

2022 FLYSTRIKE RD&E TECHNICAL FORUM

AWI Flystrike Extension Program

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AWI Flystrike Extension Program

TOOLS AND RESOURCES

It's Fly Time!™

Practical, just-in-time information in the lead up to, and during, high-risk flystrike periods

DemystiFly™

Practical information about managing chemical resistance in blowflies



Information and tools on flystrike management

Breeding and selection

Information and tools to help you breed better sheep

WORKSHOPS AND ADVISOR COACHING AND SUPPORT

SimpliFly™

A one-day workshop to develop a property-specific, strategic flystrike management plan

ClassiFly™

A one-day workshop to increase understanding and skills in breeding for flystrike resistance

StrateFly™

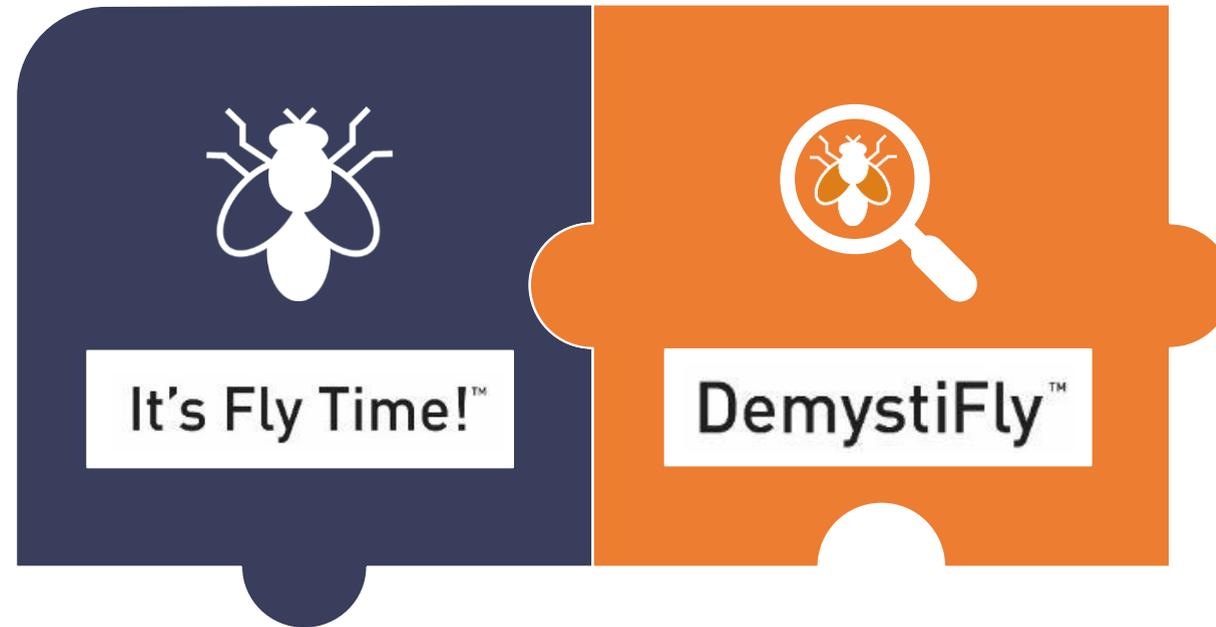
A one-day workshop to develop a property-specific, whole-of-farm strategy for moving to a non-mulesed enterprise

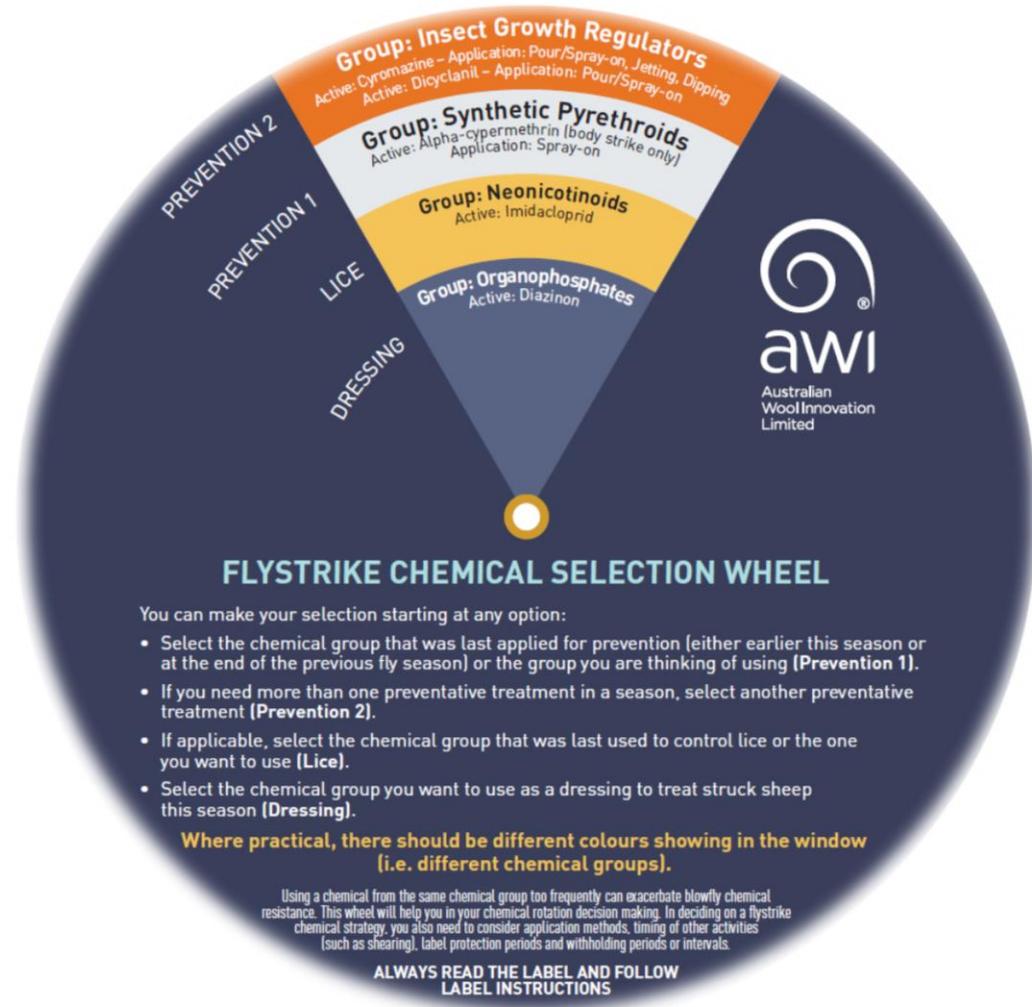
AmpliFly™

One-on-one coaching and support from a trained and accredited advisor to assist you over time to implement your whole-of-farm strategy for moving to a non-mulesed enterprise

It's Fly Time!™







GUIDE TO FLYSTRIKE CHEMICAL ROTATION

- 1 PREVENTION**
Consider the chemical group that was last applied (either earlier this season or at the end of the previous fly season) and where practical, avoid using a chemical from the same group next.
- 2 LICE CONTROL**
Consider the chemical group that was last used to control lice and avoid using a chemical from the same group for the next preventative flystrike application in the same season.
- 3 DRESSING/TREATMENT**
Consider the chemical groups that were last applied to prevent flystrike and avoid using these as dressings to treat struck sheep this season.

ALWAYS READ AND FOLLOW THE PRODUCT LABEL Visit www.flyboss.com.au for more information on flystrike management

FLYSTRIKE PREVENTION AND TREATMENT CHEMICAL GUIDE

The table below is a guide only and summarises information specific to flystrike prevention and treatment only. Not all products containing the following chemical actives are registered for use in flystrike control. It is important to read the label for full details about the products' permitted use for flystrike control, application method, wool length, label protection period and withholding periods or intervals.

✔ Chemical is registered for use in flystrike control based on the application method
 ✘ Chemical is not registered for use in control flystrike based on the application method
 ⚠ Consider your chemical rotation strategy when using products that have formulations for both fly and lice control

For treating struck sheep, use a different chemical group from the one used for long term protection from flystrike.

Chemical group	Chemical active	Application method for fly ¹				Label protection period ²	Withholding periods/ intervals (in days)		Formulation available for lice control ³
		Pour/Spray-on	Jetting	Dipping	Dressing		SRI	WHI	
Organophosphates (OPs)	Diazinon	✘	✘	✘	✔	Not specified	SRI: 22 WHI: 60	WHIP: 14 ESI: 21	⚠
Synthetic Pyrethroids (SPs)	Alpha-cypermethrin (body strike only)	✔	✘	✘	✘	Up to 10 weeks	SRI: 14 WHI: 60	WHIP: 0 ESI: 7	⚠
Neonicotinoids	Imidacloprid	✔	✘	✘	✘	Up to 10 weeks OR Up to 14 weeks ⁴	SRI: Dry WHI: 60-182	WHIP: 21 ESI: 63	⚠
Spinosyns	Spinosad	✘	✔	✘	✔	4-6 weeks as preventative application	SRI: Dry WHI: 0	WHIP: 0 ESI: 0	⚠
Macroyclic Lactones (MLs)	Ivermectin	✘	✔	✘	✔	Up to 12 weeks under low to moderate fly pressure	SRI: Dry WHI: 42	WHIP: 7 ESI: 7	⚠
Insect growth regulators (IGRs)	Cyromazine ⁴	✔	✔	✔	✔	Up to 11 weeks spray/pour-on Up to 14 weeks for other methods	SRI: Dry WHI: 60	WHIP: 7 ESI: 21-28	
	Dicyclanil ⁵	✔	✘	✘	✘	12.5g/L: Up to 11 weeks 50g/L: 18-24 weeks 65g/L: Up to 29 weeks	SRI: Dry WHI: 35-90	WHIP: 7-28 ESI: 21-120 ⁵	

SRI: Sheep Refracting Interval WHI: Wool Harvest Interval WHIP: Withholding Period (Imazalil) ESI: Export Slaughter Interval

¹ Application method, appropriate wool length and protection period must be verified on label.
² Some chemical sub-groups may also be used in products for lice control and this should not be taken to mean that the product, formulation or application method for flystrike control is the same as for lice control.
³ Different label protection periods depend on wool length - carefully check product labels before use.
⁴ Although spinosyns and organics are different chemical actives, there is some cross-resistance between them.
⁵ ESI varies depending on formulation applied - carefully check product labels before use.

ALWAYS READ AND FOLLOW THE PRODUCT LABEL Visit www.flyboss.com.au for more information on flystrike management

www.wool.com/flystrikechemicals

UNDERSTANDING CHEMICAL RESISTANCE



Lucilia cuprina, the Australian sheep blowfly, initiates most cases of flystrike on Australian sheep. Like all insect pests, it has the potential to develop resistance to insecticide (chemical) treatments.

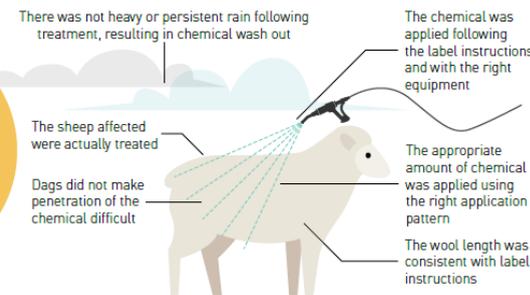
Resistance is more likely to occur with long term use or over reliance on just one chemical group.

Resistance doesn't mean that the chemicals have completely lost effectiveness, it just means that the period of protection may be less than what you previously expected or what is on the label.

DO YOU HAVE RESISTANT FLIES?

Before you conclude your flies are resistant, check that:

- These signs indicate you may have resistance:**
- a shortening of the protection period that is specified on product labels; or
 - flystrike in multiple sheep that have been treated with the same chemical rather than just in a few sheep.



If these factors have been eliminated you should arrange for a resistance test.

RESISTANCE MANAGEMENT STEPS

Sheep producers can follow these resistance management steps to maintain flystrike protection for their flocks and slow the development of resistance within their local fly populations:

- Use a range of chemical and non-chemical tools – don't rely on only one tool
- Know the chemical groups and rotate them, where practical
- Optimise the number and timing of chemical and non-chemical treatments
- Follow the label directions and keep treatment records
- Regularly monitor for flystrike and kill any maggots from struck sheep

FURTHER RESOURCES

AWI has a range of resources to help you manage flystrike on your property, available at www.wool.com/flystrikeresources. For more flystrike management information visit the FlyBoss website www.flyboss.com.au.

RESISTANCE TESTING CONTACT

Narelle Sales
Elizabeth Macarthur Agricultural Institute
Email: email.insectresistance@dpi.nsw.gov.au
Direct Ph: 02 4640 6446 **Switch Ph:** 02 4640 6333

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MANAGING CHEMICAL RESISTANCE

KEY POINTS

- Flystrike is estimated to annually cost the Australian sheep industry in excess of \$170 million in terms of production losses and prevention and treatment costs.
- Chemical resistance in blowflies is more likely to occur with long term use and over reliance on just one chemical group.
- There are only a limited number of chemical groups registered against flystrike so increasing chemical resistance will have a significant impact on the industry.
- There is an urgent need for sheep producers to strategically manage the use of chemicals to maximise flystrike control and to maintain the efficacy of available products on their property.
- When selecting chemicals you need to consider chemical groups for flystrike prevention, lice control and treating struck sheep.

CHEMICAL RESISTANCE

Lucilia cuprina, the Australian sheep blowfly, initiates most cases of flystrike on Australian sheep. Like all insect pests, it has the potential to develop resistance to insecticide (chemical) treatments.

Resistance is the decreased susceptibility of a sheep blowfly population to a chemical that was previously effective at controlling blowflies. When exposed to a chemical, the more resistant individuals may survive and pass on this resistance to their offspring. Over time the proportion of resistant flies in the population may increase.

Long-term use and over reliance on just one chemical group for any type of pest control almost always results in resistance if good resistance management plans aren't in place. Some of the chemical groups that we used to rely on for blowfly control, such as dicyclanil and cyromazine, are no longer as effective because blowflies are developing resistance to them.

Resistance doesn't mean that the chemicals have completely lost effectiveness, it just means that the period of protection may be less than what you previously expected or what is on the label.

THE IMPORTANCE OF RESISTANCE MANAGEMENT

It is estimated that flystrike causes annual production losses of approximately \$105 million and costs the industry \$65 million in prevention and treatment each year. The average cost of this per head is \$2.37 annually.

Flystrike also has a significant impact on the welfare of sheep causing severe pain and suffering.

There are only a small number of chemical groups registered for flystrike control. It is important to prolong the usefulness of these chemicals on your property for as long as possible. By implementing resistance management strategies, sheep producers can slow the development of resistance, which will help maintain the effectiveness of the currently registered chemical products.



CHEMICAL RESISTANCE FREQUENTLY ASKED QUESTIONS

Are shorter protection periods always because of resistance?

Shorter protection periods provided by chemicals than those described on the label are often interpreted to be chemical resistance, but there are many factors that influence the protection period achieved on farm. Before you conclude your flies are resistant, ask yourself the following questions:

- Were the struck sheep more susceptible to flystrike because of heavy dags, urine stain, fleece rot, lumpy wool or other characteristics?
- Did dags make penetration of the chemical difficult?
- Was the wool length consistent with label instructions for application?
- Was there persistent or heavy rainfall following treatment, resulting in chemical wash out or increased fly pressure?
- Were the struck sheep actually treated?
- Did you check the label instructions carefully before applying the chemical, paying particular attention to dosage, patterns of coverage, recommended applicator and whether the treatment should be applied off-shears or to longer wool?
- Was the applicator calibrated and working properly, with no blockages or leaks?

If you answer 'yes' to any of the first four questions or 'no' to any of the last three questions, something other than chemical resistance may be reducing the protection period or the effectiveness of the chemical.

How will I know if chemical resistance is occurring on my farm?

There are a number of ways insects can develop resistance to a chemical, with different resistance mechanisms resulting in different observable symptoms. If you have not had any lab tests done, have you noticed that:

- some or all of the maggots survive knock-down chemicals and appear like they haven't been treated, despite high confidence that the chemical treatment has been thoroughly applied; or
- the residual period of protection appears to be getting shorter than it was over past fly seasons, despite no change in application rate, correct application and no significant differences in season outlook or fly pressure?

Growers noting either of these symptoms should urgently arrange for a resistance test.

How can I get a resistance test?

Contact Narelle Sales for information and to arrange a resistance test at:

Elizabeth Macarthur Agricultural Institute
Email: email.insectresistance@dpi.nsw.gov.au
Direct Ph: 02 4640 6446 **Switch Ph:** 02 4640 6333

Can I use more or less chemical for each application?

Overdosing and underdosing can contribute to resistance. It is important to apply the correct dose to animals with the proper equipment that has been calibrated using the appropriate application pattern. This information can be found on the chemical label.



www.wool.com/simplifly







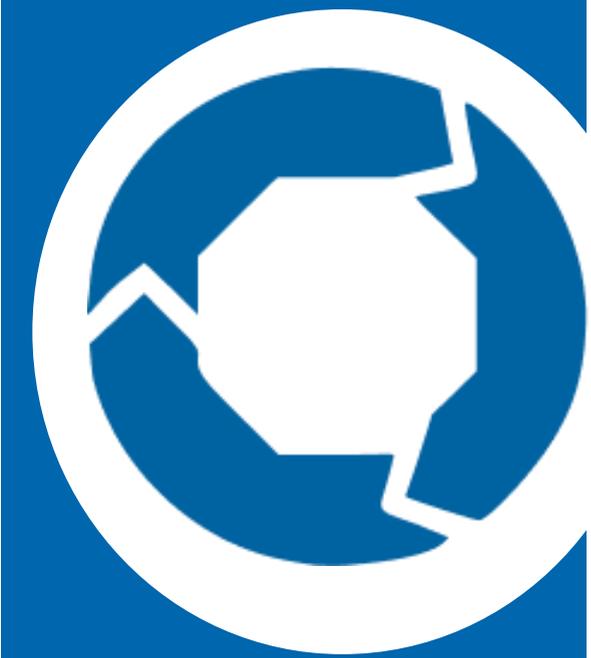
Integration with existing extension products



RAMping Up ReproTM

Winning With WeanersTM

Picking Performer EwesTM



paraboss

Australia's resource for control of worms, lice, flies and ticks



2022 AWI Flystrike RD&E Technical Forum

A joint initiative of



- Monthly webinars – all species
- Decision guides – all parasites, all species
- Website refurbishment – launch later this year
- WormBoss one day workshop – under development
- ParaBoss e-newsletter – monthly
- Collaborate on events – online and in person
- Attend major producer events
- WEC QA and Sheep Advisor Certificate

Please contact:

Megan Rogers

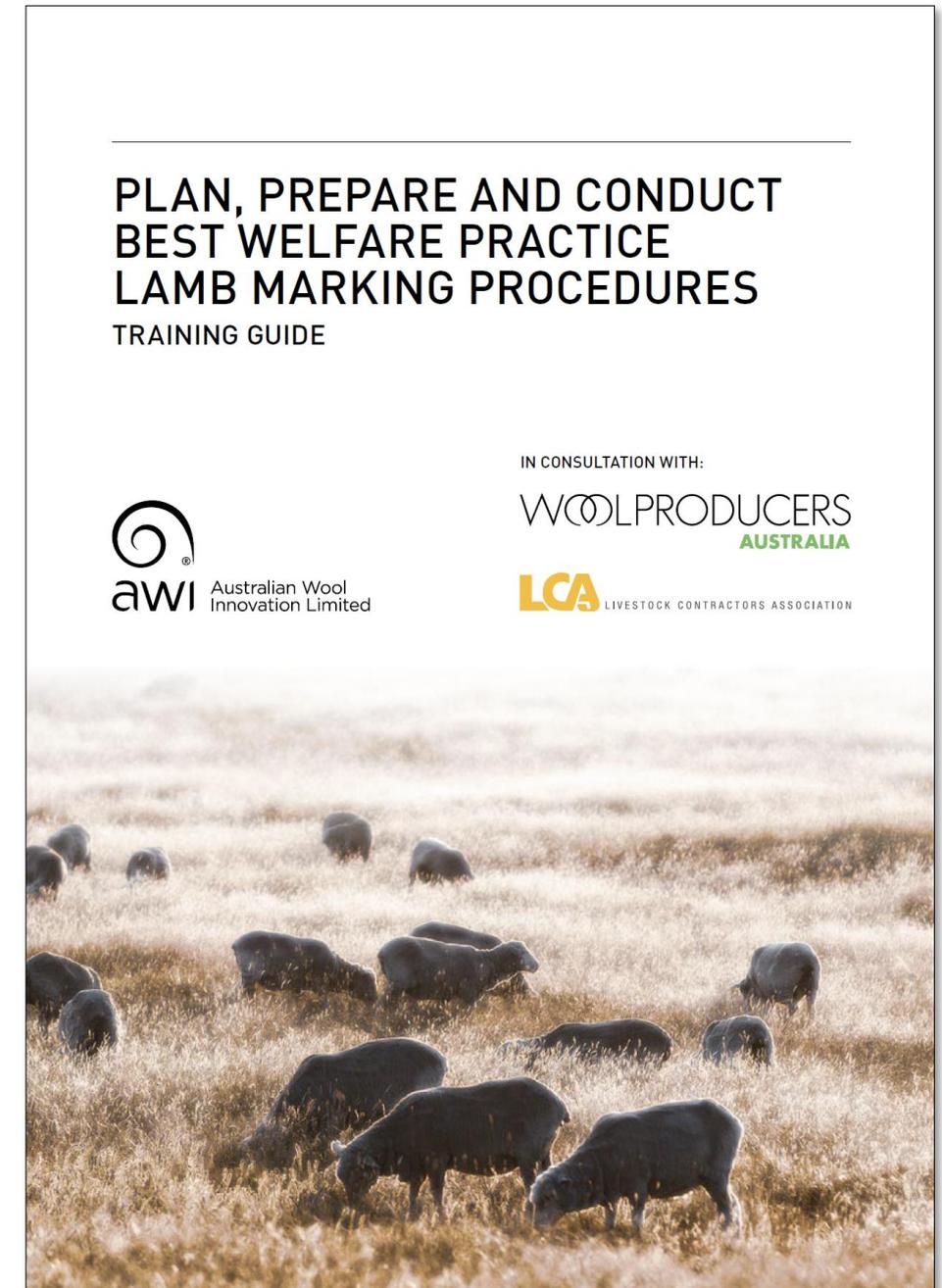
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eLearning Development

- Current version released February 2020
- eLearning development almost finished
- Upload to Woolmark Learning Centre



AWI Grower Extension Networks



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bestwool-bestlamb



This publication is based on information presented at the Australian Wool Innovation Limited (AWI) Flystrike RD&E Technical Forum held on 10 August 2022. Some information in this publication has been contributed by one or more third parties and licenced to AWI, and AWI has not verified whether this information is correct. This publication should only be used as a general aid and is not a substitute for specific advice. To the extent permitted by law, we exclude all liability for loss or damage arising from the use of the information in this publication. Except to the extent permitted under Copyright Law no part of this publication may be reproduced by any process, electronic or otherwise without the specific written permission of AWI. Neither may information be stored electronically in any form whatsoever without such permission. AWI is grateful for its funding, which is primarily provided by Australian woolgrowers through a wool levy and by the Australian Government which provides a matching contribution for eligible R&D activities. © 2022 Australian Wool Innovation Limited. All rights reserved.