

SHEEP LICE – KNOW THE FACTS

WOOLPRODUCERS
AUSTRALIA



Figure 1: Sheep lice – females, male, nymphs and eggs

INTRODUCTION

Lice are one of the top three endemic conditions affecting sheep in Australia. Lice cost the national sheep industry in excess of \$123 million annually through reduced wool quality and production, as well as chemical usage and other preventative strategies (Holmes & Sackett, 2005).

Direct contact with lousy sheep is the most common way lice are spread between sheep. There is greater risk of spread when: sheep are in close contact such as in the yards, sheep have short wool, or sheep are heavily infested compared with light infestations.

An adult female will lay a maximum of two eggs every three days for one month before she dies and it takes 35 days for those eggs to develop into laying females. Sheep lice are 1 to 2 mm in length and have a reddish head with reddish stripes across the body – young lice do not have stripes across their body.

Lice spend most of their time at the base of wool fibres eating surface debris, which can cause irritation. Lice are sensitive to extremes of temperature, light and water. Their optimum temperature for survival is 36-37°C which is the approximate skin temperature of a sheep. Lice will move to the tip of the fleece if it is shaded and warm.

To successfully control lice on your property there are a number of elements to take into consideration these include farm biosecurity, monitoring and treatment.

FARM BIOSECURITY

Practicing good farm biosecurity is essential to prevent the spread of lice onto your property. Paying particular attention to the following risk areas will go a long way to securing your farm against lice:

- **Stock movements** – every time new sheep are introduced onto your property, or your sheep come into contact with other sheep, they're at risk of catching lice. To help minimise the risks associated with stock movements:
 - ask for a Sheep Health Statement when purchasing stock, also ask the vendor if they have good boundary fences and if they know the lice status of their neighbour's flock
 - discuss your lice control strategy with your neighbours
 - quarantine all new and returning stock and monitor them closely for signs of lice
 - when purchasing rams discuss the lice history of the ram and chemical treatments. If lice are suspected on arrival treat the ram and monitor closely.
- **Fencing** – stray sheep pose a very high risk of introducing lice onto your property. Maintaining boundary fences to keep your sheep contained and neighbouring sheep out is essential to minimise the risk of stray lousy sheep infesting your flock.
- **Non-sheep transmission** – lice can survive on shearers' moccasins for up to 10 days; it is good practice to ask shearers if they have come from a lousy property. If shearers have recently come into contact with lousy sheep ask them to microwave or freeze their moccasins. Lice can also survive in wool left on the floor of shearing sheds and pens for up to 3 weeks therefore, after lousy sheep have been through a shed do not run clean sheep through for at least a month.

MONITORING

Regular monitoring and early detection are critical for a successful lice control program. All mobs should be inspected at least twice a year and ideally when sheep are mustered for other management procedures such as drenching.

During routine paddock inspections, if any sheep are seen with rubbed or pulled wool they should be inspected more closely. Special attention should be given to the sides of sheep where transfer is most common and easily reached to bite at the wool. Also tufts of wool on fences and trees are a sign that sheep need a closer inspection.

Table 1: Summary of the regulatory status of lice infestations

Victoria	Sheep lice are a notifiable disease which requires owners to notify an inspector if they suspect or know their sheep have lice. Owners who send lice-infested sheep to a saleyard may be prosecuted. Lice infested sheep in a saleyard will be returned to the owner's property or sold direct for slaughter.
New South Wales	Lice is not a notifiable disease however, if your flock is infested you are not allowed to sell sheep at a public sale but can sell sheep privately and to abattoirs.
South Australia	In SA it is an offence to present sheep at a saleyard and it also an offence if lousy sheep stray off your property. Sheep can be sold privately and to abattoirs.
Queensland	Lice are not a notifiable disease.
Western Australia	Lice are not a notifiable disease.
Tasmania	Lice are not a notifiable disease



Figure 2: Sheep with pulled wool, showing signs of lice infestation
Figure 3: Inspecting for lice

SHEEP LICE – KNOW THE FACTS CONTINUED

During shearing ask shearers and shed hands to keep an eye out for lice. Shearing can remove 60-80% of lice and further losses will occur with exposure to the environment, particularly high temperatures. Therefore, once sheep have been shorn it is difficult to detect lice and if they aren't treated it can take more than three months before they can be easily found.

A key indicator for lice infestation is rubbing, even when lice are as low as 100 lice per sheep they may begin to rub. This is a very important sign to look out for because it is very difficult to see lice at such low numbers by parting the fleece. In the early stages of infestation lice numbers increase very slowly and it can take months before the infestation is obvious. The following graph shows a typical build up of lice in a mob after contact with a lousy sheep.

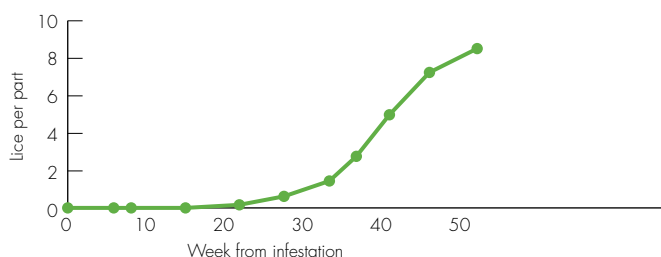


Figure 4: Typical build up of lice in a mob after contact with a lousy sheep

TREATMENT

The most effective time to treat sheep for lice is after shearing, however growers need to weigh up the treatment costs with the projected losses in wool production when making the decision to wait until shearing to treat lice. This decision will be based on the amount of time between diagnosis and shearing and the level of infestation. The computer program LiceBoss® funded by AWI is available online and will help producers choose the most appropriate course of action.

Less than six weeks off shears: the two most commonly used chemical application methods are backliners and wet dipping. The benefits of backliners are that it can be used within 24 hours of shearing, therefore preventing re-mustering sheep to treat for lice. The benefit of wet dipping using a submersible cage dip or a plunge dip is that the correct dose is more reliably applied.

Greater than six weeks off shears: treating lice on longer wool will not eradicate them as the chemicals do not completely saturate the fleece and the correct dose is not accurately applied. There are only a limited number of chemicals that can be used.



It is very important to use lousicides in accordance with their label to reduce the likelihood of lice developing a resistance to the chemical, as well as minimising the chemical residue build up in the fleece. Resistance can also be delayed by rotating your treatment using different chemical groups and not just a different brand from within the same chemical group.

It is important to note that in May 2007 the Australian Pesticide and Veterinary Medicine Authority (APVMA) suspended the use of diazinon as a short wool dip for lice and long wool jetting for blowflies on occupational health and safety grounds. From 4 May 2009 it will be illegal to use diazinon for dipping and jetting sheep without an authorised permit.

Table 2: Guide to lousicides available in Australia

Time of application	Application method	Chemical group	Products
Off-shears	Backliner	Insect Growth Regulator	Magnum, Stampede, Zapp, Clipguard, Virbac IRG Pour-on, Epic, 4Farmers Triflumuron 25, WSD Command Pour-On, Triffik, Exit, Cannon
		Synthetic Pyrethroid	Clout-S, Cypercare, Spurt, 4Farmers, Cypermethrin 25
	Spray-on	Organophosphate	Eureka Gold
Short wool (up to 6 weeks off-shears)	Wet dip	Insect Growth Regulator	Strike, Fleececare, Crusader, Duodip
		Spinosyn	Extinosad
		Magnesium Fluorosilicate	Flockmaster MK II, X-Lice Washdown
Long wool (6 weeks to 6 months wool)	Hand jetting	Insect Growth Regulator	Strike, Fleececare, Duodip
	Spray-on	Insect Growth Regulator	Magnum
Long wool (6 months to 10 months wool)	Spray-on	Synthetic Pyrethroid	Vanquish
Long wool (6 weeks to 10.5 months wool)	Hand jetting	Macrocyclic Lactone	Coopers Blowfly and Lice Jetting Fluid, Paramax Multi-Purpose Concentrate for Sheep
Long wool (6 weeks to 12 months wool)	Hand jetting	Spinosyn	Extinosad

For further information:

www.farmbiosecurity.com.au

Fact sheets from www.woolproducers.com.au

- Alternatives to diazinon

Fact sheets from www.liceboss.com.au

- Biology of sheep lice (*Bovicola ovis*)
- Why control sheep lice? Economic impacts of lice on production
- Sheep lice – spread and detection
- Sheep lice – biosecurity can prevent introduction
- Monitoring sheep for lice
- Preventing resistance on sheep lice
- Sheep lice – selective chemical treatments

Photos courtesy of the Department of Agriculture and Food Western Australia

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