The Elanco ‘No Fly Zone’ program is an integrated program that utilises three trusted solutions from Elanco in combination with sanitary and management practices to control adult flies and larvae throughout the season.

- Larvadex 10% Feed Premix stops fly larvae from developing, thereby preventing the fly population from increasing.

- Agita 100 Plus Fly Spray and Paint-on provides rapid and long-lasting control of adult flies.

- Elector PSP Animal Premise Spray targets both the adult and larval stages of the fly.

Agita and Larvadex are distributed by:
feedworks.com.au 03 5429 2411

Elector PSP is distributed by:
ccdanimalhealth.com.au 1300 791 009

For full product details, contact Elanco Customer Service on 1800 226 324.

elanco.com.au 1800 226 324

References:

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elanco.com.au 1800 226 324
1. **Reduce disease transmission**

Flies pose a significant risk to the biosecurity of poultry production units. Flies can harbour more than 100 different pathogenic organisms, including bacteria, viruses and protozoa, many of which can cause disease in humans and/or animals.\textsuperscript{1,2} These pathogens are physically transmitted by flies or indirectly via fly ‘spots’ (i.e. fly faeces and vomit) deposited on buildings, equipment and feed.\textsuperscript{2} Fly ‘spots’ on eggs can transmit pathogens and reduce market value. Flies are also vectors for the transmission of protozoan parasites, tapeworm eggs and antibiotic-resistant bacteria.\textsuperscript{6,7}

**Common fly-borne poultry diseases\textsuperscript{1,2}**

<table>
<thead>
<tr>
<th>Bacteria\textsuperscript{1}</th>
<th>Viruses</th>
<th>Protozoan parasites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonella spp.*</td>
<td>Paramyxovirus (Newcastle disease)*</td>
<td>Coccidia*</td>
</tr>
<tr>
<td><em>Escherichia coli</em></td>
<td>Avian Influenza Virus*</td>
<td></td>
</tr>
<tr>
<td>Campylobacter spp.*</td>
<td></td>
<td></td>
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<tr>
<td>Staphylococcus spp.*</td>
<td></td>
<td></td>
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<tr>
<td>Streptococcus spp.*</td>
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</tbody>
</table>

*These diseases can also affect humans.

2. **Improve productivity & profitability**

Heavy fly infestations can irritate birds, reducing their feed intake and performance.\textsuperscript{7} Besides reducing meat and egg production, large fly populations can negatively impact the profitability of poultry operations via increased treatment and cleaning costs.\textsuperscript{8} It is estimated that the US poultry industry spends more than 20 million USD annually to control flies, not including labour costs.\textsuperscript{9} Cleaning fly ‘spots’ from walls, equipment and light fixtures (to prevent reduced illumination) involves considerable time and cost.\textsuperscript{10}

3. **Improve working conditions**

Birds are not the only species impacted by flies! Excessive fly populations can be an irritant to farm workers, reducing their concentration and productivity. Flies are capable of travelling long distances in search of food or a more favourable breeding environment, meaning your farm may pose a threat to public health that can result in litigation and even closure.\textsuperscript{5,11}

**Understanding fly population dynamics**

The poultry shed is a complex ecological system that provides a readily-available source of food and numerous breeding habitats for flies. The true level of infestation is often underestimated because adult flies account for only 15–20% of the fly population.\textsuperscript{12} Eggs, maggots and pupae account for the other 80%. While it is impossible to eliminate flies from the environment, it is possible to minimise the build-up of the fly population early in the season and contain this population to manageable levels using an integrated control program that includes chemical treatments in combination with sanitary and management practices.

![Fly activity governed by temperature](image)

- **Dormant pupae**
- **Eggs**
- **Maggots**
- **Pupae**

**Only 20% of the fly population is visible**

**Bacteria cultured from a single fly walking on a petri dish for 30 minutes.**

**Fly ‘spots’ on eggs (right) can transmit pathogens and reduce market value.**
At a glance

• Can be used in broilers, breeders and layers
• Controls fly larvae, thereby limiting size of adult population
• Easy and convenient to administer in the feed
• Does not impact beneficial insects
• Minimal withholding periods
  - WHP Eggs: Zero (0) days
  - WHP Meat: 3 days

Easy and effective larval control

Larvadex 10% Feed Premix is the foundation of any ‘No Fly Zone’ program. It is added to poultry feed and fed to birds normally in the shed. After metabolism, the active ingredient is left behind in the poultry manure, where it works to disrupt the development of larvae (maggots) present in the manure. With fewer flies hatching, the fly population is controlled at its source, reducing the need for chemical adulticide treatments later in the season.

Selective control

Larvadex provides selective control of the larvae of house fly (Musca domestica), the lesser house fly (Fannia canicularis), false stable fly (Muscina stabulans) and the American soldier fly (Hermestia ilicuens). It does not impact beneficial insects, such as predatory mites and beetles, that feed on fly eggs and larvae when used according to the label.

Mode of action

Larvadex 10% Feed Premix contains 100 g/kg cyromazine, a powerful insect growth regulator (IGR) that interferes with the life cycle of susceptible insects. In flies, it interferes with chitin metabolism at all three larval stages, thereby preventing the development of larvae into pupae. Note that cyromazine affects the moulting process of fly larvae, meaning that its effect in reducing the size of the adult population is gradual.

Directions for use

Use Larvadex as part of an integrated fly control program that incorporates management and sanitary practices. Mix 50 g of Larvadex 10% Feed Premix per tonne of poultry feed. Do not add Larvadex 10% Feed Premix directly to the feed. To ensure homogeneous incorporation, thoroughly mix one part of Larvadex 10% Premix to nine parts (by weight) of poultry feed and then incorporate 500 g of this 1% premix into a tonne of feed. Clean up any spillages and incorporate into poultry feed.

• Start at the beginning of the fly season.
• Examine manure pits carefully for maggot activity. If maggots are active, add Larvadex to the ration and feed continuously as directed for 4–6 weeks.
• Re-examine the manure pits carefully for maggot activity. If little or no activity is observed in the manure, withdraw Larvadex from the feed and continue to implement management and sanitary practices.
• Use Larvadex as part of a program in combination with an effective adulticide.
• Continue monitoring the manure pits. If maggots become active again or a significant fly population re-establishes, repeat the above procedure.
• It is recommended to discontinue Larvadex use for at least four consecutive months per year during winter or when fly pressure is low.

Important notes

Exercise caution to avoid illegal crop residues when applying manure to land used for growing food crops, particularly grain. DO NOT apply manure to soil at rates >4 dry tonnes/ha/year. If supplying manure to a third party, make sure that they are made aware of this restraint. DO NOT apply other larvicides containing cyromazine to the litter if feeding Larvadex to birds in shed.

Always read and follow the label directions.

Larvadex interferes with chitin metabolism at all three larval stages.
At a glance
• Kills adult flies within minutes\(^\text{18}\)
• Up to six weeks’ residual activity\(^\text{19}\)
• Versatile application options
• Includes sugar and a sex pheromone to attract flies
• Nil withholding periods

Rapid and long-lasting activity
Agita 100 Plus is the next step in establishing a ‘No Fly Zone’ in your poultry business. Applied as either a paint-on or spray treatment, Agita provides rapid and long-lasting control of house flies. In one study, Agita achieved almost 50% fly mortality within 10 minutes of treatment and almost 100% fly mortality 30 minutes after application.\(^\text{18}\) Applied correctly during ideal conditions, Agita should remain effective for up to six weeks after treatment provided the product is not consumed beforehand.\(^\text{19}\)

Selective control
Agita 100 Plus is registered for the control of house flies (Musca domestica) in animal housing, including dairies, cattle feedlots, abattoirs, piggeries, poultry facilities, horse stables and kennels. It is suitable for use in a range of commercial, industrial and domestic areas as per the directions for use.

Mode of action
Agita 100 Plus contains 100 g/kg of thiamethoxam in a water-soluble granular formulation. Thiamethoxam is a second-generation neonicotinoid, a Group 4A insecticide. Agita 100 Plus also contains sugar and 500 mg/kg Z-9-tricosene, a powerful sex pheromone that attracts flies.

Directions for use (paint-on)
Agita should be applied as part of an integrated fly control program that incorporates management and sanitary practices. Mix 200 g Agita 100 Plus with 160 mL lukewarm water, stir well to ensure suspension and use a brush to apply paint.* This amount is sufficient to treat a building of approximately 80 m\(^2\) of floor area or 160–240 m\(^2\) of wall or ceiling surfaces.

Directions for use (spray)
Agita should be applied as part of an integrated fly control program that incorporates management and sanitary practices.

Spot-spray: Thoroughly mix 200 g of Agita 100 Plus in 1.6 L of lukewarm water in a knapsack sprayer.* This amount is sufficient to treat approximately 40 m\(^2\) of floor area or 80–120 m\(^2\) of wall or ceiling surface, of which only about 30% should be treated directly. Apply to surfaces where flies congregate or settle, e.g. warm and sunny areas, window frames and walls. Do not treat dirty, very porous or newly whitewashed walls. Re-treat as required. For best results, apply in the morning when flies are less active so you can observe their resting spots.

Retreatment interval
If applied correctly during ideal conditions, Agita should remain effective for up to six weeks after treatment.\(^\text{19}\) Re-apply more frequently if the fly population is high or if difficult conditions exist. Dust or dirt collecting on treated surfaces will reduce fly contact with the active ingredient. Heavy rain on treated surfaces will wash the active ingredient off. Continuous exposure to sunlight on treated surfaces may reduce the durability of active ingredient.

Always read and follow the label directions.
At a glance

• Contains spinosad, which controls adult and larval stages\(^{20-22}\)
• Controls flies even weeks after application\(^{23}\)
• No need to remove poultry before application* \(^{24}\)
• No need to discard eggs* \(^{24}\)
• Unique mode of action
• Minimal withholding periods

Rapid and long-lasting activity

Elector PSP Animal Premise Spray is an ideal rotation partner when used in a ‘No Fly Zone’ program. Applied as a spray to the surfaces of agricultural animal premises, it provides robust and lasting control of house flies and stable flies. If applied correctly, Elector PSP will continue to control flies even weeks after application.\(^{23}\)

Targeted control

Elector PSP is registered for the control of house flies (Musca domestica) and stable flies (Stomoxys calcitrans) in and around agricultural animal premises. Additionally, the product is registered for the control of darkling beetles (Alphitobius diaperinus) and the suppression of poultry red mites (Demodex gallinae) in poultry premises. Please refer to the complete label for further information about controlling these pests using Elector PSP, since directions and method of application will differ.

Mode of action

Elector PSP contains 480 g/L of the active ingredient, spinosad, which belongs to the spinosyn group of chemicals. Spinosad acts on both adult and larval stages (maggots) of house flies and is effective through direct contact and ingestion of product.\(^{20-22}\) Spinosad is chemically unrelated to any other product used in the Australian poultry industry and has not shown cross-resistance with organophosphates, carbamates or pyrethroids.\(^{20-22}\) For resistance management purposes, Elector PSP is a Group 5 insecticide.

Before use (other livestock)

Protect animals from direct spray. Where practical, remove animals before use. Remove or cover all feed, feed troughs, water troughs and milking equipment. Do not contaminate feedstuffs or water used for drinking or cooling with premise treatment. Do not apply directly onto livestock. Do not apply where livestock could be exposed to direct spray, and allow treated surfaces to dry completely before restocking or reintroducing livestock. Avoid spraying areas where animals are known to lick or rub. Do not apply to milking machines or apparatus. Animals must not be exposed to more than one treatment of the premises.

Directions for use

Use Elector PSP as part of an integrated fly control program that incorporates management and sanitary practices. Mix 250 mL Elector PSP with 150 L water (equivalent to 1 L Elector PSP in 600 L water or 16.7 mL in 10 L water).

Apply at a rate of 1 L solution to 12 m\(^2\).

Treat areas where adult flies tend to rest, such as walls, window sills, posts, railings, cross beams and doors. Spray in the morning when flies are less active to see where they rest to direct spray application. Spray to cover resting places thoroughly without allowing run-off. For fly larval control: look for larval activity (e.g. the base of manure heaps or manure cones) and spray these areas specifically. Re-apply as needed when fly populations start to increase, typically every three weeks. Do not apply as a fog or space spray.

Withholding periods

Poultry chicken sheds: Meat: 7 days after incidental spraying onto chickens and their sheds. Eggs: 0 days after treatment.

Beef, dairy and horse premises: Meat: 21 days after introduction of animals to treated areas in situations where animals have continual access to treated surfaces (e.g. with litter on floors or in nests, feedlots and stables). Milk: WHP not required when used as directed.

Always read and follow the label directions
At a glance
The Elanco ‘No Fly Zone’ program is an integrated program that utilises three trusted solutions from Elanco in combination with sanitary and management practices to control adult flies and larvae throughout the season.

Program guidelines
• A good fly control program should incorporate the use of both adulticidal and larvicidal products.
• Commence treatment early in the season. This has been shown to markedly improve fly control.
• Apply first larvicide treatment just before the start of the fly season.
• If there is already heavy fly pressure, apply an adulticide to knock down the size of the adult fly population.
• Monitor and record fly populations, remembering that adult flies account for just 20% of the total population.
• Target both larval and adult populations during the peak fly season using effective treatments.
• Rotate between treatments with different modes of action every 4–6 weeks if possible.

Sanitary and management practices
Good sanitation helps to remove potential areas for fly breeding, egg laying and larval development. The following practices can help eliminate potential fly breeding sites:
• Promptly remove broken eggs or dead birds.
• Ensure good site drainage.
• Ensure good shed ventilation to reduce moisture in manure pits.
• Repair leaks that contribute to wet manure.
• Reduce feed spills in manure pits.
• Clean up feed and manure spills, especially if wet.
• Ensure that neighbouring livestock operations do not act as a source of invading flies.

Dry manure management is highly effective in reducing fly populations. In certain situations, the retention of a dry manure pad (approximately 20 cm high) following shed clean-out can provide a habitat for beneficial predatory insects and mites that eat fly eggs and larvae, and facilitate the drying of additional manure strata.

Physical exclusion (e.g. installation of fly screens on windows and doors and installation of fly traps) can also help to reduce fly pressure.
Do not spray non-specific insecticides onto manure as this may inhibit biological control measures.

Example of a No Fly Zone rotational program

<table>
<thead>
<tr>
<th></th>
<th>Downtime (no birds in shed)</th>
<th>Pre-season start</th>
<th>Rotation 1</th>
<th>Rotation 2</th>
<th>Rotation 3</th>
<th>Rotation 4</th>
<th>Rotation 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult flies</strong></td>
<td>Use an insecticide product</td>
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<td></td>
<td>from a different group this time</td>
<td></td>
<td><img src="Image1" alt="Image" /></td>
<td><img src="Image2" alt="Image" /></td>
<td><img src="Image3" alt="Image" /></td>
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<td><img src="Image10" alt="Image" /></td>
<td><img src="Image11" alt="Image" /></td>
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</tr>
<tr>
<td><strong>Fly larvae</strong></td>
<td>Remove all organic matter,</td>
<td><img src="Image13" alt="Image" /></td>
<td><img src="Image14" alt="Image" /></td>
<td><img src="Image15" alt="Image" /></td>
<td><img src="Image16" alt="Image" /></td>
<td><img src="Image17" alt="Image" /></td>
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</tr>
<tr>
<td></td>
<td>clean and disinfect</td>
<td><img src="Image19" alt="Image" /></td>
<td><img src="Image20" alt="Image" /></td>
<td><img src="Image21" alt="Image" /></td>
<td><img src="Image22" alt="Image" /></td>
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