



## Sheep lice - biosecurity can prevent introduction

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### Introduction

Surveys indicate that louse prevalence is approximately 20 per cent nationally and as high as 40 per cent in some areas. New infestations can be avoided but requires careful planning, vigilance, stock-proof fencing and preventative measures. It is worth investing time and effort to have a louse-free flock. Once safeguards are established, they soon become part of normal management. If lice are found, eradication at the next shearing is essential. This can be achieved by using an effective chemical and applying it correctly off-shears or within six weeks after shearing.

Every enterprise is different and developing a louse biosecurity plan requires in-depth consideration of all the factors affecting the louse status of a property.

The main components of a louse biosecurity plan are to:

- A–Commit to preventing lice being introduced
- B–Understand how lice spread and ways to prevent introduction
- C–Identify risks of introducing lice
- D–Implement preventative measures
- E–Monitor stock for signs of lice

Good biosecurity will not only prevent the introduction of lice but also the establishment of lice which are resistant to specific chemical treatments.

### A. Commit 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 louse biosecurity program is established, it should be reviewed and assessed at least every two years. The main area to consider is the risk assessment because risk levels may change. For example, a neighbouring property may become infested or may increase trading.

### Community

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

### B. Understand how lice spread and ways to prevent introduction

Several publications are available which provide good information about how lice are transferred, treatment options and ways to prevent infestation. Also talk to your veterinary or agricultural consultant or district government animal health adviser.

The following factors increase the risk of lice transferring between sheep:

- short wool
- high level of close contact between sheep, e.g. camps, ewes/lambs, yarding
- warm, dark conditions at the fleece surface
- moderate ambient temperature and dry conditions
- high density of lice
- no residual chemical from recent treatments effective against lice.

### C. Identifying risks of introducing lice

Identifying high risks and implementing strategies to minimise these will greatly reduce the risk of lice and associated costs.

#### Stray and introduced sheep

Almost all new louse infestations occur through lousy sheep entering your property or leaving and returning with lice. Straying sheep pose a very high risk as they may not show obvious signs of being infested, but enter and leave the flock undetected. Without close surveillance, these sheep may remain undetected for a significant period.

The second major means of introducing lice is on purchased stock which may not show obvious signs. Table 1 gives a broad outline of the level of risk associated with strays and introduced sheep purchased, agisted and bought-in breeding stock.

### Important Disclaimer

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**Table 1: Risk categories for different sources of sheep**

| Highest risk   | Moderate risk  | Lowest risk  |
|--|--|--|
| High-risk source property <ul style="list-style-type: none"> <li>– regularly trades sheep</li> <li>– poor fences</li> <li>– cross-bred 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> High-risk introductions <ul style="list-style-type: none"> <li>– known lice present &amp; treated<sup>#</sup></li> <li>– suspect lice &amp; treated<sup>#</sup></li> <li>– unknown louse status e.g. saleyard</li> </ul> High local lice prevalence | Lice not suspected<br>Routine annual treatment<br>Occasional neighbour sheep infested but not known to be currently infested<br>Stock introduction policy* | Closed flock<br>Good boundary fences<br>Neighbours low risk<br>No treatment for at least 2 years<br>Regular monitoring |

\* A stock introduction policy defines the criteria relating to lice status that need to be met before stock will be introduced.

<sup>#</sup> Obtain information on previous treatment of mob, such as chemical and equipment used, to determine if treatment is likely to have been effective. Insist on an animal health statement when purchasing stock.

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. Discuss the recent lice and treatment history of the rams with your supplier.

### Non-sheep transmission

Non-sheep transmission may also occur from shearers’ clothing and footwear, from visitors such as contractors or buyers who contact sheep on an infested property, or from wool in sheds. Lice may survive for up to 10 days on shearer moccasins. If shearers have come from a property where lousy sheep were shorn, there could be a risk of transfer. However, if lice are thought not to

be present on the previous property, the risk is probably low. Lice may also survive for up to three weeks in wool left in pens or on the floor of shearing sheds.

Use the checklist in Table 2 to decide on the factors that pose the greatest risk to your enterprise. Compare the likely level of risk from each so that priority can be given to implementing preventative measures. You may decide to tackle each one over a three or five-year period.

The checklist table will help you to identify and assess which risks are relevant to your situation.

**Table 2: Checklist for identifying and assessing level of risk**

| Risk factor                        | Level of risk |     |        |      |
|------------------------------------|---------------|-----|--------|------|
|                                    | Nil           | Low | Medium | High |
| Strays                             |               |     |        |      |
| Purchased                          |               |     |        |      |
| Agisted                            |               |     |        |      |
| Neighbours with lousy sheep        |               |     |        |      |
| Introduced breeding stock          |               |     |        |      |
| Shearers’ clothing                 |               |     |        |      |
| Wool left from lousy sheep in shed |               |     |        |      |

**Table 3: Guidelines for preventative and corrective action**

| Risk   | Preventative action  | Corrective action   |
|--|--|---|
| Stray  | <ul style="list-style-type: none"> <li>Maintain stock-proof fences</li> </ul>  | <ul style="list-style-type: none"> <li>Isolate strays as soon as possible as disease risk is unknown</li> <li>Inspect closely for lice and contact owner to discuss lice history</li> <li>If unable to identify owner, assess and 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 (including breeders) or agisted | <ul style="list-style-type: none"> <li>Develop &amp; implement a stock introduction policy*</li> <li>Develop &amp; implement a quarantine policy#</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>   |

\* # Examples of these policies which can be adapted to an individual property are provided

## D. Implement preventative measures

Avoiding or minimising high risk activities will greatly reduce costs associated with lice.

### Stray and introduced sheep

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

Table 3 outlines options for preventative and corrective action relating to introduced sheep.

### Stock introduction policy (buying/agisting)

By developing and implementing a stock introduction policy, the risks of introducing lice can be greatly reduced. Table 4 provides some guidelines for a stock introduction policy.

**Table 4: Recommended options for different risk categories when considering stock introductions**

| Level of risk                 | Recommended options  |
|-------------------------------|--|
| High-risk source property     | Do not purchase  |
| Moderate-risk source property | Either do not purchase or shear and treat onto your property   |
| Low-risk source property      | Purchase stock but implement quarantine policy<br>Do not purchase sheep other than stock from a property with a disease status equal to or better than yours<br><i>(Be aware that there is always some risk with introducing stock.)</i> |

**Table 5: Recommended options for treating and quarantining stock introduced from a moderate-risk property**

| Length of wool at time of introduction   | Treatment status on property of origin | Recommended options   |
|--|--|---|
| Off-shears or up to 6 wks after shearing | Treated                                | If confident of treatment standard (i.e. effective chemical and correct application), then monitor for signs of lice at least monthly. If not confident of treatment standard, consider them untreated (see below).   |
|  | Untreated                              | Treat with effective off-shears backliner or short wool dip. Isolate for as long as possible <sup>#</sup> , i.e. a minimum of 3 months before mixing with other sheep and monitor for signs of lice at least monthly.   |
| 3–6mths wool                             | Treated*                               | Even if treated, this is likely to achieve control only, thus lice are likely to still be present. The options are to isolate until the next shearing or shear and treat.   |
|  | Untreated                              | Difficult to detect lice with less than 6 mths wool, so may have policy of <b>not</b> buying in sheep with greater than 6 wks but less than 6 mths wool, unless they can be kept isolated until the next shearing or you are willing to shear and treat.                      |
| 6–9mths wool                             | Treated                                | Even if an effective short wool treatment was applied, re-infestation may have occurred. Inspect for signs of rubbing. Isolate for as long as possible <sup>#</sup> , i.e. a minimum of 3 mths before mixing with other sheep and monitor for signs of lice at least monthly. |
|  | Untreated                              | Inspect for signs of rubbing. Isolate until next shearing or shear and treat.   |
| More than 9 mths wool                    | Treated or untreated                   | Inspect for signs of rubbing. Isolate until shorn and treated.  |

**Note:**

\* Any treatment applied after six weeks after shearing should be considered as a control treatment. Therefore, lice are likely to be present and sheep should be considered as untreated.

# The preferred option should always be to keep introduced stock isolated until monitoring provides confidence of no lice. It takes at least three months from the time of initial infestation for rubbing to become obvious.

**Treatment and quarantine policy**

Table 5 can be used as a guide for introducing stock from a moderate-risk property. If stock originate from a low-risk property, then quarantine should be all that is required. If stock are purchased from a high-risk property, they should always be treated and quarantined. An important first step before introducing any sheep is to check for signs of rubbing and then closely inspect these sheep. It can be difficult to detect lice in sheep with less than six months' wool, particularly if they have been treated. Thus, lice may go undetected at this time.

**Non-sheep transmission**

Although the risk of lice from the sources in Table 6 is relatively low, these factors should still be considered to help in keeping a property free of lice.

**Table 6: Recommended options to prevent possible introduction from other sources**

| Risk factor        | Recommended action  |
|--------------------|---|
| Shearers' clothing | Discuss risk with shearers. If lousy sheep have been shorn at the previous property, request that mocassins be microwaved or frozen to kill any lice. |
| Wool in sheds      | Avoid moving clean sheep through sheds for at least 4 weeks after lousy sheep.  |

**E. Monitoring**

If mobs were known to be lousy at the time of treatment, check them for signs of rubbing every three months to check treatment effectiveness. Be aware that causes other than lice may lead to rubbing (grass seeds, itchmite etc.) and that breeds such as damaras and dorpers may show signs of rubbing when the fleece is being shed.

There are currently two recommended types of monitoring—paddock and yard.

**Paddock inspections** should be done at least fortnightly, if possible, from six months after shearing for signs of rubbing and biting. It is especially important to take a close look at as many sheep as possible, particularly if stock are introduced or are in paddocks which may be a high risk for strays.

**Yard inspections** Sheep should be inspected when they are yarded such as for drenching or crutching. When yarded, at least 10 sheep (worst affected) per mob should be inspected by doing 10 partings per side, which should take about half an hour per mob. Lice are only about 2 mm long and adults have dark stripes across their body. They can usually be seen close to the skin and will move when exposed to bright light.