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Guidance notes and management plans for the control of rodents, odours and flies on Lindridge Farm.



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Rodent control programme for Lindridge Farm



Rats will spread disease to both humans and livestock consume and spoil feed and the economic losses from large scale rat infestation can often be underestimated on a commercial dairy farm. They can also be a source of nuisance to neighbours.

Rat activity can be controlled by eliminating or reducing the opportunity for feeding, removing and disturbing their nesting habitat and by maintaining high standards of tidiness and hygiene around the farm.

Obvious signs of rat activity:

Burrows

Rat holes are about 10cm in diameter and lead to nests. They are often found in secluded areas with easily dug soil or waste materials such as sandy banks manure heaps and compost piles. The less secluded these areas and the more obvious they are the greater the level of infestation is likely to be. Removal or disruption of this habitat will discourage rat activity and reduce infestations. Regular disruption of the burrowing and nesting sites will also reduce breeding activity.

Droppings and urine

Droppings are usually 3/4 inch in length. They are shiny and black when fresh, and grey and crumbly when older. Rats are incontinent and leave trails of urine as they move, the urine carries disease and care must be taken when working in areas of infestation.

Chewed Holes

These may be found in walls, doors, feed bags and boxes and are a sure sign of rat activity.

Rat activity

Rats are mainly nocturnal and only in the case of severe infestations will they normally be seen in the day time.

Rat runs or trails

Rats run alongside walls and barriers and will leave distinctive paths in the soil or even on timber and concrete. Where they run close to walls often a "grease" mark can be seen where they rub the wall as they run alongside it.

Factors that contribute to rat activity

Food

Rats need food and when a rat finds a food source, it is likely to build a nest nearby and reproduce. Food sources are obviously found in many areas of the farm yard and encourage a rodent problem. Removing a food sources is the best way to prevent rodent activity. However this is impractical on a farm so controlling access to feed and removing nesting habitat from close proximity to the feed is important. If possible keep stored feed stocks in secure containers and provide bait points between nesting areas and the feed source. By controlling feeding opportunities the rat activity around the areas of feed troughs can be limited. Keep these areas clear of debris and hiding places.

Hiding and Nesting areas

Rats like to build their nests in hidden areas under structures and anywhere there is waste materials providing cover and hiding places. Particularly where there is a food source nearby. Rats do not like to cross open ground to feed so keeping grassed areas around the farmyard mowed short and keeping the areas around the sides of buildings weed free and clear will discourage rat movement and burrowing activity. If rats have to cross open ground they are more vulnerable to predators.

Water

Rats need water to live. Areas where there are bodies of water nearby are more likely to have rat activity. Rats commonly burrow under water troughs. Lifting troughs off the ground will discourage this activity.

How to reduce rat activity:

Establish where rats are likely to be moving around the farm and provide bait points between food sources and nesting areas. Put bait point nearby or inside places such as straw stacks (being careful to remove them as bales are used to avoid poison being taken by other animals) Put bait points around silage pits particularly maize silage.

Make sure bait points are secure but position so that they are easily accessible refilled and checked for activity. Regularly checking bait points will help to identify rat activity and movement around the farm. It will help you identify the conditions that are creating the problem and determine where bait points can be best positioned. This will give you information on how to reduce rat infestations and prevent the rats from coming back.

A tidy farm yard with clear uncluttered areas will reduce rat activity. Where nesting areas are identified cultivating or disturbing the ground will discourage activity. It also stress the rodents disrupt their feeding patterns which could encourage them to take poisoned bait.

Make necessary changes to your farmyard to prevent future rat problems by regularly removing and disposing of waste materials such as plastic wrapping and packaging

Stored materials such as timber and building materials should be raised off the ground ie on pallets or stands to discourage rat burrowing activity

How to eliminate rat activity:

Identify and remove as many food sources as practical.
Find burrows and other signs of rat activity destroy them removing any cover and waste materials.

Rat Bait and Poison

Use rodent bait or traps to get rid of existing rat activity and use a variety of bait points and poisons and different systems of control.
Always use approved bait for rodent control. The bait must be carefully and securely placed so that it poisoned the rats but not harm other animals. Make frequent follow-up inspections and monitor bait consumption to make sure that the rats are being controlled.

It is advisable to rotate and use different rat baits with different activity to prevent resistance to the poisons building up in the population.

There are three different types of rat poisons.

Anticoagulant Rodenticides
This rat poison depletes Vitamin K, which works to thin out the blood normally used for clotting. The rat then bleeds to death.

Bromethalin Rodenticides
Bromethalin impedes the rat's ability to contract its muscles by interfering with the brain and spinal fluid. It's often fatal after just one use but can take as long as ten hours to go into effect.

Cholecalciferol Rodenticides
When a rat ingests cholecalciferol, which is a form of Vitamin D, its heart rate slows and it can go into cardiac arrest.

Most Commonly Used
Anticoagulant rodenticides are the most common rat poison, and they're the most recommended due to the existence of an antidote in case of human or pet ingestion.

Warning

In most situations anticoagulant poisons are used because Bromethalin and cholecalciferol rodenticides have no antidote. Make sure no pets or children have the ability to come into easy contact with the rat poison you choose; be particularly careful of cats or dogs who might eat the rats. Remove and dispose of any carcasses. Make sure baiting points are secure and not easily accessible to other farm animals.

Note: All information above is for general information and does not constitute a formal recommendation. Always read rodenticide labels and comply with any advice and or information on data sheets and provided by manufacturers authorised distributors and suppliers. Always comply with UK regulatory requirements and the manufacturers recommendations.

Be aware of personal hygiene

♦ Wear gloves ideally latex or rubber

♦ Do not stir up dust by sweeping or vacuuming droppings, urine or nesting materials

Record keeping.

It is useful to keep records of rodent control activity by monitor the baiting points and consumption of poison and also the control and removal of nesting areas and habitat. These records will assist you in the management of your rodent control. (See Page 6)


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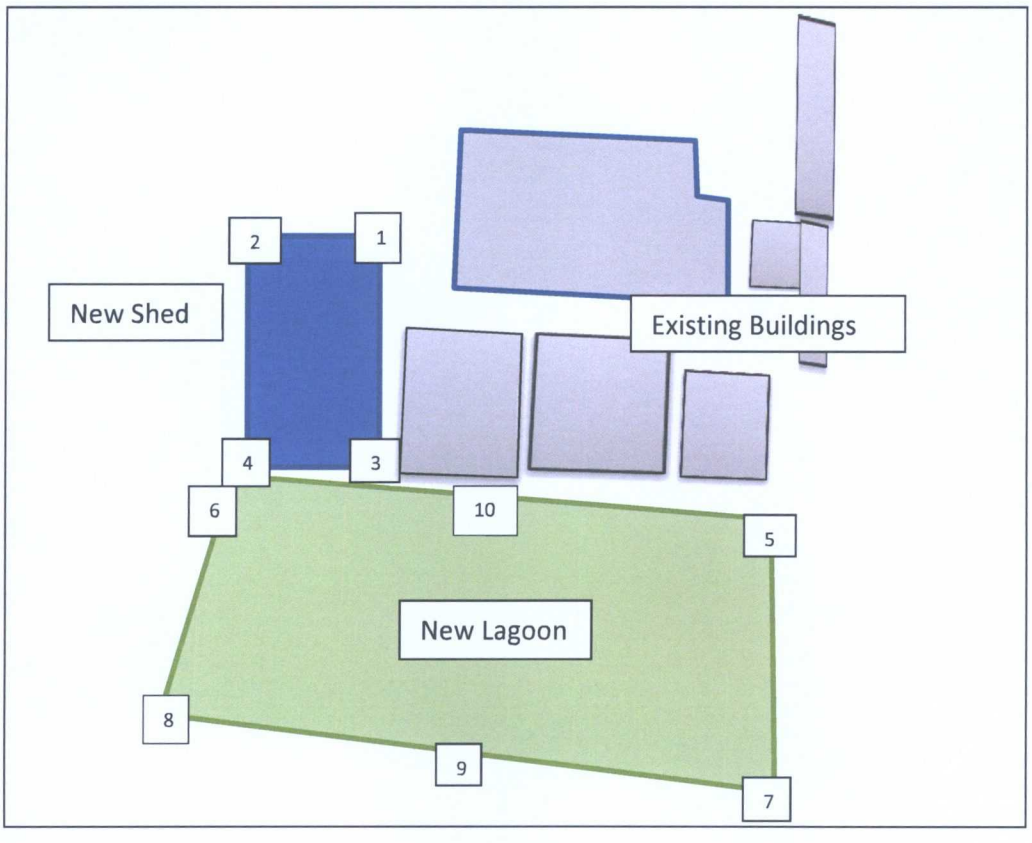
Map 1

The map shows the outlines of the new building (blue) and of the proposed slurry store (green) with suggested locations of bait points around the building and store perimeters to control rodent populations.

These bait points will be specifically for the purpose of controlling rodents in the areas of new construction and are in addition to the existing baiting points already on the farm.



Bait points similar to the one shown below will be positioned and secured around the building and slurry store to control rodents.



Rodent baiting record for Lindridge Farm

Bait Point	Date	Location	Comment
1		New Building NE Corner	
2		New Building NW Corner	
3		New Building SE Corner	
4		New Building SW Corner	
5		Slurry Store NE Corner	
6		Slurry Store NW Corner	
7		Slurry Store SE Corner	
8		Slurry Store SW Corner	
9		Slurry Store South side Centre	
10		Slurry Store North side Centre	
11			
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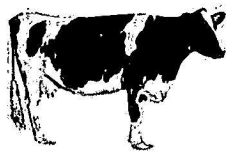
This baiting record sheet can be copied and used for recording each baiting operation on the farm.

Management Plan for control of odour at Lindridge Farm



This management plan for Lindridge farm will identify the sources of odours and advise upon the actions which can be taken to reduce the effect of odour in the local area.

The nature of livestock farming mean that odour is generated wherever there are animals however there are many things that can be done, often at low or no cost, to minimise odour or to prevent it reaching neighbours and effecting the local area.

In most cases, attention to housekeeping and good operational practices should be capable of achieving a significant reduction in the level of exposure to odour. At Lindridge farm the construction of the new slurry store will significantly reduce the number of spreading days each year this will significantly reduce the incidence of odours.

Identifying the sources of odour

The sources of odour on the farm are going to be primarily the livestock buildings and the manure and slurry storage areas.

The odour will be greatest when manure and slurry is being moved between the buildings and storage areas, when shed cleaning, loading, transporting and spreading operations are undertaken.

The spreading of waste manures on the farm is the period of highest odour risk. Correctly stored manures and slurries are less odorous

The level of odour can be categorised as:

1. No detectable odours.
2. Faint odours (barely detectable, need to stand still and inhale facing into the wind).
3. Moderate odours (odour easily detected while walking & breathing normally).
4. Strong odours (strong but bearable).
5. Very strong odours (very offensive, possibly causing nausea, if not accustomed to the odour).

At Lindridge farm yard the level of odour would in the normal course of daily farming activity be categorised as level 3 moderate odours.

As the distance from the farm yard increases towards the properties on Lindridge Lane the level of odour will quickly decrease and would be categorised mainly as level 1 or occasional level 2. Only for the duration of and immediately following spreading operations would this be expected to increase to level 3. It is unlikely to reach level 4 with spreading activities for cattle manure and slurries.

Construction of the larger slurry lagoon will reduce the frequency of spreading operations and therefore greatly reduce the incidence of level 3 odours

The extent of the odour can be described as:

1. Local & transient (only detected within the installation boundary)
2. Transient as above, but detected outside of the boundary.
3. Persistent, but fairly localised.
4. Persistent and pervasive up to 50m outside the installation boundary.
5. Persistent and widespread (odour detected >50 m from the boundary).

Where odour is detectable in the area local to Lindridge farm it should not ion the normal course of farming activities exceed levels 1 and 2.

Management plan for Lindridge Farm

Odour emissions from particular buildings will vary from day to day, depending on a range of factors including stock numbers age and size, feeding systems, seasonal temperatures and wind and air flow through buildings which will affect ventilation.

It is much more difficult to make an accurate assessment of the odour emission from heaps of manure, material spilt on roadways, land spreading of slurry and manure etc. It is therefore important to minimise these activities by using good management practices.

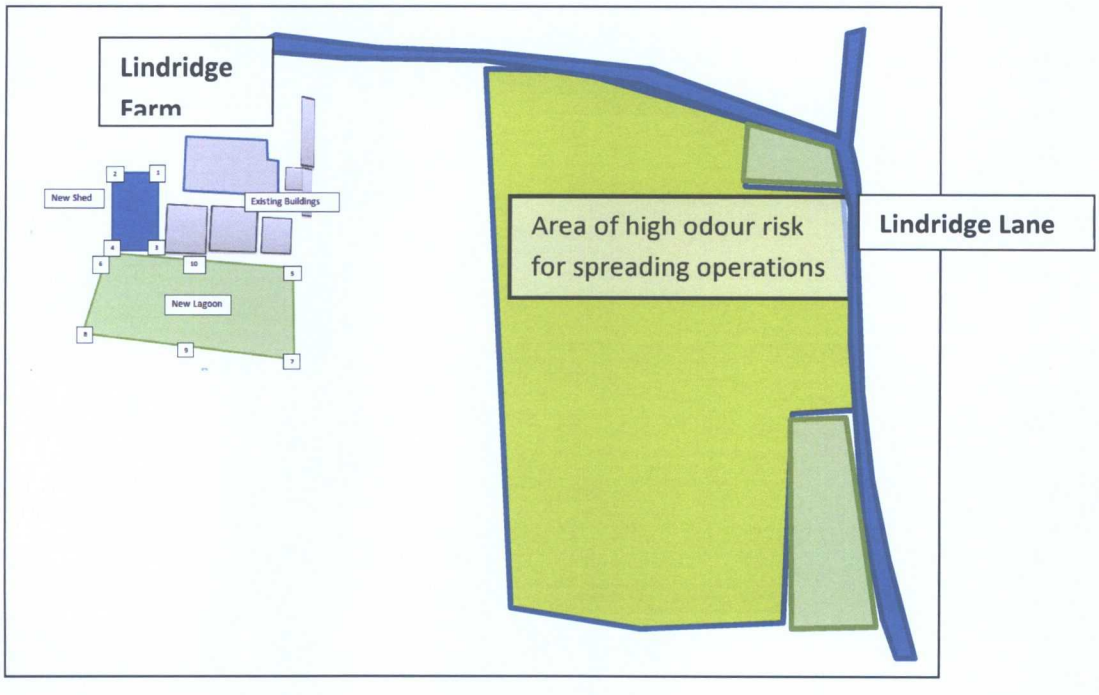
Odour Control Management Plan

Odour problem	Frequency	Management action
Cleaning of slurry in buildings	Daily	Avoid storing slurry in temporary heaps move directly to main storage area.
Moving farm yard manure from buildings	6-8 times per year mainly in the winter	Avoid secondary handling where possible by applying directly to the field. Give consideration to weather conditions.
Temporary field storage	1-2 times per year	Consider location of storage area in relation to neighbour properties and local weather conditions.
Feeding operations	Daily	Avoid butyric fermentations which increase odour by making high dry matter silage. Keep silage pits clean and tidy avoid secondary fermentation and feed waste
Agitation of slurry in store	2-3 times per year	Where it is necessary to mix slurry prior to application consider local weather conditions.
Spreading operation	7-8 times per year	When spreading use methods which reduce odour ie avoid spreader plates and where possible cultivate land to incorporate slurries and manures as soon as practical after application.
Stored slurry	All year round	The use of slurry inoculants such as Epizym can help in the reduction of odour emissions from stored slurry if required.
Livestock	All year	Avoid overstocking livestock buildings. Clean passageways and yards regularly. Keep bedding fresh and clean.

Good Housekeeping measures will reduce the incidence of odour.

1. Avoid all spreading activity close to neighbouring properties unless the wind can be relied upon to take the odour away from the properties until the odour has dispersed.
2. Where possible incorporate slurries and manures into the soil by cultivation as soon as practical to reduce or eliminate odour (Always within 24 hours)
3. Where spreading slurry onto grassland use trailing shoe or injection methods to keep slurries close to the ground for rapid nutrient uptake and minimum odour.
4. The trailing shoe and injection systems are in preference to spreader plates particularly in close proximity to neighbouring properties (see map 2)
5. Avoiding the use of spreader plates will reduce odour and also assist with nutrient uptake by reducing volatilisation.
6. Plan ahead to avoid the secondary movements of slurry and manures.
7. Always locate field stores of manure away from properties with due consideration to local and the prevailing wind directions.
8. Review weather forecast before spreading – avoid periods of very hot or humid weather, light winds or clear still nights.
9. Spillage of manures or effluent particularly on public roads should be avoided at all times. In the event of accidental spillage a clean-up operation should be undertaken immediately.
10. Avoid where possible spreading activities at weekends and on public holidays to minimise inconvenience to neighbours.
11. Seek training and advice when uncertainty exists over best management practise to reduce odour problems

Map 2 shows in pale green the part of the farm which is at greatest risk of causing a localised odour problem for neighbours. Spreading operations in this area will require particular consideration of local weather conditions to ensure nuisance odours are minimised.



Management plan for control of flies at Lindridge Farm



Types of flies found on farm:

Several kinds of flies live in and around dairy buildings or in the pasture. Whether feeding upon the animals or just annoying them, flies can reduce milk production, spread disease to cattle such as mastitis and are unsanitary and may contaminate milk. They can also create a localised public nuisance.

House flies are the most common species around farm buildings, but the little house fly, and others may also be present. In the pasture, cattle may be attacked by other flies, face flies, horse flies, and mosquitoes. All of these pasture flies except the face fly are bloodsuckers. Face flies feed upon secretions from eyes, nostrils, and wounds, including those made by blood-sucking flies.

The principles of integrated fly control

This means using a combination of cultural biological and chemical control measures to combat flies. An effective integrated fly control programme will reduce the risk of resistance build up in fly populations to insecticides.

Cultural control

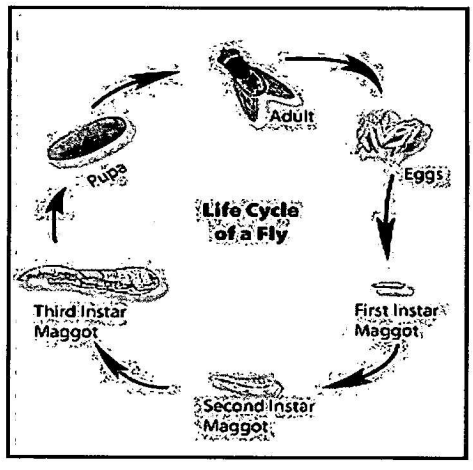
The proper management of yards, track ways, bedded areas and feed areas silage pits and storage areas will discourage breeding and suppress fly numbers around farm buildings and storage areas.

Flies around dairy buildings develop in moist manure or other wet decaying organic matter. No insecticide can be expected to control flies under poor sanitary conditions so good management routines and levels of hygiene are important. Do not allow pools of stagnant water or wet slurry to form around buildings these will provide breeding areas for flies.

Wet manure encourages flies to breed and they can complete a generation from egg to adult fly in as few as 10 days. Good farm hygiene keeping yards and passageways clean and yards and cubicles well bedded will disrupt breeding cycles. (see below) A well-managed manure management plan will help reduce fly problems.

Regular manure removal and keeping livestock bedded areas dry and clean will help break the fly breeding cycle. In a slurry store do not allow accumulations of manure above the water line, either floating or sticking to the sides, since this is ideal fly breeding habitat. This can be avoided by agitating or circulating the slurry and spreading at appropriate time. Do not let wet straw or other decaying organic matter accumulate in or near the buildings.

The fly life cycle



Biological control

A diverse fauna of predatory insects such as mites and beetles and other parasites will develops in production systems where manure is allowed to accumulate and dry for prolonged periods of time. They prey on fly eggs and larvae, in wet manure, predators cannot move about effectively to find and consume fly eggs and larvae.

Therefore, management practices which keep manure dry will reduce fly breeding activity and encourage predators and parasites of the immature stages of the flies.

Chemical

There are a wide variety of insecticides for fly control around dairy buildings. Most have residual activity which can last for 4-6 weeks others are knockdown insecticides with little or no residual activity. Insecticides should be used early in the spring to suppress populations. A two-pronged attack on flies can be achieved by using larvicides to prevent fly larvae developing into adults, and adulticides to kill adult flies.

Insecticides for dairy premises

No insecticides should be used without fully reading, understanding and complying with the manufacturer's recommendations. Relevant data sheets should be obtained and understood and regulatory requirements complied with. It may also be necessary to use certain insecticides under veterinary supervision.

Examples of Residual Sprays dimethoate permethrin stirofos Rabon dichlorvos and ciodrin

Examples of Knockdown Sprays dichlorvos pyrethrins permethrin

These are available in different product names and formulations such as emulsifiable concentrate and wettable powder

Fly Baits

These are available in either wet or dry formulations and contain insecticides such as dichlorvos, stirofos and trichlorfon. Fly baits are useful supplements to residual sprays but they will not control fly populations on their own. Commercial dry baits, in granular form, are readily available, but liquid baits must be prepared by the user, usually from emulsifiable concentrate formulations.

Larvicides can be used directly on manure and other fly breeding areas. This type of application is best utilized when reserved for treatment of fly breeding spots not eliminated by normal management practices. Recommended larvicides are listed below

Larvicides For Treating Manure such as stirofos and dimethoate

Insecticides for the milking parlour and milk tank rooms

Synthersised pyrethrins are the preferred insecticide for use in milk rooms. Cover or remove milk and equipment before applying insecticide.

Proper use of screens and fly traps are two methods of mechanical fly control that can be employed. Where possible the doors and windows should be screened to prevent entry of flies.

Fly Traps

Many kinds of fly traps are available. These traps are usually electrical, employing a ultraviolet or "black blue" light with an electrically charged grill to kill the insects which are attracted.
Baited traps use fly attractant material and are useful in enclosed areas where other controls such as insecticides may not be appropriate. In areas of heavy fly populations, traps are not effective in reducing fly numbers to satisfactory levels. They are best used as a supplement to other fly control practices.

Insecticides for dairy animals

Some insecticides such as Spot on containing Deltamethrin 1% wv can be used directly on livestock for fly control they will not cause milk contamination when used in the manner prescribed and can be effective for fly control for up to 4 weeks. Follow all label precautions and instructions.

Insecticide impregnated cattle "fly tags"

These are available under various trade names and designs. These devices are not suitable against house flies or stable flies in and around dairy buildings but are particularly useful for pastured cattle. Products available incorporate the insecticides such as permethrin.

Useful web site information.
http://www.flycontrol.novartis.co.uk/antifly/en/index.shtml

Note: All information above is for general information and does not constitute a formal recommendation always read insecticide labels and comply with any advice and or information on data sheets and provided by manufacturers authorised distributors and suppliers. Always comply with UK regulatory requirements and the manufacturers recommendations.

Lindridge Farm fly control management plan

Fly control Cultural	Frequency	Management action
Cleaning of slurry in buildings and roadways	Daily	Keep passageways and walkways scraped and clean particularly in the summer do not allow a build-up of wet organic matter or stagnant pools which will encourage flies to breed.
Moving farm yard manure from buildings	6-8 times per year mainly in the winter	Clean out thoroughly and where appropriate use drying agents such as hydrated lime to clean and disinfect floor areas. If re-using bed down with dry clean bedding materials if left empty use a drying agent or appropriate insecticide to discourage flies breeding
Temporary field storage of manure	1-2 times per year	Pile the material in a way which minimises the surface area and avoid rutting the area around the manure heap which will collect stagnant water and encourage flies to breed. Consider location of storage area in relation to neighbour properties and local weather conditions.
Feeding operations	Daily	Keep silage pits clean and tidy avoid secondary fermentation and feed wastage which provides breeding areas for flies. Keep trough areas clean.
Agitation of slurry in store	2-3 times per year	Agitate slurry to prevent the build-up of crusts or rafts of damp material which will provide breeding areas for flies. Where appropriate consider the use of slurry additives such as Epizym to reduce crusting of the lagoon surface.
Spreading operation	7-8 times per year	When spreading use methods which reduce odour ie avoid spreader plates and where possible cultivate land to incorporate slurries and manures as soon as practical after application to prevent flies breeding.
Dairy building and parlour	Through season	Use fly traps and use appropriate insecticides to control flies in these buildings.
Livestock	Through fly season	Use insecticide products such as Spot on to treat cattle directly for fly control. Where appropriate consider the use of insecticide treated ear tags particularly for young stock and pastured cattle.
Water troughs	Through season	Fix damaged or broken water troughs make sure areas around water troughs are kept dry and free from poaching. Wet soiled bedding or ground around troughs will encourage flies to breed
	**Note**	**Always read insecticide labels and comply with any regulatory requirements and the manufacturers recommendations.**