex GST)*	Commonly used rate	Price/ha
Status®	Clethodim 240 g/L	Sumitomo	$8.50	0.3 L	$2.55
Striker®	Oxyfluorfen 240 g/L	Nufarm	$21.00	75 mL	$1.58
Sulfosulfuron 750	Sulfosulfuron 750 g/kg	Genfarm	$240.00	25 g	$6.00
Talinor®	Bicyclopyrone 37.5 g/L + bromoxynil 175 g/L	Syngenta	$28.00	0.5 L	$14.00
Tenet®	Metazachlor 500 g/L	Adama Australia	$34.75	1.0 kg	$37.75
Terbyne® Xtreme®	Terbuthylazine 875 g/kg	Sipcam Australia	$13.00	1.2 kg	$15.60
Terrad'or®	Tiafenacil 700 g/Kg	Nufarm	$375.00	20 g	$7.50
Trezac®	Aminopyralid 25 g/L + halauxifen 30 g/L + cloquintocet mexyl 30 g/L	Corteva Agriscience	$61.96	0.2 L	$12.39
Triasulfuron	Triasulfuron 750 g/kg	Genfarm	$175.00	10 g	$1.75
Triathlon®	MCPA 250 g/L + bromoxynil 150 g/L + diflufenican 25 g/L	Adama Australia	$15.20	750 mL	$11.40
TriflurX®	Trifluralin 480 g/L	Nufarm	$7.00	0.8 L	$5.60
Ultro®	Carbentamide 900 g/kg	Adama Australia	$37.00	1.1 kg	$40.70
Valor®	Flumioxazin 500 g/kg	Sumitomo	$150.00	30 g	$4.50
Velocity®	Pyrasulfotole 37.5 g/L + bromoxynil 210 g/L	Bayer CropScience	$36.21	0.5 L	$18.11
Voraxor®	Salflufenacil 250 g/L + trifludimoxazin 125 g/L	BASF	$187.50	0.2 L	$37.50
Weedmaster® DST®	Glyphosate (present as the potassium and mono-ammonium salts) 470 g/L	Nufarm	$4.95	1.5 L	$7.43

*Prices are an average retail (excluding GST) guide only. They were correct on 21 November 2024 but will vary according to location, availability and quantity purchased.

Table 46. Retail prices of adjuvants used on winter crops.

Product name	Chemical type	Company	Price/L or kg (ex GST)*	Commonly used rate/ha** (L)	Price/ha
Agral 600®	Wetting agent	Syngenta	$11.00	0.2	$2.20
BS1000®	Wetting agent	Nufarm	$6.50	0.25	$1.63
Hasten®	Crop oil + surfactant	Vic Chemical Co	$7.50	1.0	$7.50
LI 700®	Surfactant/penetrant	Nufarm	$7.50	0.25	$1.88
Liase®	Ammonium sulfate	Nufarm	$3.00	2.0	$6.00
Titan paraffinic oil	Paraffinic oil	Titan Ag	$7.50	1.0	$7.50
Uptake® spraying oil	Crop oil + surfactants	Corteva Agriscience	$7.50	0.5	$3.75
Wetter TX®	Surfactant	Nufarm	$7.50	0.2	$1.50

*Prices are an average retail (excluding GST) guide only. They were correct on 21 November 2024 but will vary according to location, availability and quantity purchased. **Price based on 50 L/ha water rate.

Notes

AXIAL® Xtra. No compromise.

AXIAL® Xtra delivers wheat and barley growers improved activity on grass weeds such as wild oats and phalaris, all without impacting crop safety.

Designed to maximise application properties, compatibility and performance, AXIAL® Xtra delivers exceptional results with no compromise on formulation quality.

For further information on the Xtra benefits, talk to your local Syngenta representative or visit **syngenta.com.au/axialxtra**

Axial® Xtra

syngenta®

GROUP 1 (A) HERBICIDE

Partner of WEEDsmart every weed every seed every farm every year

THE

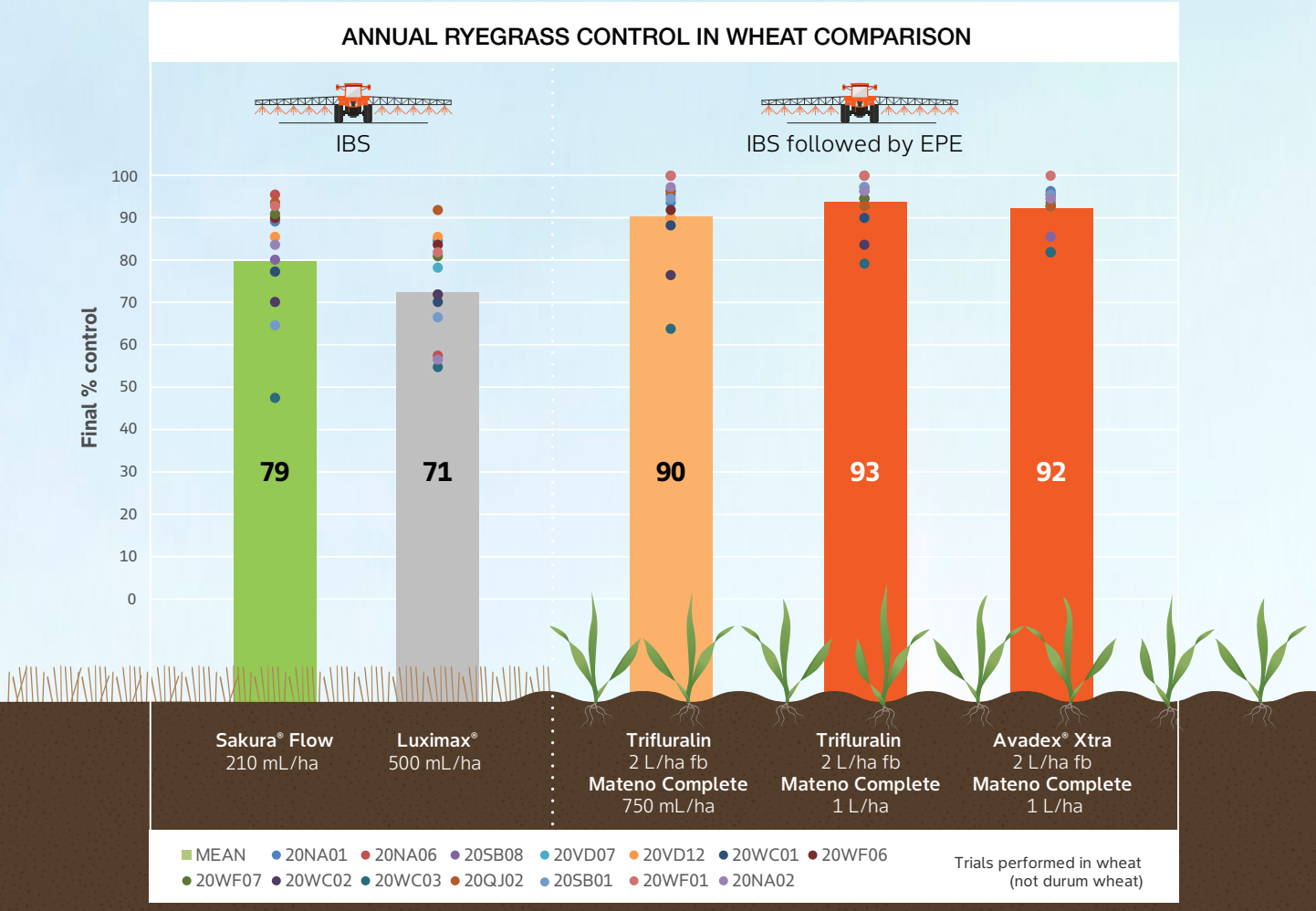
COMPLETE PACKAGE

FOR RELIABLE CONTROL OF BROADLEAF AND GRASS WEEDS

- Controls a broad spectrum of grass and broadleaf weeds in wheat (not durum wheat) and barley in both IBS and EPE applications
- A unique combination of three active ingredients, including aclonifen, the only group 32 herbicide available in Australia, delivering best-in-class grass and broadleaf weed control
- Controls weeds across the complete soil surface including in the furrow, when applied EPE

Mateno® Complete

REGISTERED
EARLY POST-EMERGENCE
IN WHEAT & BARLEY



SCAN THE QR CODE FOR THE LATEST TRIAL DATA
For more information visit **matenocomplete.com.au**