Australian Pesticides & Veterinary Medicines Authority

Product Name: Mateno Complete Herbicide
APVMA Approval No: 89959/144829

Label Name:	Mateno Complete Herbicide

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

Constituent Statements:	ACTIVE CONSTITUENTS 400 g/L ACLONIFEN 100 g/L PYROXASULFONE 66 g/L DIFLUFENICAN

Mode of Action:	GROUP 32 15 12 HERBICIDE

Statement of Claims:	For the pre-emergence or post-emergence control or suppression of various grass and broadleaf weeds in wheat (not durum wheat), triticale and barley as specified in the Directions for Use table.

Net Contents:	1 L - 1000 L

Restraints:	This section contains file attachment.

Directions for Use:	This section contains file attachment.

Other Limitations:	

Withholding Periods:	Harvest: All crops: NOT REQUIRED WHEN USED AS DIRECTED. Grazing/Stockfood: All crops: DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 6 WEEKS AFTER APPLICATION.

Trade Advice:	

General Instructions:	This section contains file attachment.

Resistance Warning:	RESISTANT WEEDS WARNING GROUP 32 15 12 HERBICIDE Mateno Complete is a member of three herbicide groups: Aclonifen is a member of the diphenyl ether group of herbicides and acts by inhibiting solanesyl diphosphate synthase. For weed resistance management aclonifen is a Group 32 herbicide. Pyroxasulfone is a member of the isoxazoline group of herbicides and is an inhibitor of very long chain fatty acid synthesis (VLCFA inhibitors). For weed resistance management pyroxasulfone is a Group 15 herbicide. Diflufenican is a member of the phenyl-ethers group of herbicides and acts by inhibiting carotenoid biosynthesis via inhibiting phytoene desaturase. For weed resistance management diflufenican is a Group 12 herbicide. Some naturally-occurring weed biotypes resistant to Mateno Complete, and other Group 32, 15 and 12 herbicides, may exist through normal genetic variability in any weed population. These resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by Mateno Complete or other Group 32, 15 or 12 herbicides. Do not rely exclusively on Mateno Complete for weed control. Use as part of an integrated weed management program involving herbicides with other modes of action and nonchemical methods of control. CropLife Australia resistance management strategies are available from your local agricultural chemical supplier or at the CropLife Australia website (www.croplife.org.au). Refer to these strategies for details of how to manage the build-up of resistant weeds. Since occurrence of resistant weeds is difficult to detect prior to use Bayer CropScience Pty Ltd accepts no liability for any losses that may result from the failure of Mateno Complete to control resistant weeds.

Precautions:	

Protections:	PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS Toxic to flora. DO NOT apply or drain or flush equipment on or near native or non-target trees or other plants or on areas where their roots may extend or in locations where the chemical may be washed or moved into contact with their roots. PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.

Storage and Disposal:	STORAGE AND DISPOSAL Non-returnable containers Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. Triple rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available bury the empty container 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product. Do not re-use container for any other purpose. Returnable containers Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty product as required into application equipment. Do not attempt to breach the valve system or filling point, or contaminate the container with water or other products. Ensure that equipment used in transfer of the product is disconnected, triple rinsed with clean water and drained after each use. when the container is empty, close all caps and valves and return the container to the point of purchase.

Safety Directions:	SAFETY DIRECTIONS When preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves. Wash hands after use. After each day’s use, wash gloves and contaminated clothing.

First Aid Instructions:	FIRST AID If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131126.

First Aid Warnings:	

DIRECTIONS FOR USE

RESTRAINTS

DO NOT apply beyond crop stage Z23.

DO NOT plant durum wheat (*Triticum durum*) for 21 months after the application of Mateno Complete (refer to **Crop Rotation Recommendations** for further advice).

DO NOT use disc seeding systems to sow barley if Mateno Complete has been used as an IBS application.

DO NOT apply to waterlogged soil.

DO NOT apply more than one application of Mateno Complete per crop, growing season or calendar year.

DO NOT apply Mateno Complete and another pyroxasulfone containing product e.g. Sakura® WG, Sakura Flow in the same crop and growing season.

DO NOT allow first irrigation tailwater from land treated with Mateno Complete to enter aquatic and wetland areas including aquacultural ponds, surface streams and rivers.

DO NOT apply if heavy rain has been forecast within 3 days.

DO NOT irrigate to the point of runoff for at least 3 days after application.

DO NOT apply with aircraft.

SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at apvma.gov.au/spraydrift.

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the buffer zone table below provide guidance but may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.

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

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

Buffer zones for boom sprayers

Application rate	Boom height above the target canopy	Mandatory downwind buffer zones	
		Natural aquatic areas	Vegetation areas
Up to 1.0 L/ha	0.5 m or lower	150 metres	30 metres

DIRECTIONS FOR USE

IBS APPLICATION

<table>
<tr><th>CROP</th><th>WEED</th><th>RATE</th><th>CRITICAL COMMENTS</th></tr>
<tr><td rowspan="6">Wheat (not durum wheat),
triticale</td><td>Annual ryegrass (Lolium rigidum),
barley grass (Hordeum leporinum),
silver grass (Vulpia bromoides, Vulpia myuros),
toad rush (Juncus bufonius)</td><td>0.75 to 1.0 L/ha</td><td rowspan="6">Use the higher rate where a higher level of control is required (e.g. higher weed density expected or soils prone to leaching) or where a longer period of residual control is required.

Apply pre-sowing onto uncultivated soil and incorporate by sowing (IBS). Avoid throwing treated soil into adjacent crop rows, avoid leaving the seed slot open and avoid shallow seed depth (< 3 cm) when sowing. (refer to Incorporation by Sowing in GENERAL INSTRUCTIONS).

To reduce the risk of crop effects, refer to Crop Safety in GENERAL INSTRUCTIONS.

For best results apply IBS just before sowing (refer to Interval between Application and Incorporation by Sowing in GENERAL INSTRUCTIONS).

Cultivation: Grass weed control is optimised when weed seeds are present on, or very close to, the soil surface at the time of application. Apply directly to uncultivated soil. Weed control may be greatly reduced where grass weed seeds have been buried by cultivation prior to sowing.

Ground cover: Stubble, plant residue, large clods or other impediments to good soil contact can adversely affect weed control, particularly where ground cover exceeds 50%.

Rainfall soon after application:

• Weed control may be adversely affected by insufficient rainfall within 7 to 10 days after application. Adequate rainfall is necessary to facilitate uptake of the product by the germinating weed seeds, however the quantity of rainfall required will depend on many factors including stubble load and other impediments, soil type, the existing soil moisture at sowing, the pattern of rainfall and other considerations.

• In soils prone to leaching (e.g. light or sandy soil), rainfall which is sufficiently heavy to cause movement of the herbicide out of the weed root zone may lead to reduced weed control.

(Refer to Application before Incorporation by Sowing, Incorporation by Sowing and Soil Type in GENERAL INSTRUCTIONS.)

Where a suppression level of weed control is provided or where weeds are only partially controlled, a follow up application with a suitable post-emergent herbicide is generally required to control remaining plants.</td></tr>
<tr><td>Suppression* of:
great brome (Bromus diandrus)
*Refer Suppression of great brome and wild oats in GENERAL INSTRUCTIONS for further details</td><td>0.75 to 1.0 L/ha</td></tr>
<tr><td>Suppression# of:
Indian hedge mustard (Sisymbrium orientale),
stonecrop (Crassula sieberiana, Crassula aquatica)</td><td>0.75 L/ha</td></tr>
<tr><td>Annual phalaris or paradoxa grass (Phalaris paradoxa only),
feathertop Rhodes grass (Chloris virgata),
stonecrop (Crassula sieberiana, Crassula aquatica)</td><td>1.0 L/ha</td></tr>
<tr><td>Suppression* of:
wild oats (Avena fatua)
*Refer Suppression of great brome and wild oats in GENERAL INSTRUCTIONS for further details</td><td>1.0 L/ha</td></tr>
<tr><td>Suppression# of:
capeweed (Arctotheca calendula),
deadnettle (Lamium amplexicaule),
denseflower fumitory (Fumaria densiflora)
#Refer to Suppression of broadleaf weeds (IBS application) in GENERAL INSTRUCTIONS for further details</td><td>1.0 L/ha</td></tr>
</table>

CROP	WEED	RATE	CRITICAL COMMENTS
Barley	Annual ryegrass (*Lolium rigidum*), barley grass (*Hordeum leporinum*), silver grass (*Vulpia bromoides*, *Vulpia myuros*), toad rush (*Juncus bufonius*)	0.75 L/ha	Apply pre-sowing onto uncultivated soil only and incorporate by sowing (IBS) using knife points and press wheels. Avoid throwing treated soil into adjacent crop rows, avoid leaving the seed slot open and avoid shallow seed depth (< 3 cm) when sowing. (refer to **Incorporation by Sowing** in **GENERAL INSTRUCTIONS**). To reduce the risk of crop effects, refer to **Crop Safety** and **IMPORTANT CROP SAFETY INFORMATION SPECIFIC TO USE OF MATENO COMPLETE IN BARLEY** in **GENERAL INSTRUCTIONS**. For best results apply just before sowing (refer to **Interval between Application** and **Incorporation by Sowing** in **GENERAL INSTRUCTIONS**). *Cultivation:* Grass weed control is optimised when weed seeds are present on, or very close to, the soil surface at the time of application. Apply directly to uncultivated soil. Weed control may be greatly reduced where grass weed seeds have been buried by cultivation prior to sowing. *Ground cover:* Stubble, plant residue, large clods or other impediments to good soil contact can adversely affect weed control, particularly where ground cover exceeds 50%. *Rainfall soon after application:* • Weed control may be adversely affect by insufficient rainfall within 7 to 10 days after application. Adequate rainfall is necessary to facilitate uptake of the product by the germinating weed seeds, however the quantity of rainfall required will depend on many factors including stubble load and other impediments, soil type, the existing soil moisture at sowing, the pattern of rainfall and other considerations. • In soils prone to leaching (e.g. light or sandy soil), rainfall which is sufficiently heavy to cause movement of the herbicide out of the weed root zone may lead to reduced weed control. (Refer to **Application before Incorporation by Sowing**, **Incorporation by Sowing** and **Soil Type** in **GENERAL INSTRUCTIONS**.) Where a suppression level of weed control is provided a follow up application with a suitable post-emergent herbicide is generally required to control remaining weeds.
	Suppression* of: great brome (*Bromus diandrus*) *Refer **Suppression of great brome and wild oats** in **GENERAL INSTRUCTIONS** for further details	0.75 L/ha	
	Suppression[#] of: Indian hedge mustard (*Sisymbrium orientale*), stonecrop (*Crassula sieberiana, Crassula aquatica*) [#]Refer to **Suppression of broadleaf weeds (IBS application)** in **GENERAL INSTRUCTIONS** for further details	0.75 L/ha	

EPE APPLICATION

CROP	WEED	WEED STAGE	RATE	CRITICAL COMMENTS
Wheat (1 leaf to 3 tiller), (not durum wheat), triticale (2 leaf to 3 tiller)	Feathertop Rhodes grass (*Chloris virgata*)	Up to 2 leaf	1.0 L/ha	Apply early post-emergent (EPE) (wheat from Z11 and triticale from Z12) and no later than the three-tiller stage (Z23). Delaying application until the early tillering stage may improve crop safety in high rainfall or high soil moisture conditions, although weed control may be reduced due to suboptimal spray coverage due to shading and/or advanced weed stage. **Annual ryegrass**: Without an application of a registered pre-emergent annual ryegrass herbicide, Mateno Complete, applied early post-emergence (EPE), will only provide variable suppression of annual ryegrass and should not be relied on to control annual ryegrass. Apply an effective registered pre-emergent annual ryegrass herbicide before using Mateno Complete EPE for control of annual ryegrass. Use the higher rate where a higher level of control is required, or where high weed numbers exist (e.g. annual ryegrass > 100 plants/m^2) or where a longer period of residual control is required. **Feathertop Rhodes grass**: A follow-up application of a suitable post-emergence herbicide may be required to control remaining weeds. **Wild oats**: Without an application of Avadex Xtra applied IBS, Mateno Complete, applied early post-emergence (EPE), will only provide poor and variable suppression of wild oats and should not be relied on to control wild oats. Rainfall before and soon after application. • Weed control may be adversely affected where weeds are not actively growing due to insufficient rainfall before application. • Grass weed control may be adversely affected by insufficient rainfall within 7 to 10 days after application. Adequate rainfall is necessary to facilitate uptake of the product from the soil by the young weeds (including weeds in the process of germinating and/or weeds yet to emerge), however the quantity of rainfall required will depend on many factors including stubble load, soil type, the existing soil moisture at sowing, the pattern of rainfall and other considerations. • In soils prone to leaching (e.g. light or sandy soil), rainfall which is sufficiently
	Suppression of: annual ryegrass (*Lolium rigidum*), barley grass (*Hordeum leporinum*)	Up to 2 leaf	1.0 L/ha	
	Silver grass (*Vulpia bromoides*, *Vulpia myuros*)	Up to 2 leaf	0.75 to 1.0 L/ha	
	Toad rush *(Juncus bufonius)*	Up to 2 leaf	0.75 L/ha	
		Up to 3 leaf	1.0 L/ha	
	Annual ryegrass (*Lolium rigidum*)	Up to 3 leaf	0.75 to 1.0 L/ha (following an effective pre-emergent annual ryegrass herbicide)	
	Wild oats (*Avena fatua*)	Up to 3 leaf	1.0 L/ha following Avadex® Xtra at 1.6 to 2.0 L/ha applied IBS	
	Capeweed (*Arctotheca calendula*), wild radish (*Raphanus raphanistrum*)	Up to 3 leaf	1.0 L/ha alone, or with MCPA LVE (570 g/L MCPA present as 2-ethylhexyl ester) 0.44 L/ha	

CROP	WEED	WEED STAGE	RATE	CRITICAL COMMENTS
Wheat (1 leaf to 3 tiller), (not durum wheat), triticale (2 leaf to 3 tiller)	Indian hedge mustard (*Sisymbrium orientale*)	Up to 2 leaf	0.75 L/ha	heavy to cause movement of the herbicide out of the weed root zone (and the zone where weed seeds may still be germinating) may lead to reduced weed control. Refer to **Early Post-emergence (EPE) Application** in **GENERAL INSTRUCTIONS** For **capeweed** and **wild radish**, in cold conditions, or where spray coverage is compromised, add MCPA LVE once the crop has reached the required growth stage (as recommended on the MCPA LVE label). For weeds where more than one rate is recommended, use the higher rate where a higher level of control is required (e.g., higher weed density expected or soils prone to leaching). Weed control may be adversely affected by insufficient coverage of weeds, frosts that occur immediately before and/or after application and/or insufficient soil surface moisture at application. Weed control may be reduced due to suboptimal spray coverage due to shading from the crop and/or advanced weed stage and/or other weeds. Rainfall before and soon after application. • Weed control may be adversely affected where weeds are not actively growing due to insufficient rainfall before application. • Weed control may be adversely affected by insufficient rainfall within 7 to 10 days after application. Adequate soil surface moisture is necessary to facilitate uptake of the product from the soil by the young weeds (including weeds in the process of germinating and/or weeds yet to emerge). • In soils prone to leaching (e.g. light or sandy soil), rainfall which is sufficiently heavy to cause movement of the herbicide out of the weed root zone (and the zone where weed seeds may still be germinating) may lead to reduced weed control. Refer to **Early Post-emergence (EPE) Application in GENERAL INSTRUCTIONS** Where the weed population is suppressed or only partially controlled, a follow up application of a suitable post-emergent herbicide may be required to control remaining annual broadleaf weeds. **Wireweed** efficacy may be improved by the addition of Ally/Associate at 5 g/ha plus
	Suppression of: volunteer canola (*Brassica napus*)	Up to 2 leaf	0.75 L/ha	
	Prickly lettuce (*Lactuca serriola*)	Up to 2 leaf	0.75 to 1.0 L/ha	
	Deadnettle (*Lamium amplexicaule*), denseflower fumitory (*Fumaria densiflora*), volunteer canola (*Brassica napus*)	Up to 2 leaf	1.0 L/ha	
	Suppression of doublegee/spiny emex (*Emex australis*)	Up to 2 leaf	1.0 L/ha	
	Matricaria (globe chamomile) (*Oncosiphon pilulifer*) mouse-ear chickweed (*Cerastium glomeratum)* shepherd's purse (*Capsella bursa-pastoris*), stonecrop (*Crassula sieberiana, Crassula aquatica*)	Up to 4 leaf	0.75 L/ha	
	Suppression of: lesser loosestrife (*Lythrum hyssopifolia*), wireweed (*Polygonum aviculare*)	Up to 4 leaf	0.75 L/ha	
	Lesser loosestrife (*Lythrum hyssopifolia*), common sowthistle (*Sonchus oleraceus*)	Up to 4 leaf	1.0 L/ha	
	Suppression of: denseflower fumitory (*Fumaria densiflora*)	Up to 4 leaf	1.0 L/ha	

CROP	WEED	WEED STAGE	RATE	CRITICAL COMMENTS
Wheat (1 leaf to 3 tiller), (not durum wheat), triticale (2 leaf to 3 tiller)	Doublegee/spiny emex (*Emex australis*)	Cotyle-don to 4 leaf	1.0 L/ha + 600 g/kg metsulfuron-methyl at 5 g/ha + BS1000 0.1% v/v	BS1000 at 0.1% v/v or MCPA 570 LVE at 440 mL/ha. For control of **doublegee/spiny emex** and **matricaria** (up to 6 leaf), refer to the tank mix partner label for directions on crop stage. **Fleabane**: Under adverse seasonal conditions, a follow-up post-emergent herbicide may be required to control later emerging fleabane.
	Matricaria (globe chamomile) (*Oncosiphon pilulifer*)	Up to 6 leaf	0.75 L/ha + Buctril 200 or Bromicide 200 at 0.7 L/ha	
	Flaxleaf fleabane (*Conyza bonariensis, Erigeron bonariensis*)	Pre-emerg-ence of weed	1.0 L/ha	
Barley (3 leaf to 3 tiller)	Annual ryegrass (*Lolium rigidum*)	Up to 3 leaf	0.75 L/ha (< 100 plants/m^2 following an effective pre-emergent annual ryegrass herbicide)	Apply early post-emergent (EPE) when barley has at least three true leaves (Z13) and no later than the three-tiller stage (Z23). Delaying application until the early tillering stage of barley may improve crop safety in high rainfall or high soil moisture conditions, although weed control may be reduced due to suboptimal spray coverage due to shading and/or advanced weed stage. Refer to **Crop Safety** and **IMPORTANT CROP SAFETY INFORMATION SPECIFIC TO USE OF MATENO COMPLETE IN BARLEY** in **GENERAL INSTRUCTIONS.** Apply an effective registered pre-emergent annual ryegrass herbicide before using Mateno Complete EPE for control of annual ryegrass. In situations where the preemergent herbicide reduces the crop vigour or causes other crop effects, there is an increased risk of crop damage from using Mateno Complete. Rainfall before and soon after application. • Weed control may be adversely affected where weeds are not actively growing due to insufficient rainfall before application. • Grass weed control may be adversely affected by insufficient rainfall within 7 to 10 days after application. Adequate rainfall is necessary to facilitate uptake of the product from the soil by the young weeds (including weeds in the process of germinating and/or weeds yet to emerge), however the quantity of rainfall required will depend on many factors including stubble load, soil type, the
	Silver grass (*Vulpia bromoides*, *Vulpia myuros*), Toad rush *(Juncus bufonius),* Indian hedge mustard (*Sisymbrium orientale*), Prickly lettuce (*Lactuca serriola*)	Up to 2 leaf	0.75 L/ha	
	Suppression of: volunteer canola (*Brassica napus*)	Up to 2 leaf	0.75 L/ha	
	Matricaria (globe chamomile) (*Oncosiphon pilulifer)* mouse-ear chickweed (*Cerastium glomeratum),* shepherd's purse (*Capsella bursa-pastoris*), stonecrop (*Crassula sieberiana, Crassula aquatica*)	Up to 4 leaf	0.75 L/ha	

CROP	WEED	WEED STAGE	RATE	CRITICAL COMMENTS
Barley (3 leaf to 3 tiller)	Suppression of: lesser loosestrife (*Lythrum hyssopifolia*), wireweed (*Polygonum aviculare*)	Up to 4 leaf	0.75 L/ha	existing soil moisture at sowing, the pattern of rainfall and other considerations. • In soils prone to leaching (e.g. light or sandy soil), rainfall which is sufficiently heavy to cause movement of the herbicide out of the weed root zone (and the zone where weed seeds may still be germinating) may lead to reduced weed control. Weed control may be adversely affected by insufficient coverage of weeds, frosts that occur immediately before and/or after application and/or insufficient soil surface moisture at application. For silver grass and prickly lettuce, low weed density and good spray coverage are recommended for optimal control. Refer to **Early Post-emergence (EPE) Application in GENERAL INSTRUCTIONS** Where the weed population is suppressed or only partially controlled, a follow up application of a suitable post-emergent herbicide may be required to control remaining annual broadleaf weeds.

GENERAL INSTRUCTIONS

Mateno Complete Herbicide is primarily a residual, soil applied, pre-emergent herbicide, also with early post-emergence (foliar) activity. Pyroxasulfone is primarily absorbed by the roots and to a lesser extent the shoots of germinating and young seedling weeds. Aclonifen and diflufenican are foliar active herbicides with less soil activity than pyroxasulfone. Activity of Mateno Complete on grass weeds for pre-emergent and early post-emergent application is primarily through root uptake, as well as some foliar uptake for early post-emergent application. Activity on broadleaf weeds from early post-emergence application is primarily via foliar activity. Weed control from pre-emergent application is optimised when Mateno Complete is applied evenly to soil just prior to incorporation by sowing and there is sufficient rainfall soon after sowing to ensure uptake of the herbicide by germinating weeds. Grass weed control from early post-emergent application is optimised when Mateno Complete is applied evenly to the soil and young actively growing weeds and there is sufficient rainfall soon after application to ensure root uptake of the herbicide. Broadleaf weed control from early post-emergent application is optimised when Mateno Complete is applied evenly to young actively growing weeds and there is good even coverage, particularly the meristematic area of the weeds.

Application before Incorporation by Sowing

Weeds germinating from depth, weeds just about to emerge or germinated and emerged weeds at sowing that are not controlled by an effective knockdown herbicide at sowing may not be controlled by Mateno Complete.

Ensure complete and even spray coverage of soil is achieved. Poor spray coverage may result from application to ridged or excessively cloddy soil or in situations of high stubble, plant residue or other ground cover. A significant reduction in weed control may result where stubble, plant residue or other ground cover exceeds 50%, and in situations where a ‘cold’ or incomplete burn of stubble results in a mass of material which can act as a physical barrier between the herbicide and germinating weeds – this can be exacerbated in header trails where there may be greater weed seed numbers and higher levels of plant residue. Weed control can be particularly affected where Mateno Complete is applied to a barrier of stubble, plant residue or other ground cover and there is insufficient following rainfall to move the herbicide to the seed and root zone of germinating weeds.

Interval between Application and Incorporation by Sowing

To optimise weed control, sow as soon as practicable after the application of Mateno Complete and no later than 7 days after application.

Incorporation by Sowing

When applied prior to sowing, Mateno Complete should be incorporated by sowing using knife points and press wheels or disc seeding systems (not barley) that are set up to ensure sufficient separation of the crop seed from treated soil, stubble and weeds (see **Crop Safety** section). Ensure treated soil is not thrown into adjacent furrows. When incorporation is by knife point and press wheels, weeds germinating in or near the seed row (edge of the furrow) may not be controlled. Knife points and press wheel seeding systems are generally safer to the crop than disc seeding systems as they tend to move more treated soil, stubble and weeds away from the crop row and cover the treated soil surface between the crop rows with soil, reducing the risk of Mateno Complete moving and concentrating in the crop row following rainfall. Disc seeding systems that result in minimal soil disturbance and allow the concentration of herbicide in the seeding slot following rainfall will substantially increase the risk of crop damage and should be avoided.

Soil Type

Grass weed control is often more reliable in loam to clay soils, where there is enough rainfall within 7 to 10 days after application to facilitate the uptake of the herbicide by germinating weed seeds. Weed control may be reduced in soils prone to leaching (e.g. light or sandy soils) where rainfall after application and sowing is sufficiently heavy to cause movement of the herbicide out of the weed root zone. Weed control may also be adversely affected by the presence of water repellent soils.

Suppression of great brome and wild oats (IBS application)

Mateno Complete is most effective when grass weed seeds are present on or very close to the soil surface with good soil moisture at the time of application. For this reason, it is recommended that Mateno Complete is applied to uncultivated soil prior to incorporation by sowing. As the depth of weed seeds increases, control from Mateno Complete tends to decrease. It is rare that all great brome and wild oats seeds will be on the soil surface at the time of Mateno Complete application, especially considering that these seeds may remain viable in the soil for several seasons. Plants may germinate from seeds buried by the sowing operation, by livestock or by weed seed self-burial mechanisms particularly in some soil types (e.g. cracking clays and sand). **Therefore, only partial control or suppression of the great brome or wild oats population should generally be expected**. In these situations, a follow up application with a suitable post-emergent herbicide will generally be required to control remaining plants.

Suppression of broadleaf weeds (IBS application)

The control of broadleaf weeds from the IBS application of Mateno Complete requires sufficient soil moisture for herbicide uptake and may be adversely affected by insufficient rainfall within 7 to 10 days of application. In drier conditions, the control or suppression of broadleaf weeds may be very poor, particularly for some weeds such as denseflower fumitory. **Generally, only partial control or suppression of broadleaf weed populations should be expected.** In these situations, a follow up application with a suitable post-emergent herbicide will be required to control remaining weeds.

Early Post-emergence (EPE) Application

Annual grass weeds

For early post-emergent grass weed control, Mateno Complete should only be used following a pre-sowing application of an effective pre-emergent herbicide relevant for the weed/s being targeted. For example, for the control of up to 3 leaf annual ryegrass in established wheat or triticale, Mateno Complete may be applied following the pre-sowing application of trifluralin, Avadex® Xtra, Arcade® or Boxer Gold®. Check with Bayer Crop Science for additional herbicides tested. For reliable control, weeds should be actively growing at the time of application and there should be sufficient rainfall soon after application for the movement of the product into the weed root zone. Weed control may be reduced if grass weeds are under stress (e.g. due to factors such as frosts before and/or after application, dry or waterlogged conditions, nutrient deficiency or damage from insects or disease). Grass weed control on sandy soils may be adversely affected where rainfall after application is sufficiently heavy to cause the movement of the herbicide through and out of the weed root zone.

There may be increased risk of crop damage from application following heavy rainfall in disc sown crops where rainfall is sufficiently heavy to move cause a concentration of herbicide in the crop sowing slot (see **Crop Safety** section).

Control of wild oats

Without an application of Avadex Xtra applied IBS, Mateno Complete, applied early post-emergence (EPE), will only provide poor and variable suppression of wild oats and should not be relied on to control wild oats. Apply Avadex Xtra before using Mateno Complete EPE for control of wild oats.

Annual broadleaf weeds

Ensure complete and even coverage of weeds is achieved and that emerged weeds are actively growing at the time of application. Complete coverage may be adversely affected by shading from the crop, weeds (due to high weed density) and stubble. Mateno Complete should be applied onto young annual broadleaf weeds as directed in the **DIRECTIONS FOR USE** table. Broadleaf weed control may be reduced if weeds are under stress (e.g. due to factors such as frosts before and/or after application, dry or waterlogged conditions, nutrient deficiency or damage from insects or disease). Residual control of broadleaf weeds not yet emerged at application may be reduced by insufficient herbicide coverage of the soil, due to physical impediments such as established weeds or crop, and/or inadequate moisture at the soil surface at the time of weed emergence.

The addition of a compatible herbicide (refer to the **Compatibility** section of this label for other compatible products), once the crop has reached the correct stage according to the label of the added compatible product, may improve control, particularly in high weed density situations where shading occurs. Where complete weed control is not achieved, a follow up application using a suitable herbicide may be required to control remaining annual broadleaf weeds.

Crop Safety

General crop safety

Mateno Complete, applied alone, shows good crop selectivity in wheat and triticale when used as directed. Crop biomass reductions and/or discolouration (bleaching or yellowing) can occur, but these crop effects are usually only slight and transient. The following directions will help minimise the risk of crop effects.

- Do not plant durum wheat after the application of Mateno Complete as it may be severely damaged. Refer to **Crop Rotation Recommendations** for further advice.
- Do not use with seeding systems which leave the crop row open or that provide only shallow soil coverage of the seed and seedling crop roots.
- Use a seeding system that does not throw treated soil into the adjacent crop row and does not result in treated stubble or weeds close to the germinating crop seed or emerging crop seedling roots. Seeding systems that do not sufficiently cover the seeding row with untreated soil may result in increased crop effects.
- Do not use a combination of both press wheels and a covering device such as harrows or chains when sowing.
- For early post-emergent applications, ensure wheat and triticale are fully emerged and at least at the 1 true leaf stage (Z11) for wheat and the 2 true leaf stage (Z12) for triticale.
- Ensure good crop nutrition and disease control.
- Ensure good control of soil diseases which affect root growth.

The potential for crop damage is increased when there is substantial rainfall after the application of Mateno Complete, especially where this leads to temporary waterlogging. Situations which lead to concentration of herbicide in the planting row, or movement of herbicide to the depth of the crop seed, may also increase the potential for crop damage. This includes the following scenarios;

- Where deep furrows are formed by the sowing operation, soil movement into the crop row may occur due to wind or heavy rainfall or irrigation soon after sowing resulting in concentration of herbicide in the crop row.
- Where the treated soil surface is not covered by soil during the seeding operation (typical of some disc seeding systems) and heavy rainfall results in the movement and concentration of herbicide in the crop row.
- Where soil has a potential for leaching and rainfall moves the herbicide into the crop root zone (typical of some disc seeding systems and/or in lighter soils).
- Where treated stubble is incorporated near the crop seed by the seeding system.
- Where open sowing slots are present at the time of early post-emergent application and rainfall or wind results in the movement and concentration of herbicide in the crop row.
- Where shallow sowing results in a concentration of herbicide in the crop seed zone.
- Where soil has a high potential for leaching, heavy rainfall or irrigation between application and crop emergence may result in movement of herbicide into the crop seed zone.

Other circumstances which may increase the potential for crop damage include;

- Where Mateno Complete is applied in tank mixes with other herbicides,

- Where crop vigour is reduced due to factors such as frosts, insect attack, inadequate nutrition, high temperatures, moisture stress or crop disease (where Mateno Complete is applied EPE to early sown cereal crops (e.g., grazing wheat varieties) under high temperatures and/or moisture stress, significant crop biomass reductions may result),
- When weather damaged seed is used and/or with the use of some fungicide seed treatments especially in conjunction with crop varieties with short coleoptile length.

A combination of individual factors which increase the potential for crop damage may increase the extent of crop damage.

Use of adjuvants in early post-emergence applications - crop safety

The addition of an adjuvant when applying Mateno Complete as an EPE spray can increase crop effects. Do not add an adjuvant to Mateno Complete when used alone as an early post-emergence (EPE) foliar spray.

Check the compatibility section of this label when tank mixing with a partner herbicide that recommends or requires the use of an adjuvant.

IMPORTANT CROP SAFETY INFORMATION SPECIFIC TO USE OF MATENO COMPLETE IN BARLEY

Barley is less tolerant than wheat and triticale to Mateno Complete. While in most cases barley crops will be unaffected or minimally affected by Mateno Complete, there may occasionally be reduced emergence and, in some situations, severe reductions in barley crop growth which may persist for the length of the growing season. Further, where severe crop growth effects from the use of Mateno Complete in barley are evident, yield reductions may occur, depending on whether such crop growth effects have been compensated for by reduced competition through effective weed control.

IBS application

Unfavourable crop effects tend to be greatest when either a high-intensity rainfall event follows soon after the sowing of barley, causing treated soil to move into the crop row or there is soaking rainfall during the early stage of the growing season causing the movement of product into the crop seed zone.

The following measures may reduce the movement of product into the crop seed zone:

- Sow barley as soon as practicable after the application of Mateno Complete.
- Incorporation should only be by knife points and press wheels when sowing barley; do not use harrows or other covering devices (e.g. chains).
- Do not use Mateno Complete where barley is planted with disc seeding systems.
- Avoid using Mateno Complete prior to planting barley in a dry seeding situation.
- Avoid sowing situations that result in stubble drag or any other sowing practices that result in treated soil moving into the crop rows.
- Avoid sowing practices and soil types that may result in furrow collapse and subsequent movement of chemical into the crop rows.

Crop effects may be exacerbated by factors that inhibit crop root growth such as root disease, root pests, environmental stress (e.g. waterlogging), poor nutrition, soil compaction, presence of a hard pan, poor seed quality, etc.

The following measures may help reduce the extent of crop damage to barley sown following the application of Mateno Complete. However, since intense or soaking rainfall after sowing is the main cause of crop damage in barley, these recommendations cannot be relied upon to prevent serious crop effects:

- Avoid using Mateno Complete in soils prone to waterlogging.

- Do not use Mateno Complete in irrigated barley.
- Avoid using Mateno Complete in conjunction with other pre-emergent herbicides prior to planting barley.
- Avoid applying Mateno Complete in barley where a product containing pyroxasulfone (e.g. Mateno Complete, Sakura Flow or Sakura 850 WG) has been applied the previous year as crop damage may be more severe (pronounced, exacerbated) in some circumstances.
- Do not apply Mateno Complete in a tank mix with another product known to cause crop damage as this may increase crop effects when applied in barley.
- Use good quality barley seed.
- Do not use barley seed treated with fungicide seed treatments that may shorten the coleoptile and/or delay emergence.

EPE application

Unfavourable crop effects tend to be greatest when either a high-intensity rainfall event follows soon after the after application of Mateno Complete onto barley, causing the herbicide to move into the crop row, or there is soaking rainfall during the early stage of the growing season causing the movement of product into the crop root zone.

The following measure may reduce the movement of product into the crop root zone:

• Do not use Mateno Complete where the barley seeding operation has created an open or relatively open seeding slot which allows Mateno Complete placement close to barley seed or roots. Special care should be taken to ensure the closing system has adequately closes the seeding slot to reduce the risk of crop damage.

The following measures may help reduce the extent of crop damage to barley following the early post-emergent application of Mateno Complete. However, since intense or soaking rainfall after EPE application is the main cause of crop damage in barley, these recommendations cannot be relied upon to prevent serious crop effects:

• Avoid using Mateno Complete in soils prone to waterlogging.

• Do not use Mateno Complete in irrigated barley.

• Avoid applying Mateno Complete in barley where a product containing pyroxasulfone (e.g. Mateno Complete, Sakura Flow or Sakura 850 WG) has been applied the previous year as crop damage may be more severe (pronounced, exacerbated) in some circumstances.

• Do not apply to crops under stress. Crop effects may be exacerbated by factors that inhibit crop root growth such as pre-emergent herbicide effects, root disease, root pests, environmental stress (e.g. waterlogging), poor nutrition, soil compaction, presence of a hard pan, poor seed quality, etc.

• Avoid tank mixing Mateno Complete in situations with another product known to cause crop damage as this may increase crop effects when applied in barley.

• Apply Mateno Complete only after successful crop establishment from good quality barley seed.

For both IBS and EPE applications, the potential benefits of using Mateno Complete in barley at 0.75 L/ha should be assessed according to the particular circumstances and balanced against the risks outlined above. Always consult your Mateno Complete agent in relation to the appropriate use of Mateno Complete.

Mixing

Shake or otherwise agitate contents of container well, before using to ensure homogeneity. Ensure sprayer and nozzle filters are completely clean and maintained before preparing the spray mixture. Continuous agitation is required during the full process of loading and mixing and until the end of the spraying process. Fill the spray tank to 70% full of water and, with the agitators in motion, add the correct amount of Mateno Complete directly to the spray tank. Complete filling the tank with agitators in motion. When other products are to be applied in combination with Mateno Complete, always add any dry products (WP, WG formulations) to the tank slowly first, allowing at least 10 minutes of constant agitation for thorough dispersion, before adding the correct amount of Mateno Complete to the spray tank. Allow enough time under constant agitation (at least 10 minutes) for Mateno Complete to thoroughly disperse before adding subsequent tank-mix products (e.g. EC or SL formulations) to the tank. Apply the spray liquid immediately after mixing the product(s) into the spray tank. Do not allow the spray mixture to remain in the spray equipment over night and/or without constant agitation. Cleaning of the sprayer immediately after the application is very important (see sprayer clean-up).

Application Equipment

Ground Sprayers – Standard boom sprayers only are recommended and must be fitted with by-pass or mechanical agitation. The use of coarse mesh in-line and nozzle filters is recommended. Do not use filters finer than 50 mesh. It is recommended that 70 to 100 L water/ha is applied with spray minimum MEDIUM droplet size category; refer MANDATORY NO-SPRAY ZONE section of this label. In some situations (e.g. high stubble loads) high water volumes may give higher levels of weed control. When tank mixing with other products, use a minimum of 80 L water/ha. The use of water volumes higher than 80 L/ha may improve the physical compatibility of Mateno Complete with other tank mix products.

Aircraft – DO NOT apply Mateno Complete by aircraft**.**

Sprayer clean-up

Following the use of Mateno Complete, the spraying equipment should be thoroughly cleaned before it is used for application of other products. Cleaning should occur immediately following the last application of Mateno Complete or if the sprayer is not used for several hours. The spray unit should first be completely emptied by spraying. Then fill the empty sprayer 1/3 full of water to dilute the remaining amount. Then move the sprayer so that all walls are rinsed. Dispose of water (rinsate) in accordance with State regulations. Check the filter and nozzle for residues and clean them if necessary. The sprayer, including all filters and lines, should be thoroughly rinsed with water, to remove all traces of product.

Ensure that the sprayer clean-up is carried out in an area that is clear of waterways, desirable vegetation and tree roots. If using Mateno Complete with a tank-mix partner, refer to the sprayer clean-up instructions for the other product, which may be more rigorous than those for Mateno Complete.

Crop Rotation Recommendations

Mateno Complete breaks down by microbial degradation, which is favoured by warm, moist aerobic soil.

Minimum recropping intervals (months after Mateno Complete application) have been established for Mateno Complete to minimise the risk of damage to following crops (see table below). However, environmental and agronomic factors make it impossible to eliminate all risk and therefore the potential for damage to following crops exists.

Rainfall of less than the minimum interim rainfall required (see table below) may result in extended recropping intervals. Interim rainfall is the total rainfall between the application of Mateno Complete and planting of the following crop. For recropping with winter crops, where a minimum of 250 mm of interim rainfall is required, if rain from application to the end of spring is less than 125 mm and isolated heavy summer and autumn falls and break rains are required to achieve the 250 mm interim rainfall, then extended recropping intervals may apply.

Crops	Recropping recommendation for a maximum Mateno Complete at 1.0 L/ha in any growing season or calendar year	
	Minimum recropping interval	**Minimum interim rainfall**
Wheat (not durum wheat), triticale	0 months	0 mm
Cotton, maize, mung beans, sorghum, soybeans and sunflowers	5 months[1]	150 mm
Barley	0 or 9 months[2]	0 or 250 mm
Canola, chickpeas, faba beans, field peas, lentils, lupins, vetch and subterranean clover	9 months[3]	250 mm
Durum wheat, lucerne, oats, medics	21 months[4]	500 mm

[1] For cotton, maize, mung beans, sorghum, soybeans and sunflowers there may occasionally be some crop stunting or biomass reduction, but the crop growth improves as the season progresses and no yield reductions have been measured.

[2] Barley can be sown immediately after the application of Mateno Complete, at 0.75 L/ha only, where Mateno Complete has not already been incorporated. However, where Mateno Complete has been incorporated into the soil, for example, by a previous sowing operation, barley should not be sown for at least 9 months after the application of Mateno Complete. For barley sown the year after the application of Mateno Complete there may occasionally be some crop stunting or biomass reduction, but the crop growth improves in spring and no yield reductions have been measured.

Avoid applying Mateno Complete in barley where a product containing pyroxasulfone (e.g. Mateno Complete, Sakura Flow or Sakura 850 WG) has been applied the previous year as crop damage may be more severe (pronounced, exacerbated) in some circumstances.

[3] For canola, chickpeas, subterranean clover, faba beans, field peas, lentils, lupins and vetch sown the year after the application of Mateno Complete there may occasionally be some crop stunting or biomass reduction, but the crop growth improves in spring and no yield reductions have been measured.

[4] For oats, durum wheat, lucerne and medics there may occasionally be some crop stunting or biomass reduction, but the crop growth improves as the season progresses and no yield reductions have been measured.

Avoid overlapping the boom spraying when Mateno Complete is applied.