



## Wool and meat residues

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Woolgrowers rely on chemical applications to manage sheep lice and blowfly strike. A consequence of chemical use on sheep is the possible presence of pesticide residues in their body tissues and wool. The presence of residues from lice and flystrike control treatments pose a number of issues.

### Occupational health and safety

Wool rehandling period is the period between treatment and when the wool or treated sheep can be safely handled without the need for protective clothing. Some products can pose health risks to those handling the sheep for some time after treatment or to those handling the wool shorn from recently treated sheep. If a wool-rehandling period is given on the label, this must be observed to protect those handling the sheep or wool, but may also be required for other wool residue issues.

### Environmental impact

#### Wool residues

Wool harvesting interval (WHI) (equivalent to wool withholding period) is the period between treatment and when wool can be harvested to satisfy Australian environmental requirements.

Most chemicals used to treat external parasites bind to the wool grease rather than the fibre itself. The scouring process removes wool grease and most contaminants at the same time, resulting in contaminated scour effluent and lanolin.

In Australia, most scour plants send sludge to landfill and the liquid effluent goes into ocean outlets, sewerage systems or evaporation ponds. However, most wool is scoured overseas where scour plants often discharge effluent into inland waterways, where there are stricter standards for scour effluent.

#### Meat residues

Meat withholding period (WHP) is the time from chemical application to when an animal may be slaughtered for the domestic market. The WHP is mandatory for domestic slaughter and is always on the label.

Export slaughter interval (ESI) is the time from chemical application to when an animal may be slaughtered for export. The ESI may not be on the label, but is required by any abattoir that may export meat. The ESI can be found in the Products list in LiceBoss Tools, on the current version of the National Sheep Vendor Declaration or on the [APVMA website](#).

The products for lice control are applied to the skin or wool of the sheep, but there is some absorption through the skin, or in the case of jetting or dipping, ingestion or inhalation of small amounts of the chemical. Therefore, the specified periods are required to ensure that no detectable levels of these



chemicals are left in muscle, fat or other tissues. Some products have a relatively long WHP or ESI and care must be taken when treating lambs to ensure that this will not delay their planned sale.

## Wool marketing

Wool has a marketing advantage over synthetic fibres because it is a natural product, produced from a renewable resource in an environmentally sustainable way. Although the final woollen article is free of pesticides, there are concerns that pesticide residues on greasy wool could harm the 'clean and green' image of wool. Producers who use registered products according to label directions satisfy the legal requirements to offer wool for sale, but guidelines that are more stringent exist for producers targeting the European Eco-label for Textiles market.

The European Eco-label for Textiles enables consumers to recognize garments that are made from raw wool (i.e. unscoured or 'greasy' wool) that meets residue specifications currently deemed acceptable in terms of environmental impact.

The pesticide limits for greasy wool to meet European Eco-label requirements are:

- Total organophosphates (OPS) less than 2 mg/kg
- Total synthetic pyrethroids (SPs) less than 0.5 mg/kg
- Total insect growth regulators (IGRs) less than 2 mg/kg (triflumuron, diflubenzuron and dicyclanil)

Cyromazine, macrocyclic lactones (e.g. ivermectin, abamectin), neonicotinamides (e.g. imidicloprid) and magnesium fluorosilicate are not restricted provided the normal wool withholding periods are observed for these products.

### Requirements for EU Eco-label wool

Farmers can meet Eco-label wool requirements without drastic changes to flock management provided certain pesticides are avoided, as their use, even according to the label, will exceed the limits shown above:

- SPs must not be used, even off-shears.
- The IGRs triflumuron and diflubenzuron must not be used, even off-shears.
- Dicyclanil (e.g. CLiK®) must not be used, except when applied only to the breech at least 6 months before shearing. In this case it may not exceed the residue limit of 2 mg/kg in the fleece. The low dose dicyclanil product (CLiKZiN®) applies only one-quarter of the usual dose of dicyclanil and can be used on the body and breech up to 5 months before shearing.
- Apart from use as flystrike dressings, organophosphates must not be used within 7 months before shearing, but short wool treatments (applied within 6 weeks of shearing) will not usually exceed the required limits.



- Other products (e.g. those based on cyromazine, ivermectin, imidacloprid, spinosad or magnesium fluorosilicate) can be used as indicated on the label.

#### Guidelines for producing low residue wool

- Reduce the need for flystrike chemicals by implementing an integrated control program for flystrike with increased reliance on non-chemical methods (e.g. breeding sheep with increased resistance to breech and body strike, strategic timing of shearing and crutching), and an integrated internal parasite control program. See [www.flyboss.com.au](http://www.flyboss.com.au) and [www.wormboss.com.au](http://www.wormboss.com.au) for more detail.
- Implement a lice biosecurity program (see LiceBoss Note: [Sheep lice—biosecurity can prevent introduction](#)) to prevent the introduction of lice on strays or purchased sheep and treat only when lice are found.
- If jetting for protection from flystrike close to shearing or when only a short period of protection is needed, use a chemical with a short residual period, e.g. cyromazine or ivermectin-based products up to 3 months before shearing, or spinosad within 2 months of shearing.
- Jet only the most susceptible mobs and only the most susceptible areas, e.g. if the main problem is breech strike then treat only the breech.
- If sheep are purchased without a declaration regarding any previous treatment then their wool should be kept separate at shearing.
- Wool from sheep that are struck and treated individually should be kept separate at shearing.
- If lice are found in long wool, consult the [Long Wool Tool](#) to determine if a long wool treatment is necessary and which chemicals to use.

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