



## Sheep lice—biosecurity can prevent introduction

*Jenny Cotter, Department of Agriculture and Food Western Australia*

The prevalence of lice in Australian sheep flocks has a long term base average of about 20%, but the proportion of flocks infested can be much higher in some areas. An apparent increase in the prevalence of lice in recent years has raised grower and industry concern about lice. New infestations of lice can be avoided, but this requires careful planning, vigilance over management procedures, stock-proof fencing and preventative measures. It is worth investing time and effort in biosecure processes in order to have a louse-free flock. Once safeguards are established, they soon become part of normal management.

### Developing a sheep lice biosecurity plan

Every enterprise is different and developing a lice biosecurity plan requires in-depth consideration of all the factors affecting the louse status of a property. Good biosecurity will not only prevent the introduction of lice and the consequent costs, but avoid problems from introducing lice that are resistant to specific chemical treatments.

### Requirements of a successful louse biosecurity plan

#### Commitment to preventing lice being introduced

The first step is to decide that preventing lice is a priority and that adequate time and resources will be committed to ensure this occurs. Once a lice biosecurity program is established on the property, it should be reviewed and assessed at least every two years. The main area to consider is the risk assessment (see below) as external risk levels may change over time. For example, a neighbouring property may become infested or may increase sheep trading, thus increasing the number of new sheep brought onto the property and the chance of introducing lice.

#### Understand lice biology and how lice spread

A basic knowledge of lice biology and how lice spread can help identify possible means of lice introduction to a property and assist the development of an effective biosecurity plan. Detailed information on the biology of sheep lice, how they spread between sheep, sources of infestation and the pattern of build up in lice populations over time is available from the LiceBoss Note: [Biology of sheep lice \(\*Bovicola ovis\*\)](#).

#### Recognition that all introduced sheep present a possible risk of introducing lice

With all introductions, but particularly when sheep lice prevalence is high, it is important to take steps to avoid bringing lice onto a property when buying or agisting sheep, including rams. The other major source of lice is stray sheep, which can often enter and leave the flock undetected.

#### Awareness that communication within the local community assists lice biosecurity

Collaboration with immediate neighbours and local area farmers can greatly reduce the risks of lice being introduced. Advisers may be able to provide technical advice to assist local lice action groups.

### Sources and risks of possible lice introduction

By identifying high risks and implementing minimization strategies the risk of lice and associated costs will be greatly reduced.



### Stray sheep

Straying sheep, either other people's sheep straying onto your property or your sheep straying, contacting infested sheep and then returning to the flock, pose a very high risk as they may not show obvious signs of being infested. Without close surveillance, these sheep may remain undetected for a significant period of time. Maintaining sheep-proof fences is the best way of reducing the risk from strays and it is often said that the best form of lice control is a good pair of fencing pliers.

### Purchased sheep

The second major means of introducing lice is on purchased or agisted stock, which may not show obvious signs of lice. This may be particularly so where sheep have been recently shorn, so that rubbing is not readily evident or where a previous treatment has suppressed but not eradicated lice.

Rams pose a frequently overlooked risk, as they are often purchased close to joining, which restricts the time available to monitor for signs of lice. It is important to have confidence in your ram source by discussing the recent lice and treatment history of rams.

All purchased sheep should travel with a National Sheep Health Statement (NSHS) detailing whether there has been any evidence of sheep lice at or since the last shearing, the date of last shearing and the name and date of any external parasite treatment used.

Table 1 on page 3, gives a broad outline of the level of risk associated with purchased sheep.

### Non-sheep transmission

Research has shown that lice may survive for up to 10 days on shearer moccasins. If shearers have come from a property where lousy sheep were shorn, ask them to change clothes and moccasins before entering your shed. Lice may also survive for up to 3 weeks in wool left in pens or on the floor of shearing sheds. Although possible, the risk of lice introduction by either of these methods is low compared to that from straying or introduced sheep.

Table 3 on page 5, indicates positive actions for use in avoiding possible non-sheep transmission.

## Assessing risk to biosecurity

Consider the factors that pose the greatest risk to your enterprise and apply preventative measures or change management strategies, that is, avoid or minimize high-risk activities to greatly reduce the risk of introducing sheep lice.

### Stray and introduced sheep

The source of stock (i.e. stray, purchased, agisted etc.) will influence the preventative action that should be taken. To minimize the spread of lice, infested mobs should be isolated from the rest of the flock as soon as lice are found.

### Stock introduction policy (buying/agisting)

By developing and implementing a stock introduction policy, the risks of introducing lice can be greatly reduced, (see Stock introduction and quarantine policies on page 3).

### Treatment and quarantine policy

The following table can be used as a guide for introducing stock. When stock introductions are from a low risk property, then quarantine should be all that is required. When stock is purchased from a high-risk property, quarantine and/or treatment must be used.

An important first step before introducing any sheep is to check for signs of rubbing followed by close inspection of the rubbing sheep for the presence of lice. It can be difficult to detect lice in sheep with



less than 6 months wool, particularly if they have been treated and there is still the possibility that lice may be present even if they are not found at this time.

**Table 1. Risk categories for different sources of purchased sheep.**

High Risk	Low Risk
<ul style="list-style-type: none"> <li>• High risk source property               <ul style="list-style-type: none"> <li>• regularly trades sheep</li> <li>• poor fences</li> <li>• crossbred lambs that tend to stray</li> <li>• no active monitoring</li> <li>• no stock introduction policy*</li> <li>• neighbours infested</li> <li>• inability to get clean muster</li> <li>• split shearings</li> </ul> </li> <li>• High risk introductions               <ul style="list-style-type: none"> <li>• known lice present and treated</li> <li>• suspect lice and treated</li> <li>• unknown louse status e.g. saleyard</li> </ul> </li> <li>• High local lice prevalence</li> </ul>	<ul style="list-style-type: none"> <li>• Low risk source property               <ul style="list-style-type: none"> <li>• closed flock</li> <li>• good boundary fences</li> <li>• neighbours have no sheep or are low lice risk</li> <li>• no treatment for at least 2 years</li> <li>• regular monitoring</li> </ul> </li> <li>• Low risk introductions               <ul style="list-style-type: none"> <li>• origin and lice history known</li> <li>• no treatment and history of lice freedom</li> </ul> </li> <li>• Low or nil local lice prevalence</li> </ul>

**Table 2: Guidelines for preventative and corrective action relating to introduced sheep.**

Risk	Preventative action	Corrective Action
Stray	<ul style="list-style-type: none"> <li>• Maintain stock-proof fences to reduce risk of lice and other diseases.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop agreement with neighbours in advance on actions to take when strays are found.</li> <li>• If a stray is found, carry out agreed action (don't just drop them back over the fence). Contact owner and advise of the occurrence of stray. Where unable to identify owner, take appropriate action.</li> <li>• If lice are seen, keep the mob isolated, monitor regularly and treat at the next shearing.</li> </ul>
Introduced stock—purchased (incl. breeders) or agisted	<ul style="list-style-type: none"> <li>• Apply 'quarantine policy*' (point b, page 4)</li> <li>• Apply 'stock introduction policy*' (point c, page 4)</li> </ul>	<ul style="list-style-type: none"> <li>• Review preventative action to identify gaps in the plan and improve buying-in policy and/or quarantine protocol.</li> </ul>

*\*Stock introduction policy and quarantine policy: Examples of these policies, which can be adapted to an individual property, are shown on page 4.*

## Stock introduction and quarantine policies

The basis of treatment and quarantine recommendations for introduced stock from any property is firstly, current wool length and then consideration of the intent of the most recent treatment. There are four alternatives to consider.



### Treatment or quarantine for sheep introduced with less than 6 weeks wool

#### (a) Treated on the property of origin

If you are confident that the vendor property has no lice history or they have a high treatment standard (i.e. effective chemical and correct application), then monitor the introduced sheep for signs of lice at least monthly.

#### (b) Untreated on the property of origin

Treat with an effective off-shears short wool dip. Isolate<sup>1</sup> for as long as possible, i.e. a minimum of 3 months before mixing with other sheep, and monitor for signs of lice at least monthly.

### Treatment or quarantine for sheep introduced with more than 6 weeks wool

#### (c) Treated on the property of origin<sup>2</sup>

Even if treated effectively after shearing these sheep may subsequently have been exposed to lice. Again, knowledge of the lice history of the vendor property will be important. If treated with a long wool product, this is likely to achieve control only and lice are still likely to be present. The options are to isolate until the next shearing or shear and treat.

#### (d) Untreated on the property of origin

If sheep are purchased with greater than 6 weeks wool they should be kept isolated for as long as possible (minimum of 3 months) before mixing with other sheep. Monitor for signs of lice regularly.

Remember that if lice are found and sheep are treated with a long wool product<sup>3</sup> this will control, but not eradicate, lice and the mob will still be a potential lice risk.

As it can be difficult to detect lice on sheep with less than 6 months wool, or in the early stages of a new infestation, the best policy, if feasible, may be to avoid buying in sheep with greater than 6 weeks wool, unless they can be kept isolated until the next shearing or you are willing to shear and treat.

<sup>1</sup> The preferred option should always be to keep introduced stock isolated until monitoring provides confidence that no lice are present. It takes at least 3 months from the time of initial infestation for rubbing to become obvious.

<sup>2</sup> Any treatment applied later than 6 weeks after shearing should be considered as a control treatment, therefore lice are likely to be present and sheep should be considered as untreated.

<sup>3</sup> Different long wool treatments are registered for different lengths of wool and for different times until shearing. Consult the [Products Tool](#) or product label to choose a suitable product.

### Options to prevent non-sheep transmission

Although the risk of lice from the sources in Table 3 is relatively low, these factors should still be considered to help in keeping a property free from lice.

**Table 3: Recommended options to prevent possible introduction from other sources.**

Risk factor	Recommended action
Shearer's clothing	Discuss risk with shearers. If lousy sheep have been shorn at the previous property request that precautions be taken to avoid spread of lice on clothing or footwear.
Wool in sheds	Avoid moving clean sheep through sheds for at least 4 weeks after lousy sheep.



## Monitoring

If mobs were known to be lousy at the time of treatment, then check them for signs of rubbing every 3 months following treatment to check treatment effectiveness. See LiceBoss Note: [Monitoring for sheep lice](#) for directions on how to effectively inspect for lice. Be aware that causes other than lice may lead to rubbing (e.g. grass seeds, itch mite etc.) and that breeds such as Damaras and Dorpers may show signs of rubbing when the fleece is being shed. See LiceBoss Note: [Causes of rubbing in sheep](#). There are currently two recommended types of monitoring—paddock and yard.

### Paddock inspections

Carry out paddock inspections at regular intervals from six months after shearing for signs of rubbing and biting. Lice infestations may be indicated if sheep are increasingly rubbing and biting at wool.

### Yard inspections

Inspect sheep when they are yarded for other procedures, such as drenching and crutching. Inspect at least 10 of the sheep with the worst rubbing by parting the wool for 10 cm in at least 10 different places per side.

Should an infestation be confirmed, isolation of the flock will limit spread. Use long wool treatments to control lice until shearing occurs. Carefully research available chemicals and application types for undertaking treatment so as to achieve good control, or eradication in the case of a short wool treatment, and follow the label carefully to achieve best effects; see the LiceBoss [Products Tool](#).

Note that many products do not provide significant protection against new infestations. Chemicals claiming a protective period will have this information stated on the label.

**Acknowledgement:** This note is based on a previous Department of Agriculture and Food WA Farmnote by Di Evans.

**Published:** March 2013

**Disclaimer:** The information provided in this publication is general information only and readers should confirm information from an appropriate and relevant source before making business or commercial decisions based on this information. Sheep CRC Limited and Australian Wool Innovation Limited will not be liable for any loss or damage suffered by a reader arising from the reader's reliance upon the contents of this publication.

**Copyright:** Australian Wool Innovation Limited. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under copyright legislation, no part may be reproduced or re-used for any commercial purpose whatsoever without the written permission of AWI Web Manager, Australian Wool Innovation Limited, Level 30, HSBC Centre, 580 George St, Sydney NSW 2000, GPO Box 4177, Sydney NSW 2001.