



Australian Government
**Australian Pesticides and
Veterinary Medicines Authority**



Trade Advice Notice

on sulfoxaflor in the products Expedite Full Insecticide and
Transform Isoclast Active Insecticide for use on canola, cereal grains and lucerne

APVMA product number 65464 and 64101

September 2022

© Australian Pesticides and Veterinary Medicines Authority 2022

ISSN 2200-3894 (electronic)

Ownership of intellectual property rights in this publication

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Australian Pesticides and Veterinary Medicines Authority (APVMA).

Creative Commons licence

With the exception of the Coat of Arms and other elements specifically identified, this publication is licensed under a Creative Commons Attribution 4.0 Licence. This is a standard form agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work.



A [summary of the licence terms](#) and [full licence terms](#) are available from Creative Commons.

The APVMA's preference is that you attribute this publication (and any approved material sourced from it) using the following wording:

Source: Licensed from the Australian Pesticides and Veterinary Medicines Authority (APVMA) under a Creative Commons Attribution 4.0 Australia Licence.

In referencing this document the Australian Pesticides and Veterinary Medicines Authority should be cited as the author, publisher and copyright owner.

Photographic credits

Cover image: iStockphoto (www.istockphoto.com)

iStockphoto images are not covered by this Creative Commons licence.

Use of the Coat of Arms

The terms under which the Coat of Arms can be used are set out on the [Department of the Prime Minister and Cabinet website](#).

Disclaimer

The material in or linking from this report may contain the views or recommendations of third parties. Third party material does not necessarily reflect the views of the APVMA, or indicate a commitment to a particular course of action. There may be links in this document that will transfer you to external websites. The APVMA does not have responsibility for these websites, nor does linking to or from this document constitute any form of endorsement. The APVMA is not responsible for any errors, omissions or matters of interpretation in any third-party information contained within this document.

Comments and enquiries regarding copyright:

Assistant Director, Communications
Australian Pesticides and Veterinary Medicines Authority
GPO Box 3262
Sydney NSW 2001 Australia

Telephone: +61 2 6770 2300

Email: communications@apvma.gov.au.

This publication is available from the [APVMA website](#).

Contents

Preface	1
About this document	1
Making a submission	1
Further information	2
Introduction	3
Trade considerations	4
Commodities exported	4
Destination and value of exports	4
Canola	4
Cereals	4
Beef, sheep, and pig meat and offal	5
Proposed Australian use pattern	5
Expedite Full Insecticide (500 g/kg sulfoxaflor)	5
Transform Isoclast Active Insecticide (240 g/L sulfoxaflor)	7
Results from residues trials presented to the APVMA	8
Canola	8
Cereals	10
Lucerne (alfalfa)	15
Residues in animal commodities	16
Mammalian livestock burden	16
Poultry livestock burden	18
Overseas registration and approved label instructions	19
Codex Alimentarius Commission and overseas MRLs	19
Current and proposed Australian MRLs for sulfoxaflor	22
Potential risk to trade	23
Cereals	24
Rape seed	24
Animal commodities	24
Conclusion	26

List of tables

Table 1: Major destinations for Australian cereals and rapeseed (2020 fiscal year) (in approximate order of value)	4
Table 2: Proposed use pattern for Expedite Full Insecticide	5
Table 3: Proposed use pattern for Transform Isoclast Insecticide	7
Table 4: The maximum dietary burdens calculated using the OECD livestock feed calculator for beef cattle	17
Table 5: The maximum dietary burdens calculated using the OECD livestock feed calculator for dairy cattle	17
Table 6: Required mammalian commodity MRLs – cattle	17

Table 7: The maximum dietary burdens calculated using the OECD livestock feed calculator for poultry	19
Table 8: Current and proposed Australian and overseas MRLs/tolerances for sulfoxaflor	20
Table 9: Current MRL Standard – Table 1	22
Table 10: Proposed MRL Standard – Table 1	22
Table 11: Current MRL Standard – Table 4	23
Table 12: Proposed MRL Standard – Table 4	23

Preface

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is an independent statutory authority with responsibility for assessing and approving agricultural and veterinary chemical products prior to their sale and use in Australia.

The APVMA has a policy of encouraging openness and transparency in its activities and of seeking stakeholder involvement in decision making. Part of that process is the publication of Trade Advice Notices for all proposed extensions of use for existing products where there may be trade implications.

The information and technical data required by the APVMA to assess the safety of new chemical products and the methods of assessment must be undertaken according to accepted scientific principles. Details are outlined in regulatory guidance published on the APVMA website.

About this document

This Trade Advice Notice indicates that the Australian Pesticides and Veterinary Medicines Authority (APVMA) is considering an application to vary the use of an existing registered agricultural or veterinary chemical.

It provides a summary of the APVMA's residue and trade assessment.

Comment is sought from industry groups and stakeholders on the information contained within this document.

Making a submission

The APVMA invites any person to submit a relevant written submission as to whether the application to vary the registration of Expedite Full Insecticide and Transform Isoclast Active Insecticide should be granted. Submissions should relate only to matters that the APVMA is required by legislation to take into account in deciding whether to grant the application. These grounds relate to the trade implications of the extended use of the product. Submissions should state the grounds on which they are based. Comments received outside these grounds cannot be considered by the APVMA.

Submissions must be received by the APVMA by close of business on 3 October 2022 and be directed to the contact listed below. All submissions to the APVMA will be acknowledged in writing via email or by post.

Relevant comments will be taken into account by the APVMA in deciding whether to grant the application and in determining appropriate conditions of registration and product labelling.

When making a submission please include:

- contact name
- company or organisation name (if relevant)
- email or postal address (if available)

- the date you made the submission.

Please note: submissions will be published on the APVMA's website, unless you have asked for the submission to remain confidential, or if the APVMA chooses at its discretion not to publish any submissions received (refer to the [public consultation coversheet](#)).

Please lodge your submission using the [public consultation coversheet](#), which provides options for how your submission will be published.

Note that all APVMA documents are subject to the access provisions of the *Freedom of Information Act 1982* and may be required to be released under that Act should a request for access be made.

Unless you request for your submission to remain confidential, the APVMA may release your submission to the applicant for comment.

Written submissions should be addressed to:

Executive Director
Risk Assessment Capability
Australian Pesticides and Veterinary Medicines Authority
GPO Box 3262
Sydney NSW 2001

Phone: +61 2 6770 2300

Email: enquiries@apvma.gov.au

Further information

Further information can be obtained via the contact details provided above.

Further information on Trade Advice Notices can be found on the APVMA website: apvma.gov.au.

Introduction

The APVMA has before it an application from Corteva Agriscience Australia Pty Ltd to vary the registration of Expedite Full Insecticide (containing 500 g/L sulfoxaflor) and Transform Isoclast Active Insecticide (containing 240 g/L sulfoxaflor) to amend the current use patterns of canola and cereals and approve a new use on lucerne.

Trade considerations

Commodities exported

Canola (rapeseed, including derived oils and meals), cereal grains and oaten hay are considered to be major export commodities¹, as are commodities of animal origin, such as meat, offal and dairy products, which may be derived from livestock fed feeds produced from treated rapeseed, cereals and lucerne forage and fodder. Residues in these commodities resulting from the use of Expedite Full Insecticide and Transform Isoclast Active Insecticide may have the potential to unduly prejudice trade.

Destination and value of exports

Canola

Australia exported 3,129.5 kt tonnes of canola, 194.0 kt canola oil and 0.47 kt canola meal in the fiscal year 2020 (ABARES).

Cereals

In the fiscal year 2020, Australia exported 7,733 kt of barley valued at AUD \$2.345 million. Oat exports were 539 kt valued at AUD \$289 million. Sorghum exports were 722 kt, valued at AUD \$274 million. Australian wheat and flour exports were 19,716 kt valued at AUD \$6.818 million (ABARES).

Table 1: Major destinations for Australian cereals and rapeseed (2020 fiscal year) (in approximate order of value)

Grain	Major destinations
Barley	Saudi Arabia, Thailand, Japan, Vietnam, Kuwait, China, United Arab Emirates, Philippines, Korea and Taiwan
Rapeseed	China, Germany, France, The Netherlands, Belgium, Japan, Bangladesh and Pakistan
Sorghum	China, Japan, Taiwan, New Zealand and Papua New Guinea
Wheat	Indonesia, Vietnam, China, Philippines, Korea, Japan, Malaysia, Thailand, Yemen, South Africa, New Zealand, Saudi Arabia, Kuwait, Egypt, Bangladesh, United Arab Emirates, Myanmar, Papua New Guinea, Sudan, Mozambique, Tanzania, Fiji, Taiwan, Nigeria, Oman, Singapore and India

Major export markets for Australian oaten hay are Japan, China, Taiwan and South Korea².

¹ Australian Pesticides and Veterinary Medicines Authority, [APVMA Regulatory Guidelines – Data Guidelines: Agricultural - Overseas trade \(Part 5B\)](#), APVMA website, 20 July 2020, accessed 27 July 2022.

² AgriFutures Australia, [Rural Industries - Export Fodder](#), AgriFutures Australia website, accessed 27 July 2022.

Beef, sheep, and pig meat and offal

The significant export markets for Australian beef, sheep, pig meat and offal are listed in the [APVMA Regulatory Guidelines – Data Guidelines: Agricultural - Overseas trade \(Part 5B\)](#).

Proposed Australian use pattern

Expedite Full Insecticide (500 g/kg sulfoxaflor)

The text highlighted yellow in Table 2 is the proposed new uses or changes to the currently approved label instructions.

Table 2: Proposed use pattern for Expedite Full Insecticide

Crop	Pest	Rate/concentration	Critical comments
Canola	Aphids (including cabbage aphid, green peach aphid and turnip aphid)	50 to 100 (25 to 50 ai/ha) + wetting agent	DO NOT apply after full flowering. DO NOT make more than 2 applications per crop. DO NOT use on canola grown as a forage crop and DO NOT use on dual-use canola prior to grazing.
<u>Wheat, similar grains, and pseudocereals without husks</u> <u>Rye, triticale, wheat, chia, quinoa, Psyllium, Amaranth grain, Cañihua, cram-cram, huauzontle,</u> <u>Barley similar grains and pseudocereals with husks</u>	Aphids (including cereal aphid vectors of barley yellow dwarf virus; <u>corn aphid and oat aphid and corn aphid</u>), grain aphid and rose-grain aphid	25 to 50 (12.5 to 25 g ai/ha)	DO NOT apply after <u>dough development (GS80) flag leaf stage.</u> DO NOT make more than 2 applications per crop. Use higher rate under heavy aphid infestations and/or when water volume is reduced, such as with aerial application. Some species of aphids tend to infest cereal plants at the base of the plant, often inside the leaf sheath and below the soil surface. These entrenched aphids at the base of the plant may not be adequately controlled by Expedite® FULL.
<u>Barley, oats buckwheat, buckwheat (tartary), canarygrass (annual)</u> <u>Sorghum grain and millet</u> <u>Sorghum grain, millet, Hungry rice, Job's tears, Teff or tef</u>	Russian wheat aphid	50 (25 g ai/ha)	DO NOT make more than 2 applications per crop. Begin applications when action thresholds are reached. Monitor crops and make further insecticide applications as necessary. Entrenched aphids make not be controlled. For best results; use Expedite® early in the aphid infestation, early in crops development. Use as part of an IPM program where beneficials are preserved. Thorough coverage is essential. Ensure water volume and spray quality is adequate to thoroughly cover all of the crop canopy.

Crop	Pest	Rate/concentration	Critical comments
Lucerne	Mirids (including brown mirid, green mirid, and yellow mirid (apple dimpling bug))	100 to 150 (50 to 75 g ai/ha)	Use the lower rate when infestation is predominantly nymphs. Use higher rate when control of adults and/or residual control is desired.
	Aphids (including bluegreen aphid, pea aphid and spotted alfalfa aphid)	50 (25 g ai/ha)	Apply when the pest reaches threshold levels.

Withholding periods:

Harvest:

Canola and cereals: DO NOT harvest for 14 days after the last application.

Grazing:

Canola forage, post-harvest straw and stubble, cereals: DO NOT graze or cut for stockfeed for 14 days after application.

Lucerne: DO NOT graze or cut for stockfeed for 21 days after application.

Restraints:

Trade advice:

LIVESTOCK DESTINED FOR EXPORT MARKETS

The GRAZING AND STOCKFOOD WITHHOLDING PERIODS (above) only apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that in addition to complying with the GRAZING AND STOCKFOOD withholding periods, that the EXPORT SLAUGHTER INTERVAL, is observed before stock are sold or slaughtered.

EXPORT SLAUGHTER INTERVAL (ESI) – 14 days:

After observing the grazing withholding period, livestock that has been grazed on or fed treated crops should be placed on clean feed for 14 days prior to slaughter.

CROPS FOR EXPORT – Before using Expedite® on crops destined for export it is essential to consult your exporter or Corteva Agriscience to ensure that an appropriate MRL is in place in the importing country.

Transform Isoclast Active Insecticide (240 g/L sulfoxaflor)

The text highlighted yellow in Table 3 is the proposed new uses or changes to the currently approved label instructions.

Table 3: Proposed use pattern for Transform Isoclast Insecticide

Crop	Pest	Rate/concentration	Critical comments
Canola	Aphids (including cabbage aphid, green peach aphid and turnip aphid)	100 to 200 (24 to 48 g ai/ha) + wetting agent	DO NOT apply after full flowering. DO NOT make more than 2 applications per crop. DO NOT use on canola grown as a forage crop and DO NOT use on dual use canola prior to grazing.
<u>Wheat, similar grains, and pseudocereals without husks</u> Rye, triticale, wheat, chia, quinoa, Psyllium, Amaranth grain, Cañihua, cram-cram, huauzontle, <u>Barley similar grains and pseudocereals with husks</u>	Aphids (including cereal aphid vectors of barley yellow dwarf virus; <u>corn aphid and oat aphid and corn aphid</u>), grain aphid and rose-grain aphid	50 to 100 (12 to 24 g ai/ha)	DO NOT apply after <u>dough development (GS80) flag leaf stage.</u> DO NOT make more than 2 applications per crop. Use higher rate under heavy aphid infestations and/or when water volume is reduced, such as with aerial application. Some species of aphids tend to infest cereal plants at the base of the plant, often inside the leaf sheath and below the soil surface. These entrenched aphids at the base of the plant may not be adequately controlled by Expedite® FULL.
<u>Barley, oats buckwheat, buckwheat (tartary), canarygrass (annual)</u> <u>Sorghum grain and millet</u> <u>Sorghum grain, millet, Hungry rice, Job's tears, Teff or tef</u>	Russian wheat aphid	100 (24 g ai/ha)	DO NOT make more than 2 applications per crop. Begin applications when action thresholds are reached. Monitor crops and make further insecticide applications as necessary. Entrenched aphids make not be controlled. For best results; use Expedite® early in the aphid infestation, early in crops development. Use as part of an IPM program where beneficials are preserved. Thorough coverage is essential. Ensure water volume and spray quality is adequate to thoroughly cover all of the crop canopy.
Lucerne	<u>Mirids</u> (including brown mirid, green mirid, and yellow mirid (apple dimpling bug))	<u>200 to 300</u> (48 to 72 g ai/ha)	Use the lower rate when infestation is predominantly nymphs. Use higher rate when control of adults and/or residual control is desired.
	<u>Aphids</u> (Including blue-green aphid, pea	<u>100</u> (24 g ai/ha)	Apply when the pest reaches threshold levels.

Crop	Pest	Rate/concentration	Critical comments
	aphid and spotted alfalfa aphid)		

Withholding periods:

Harvest:

Canola and cereals: DO NOT harvest for 14 days after the last application.

Grazing:

Canola forage, post-harvest straw and stubble, cereals: DO NOT graze or cut for stockfeed for 14 days after application.

Lucerne: DO NOT graze or cut for stockfeed for 21 days after application.

Restrictions:

Trade advice:

LIVESTOCK DESTINED FOR EXPORT MARKETS

The GRAZING AND STOCKFOOD WITHHOLDING PERIODS (above) only apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that in addition to complying with the GRAZING AND STOCKFOOD withholding periods, that the EXPORT SLAUGHTER INTERVAL, is observed before stock are sold or slaughtered.

EXPORT SLAUGHTER INTERVAL (ESI) – 14 days:

After observing the grazing withholding period, livestock that has been grazed on or fed treated crops should be placed on clean feed for 14 days prior to slaughter.

CROPS FOR EXPORT – Before using Transform[®] on crops destined for export it is essential to consult your exporter or Corteva Agriscience to ensure that an appropriate MRL is in place in the importing country.

Results from residues trials presented to the APVMA

Canola

The current use of sulfoxaflor allows a maximum of 2 applications at 24 g ai/ha (Transform) or up to 25 g ai/ha (Expedite) until full flowering growth stage and a restriction 'DO NOT use on canola grown as a forage crop and DO NOT use on dual use canola prior to grazing'. The harvest withholding period is 'NOT required when used as directed' and a grazing withholding period is restricted to 14 days for post-harvest canola straw and stubble.

The applicant has proposed to increase maximum application rate to 48 g ai/ha (Transform) or 50 g ai/ha (Expedite), remove the restrictions of crop growth stage for the last treatment in conjunction with a harvest withholding period of 14-days, and to allow grazing of sulfoxaflor treated canola forage.

Canola seed

In Australian and overseas residue trials, sulfoxaflor residues in canola seed following 2 late season applications at $\sim 0.88 - 1.11 \times$ the maximum proposed rate, at 13 to 15 days PHI were: 0.01 (2), 0.02 (2), 0.03 (2), 0.04 (3), 0.05 (2), 0.06 (2), 0.07 (2), 0.08 and 0.09 (2) mg/kg (n=18).

The OECD MRL calculator estimates a sulfoxaflor MRL of 0.15 mg/kg. STMR was 0.05 mg/kg.

Based on the available information, a sulfoxaflor MRL of 0.15 mg/kg for [SO 0495] Rape seed [canola] is recommended to cover sulfoxaflor residues arising in canola/rapeseed as a result of the proposed use in conjunction with a harvest withholding period of 14 days. This recommended MRL of 0.15 mg/kg will replace the current sulfoxaflor MRL for Rape seed [canola] of ~ 0.01 mg/kg.

Canola forage

The combined dataset of Australian and overseas residue trials following 2 late season applications at $\sim 0.88 - 1.11 \times$ the maximum proposed rate, at 14 days PHI for MRL estimation is 0.18, 0.21, 0.22, 0.3, 0.46, 1.0, and 1.7 mg/kg (n=7, dry weight). The OECD MRL calculator estimates a sulfoxaflor MRL of 3 mg/kg for canola forage, noting high uncertainty due to small dataset. STMR was 0.30 mg/kg.

Based on the available information, the current sulfoxaflor MRL of 3 mg/kg for Rape seed [canola] forage remains appropriate to cover sulfoxaflor residues arising in canola/rapeseed forage as a result of the proposed use in conjunction with a grazing withholding period of 14 days.

Canola stubble

In the Australian and overseas trials, sulfoxaflor residues in canola forage following 2 late season applications at $\sim 0.88 - 1.11 \times$ the maximum proposed rate, at 14 days PHI (dry weight), were: 0.08, 0.13, 0.54, 1.2 mg/kg (n=5). The OECD MRL calculator estimates a sulfoxaflor MRL of 3 mg/kg noting a high uncertainty due to small dataset. STMR was 0.34 mg/kg.

Based on the available information, the current sulfoxaflor MRL of 3 mg/kg for Rape seed [canola] fodder, dry remains appropriate to cover sulfoxaflor residues arising in canola/rapeseed fodder as a result of the proposed use in conjunction with a grazing withholding period of 14 days.

Canola processing

A canola processing study showed that residues of sulfoxaflor (parent compound) do not concentrate in crude or refined canola oil, while concentrating slightly in cleaned seeds (1.1 \times), mechanically extracted meal (1.9 \times), and solvent extracted meal (2.2 \times).

The calculated HR-P (2.2×0.09 mg/kg) and STMR-P (2.2×0.05 mg/kg) values for canola meal are 0.20 mg/kg and 0.11 mg/kg. It is recommended to establish a sulfoxaflor MRL of 0.5 mg/kg for Rape seed [canola] meal.

Cereals

The current approved use of sulfoxaflor in cereals allows a maximum of 2 applications up to flag leaf stage at a maximum rate of 24 g ai/ha (Transform) or 25 g ai/ha (Expedite) in conjunction with a harvest withholding period of 'not required when used as directed' and a grazing withholding period of 14 days.

The proposed use pattern is an extension of the current use pattern to allow the use of sulfoxaflor on cereals from the wheat, barley and sorghum crop subgroups³ up to BBCH 80 in conjunction with a harvest withholding period of 14 days.

Cereal grain

BARLEY GRAIN

In Australian trials, sulfoxaflor residues in barley grain following 2 applications at $\sim 1.9 - 2\times$ the maximum proposed rate, at 14 or 15 day-PHI, in rank order, were: <0.01, 0.06, 0.08 and 0.37 mg/kg (n=4). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley grain were: <0.01, 0.03, 0.04 and 0.19 mg/kg (n=4).

In New Zealand trials, sulfoxaflor residues in barley grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 13 or 14 day-PHI, in rank order, were: 0.03 and 0.11 mg/kg (n=2). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley grain were: 0.02 and 0.06 mg/kg (n=2).

In EU trials, sulfoxaflor residues in barley grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 12 to 15 days PHI or later if higher residues were observed, in rank order, were: <0.01, 0.02, 0.05 (3), 0.06, 0.07 (5), 0.09 and 0.10 mg/kg (n=13). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley grain were: <0.01, 0.01, 0.03 (4), 0.04 (5) and 0.05 (2) mg/kg (n=13).

In US trials, sulfoxaflor residues in barley grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 14 or 17 days PHI or later if higher residues were observed, in rank order, were: 0.03, 0.05 (3), 0.07 and 0.09 mg/kg (n=6). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley grain were: 0.02, 0.03 (3), 0.04 and 0.05 mg/kg (n=6).

The combined dataset, scaled down to the proposed maximum rate, for MRL estimation, in rank order, is: <0.01 (2), 0.01, 0.02 (2), 0.03 (8), 0.04 (7), 0.05 (3), 0.06 and 0.19 mg/kg (n=25). The OECD MRL calculator estimates a MRL of 0.2 mg/kg. STMR = 0.03 mg/kg.

Based on the available information, a sulfoxaflor MRL of 0.2 mg/kg for [GC 2087] Sub-group 020B, Barley, similar grains, and pseudocereals with husks is recommended to cover sulfoxaflor residues in the crops

³ Australian Pesticides and Veterinary Medicines Authority, [Crop Group Guidelines – Crop Group 020: Cereal grains](#), APVMA website, accessed 27 July 2022.

included in the sub-group 020B as a result of the proposed use in conjunction with a harvest withholding period of 14 days.

WHEAT GRAIN

In Australian trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 1.9 - 2\times$ the maximum proposed rate, at 14 to 17 day PHI, in rank order, were: 0.02 (2), 0.04 and 0.05 mg/kg (n=4). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: 0.01 (2), 0.02, 0.03 mg/kg (n=4).

In New Zealand trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 13 or 14 day PHI, in rank order, were: <0.01 (0.007 mg/kg) and 0.01 mg/kg (n=2). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: <0.01 mg/kg (n=2).

In Brazilian trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: <0.01 (n=3; 0.005, 0.008, 0.009 mg/kg) and 0.03 and mg/kg (n=2). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: <0.01 (3) and 0.02 mg/kg (n=4).

In EU trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 14 or 15 day PHI or later if higher residues were observed, in rank order, were: 0.01 (4), 0.02 (4), 0.03 (2), 0.04 and 0.07 mg/kg (n=12). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: <0.01 (4), 0.01 (4), 0.02 (3) and 0.04 mg/kg (n=12).

In US trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 14, 15 or 16 day PHI, in rank order, were: <0.01 (n=4; ND, 0.004, 0.007 and 0.009 mg/kg), 0.01 (2), 0.02 and 0.06 mg/kg (n=8). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: <0.01 (6), 0.01 and 0.03 mg/kg (n=8).

In Canadian trials, sulfoxaflor residues in wheat grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 12 or 14 day PHI, in rank order, were: <0.01 (0.007 mg/kg), 0.01 and 0.04 mg/kg (n=3). After scaling down to the proposed maximum rate, sulfoxaflor residues in wheat grain were: <0.01 (2) and 0.02 mg/kg (n=3).

The combined dataset, scaled down to the proposed maximum rate for MRL estimation, in rank order, is: <0.01 (17), 0.01 (7), 0.02 (6), 0.03 (2) and 0.04 mg/kg (n=33). The OECD MRL calculator estimates a MRL of 0.05 mg/kg. STMR = 0.01 mg/kg.

Based on the available information, a sulfoxaflor MRL of 0.05 mg/kg for [GC 2086] Sub-group 020A, Wheat, similar grains, and pseudocereals without husks is recommended to cover sulfoxaflor residues in crops included in the subgroup 020A as a result of the proposed use in conjunction with a harvest withholding period of 14 days.

SORGHUM GRAIN

In US trials, sulfoxaflor residues in sorghum grain following 2 applications at $\sim 2\times$ the maximum proposed rate, at 13 or 14 day PHI, in rank order, were: 0.02, 0.03, 0.04 (3), 0.05, 0.08 and 0.15 (2) mg/kg (n=9). After

scaling down to the proposed maximum rate, sulfoxaflor residues in sorghum grain were: 0.01, 0.02 (4), 0.03, 0.04 and 0.08 (2) mg/kg (n=9).

The OECD MRL calculator estimates a MRL of 0.15 mg/kg. STMR was 0.02 mg/kg.

Based on the available information, a sulfoxaflor MRL of 0.15 mg/kg for [GC 2089] Cereals sub-group 020D, Sorghum Grain and Millet to cover sulfoxaflor residues arising in the crops included in the sub-group 020D as a result of the proposed use in conjunction with a harvest withholding period of 14 days.

Cereal forage

BARLEY AND WHEAT FORAGE

No new barley and wheat forage data was submitted with the current application. The application rate, number of applications, re-treatment interval and grazing withholding period remains unchanged for cereals. The previous assessment of barley and wheat forage remains appropriate.

SORGHUM FORAGE

The submitted US sorghum trials analysed sulfoxaflor residues in sorghum forage at 7 days PHI with the exception of 2 residue decline trials which addressed the proposed 14-day grazing withholding period.

In the US trials sulfoxaflor residues in sorghum forage following 2 applications at ~2× the maximum proposed rate, at 14 days PHI were: 0.01 and 0.07 mg/kg (n=2). In the residue decline trials, sulfoxaflor residues generally declined over time and the available 7 day PHI data is considered as a worst-case scenario.

In US trials, sulfoxaflor residues in sorghum forage (wet weight) following 2 applications at ~2× the maximum proposed rate, at 7 or 8 day PHI, in rank order, were: 0.02, 0.03, 0.07, 0.08, 0.09 (2), 0.13, 0.17 and 0.20 mg/kg (n=9). After scaling down to the proposed maximum rate, sulfoxaflor residues in sorghum forage were: 0.01, 0.02, 0.04 (2), 0.05 (2), 0.06, 0.09 and 0.10 mg/kg (n=9). According to the OECD feed calculator, sorghum forage comprises of 35% of dry matter. After scaling to the dry matter, sulfoxaflor residues in sorghum forage were: 0.03, 0.06, 0.11 (2), 0.14 (2), 0.17, 0.26 and 0.29 mg/kg (n=9). The OECD MRL calculator estimates a MRL of 0.5 mg/kg. STMR was 0.14 mg/kg.

Based on the available information and noting that the sorghum data will be extrapolated to the subgroup, which includes millet, the current sulfoxaflor MRL of 2 mg/kg for [AF 0081] Forage of cereal grains (green) remains appropriate to cover sulfoxaflor residues arising in cereal forage in conjunction with a grazing withholding period of 14 days.

Cereal fodder⁴

BARLEY FODDER

In Australian trials, sulfoxaflor residues in barley straw (dry weight) following 2 applications at ~2× the maximum proposed rate, at 14 or 15 days PHI, in rank order, were: 0.13, 0.19, 0.29 and 2.4 mg/kg (n=4). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley straw (dry weight) were: 0.07, 0.10, 0.15 and 1.2 mg/kg (n=4).

In New Zealand trials, sulfoxaflor residues in barley straw (dry weight) following 2 applications at ~2× the maximum proposed rate, at 13 or 14 days PHI, in rank order, were: 0.07 and 0.35 mg/kg (n=2). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley straw (dry weight) were: 0.04 and 0.18 mg/kg (n=2).

In EU trials, sulfoxaflor residues in barley straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 12 to 15 days PHI, in rank order, were: 0.02, 0.06, 0.09, 0.11, 0.12, 0.14, 0.23, 0.27, 0.37, 0.42, 0.57, 0.59, and 0.66 mg/kg (n=13). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley straw were: 0.01, 0.03, 0.05, 0.06 (2), 0.07, 0.12, 0.14, 0.19, 0.21, 0.29, 0.30 and 0.33 mg/kg (n=13). According to the OECD feed calculator, barley straw comprises 89% of dry matter. After scaling to dry weight, sulfoxaflor residues in barley straw were: 0.01, 0.03, 0.06, 0.07, 0.07, 0.08, 0.13, 0.16, 0.21, 0.24, 0.33, 0.34 and 0.37 mg/kg (n=13).

In US trials, sulfoxaflor residues in barley straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 14 or 17 days PHI, in rank order, were: 0.04, 0.05, 0.19, 0.22, 0.59 and 0.72 mg/kg (n=6). After scaling down to the proposed maximum rate, sulfoxaflor residues in barley straw were: 0.02, 0.03, 0.10, 0.11, 0.30 and 0.36 mg/kg (n=6). After scaling to the dry weight, sulfoxaflor residues in barley straw were: 0.02, 0.03, 0.11, 0.12, 0.33 and 0.40 mg/kg (n=6).

The combined dataset suitable for MRL estimation, in rank order, is: 0.01, 0.02, 0.03 (2), 0.04, 0.06, 0.07 (3), 0.08, 0.10, 0.11, 0.12, 0.13, 0.15, 0.16, 0.18, 0.21, 0.24, 0.33 (2), 0.34, 0.37, 0.40 and 1.2 mg/kg (n=25). The OECD MRL calculator estimates a MRL of 1.5 mg/kg. STMR = 0.12 mg/kg.

WHEAT FODDER

In Australian trials, sulfoxaflor residues in wheat straw (dry weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.43, 0.48, 0.58 and 1.5 mg/kg (n=3). After scaling to the proposed maximum rate, sulfoxaflor residues in wheat straw were: 0.22, 0.24, 0.29 and 0.75 mg/kg (n=4).

In New Zealand trials, sulfoxaflor residues in wheat straw (dry weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.12 and 0.43 mg/kg (n=2). After scaling to the proposed maximum rate, sulfoxaflor residues in wheat straw were: 0.06 and 0.22 mg/kg (n=2).

⁴ Where converted, dry weight of sulfoxaflor residues expressed to the closest round figure.

In Brazilian trials, sulfoxaflor residues in wheat straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.05, 0.09, 0.25 and 1.12 mg/kg (n=4). According to the OECD feed calculator, wheat straw comprises 88% of dry matter. After scaling to the proposed maximum rate, sulfoxaflor residues in wheat straw were: 0.03, 0.05, 0.13 and 0.56 mg/kg. After scaling to the dry weight, sulfoxaflor residues in wheat straw were: 0.03, 0.06, 0.15 and 0.64 mg/kg (n=4).

In EU trials, sulfoxaflor residues in wheat straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.11, 0.20, 0.21, 0.23, 0.28, 0.35, 0.36, 0.41, 0.56 (2), 0.63, 0.64, and 0.95 mg/kg (n=13). Scaling to the proposed rate residues were 0.06, 0.10, 0.11, 0.12, 0.14, 0.18 (2), 0.21, 0.28 (2) 0.32 (2), and 0.48 mg/kg. After scaling to the dry weight, sulfoxaflor residues in wheat straw were: 0.07, 0.11, 0.13, 0.14, 0.16, 0.20 (2), 0.24, 0.32 (2), 0.36 (2) and 0.53 mg/kg (n=13).

In US trials, sulfoxaflor residues in wheat straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.06, 0.12 (2), 0.13, 0.23, 0.31 and 1.64 mg/kg (n=7). After scaling to the proposed maximum rate, sulfoxaflor residues in wheat straw were: 0.03, 0.06 (2), 0.07, 0.12, 0.16 and 0.82 mg/kg. After scaling to the dry weight, sulfoxaflor residues in wheat straw were: 0.03, 0.07 (2), 0.08, 0.14, 0.18 and 0.93 mg/kg (n=7).

In Canadian trials, sulfoxaflor residues in wheat straw (fresh weight) following 2 applications at ~2× the maximum proposed rate, at 14 day PHI or later if higher residues were observed, in rank order, were: 0.07, 0.17 and 1.34 mg/kg (n=3). After scaling to the proposed maximum rate, sulfoxaflor residues in wheat straw were: 0.04, 0.09 and 0.67 mg/kg. After scaling to the dry weight, sulfoxaflor residues in wheat straw were: 0.05, 0.10 and 0.76 mg/kg (n=3).

The combined dataset for MRL estimation, in rank order, is: 0.03 (2), 0.05, 0.06 (2), 0.07 (3), 0.08, 0.10, 0.11, 0.13, 0.14 (2), 0.15, 0.16, 0.18, 0.20 (2), 0.22 (2), 0.24 (2), 0.29, 0.32 (2), 0.36 (2), 0.53, 0.64, 0.75, 0.76 and 0.93 mg/kg (n=33). The OECD MRL calculator estimates a MRL of 1.5 mg/kg. STMR = 0.18 mg/kg.

SORGHUM FODDER

In US trials, sulfoxaflor residues in sorghum straw following 2 applications at ~2× the maximum proposed rate, at 13 or 14 day PHI, in rank order, were: 0.04, 0.05, 0.11, 0.18, 0.25, 0.29, 0.30, 0.32 and 0.73 mg/kg (n=9). After scaling down to the proposed maximum rate, sulfoxaflor residues in sorghum straw (fresh weight) were: 0.02, 0.03, 0.06, 0.09, 0.13, 0.15 (2), 0.16 and 0.37 mg/kg (n=9).

According to the OECD feed calculator, sorghum straw comprises 88% of dry matter. After scaling to the dry weight, sulfoxaflor residues in sorghum straw were: 0.02, 0.03, 0.07, 0.10, 0.15, 0.17 (2) 0.18 and 0.42 mg/kg (n=9). The OECD MRL calculator estimates a MRL of 0.7 mg/kg. STMR = 0.15 mg/kg.

A sulfoxaflor MRL for [AS 0081] Straw and fodder (dry) of cereal grains is established at 1 mg/kg in conjunction with a harvest withholding period of 'NOT required when used as directed'.

Based on the available information, a sulfoxaflor MRL of 1.5 mg/kg for [AS 0081] Straw and fodder (dry) of cereal grains is recommended to cover sulfoxaflor residues arising in cereal forage in conjunction with a harvest withholding period of 14 days.

Cereal processing

The wheat processing study demonstrated that sulfoxaflor (parent compound) concentrates significantly in aspirated grain fractions (21×). The calculated HR-P (21 × 0.04 mg/kg) and STMR-P (21 × 0.01 mg/kg) values for aspirated grain fractions are 0.84 mg/kg and 0.21 mg/kg respectively. MRLs are not generally established for aspirated grain fractions. No concentration into wheat bran was observed therefore no separate MRL for wheat bran is required.

A barley processing study shows that residues of sulfoxaflor (parent compound) do not concentrate significantly in any processed commodity, and only slightly in malt sprouts (1.3×). Therefore, no separate MRL for barley processed commodities is required.

Lucerne (alfalfa)

The proposed use of sulfoxaflor in lucerne involves a maximum of 2 applications per season at up to 72 g ai/ha (Transform) or up to 75 g ai/ha (Expedite) in conjunction with a grazing withholding period of 21 days.

In support of the proposed use, the applicant has provided 26 trials (2 Australian and 24 overseas) conducted on alfalfa and clover.

Alfalfa/lucerne forage

In 2019 Australian trials, sulfoxaflor residues in lucerne forage following 2 applications at ~1× the proposed rate, at a RTI of 14 days, and 21 days PHI were (dry weight): 3.00 and 3.03 mg/kg (n=2).

In 2013 US trials, sulfoxaflor residues in alfalfa and clover forage following 2 applications at ~1.3 and 1.4× the maximum proposed rate, 7 days RTI and 21 days PHI were (wet weight): 1.09 and 2.27 mg/kg (n=2), respectively. After scaling to dry weight, sulfoxaflor residues were 5.32 and 9.96 mg/kg. After scaling down ~1.3 and 1.4× rate to the proposed rate, sulfoxaflor residues in lucerne and clover forage were 4.09 and 7.66 mg/kg, respectively.

The combined dataset for MRL estimation, in rank order, is 3.00, 3.03, 4.09 and 7.66 mg/kg (n=4). The OECD MRL calculator estimates an MRL of 15 mg/kg, noting high uncertainty due to small dataset. The STMR was 3.56 mg/kg.

Based on the available information, a sulfoxaflor MRL of 15 mg/kg for [AL 1021] Alfalfa [lucerne] forage (green) is recommended to cover sulfoxaflor residues arising in alfalfa forage as a result of the proposed use in conjunction with a grazing withholding period of 21 days.

Alfalfa/lucerne hay

In 2019 Australian trials, sulfoxaflor residues in Lucerne hay following 2 applications at ~1× the proposed rate, at a RTI of 14 days, and 27 to 28 days PHI were (dry weight): 2.99 and 4.19 mg/kg (n=2).

In 2013 US trials, sulfoxaflor residues in alfalfa and clover hay following 2 applications at ~1.4× and 1.3× the maximum proposed rate, 7 days RTI and 21 days PHI were (wet weight): 3.54 and 4.45 mg/kg (n=2),

respectively. After scaling to dry weight sulfoxaflor residues were 5.09 and 7.13 mg/kg. After scaling down ~1.3× and 1.4× rate to the proposed rate, sulfoxaflor residues in Lucerne and clover hay were 3.78 and 5.14 mg/kg (n=2), respectively.

The combined dataset suitable for MRL estimation is, in rank order, 2.99, 3.78, 4.19 and 5.14 mg/kg (n=4). The OECD MRL calculator estimates an MRL of 15 mg/kg, noting high uncertainty due to small dataset. The STMR was 3.99 mg/kg.

Based on the available information, a sulfoxaflor MRL of 15 mg/kg for [AL 1020] Alfalfa [lucerne] fodder is recommended to cover sulfoxaflor residues arising in alfalfa fodder as a result of the proposed use in conjunction with a grazing withholding period of 21 days.

Alfalfa/lucerne silage

In 2013 US trials, sulfoxaflor residues in Lucerne and clover silage following 2 applications at ~1.3 and 1.4× the maximum proposed rate, 7 days RTI and 21 days PHI were (wet weight): 1.18 and 2.83 mg/kg (n=2), respectively. After scaling to dry weight sulfoxaflor residues were 5.64 and 13.10 mg/kg. After scaling down and 1.3× and ~1.4× rate to the proposed rate, sulfoxaflor residues in lucerne and clover silage were 4.19 and 9.45 mg/kg, respectively.

Based on the available information, the recommended sulfoxaflor MRLs of 15 mg/kg for alfalfa forage and fodder will cover sulfoxaflor residues arising in alfalfa silage as a result of the proposed use in conjunction with a grazing withholding period of 21 days.

Residues in animal commodities

Mammalian livestock burden

According to the OECD animal feed calculator, in Australia:

- Alfalfa forage may be fed at 100% of the diet of beef cattle and 60% of the diet of dairy cattle.
- Alfalfa hay may be fed at 80% of the diet of beef cattle and 60% of the diet of dairy cattle.
- Alfalfa silage may be fed at 100% of the diet of beef cattle and 40% of the diet of dairy cattle.
- Cereal grains may be fed at up to 80% for beef cattle and up to 50% of the diet of dairy cattle.
- Cereal forage and fodder may comprise up to 100% of the diet of beef cattle and up to 90% of the diet of dairy cattle.
- Rapeseed forage may be fed at up to 100% of the diet of beef cattle and 40% of the diet of dairy cattle.
- Rapeseed meal may comprise up to 15% of the diet of beef and dairy cattle, respectively.

Sulfoxaflor residues in canola and cereal forage and fodder were lower than sulfoxaflor residues observed in alfalfa silage, forage and hay. According to the OECD feed calculator, the estimated dietary burden as a result of the proposed use in alfalfa is calculated at 9.5 ppm for beef cattle and 7.4 ppm for dairy cattle, presented in Tables 4 and 5.

Table 4: The maximum dietary burdens calculated using the OECD livestock feed calculator for beef cattle

Beef cattle – for MRLs							
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	AU diet content (%)	AU residue contribution (ppm)
AU							
Alfalfa silage	AL	9.45	HR	100	9.5	100	9.5
Total						100	9.5

Table 5: The maximum dietary burdens calculated using the OECD livestock feed calculator for dairy cattle

Dairy cattle – for MRLs							
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	AU diet content (%)	AU residue contribution (ppm)
Alfalfa silage	AL	9.45	HR	100	9.5	40	3.78
Alfalfa forage	AL	7.66	HR	100	7.7	20	1.5
Alfalfa hay	AL	5.14	HR	100	5.1	40	2.06
Total						100	7.4

In a dairy cattle animal transfer study, the observed sulfoxaflores residues in cow milk and tissues following feeding at 35.19 ppm in the feed and the estimated residues associated with the proposed uses are presented in Table 6.

Table 6: Required mammalian commodity MRLs – cattle

Feeding Level (ppm)	Milk	Muscle	Liver	Kidney	Fat
	Sulfoxaflores residue (mg/kg)				
35.19	1.68	1.69	4.03	2.44	0.91
9.5 – beef, estimated burden	–	0.46	1.09	0.66	0.25
7.4 – dairy, estimated burden	See below				
Established MRLs	0.1	0.2		0.5	
Proposed MRLs	0.3	0.7		2	

In the animal transfer study, it was noted that there was a strong linear relationship between milk residues and tissues and the feeding level. A linear regression equation ($y = 0.0342x + 0.0063$) was used to calculate the expected maximum residue in milk. Using the linear regression equation, maximum sulfoxaflores residues in milk at the maximum dietary burden of 7.4 ppm for dairy cattle are expected to be 0.26 mg/kg ($y = 0.0342$

(7.4) + 0.0063) which is below the current Codex MRL of 0.3 mg/kg for Milk. Noting that milk is bulked and blended, an MRL of 0.3 mg/kg is recommended for sulfoxaflor in milk, in line with the Codex MRL.

It is recommended to increase the animal commodity MRLs, as below:

[MO 0105] Edible offal (mammalian) 2 mg/kg

[MM 0095] Meat [mammalian] 0.7 mg/kg

[ML 0106] Milks 0.3 mg/kg

In the animal transfer study, the depuration data generated at the highest dose level (35.19 ppm) showed that residues of sulfoxaflor and metabolites decreased rapidly in milk and tissues following withdrawal of the test item from the diet. All residues were below the LOQ in milk and tissues following 13 to 14 days of depuration, except for residues of sulfoxaflor at 0.029 ppm in the kidney of a single cow from the highest dose group at the 21-day interval.

Based on the highest estimated residue of 1.09 mg/kg in liver and a half-life of 1.4 days it would take 9.5 days to decline to 0.01 mg/kg. An Export Slaughter Interval of 14 days is currently associated with the sulfoxaflor product labels which will ensure there are no quantifiable sulfoxaflor residues in animal tissues for export.

Poultry livestock burden

In Australia, according to the OECD feed calculator, barley may constitute up to 15%, wheat up to 70% and sorghum up to 70% of the diet of broiler and layer poultry. Rape seed meal may be fed to broiler and layer poultry in Australia at up to 5% of the diet.

According to the OECD feed calculator, the estimated dietary burden as a result of the proposed use in cereals is calculated at 0.053 ppm for broiler and layer poultry, presented in Table 7.

Table 7: The maximum dietary burdens calculated using the OECD livestock feed calculator for poultry

Poultry broiler and layer – for MRLs							
Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	AU diet content (%)	AU residue contribution (ppm)
Rape meal	SM	0.11	STMR	88	0.1	5	0.006
Bean seed	VD	0.05	STMR	88	0.1	70	0.040
Barley grain	GC	0.03	STMR	88	0.0	15	0.005
Sorghum, grain	GC	0.02	STMR	86	0.0	10	0.002
Total						100	0.053

A laying hen study was considered previously. In the laying hen feed study, the lowest feeding level was 0.145 ppm sulfoxaflor in feed (dry weight). At this feeding level, the maximum residues of sulfoxaflor (parent compound) in eggs, muscle, liver and fat were <0.01 mg/kg, <0.01 mg/kg, 0.028 mg/kg, and <0.01 mg/kg respectively.

The expected maximum dietary burden for sulfoxaflor in both broiler and laying hens as a result of feeding on cereal grains is 0.053 ppm. The scaled residues of sulfoxaflor in eggs, muscle, liver and fat are <0.01 mg/kg, <0.01 mg/kg, 0.010 mg/kg, and <0.01 mg/kg.

It is recommended to increase poultry offal MRL to 0.02 mg/kg.

Overseas registration and approved label instructions

The applicant indicated that sulfoxaflor MRLs are established in most of the key trade markets.

Codex Alimentarius Commission and overseas MRLs

The Codex Alimentarius Commission (Codex) is responsible for establishing Codex Maximum Residue Limits (CXLs) for pesticides and veterinary medicines. Codex CXLs are primarily intended to facilitate international trade and accommodate differences in Good Agricultural Practice (GAP) employed by various countries. Some countries may accept Codex CXLs when importing foods. sulfoxaflor has been considered by Codex. The following relevant Codex CXLs and international MRLs have been established for sulfoxaflor.

Table 8: Current and proposed Australian and overseas MRLs/tolerances for sulfoxaflor

Commodity	Tolerance for residues arising from the use of sulfoxaflor (mg/kg)							
	Australia	China ⁵	Codex ⁶	EU ⁷	Japan ⁸	Korea ⁹	Taiwan ¹⁰	USA ¹¹
Residue definition	Sulfoxaflor	Sulfoxaflor	Sulfoxaflor	Sum of isomers	Sum of isomers	–	–	Sulfoxaflor
	CURRENT			Barley 0.6,				
	Cereals *0.01			Buckwheat and other pseudocereals *0.01,				Barley 0.40,
	PROPOSED	Barley 0.6*,	Barley 0.6,		Barley 0.6,	Barley 0.4,		Oat 0.40,
Cereals	Barley sub group 0.2	Coarse cereals 0.3*,	Sorghum 0.2,	Oat 0.04,	Other cereal grains 0.2,	Oats 0.2,	Barley 0.4,	Rye 0.08
	Wheat sub group 0.05	Triticale *0.2, Wheat 0.2*	Triticale 0.2,	Rye 0.015,	Wheat 0.2	Sorghum 0.3 wheat 0.08,	Sorghum 0.2, wheat 0.08	Sorghum 0.30,
	Sorghum and millet subgroup 0.15		Wheat 0.2	Sorghum *0.01, Wheat 0.2				Triticale 0.08, Wheat 0.08

⁵ United States Department of Agriculture, Foreign Agricultural Service, [Translation of Maximum Residue Limits for Pesticides in Foods. Beijing, China - People's Republic of](#), USDA website 24 August 2021, accessed 27 July 2022.

⁶ Food and Agriculture Organisation of the United Nations, [Codex Alimentarius: 252 - Sulfoxaflor](#), FAO website, accessed 27 July 2022.

⁷ European Commission, [Pesticides residue\(s\) and maximum residue levels \(mg/kg\)](#), EC website, accessed 27 July 2022.

⁸ Japanese Food Chemistry Research Foundation, [Residual pesticide standard value search system](#), Japan Food Chemistry Research Promotion Foundation website, accessed 27 July 2022.

⁹ Food Safety Korea, [Food Safety](#), Food Safety Korea website, accessed 27 July 2022.

¹⁰ Taiwan Food and Drug Administration, [Standards for Pesticide Residue Limits in Foods](#), Taiwan Food and Drug Administration website, 26 July 2010, accessed 27 July 2022.

¹¹ USA Electronic Code of Federal Regulations, [180.668 Sulfoxaflor tolerances for residues](#), ECFR website, accessed 27 July 2022.

Commodity	Tolerance for residues arising from the use of sulfoxaflor (mg/kg)							
	Australia	China ⁵	Codex ⁶	EU ⁷	Japan ⁸	Korea ⁹	Taiwan ¹⁰	USA ¹¹
Cereals straw and fodder, dry (includes oaten hay)	Cereals CURRENT 1 PROPOSED 1.5	–	Barley 3 Sorghum 0.7 Wheat 3	–	–12	–	–	Barley 2, Oat 2 [oat hay 1], Rye 2 Sorghum 1, Triticale 2, Wheat 2
Edible offal (mammalian)	0.5 (current) 2 (proposed)	0.6*	1	0.6	0.6	0.6	–	0.8
Meat (mammalian)	0.2 (current) 0.7 (proposed)	0.3*	0.4	0.3	0.3	0.3	–	0.4
Milks	0.1 (current) 0.3 (proposed)	0.2*	0.3	0.2	0.2	0.2	–	0.3
Poultry offal	*0.01 (Current) 0.02 (proposed)	0.3*	0.3	0.3	0.3	0.3	–	0.3
Rape seed	*0.01 (current) 0.15 (proposed)	0.15*	0.15	0.15	0.4	0.15	0.15	0.4

*Temporary MRL – China. Taiwan has not established the animal commodity MRLs for sulfoxaflor.

¹² Sulfoxaflor is not listed on the [Ministerial Ordinance on the Specifications and Standards of Feeds and Feed Additives](#), Provisional Translation from Japanese Original, accessed 27 July 2022.

Current and proposed Australian MRLs for sulfoxaflor

Table 9: Current MRL Standard – Table 1

		Food	MRL (mg/kg)
Sulfoxaflor			
GC	0080	Cereal grains	*0.01
MO	0105	Edible offal (mammalian)	0.5
MM	0095	Meat (mammalian)	0.2
ML	0106	Milks	0.1
PO	0111	Poultry, edible offal of	*0.01
SO	0495	Rapeseed [canola]	*0.01

Table 10: Proposed MRL Standard – Table 1

Compound		Food	MRL (mg/kg)
Sulfoxaflor			
Delete:			
GC	0080	Cereal grains	*0.01
MO	0105	Edible offal (mammalian)	0.5
MM	0095	Meat (mammalian)	0.2
ML	0106	Milks	0.1
PO	0111	Poultry, edible offal of	*0.01
SO	0495	Rapeseed [canola]	*0.01
Add:			
GC	2087	Barley similar grains and pseudocereals with husks	0.2
MO	0105	Edible offal (mammalian)	2
MM	0095	Meat (mammalian)	0.7
ML	0106	Milks	0.3
PO	0111	Poultry, edible offal of	*0.02

Compound	Food	MRL (mg/kg)
SO 0495	Rapeseed [canola]	0.15
GC 2089	Sorghum grain and millet	0.15
GC 2086	Wheat, similar grains, and pseudocereals without husks	0.05

Table 11: Current MRL Standard – Table 4

Compound	Animal feed commodity	MRL (mg/kg)
Sulfoxaflor		
AF 0081	Forage of cereal grains (green) {except Quinoa forage}	2
	Rape seed [canola] fodder, dry	3
	Rape seed [canola] forage	3
AS 0081	Straw and fodder (dry) of cereal grains {except Quinoa fodder}	1

Table 12: Proposed MRL Standard – Table 4

Compound	Animal feed commodity	MRL (mg/kg)
Sulfoxaflor		
Delete:		
AS 0081	Straw and fodder (dry) of cereal grains {except Quinoa fodder}	1
Add:		
AL 1020	Alfalfa [lucerne] fodder	15
AL 1021	Alfalfa [lucerne] forage (green)	15
	Rapeseed [canola] meal	0.5
AS 0081	Straw and fodder (dry) of cereal grains	1.5

Potential risk to trade

Export of treated produce containing finite (measurable) residues of sulfoxaflor may pose a risk to Australian trade in situations where (i) no residue tolerance (import tolerance) is established in the importing country or

(ii) where residues in Australian produce are likely to exceed a residue tolerance (import tolerance) established in the importing country.

Cereals

The proposed MRLs of 0.2 mg/kg for [GC 2087] Subgroup 020B, Barley, similar grains, and pseudocereals with husks (includes Oats); 0.05 mg/kg for [GC 2086] Subgroup 020A, Wheat, similar grains and pseudocereals without husks; and 0.15 mg/kg for [GC 2089] Subgroup Sorghum Grain and Millet, are below the Codex MRLs of 0.6 mg/kg for barley and 0.2 mg/kg each for sorghum, triticale and wheat. It is noted that Codex has not established a sulfoxaflor MRL for oats.

The proposed MRLs for the barley subgroup (0.2 mg/kg, including oats) and the wheat subgroup (0.05 mg/kg) are below the EU MRLs of 0.6 mg/kg for barley and 0.2 mg/kg for wheat. The EU MRL for sorghum is currently at LOQ which is lower than the proposed MRL of 0.15 mg/kg. The EU oat MRL at 0.04 mg/kg is also lower than proposed.

The proposed MRLs for the barley subgroup, wheat subgroup and sorghum subgroup are lower than the Japanese, Korean and Taiwanese MRLs for wheat, barley, and sorghum/other cereals. The proposed oat MRL (included in barley subgroup) is equivalent to the Korean MRL of 0.2 mg/kg.

With respect to oaten hay, sulfoxaflor is not listed in the Japanese Ministerial Ordinance on the Specifications and Standards of Feeds and Feed Additives.¹³

Rape seed

The proposed rapeseed MRL of 0.15 mg/kg is equivalent to the current rapeseed MRLs established by EU and Codex and lower than those established by Japan and the USA.

Animal commodities

The proposed animal commodity MRLs of 2 mg/kg for edible offal (mammalian), 0.7 mg/kg for meat are higher than those established by Codex. However, the proposed MRL of 0.3 mg/kg for milk is equivalent to that established by the Codex.

The proposed poultry offal MRL at 0.02 mg/kg is below the MRLs established by Codex and other markets, except for Taiwan which has not established any animal commodity MRLs.

The proposed and current Transform and Expedite labels have the following trade advice which remains appropriate given no animal commodity MRLs are established in Taiwan. The ESI will also ensure residues in meat and offal will be below the MRLs established in other markets.

¹³ Food and Agriculture Materials Inspection Centre, [Ministerial Ordinance on the Specifications and Standards of Feeds and Feed Additives](#), FAMIC website, accessed 27 July 2022.

LIVESTOCK DESTINED FOR EXPORT MARKETS

The GRAZING AND STOCKFOOD WITHHOLDING PERIODS (above) only apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that in addition to complying with the GRAZING AND STOCKFOOD withholding periods, that the EXPORT SLAUGHTER INTERVAL, is observed before stock are sold or slaughtered.

EXPORT SLAUGHTER INTERVAL (ESI) – 14 days:

After observing the grazing withholding period, livestock that has been grazed on or fed treated crops should be placed on clean feed for 14 days prior to slaughter.

CROPS FOR EXPORT - Before using Transform[®] or Expedite[®] on crops destined for export it is essential to consult your exporter or Corteva Agriscience to ensure that an appropriate MRL is in place in the importing country.

Conclusion

Corteva Agriscience Australia Pty Ltd has applied to vary the registration of Expedite Full Insecticide (containing 500 g/L sulfoxaflor) and Transform Isoclast Active Insecticide (containing 240 g/L sulfoxaflor) to amend the current use patterns of canola and cereals and approve a new use on lucerne.

Comment is sought on the potential for the proposed use to prejudice Australian trade of canola and cereal grains, oaten hay, and animal commodities and the ability of industry to manage any potential trade risk.