



Off-shears backline treatments

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Backline treatments, used off-shears, can be a relatively quick and easy method of treating sheep to eradicate lice, but they require care during application to obtain good results. Most products must be applied within 24 hours after shearing. As with all lice control treatments, it is essential that every sheep is treated according to the label directions for dose rate and application pattern.

Producers can use many registered off-shears backline lousicide products, but all belong to one of the following six pesticide groups:

- pyrethroid (SP) (cypermethrin, α -cypermethrin, deltamethrin)
- macrocyclic lactone (ML) (abamectin)
- neonicotinoid (imidacloprid)
- insect growth regulator (IGR) (diflubenzuron, triflumuron)
- organophosphate (OP) (diazinon)
- spinosyn (spinosad)

Advantages and disadvantages of backline treatments

With this breadth of choice and in light of their ease of use compared to wet dipping, it is not surprising that approximately 80% of treatments applied for lice control in Australia are backline treatments.

Some advantages of off-shears backline treatments are:

- There is no need to re-muster sheep after shearing for treatment.
- Sheep are less stressed and there is reduced risk of leaving any sheep untreated.
- Labour cost is low for application.
- Treated sheep are easily recognised by dye markings.
- No dip waste contaminates the environment.
- It is easy to treat small numbers of sheep, including stragglers found and shorn after the main shearing.
- It is easy to apply the correct dose to all sheep.
- There is a low risk of diseases associated with wet dipping.
- Operator exposure to chemical splash is small.
- No dipping equipment infrastructure costs are required.

However, there are also disadvantages associated with backline application.

Some disadvantages of off-shears backline treatments are:

- These must be applied within 24 hours after shearing (seven days for some products, but 24 hours is recommended).



- Often 6 weeks or longer is needed for all lice to be killed, so lice can be present for some time after treatment.
- There is an uneven distribution of chemical around the sheep. Most of the product applied stays on the backline. If not applied correctly, low concentrations of insecticide in areas distant from the site of application may be insufficient to kill all lice.
- The uneven concentration of chemical on the sheep increases the likelihood of development of resistance to the pesticide.
- Backline treatments are not recommended for, and likely to be ineffective on, sheep that are not cleanly shorn or that are affected by 'dermo'.

Application

Correct application to every sheep is essential to ensure the treatment has the best chance of controlling lice. Usually, product labels carry 'restraint' notices that include a direction not to use the product on sheep that have not been cleanly shorn or that are affected by mycotic dermatitis (i.e. 'dermo' or 'lumpy wool'). If wool is left too long, or if dermo lesions are present, product dispersal over the skin will be reduced and lice control compromised. Unless sheep are shorn cleanly and are free from dermo, do not use any backline product. These sheep may need to be dipped or culled.

Do not compromise the lice control on a big mob of sheep because of issues such as dermo on a handful of animals. If any sheep are not shorn they must be kept separate from the treated sheep until they can be shorn and treated, or sold. Ensure ration and pet sheep are kept isolated or shorn and also treated, preferably at the same time as the main mob.

Check the label for instructions to determine whether sheep can be treated if they are wet. Avoid releasing recently treated sheep out into heavy rain.

Do not treat ewes while leaving their lambs at foot untreated. If the ewes had lice then some may have spread to their lambs. The lambs will then transfer the lice back to the ewes as the pesticide concentration declines.

Do not treat ewes less than six weeks before lambing unless all of the lambs born will be treated with a product registered for the control of lice on unshorn lambs. Backline products take several weeks to control lice. Depending on the product there can still be live lice present on the ewes for six or more weeks after treatment. These will infest lambs if they are born within this time (see the [LiceBoss Note: Lice Control in Ewes and Lambs](#)).

Treated rams should not be put with ewes earlier than six weeks after treatment (longer if indicated on product labels) or lice could spread to the ewes.

Resistance

Most treatment failures are due to incorrect application or under-dosing. However, some sheep lice populations have developed resistance to pyrethroids and/or insect growth regulators (IGR). If resistance is suspected, do not use products belonging to that group of pesticide. If lice are resistant to any product, then resistance will apply to all other products belonging to the same chemical group. For information on chemical groups see the [LiceBoss Note: Sheep lice treatments—chemical group characteristics](#).

To determine what chemical group different products belong to, use the [Products Tool](#).

Effective lice control means that a properly applied treatment and good flock management should eliminate the need for annual treatment for lice. Nevertheless, many producers choose to treat their sheep each year as a precaution because they do not have faith in either the biosecurity of their property, or in the effectiveness of their chosen lice treatment.



If lice are not eliminated from a flock, it is unwise to use the same product group to treat the sheep in the next year. Most resistance occurs where the same product group is used repeatedly for a number of years. If treatment is necessary every year, then rotate product groups to reduce the likelihood of resistance development. If resistance is a problem and alternative backline product groups are not available, dipping may be necessary, as it achieves a better distribution of chemical over the sheep. For information on wet dipping see the LiceBoss Notes: [Plunge and cage dipping](#) and [Shower dipping](#).

Correct dose

Read the label to determine the correct dose. Dose rates for all registered backline products are determined by the weight of the sheep being treated. Clearly, knowing the weight of the sheep is essential for correct dosing. Weigh a few of the largest sheep in the mob and set the dose for all sheep to that indicated for the heaviest sheep. Underdosing is a major cause of failure with backline products and increases the likelihood that resistance will develop. Most off-shears backline products are applied as low-volume doses, so even a millilitre or so underdosing can represent a significant percentage of the dose. If there is significant variation in sheep weights, it might be worthwhile to draft the mob into two or more weight classes and adjust dose rates according to the heaviest sheep in each class.

Applicators

Usually, labels also stipulate the applicator and nozzle that should be used to apply specific products and warn that drench guns are not suitable. Some applicators apply a wide band of product while others apply multiple stripes via a T-bar nozzle. Most off-shears backline products that are sold as 'ready-to-use' are applied as low-volume doses that can be comfortably delivered by manual applicators. The exceptions are the high-volume aqueous diazinon-based products that must be pre-mixed before application. With doses as high as 225 ml per sheep, manual applicators cannot be used. Instead, gas pressure applicators such as the Genesis Power Doser™ or NJ Phillips Powermaster™ Pour-On must be used.

Like all tools, applicators should be carefully cleaned, lubricated and maintained. Before use, they should be checked to ensure that they are delivering the correct dose by bleeding air from the applicator barrel and delivering multiple set doses into an accurate graduated container, such as a measuring cup.

Pattern of application

Backline product labels generally carry diagrams showing the application pattern required for particular products. Specific application patterns often vary between products. Alternatively, the instruction will be extremely simple e.g. to apply a single stripe evenly along the backline from between the ears (poll) to the butt of the tail.

It is sometimes easier to work from the back of the race to the front and apply the product from the tail to the poll. The operator is out of sight of the sheep so they move less than if the application starts from the poll. It is critical that the treatment is applied as directed on the label. Usually this means evenly down the centre of the back, so any movement of the sheep that results in a distorted application line may require extra product applied to cover the other side. Some producers recommend setting the applicator to half the correct dose and applying two stripes to each sheep, one from the poll to the middle of the back and the other from the tail to the middle, slightly overlapping the first strip. This helps ensure that the correct dose is delivered and that there is no wastage if the applicator is not quite empty on reaching the end of the sheep. Neither is there an untreated area at the tail or the head if the applicator is emptied too early.



If the application strip is too short or is mainly on one side, then the chemical will not reach all parts of the sheep. With poor application, there will be patches of low pesticide levels where lice can survive. This also contributes to the selection of chemical resistance in lice.

Operator safety

All chemicals applied as backline treatments are at high concentrations (compared with dip mix) so care must be taken in handling them and avoiding contact with the chemical. In some cases the solvent rather than the active ingredient can cause allergic reactions, skin irritation or headaches.

- Follow safety directions on the container.
- Wear protective clothing as recommended on the product label; this usually includes waterproof gloves.
- If the chemical is swallowed or contacts the eyes, call the Poisons Information Centre (telephone 13 11 26).
- Refer to the LiceBoss Note: [Use of pesticides for controlling lice—occupational health and safety](#).

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