



## Commonly used chemicals to treat sheep lice and blowflies

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Sheep lice and blowflies cause major economic loss to the Australian wool industry. A major cause of this loss is due to the cost of chemicals used to prevent or treat these parasites. Minimising chemical use through strategic management will help reduce these costs, as well as achieve other benefits including reducing wool residues and avoiding the development of chemical resistance.

### Chemical groups

Six main chemical groups are currently available to control lice, blowflies or both. These are:

- Insect growth regulator (IGR) (Zapp, Magnum, etc.)
- Ivermectin (Coopers Blowfly & Lice Jetting Fluid etc.)
- Spinosyn (Extinosad etc.)
- Organophosphate (OP) (Eureka Gold, WSD Diazinon, Di-jet, etc.)
- Magnesium fluorosilicate (MgFl), (Flockmaster II, etc.)
- Synthetic pyrethroid (SP), (Clout S, Vanquish etc.)

### Diazinon restrictions

In May 2007, the Australian Pesticides and Veterinary Medicines Authority (APVMA) announced a suspension of the registered claim for diazinon to be used as a short wool dip for sheep lice and long wool jetting for blowflies. Products manufactured before May 2007, which display the registered label claim, can still be used according to label directions but new product no longer includes this claim and must not be used for dipping or jetting. However the APVMA has granted a special permit for Diazinon use in an approved immersible cage dipping system. Most of the 'older' products will expire by mid-2009. Eureka Gold registration is not affected.

### Know the risks

The different chemical groups have various degrees of relative risk relating to operator health, pest resistance and wool residues. Understanding these risks will help when deciding what, if any, chemical to use.

Organophosphates such as diazinon pose the greatest risk to human health and so should be avoided. Due to the high incidence of fly resistance to this chemical group, we recommend use of alternative chemicals for fly treatment. Lice resistance to synthetic pyrethroids was discovered in the late 1980s/early 1990s and so use of this chemical group (Clout S, Outflank, Vanquish etc.) should be avoided. There is also emerging resistance to insect growth regulators.

### What you can do

The key to reducing reliance on chemicals is to use an integrated parasite management (IPM) approach to control lice and flies. However, if you need to use chemicals, select those with minimal risk. The four main IPM elements are:

- *management options* (for example, reduce susceptibility to flystrike and risk of lice introduction).
- *genetic improvement* (increase resistance of the flock especially to flies, cull for fleece rot, wrinkles, etc.)
- *biological/environmental control* (reduce fly populations by using fly traps etc.)
- *selective use of chemicals* (only treat if lice are present).

### Further information

Note: 271 Wool residues – market, environmental and occupational health issues

Note: 274 Sheep lice – selective chemical treatments  
Factsheet 7/2004 Flystrike and mulesing wound treatments

Note: 272 Sheep louse control for ewes with lambs

Note: 265 Guidelines for producing European eco-label and nil residue wool

Note: 102 Sheep louse and blowfly insect growth regulator treatments

Note: 190 Sheep lice – resistance to insect growth regulators

### Important Disclaimer

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

## Lice and fly treatment options

The following information is a guide to manage sheep lice and blowflies. Wool Withholding Periods (WHPs) or Wool Harvesting Intervals (WHIs) are current at the time of printing but these may change. Wool WHPs are legal and must be observed. Growers are advised to contact their wool broker regarding market requirements relating to residues.

Mulesing and flystrike products have not been included. Products containing active ingredients from chemical groups with reported resistance are indicated. Use of products that have reported resistance may increase the risk of repeat treatments being required, thus increasing the risk of residues. Diazinon jetting fluid products are not included.

### Lice

Time of application	Application method	Chemical group	Registered products	Wool WHP/WHI	Meat WHP	Resistance reported
Off-shears	<b>Backline</b>	IGR	Magnum IGR Pour-On, Stampede Zapp, Virbac IGR Pour-On etc	6 mths	Nil	Suspect <sup>2</sup>
			Triffik Magik	2 mths 6 mths	14 days Nil 21 days	Suspect <sup>2</sup> Suspect <sup>2</sup> Suspect <sup>2</sup>
	<b>Spray-on</b>	SP <sup>1</sup>	Clout S, Cypercure etc	Default 2 mths <sup>3</sup>	3 days	Yes
			Outflank	Default 2 mths <sup>3</sup>	Nil	Yes
Short wool (up to 6 wks wool)	<b>Dip</b>	OP IGR Spinosyn Magnesium fluorosilicate	Coopers 4 in 1, Diazinon, Di-jet etc	2 mths	14 days	No
			Fleececare, Strike etc	6 mths	21 days	Suspect <sup>2</sup>
			Extinosad	Nil	Nil	No
			Flockmaster X-Lice Washdown	Default 2 mths <sup>3</sup> Default 2 mths <sup>3</sup>	Nil 1 day	No No
Long wool (6 wks to 6 mths wool)	<b>Handjet</b>	IGR ML	Fleececare, Strike	6 mths	Nil	Suspect <sup>2</sup>
			Paramax, Coopers Fly and Lice Jetting Fluid	6 wks	7 days	No
	<b>Backline</b>	Spinosyn IGR SP <sup>1</sup>	Extinosad	Nil	Nil	No
			Magnum Vanquish	6 mths 2 mths	42 days Nil	Suspect <sup>2</sup> Yes
Long Wool (6–10 mths)	<b>Handjet</b>	Spinosyn ML	Extinosad Paramax, Coopers Fly and Lice Jetting Fluid	Nil 6 wks	Nil 7 days	No No
	<b>Backline</b>	SP <sup>1</sup>	Vanquish	2 mths	Nil	Yes
Long wool (10–10½ mths)	<b>Handjet</b>	Spinosyn ML	Extinosad Paramax, Coopers Fly and Lice Jetting Fluid	Nil 6 wks	Nil 7 days	No No
(after 10½ mths)	<b>Handjet</b>	Spinosyn	Extinosad	Nil	Nil	No

<sup>1</sup> Resistance reported to SPs (synthetic pyrethroids) over 15 years ago.

<sup>2</sup> There is evidence of emerging resistance to IGRs with resistant strains being detected in the Eastern States and suspect reports in WA.

<sup>3</sup> Where a wool WHP does not appear on the label, the APVMA has set a 2 month default wool WHP.

OP – Organophosphate    SP – Synthetic Pyrethroid    IGR – Insect Growth Regulator    ML – Macrocytic Lactone

### Blowflies

Time of application	Application method	Chemical group	Registered products	Wool WHP/WHI	Meat WHP	Resistance reported
Off-shears	<b>Spray-on</b>	IGR IGR	Clik	3 mths	28 days	No
			Magik	6 mths	21 days	No
Short wool (up to 6 wks)	<b>Spray-on</b>	IGR	Clik	3 mths	28 days	No
	<b>Dip</b>	IGR	Fleececare, Strike, etc	6 mths	Nil	Yes <sup>2</sup> (in Eastern States)
Long wool (6 wks to 6 mths wool)	<b>Spray-on</b>	IGR	Cyrazin Spray-on, Vetrizin SO etc	2 mths	7 days	No
	<b>Backline</b>		Clik	3 mths	28 days	No
		Magnum IGR Pour-On	6 mths	42 days	Yes (in Eastern States)	
		<b>Jet</b>	IGR	Vetrizin, Venus, Virbazine, Cyro-fly	2 mths	7 days
	Fleececare, Strike etc			6 mths	Nil	Yes (in Eastern States)
LW <sup>1</sup> (6–9 mths) (6–10 mths)	<b>Spray-on</b>	IGR IGR IGR	Clik	3 mths	28 days	No
			Vetrizin SO, Virbazine SO etc	2 mths	7 days	No
	<b>Jet</b>	Spinosyn ML	Vetrizin, Venus, Virbazine, Cyro-fly	2 mths	7 days	No
			Extinosad Paramax, Coopers Fly and Lice Jetting Fluid	Nil 6 wks	Nil 7 days	No No
(10–10½ mths)	<b>Jet</b>	Spinosyn ML	Extinosad Paramax, Coopers Fly and Lice Jetting Fluid	Nil 6 wks	Nil 7 days	No No
(after 10½ mths)		Spinosyn	Extinosad	Nil	Nil	No

<sup>1</sup> Long wool treatments greatly increase residues at shearing, unless the product has a nil WHP.

<sup>2</sup> Resistance to diflubenzuron (IGR) reported in Eastern States and may also be present in WA.

NB: Diazinon dipping/jetting fluid products are not included.

IGR – Insect Growth Regulator    ML – Macrocytic Lactone