Field Lab: Fly Strike in Sheep - Natural Preventions and Treatments Final Report December 2025

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Summary

Take-home messages
A graduated scale of homeopathic remedy combination, herbal fly repellents and conventional chemical fly sprays was devised to minimise the use of chemical treatments. This included prevention and treatment options for use on individual groups dependent on risk levels. The user friendliness of this approach was tested in real on farm conditions.

When treating fly strike the Blow Fly Repel (BFR) and Tea Tree Oil Mix (TTOM) drove out live maggots, including from thick fleece, and prevented flies re-laying eggs without danger of creating resistance in flies.

All five trial farmers stated they would use this protocol in future, increasing on-farm safety for human, livestock and environmental health.

Context
The British Veterinary Association (BVA) has urged “vets and livestock owners to take a holistic approach to parasite control to counter environmental damage and drug resistance” (British Veterinary Association, 2025). This trial tackles ectoparasites on sheep. The knowledge gained has wider potential for the control of nuisance flies i.e., in cattle systems.

Holistically, it is also prudent to consider:
- Farmer/shearer contact with toxic chemicals - impractical handling/ PPE advice on data sheets
- Beneficial insect depletion - also consequences on blow fly populations and resistance
- Soil biota depletion
- Abattoirs, wool handlers and scouring plants
- Water course and downstream pollution

Trial design
Five farms took part in a graduated scale three-part approach to natural fly strike prevention and treatment. Farmers recorded flystrike status and stage of protocol they were at in the field via a WhatsApp group.

1. Fly strike prevention - Helios Fly Strike Combi in the water troughs.
2. Once flies and strike present or risk level high – three spray-on products were compared, two commercial natural alternatives, Oxylis and BFR and the farm's previous conventional product.
3. The treatment of any strike patches compared three treatments on the presence of eggs and hatched maggots:
    a. Tea Tree Oil Mix
    b. Blow fly Repel
    c. The farm’s previous conventional product

Findings
Key findings:
- Some groups used only homeopathic combination all season with no evidence of fly strike indicating a protective effect
- The majority of groups had were treated with herbal sprays over time
- Two groups, compromised with cocci, worm burden and high blow fly presence, resorted to conventional treatment until vitality returned.

Pros:

- The natural flystrike preparations tested in the trial reduce the risk to human health, animals and the environment compared to chemical treatments. Additionally they require; no meat/milk withdrawal, no PPE, and have no associated warnings for environmental or resistance hazards
- Less stress from all fly species was experienced with Helios Fly Strike Combi.Three farmers observed '50p-sized' patches of fully grown maggots in the top fleece surface, nothing on skin or lower fleece.
- Both alternative strike treatments BFR and TTOM when combined with clipping out, effectively killed maggots and prevented recurrence.
- Chemical treatments where only used in high risk groups where livestock were already compromised by another issue eg, worms or coci, no blanket treatments of whole flocks was used..

To Consider:

- Natural sprays have shorter efficacy times in extreme wet weather, reapplication required 3-4 weekly
- Factor in field risk; windy, low-lying, etc. and environmental dangers, e.g fly breeding on deer carcass/road kill.
- Lowered vitality from cocci, worms and lameness puts livestock at higher risk
- 'Indicator' sheep with annually recurring fly strike are important early warnings, with possible genetic factors with breeding/culling implications.This approach offers an early warning for the group but requires the ability to respond quickly to maintain good welfare.

Recommendations & next steps

To assess the use of a decision tool in line with new BVA advice, using a graduated scale of observation/prevention/treatment with natural products while retaining chemical treatments for severe/compromised cases.

Disseminate knowledge and broaden choice as part of continued professional development (CPD) to farmers, vets, SQPs (suitably qualified persons), etc. Continue trials for a further few years on the 5 farms to consolidate the knowledge and evidence gained so far.

Useful resources

- Ellse L, Wall R. (2014). The use of essential oils in veterinary ectoparasite control: a review. *Med Vet Entomol.* 28(3). Available at: https://pubmed.ncbi.nlm.nih.gov/24147451/ (Accessed: 23 July 2025).
- Khater HF, Hocine Z, Baz MM, Selim A, Ahemed N, Kandeel SA, Debboun M. (2022). Ovicidal Aroma Shields for Prevention of Blow Fly Strikes Caused by *Lucilia sericata* (Meigen), Diptera: Calliphoridae. *Vector Borne Zoonotic Dis.* 22(9). Available at: 10.1089/vbz.2021.0107 (Accessed: 23 Sept 2025).
- Barros GP, Leme DP, Avilés LLA, Bricarello PA. (2024). Homeopathic Sulphur Ointment as Adjuvant in the Treatment of Sheep with Myiasis by Cochliomyia hominivorax (Diptera: Calliphoridae): A Case Series. *Homeopathy*. 113(3). Available at: 10.1055/s-0043-1770360 (03: August 2024).

Farmer comment

Natural approaches to fly strike can form the first lines of defence for sheep in the UK. A sliding scale approach from watch and wait through remedies and herbal products up to chemical products is in line with the new British Veterinary Association's (BVA) July 25 statement on ectoparasiticides and can help protect people and the planet. What is used should be dependent on risk level and vitality of livestock and aim to do least harm.
(Lynnie Hutchison, Farmer).

1. Main Report

1.1 Field lab aims

- To explore the prevention and treatment of flystrike using natural alternatives to the commonly used chemical products.
- To highlight the health and welfare implications for sheep, shepherds, shearers, processors, soil and water sources.
- Delay the need for and/or limit the use of conventional chemical fly repellent sprays.
- Prevent fly strike using natural alternatives during the active season.
- Treat strike patches without endangering the shepherd, sheep or the environment.

2. Background

Blowflies are “the most widespread ecto-parasite affecting sheep in the UK with surveys showing that every year 80% of flocks will have 1 or more cases of strike” (SCOPS). “Figures from 2015 suggest blowfly strike costs the sheep industry £2.2 million per year” (NADIS/ELANCO). The British Veterinary Association (BVA) have urged “vets and livestock owners to take a holistic approach to parasite control to counter environmental damage and drug resistance” They also state that the “use of ectoparasiticides needs to be more targeted and based on diagnostics rather than blanket treatments at certain times of year” (BVA, 2025).

Most farmers may not be fully aware of the effects of the chemicals on themselves, shearers and processors, etc, particularly since data sheets are not provided withthe product when purchased. A common farming practice is to clip out a patch of maggots and rub chemicals on with bare hands. These are skin-absorbable chemicals and the data sheets (which are available online) clearly state you should wear protective clothing and not handle animals for 8 weeks (or longer, depending on the brand) after applying them. In addition, chemical residues are excreted in the dung and kill the soil biota. This directly affects the number of dung beetles in the soil, who are essential to kill blow fly pupae and reduce the numbers of blow fly that re-emerge the following spring, creating a vicious cycle of resistance.

Laboratory research (callender &James 2012) shows that tea tree oil is effective at killing blow fly maggot eggs and larvae, whilst studies on homeopathic combinations have shown promising good effects on repelling blow flies .For example, Sulphur 12cH inhibits Brazilian flystrike fly (*c. Hominivorax)* larval development in fly strike wounds on sheep. In addition, herbal sprays for the prevention of flystrike are already in widespread use across Europe, despite being relatively uncommon or unavailable in the UK. Evaluating these approaches under real on-farm conditions, therefore, represented a necessary and logical next step.

3. Methodology and Data Collection

This natural fly strike prevention and treatment trial focused on the qualitative, lived experience and on-farm observation in the field to assess the potential and the user friendliness of selected alternative approaches. This is a nuanced approach and fits directly with the updated guidelines provided by the British Veterinary Association (BVA) in July 2025.

Five farms of varying sizes and types, and with varying breeds and lowland farming systems within East Sussex, signed up to the field lab and designed the protocol with a three-part approach to natural fly strike prevention and treatment (see figure 1). These farms were chosen because of their excellent stockmanship.

3.1 First for prevention:
At the start of the season, Helios Fly Strike Combi was put in the water troughs. This preparation is a combination of the homeopathic remedies - Cina, Staphasagria, Sulphur, Psorinum, plus the blow fly nosode. Aim: to increase the vitality and resistance of sheep to parasites delaying any need for topical spray applications.

3.2 Second for prevention:
Once the farmers' normal threshold for spraying was reached in a particular field**,** they tested three spray-on products. This included two natural alternatives: 'Oxylis' and 'Blow Fly Repel' and one conventional (i.e., the individual farm's previous conventional product). The sheep in each field were randomly designated to one of three groups and identified using marker or ear tags were recorded and then remained together in their usual fields/groups. As the season progressed and normal farming tasks ensued i.e., lambs were weaned, groups changed but all fields still had sheep sprayed with the three different products in them throughout the trial.

3.3 Third for treatment:
When farmers are watching for strike patches before shearing or starting to spray, and small patches occurred, they clipped out as normal practice. Then tested one of two treatment options where actual blow fly eggs and hatched maggots were present.A tea tree essential oil formula (TTOM) and a proprietary natural product, Blow Fly Repel (BFR)

The method employed by all the farmers was to rotate the use of the natural products if more than one case of strike occurred. Farmers' observation and experience influenced the use of these products to test any reapplication requirements. The farm's previous conventional product was kept in reserve.

Data was recorded via a WhatsApp group where the farmers reported any cases of strike, the weather conditions or other factors increasing risk along with which stage they were at in the protocol and the decisions they were taking for each group of sheep. Qualitative data is recorded in the farmer's comments below, on ease of application, efficacy time and changes to previous years' normal practice.

The focus was on trialling the products in real on-farm situations in real farming systems, i.e., where applicators were not supplied with products the usual on-farm applicators were used, when livestock needed to move or change fields this went ahead as usual.

In the middle of the season an on-farm Knowledge Sharing event (see figure 2) was held to gain more information from a wider network of farms on their current practices, what influenced them to spray and with what, whether blanket treatments were normal practice, awareness of data sheet information and BVA statements etc. Knowledge gained on the trial so far was shared with the farmers attending.

Figure 1. Trial Products Event

Figure 2. Knowledge Sharing

4. Results

Key findings:

- Some groups used only homeopathic combination all season and remained free of flystrike
- For the majority of groups herbal sprays were added in over time
- Two groups, compromised with cocci, worm burden and high blow fly presence, resorted to chemical treatment until vitality returned.
- The treatment options worked well and were seen to drive out maggots and kill them.
- The sliding scale works on farm and the farmers are happy to continue usingit in future years

4.1 Trial stage 1 - Initially for prevention: raising vitality and resistance of sheep to parasites

'Helios Fly Strike Combi 30' – Cina, Staphisagria, Sulphur, Psorinum, Lav-ls

Homeopathy is a well-established system of medicine used here to support the sheeps innate vitality and resilience. Helios fly strike combi 30 is a combination of homoeopathic remedies put together by Helios Homeopathic Pharmacy. The remedies were selected based on their properties:

- Cina – known to help with a number of parasite issues
- Staphysagria – commonly useful to individuals who are more prone to parasite attack
- Sulphur – well recognised as being useful for helping boost the vitality to make less prone to parasites
- Psorinum – particularly useful for parasite issues affecting the skin.
- Lav-ls – a specific remedy to help deal with the larval stages of flystrike.

The combination of remedies were administered via the drinking water.

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4.1.1 Trial Farmers' Thoughts

After testing the homeopathic preparation, farmers recorded their experiences:

The helios Helios Fly Strike Combi was easy to use, with one farmer noting that *"the only downside for me is where I don't have mains water to the majority of the fields, so it was a daily case of putting a few drops into the water buckets"*

There were several observations about the low level of fly strike in the groups and that these were of low severity *"I only saw one case of fly while using this and they were very small maggots which were just in the fleece not on the skin and didn't seem to be causing any irritation to the sheep" and that it may have " slowed down the strike".*

The homeopathy seemed to offer some protection against skin damage from blow flies *"Started out with the combo remedy in the water troughs, noted that in the couple cases of strike I had there was no skin damage, the maggots seemed to be up in the fleece only".* And that this protective effect extended beyond blow flies; *"Sheep less bothered by all types of flies and a couple of cases of strike small 50p size patches but unusually full size maggots high up on fleece, no other signs and no skin damage".*

Considering when to use this preparation several of the farmers commented *"Feel it would be better to carry this on right through season, for (this) trial we stopped when spraying started".*

4.2 Trial stage 2 - Secondly for prevention: the products

The two natural alternatives plus the farmers usual treatment were used in each field/group of sheep who were divided randomly into 3 with a third receiving each treatment.

'Blow Fly Repel' from Barrier Health 4-week duration.

The label states when 'struck', 'rids sheep of maggots, protects against further strike, soothes, protects, aids natural healing' 'natural plant derived ingredients' ' blood sucking and biting pests stay away from sheep' 'soothing antibacterial and antifungal properties'.

Duration, Application 5 litre, 20 litre and 500 ml packs spray - 3mls per squirt, 8 squirts per ewe, 3-9 squirts per lamb depending on size, suitable for organic systems (barrier also make a sheep dip/bath not used in this trial as none of the farmers have dips).

4.2.1 Trial Farmers' Thoughts

Whilst all the farmers agreed *"The positives being no chemicals, no meat withdrawal".*

Experience regarding the ease of use was mixed;

"I used the big 5 litre bottle with the spray lance that comes with it. I can adjust the end to have mist spray or hose pipe type spray. I usually set somewhere in between when spraying them all. Maybe I find it easy as I don't know any different…but I have them penned up and walk amongst them. They are used to it as happens often". another farmer commented "*...easy to use and apply".* Whilst another stated
"Barrier spray – not too bad to put on the sheep but quite thick. I used the smaller spray bottle and found it quite easy to do when the sheep were in a pen or the trailer when moving them. However another commented *"...found the 5 litre bottle cumbersome to carry/wear and spray gun not easy to get right width of spray with".*[1]

The sturdiness of the provided spray gun was also questioned where *"...application difficult for entire groups sprayer is quite weak it broke".When contacted Barrier Animal Health replied that a knapsack format was not currently available and that farmers typically decant the spray*

[1] Barrier health have replied 'we don't offer knapsack format but most people decant our larger volume products into knapsack sprayers themselves, so that would be a solution to carrying it.'

into another bottle A further criticism was the absence of a colourant making it difficult to see which sheep had already been treated in a pen situation *"...not coloured so had to use marker spray as doing in pens not a race".*[2] Barrier health have said that whilst a non coloured product is preferred by those showing sheep they will now develop a coloured option demonstrating the value of on farm testing of products and positive dialogue with manufacturers.

When considering efficacy farmers were predominately pleased with Blowfly Repel, though low incidences of fly strike on some farms did not allow for representative sample groups, eg, *"...of the 3 sheep that had strike 2 were in this group 1 in Crovect group". And "Only one case of fly with using that and that was underneath between the back legs on a lamb that was a little bit mucky as well. Noted that this was also one of my Teeswater x Herdwick long-wool crossbred lambs. Nothing on the shorter wool Derbyshire Gritstones"* this farmer noted further benefits *I also used this product in some sheep that picked up maggots in the feet due to some footrot. Aside from causing the maggots to crawl out pretty much instantly it also seemed to help with lameness".*

One farmer whose lambs were challenged with coccidiosis was not happy with Blow fly repel stating that *"Barrier Blowfly - quite difficult to apply as it blows about a lot if windy conditions when applying and you can't see which sheep it's on. Most lambs that got struck when they had cocci had been treated with barrier blowfly (BFR). Also had a ewe who is susceptible to flystrike I treated before I went away and 5 days later she had a mild but widespread case of flystrike. Personally I would not use this product again".*

Several farmers commented on the longevity of protection *"Only real negative for me with these natural products is they don't last as long as conventional ones. Reapplying every 4 weeks or so is needed, possibly sooner depending on the weather".* and "*Longevity would be the main issue and I would reapply after 4 weeks". This was further reduced in severe heavy rain with one farmer commenting that the product "...only lasted 3 weeks when there was torrential hard rain".*

Oxylis from Vetalis - 4 week duration

Oxylis from Vetalis also is effective for 4 weeks from application. This product is widely used in France and used to be available in UK, through local vets, who now have to import it through Interchem. The product label declares a 'biocidal effect' with 'prevention against, flies, ticks, lice, mites, fleas, myasis flies.' It contains 'java citronella and geraniol from palmarosa, geranium species' and is also suitable for organic systems. This product is available in 1 L, 2.5 L and 5 L backpack containers with 8 ml and 10 ml required to protect lambs and ewes respectively.

Duration Application 5lt 2.5 lt or 1 litre packs easy back pack ewe 10mls, lamb 8 mls

4.2.2 Trial Farmers' Thoughts

Again all the farmers agreed *The positives being no chemicals, no meat withdrawal".*

[2] Barrier Health have replied 'Re colour, it is often used before shows where customers do not want colour, but this feedback is extremely helpful. They are now developing Blow Fly Repel with colour for pen treatment, so that there is a choice'. Feedback from this trial has already helped make positive changes to products farmers use.

Farmer experiences of using Oxylis were overall more positive, preferring this to Blowfly Repel for several reasons. The backpack design was preferred as a "favourite for ease of application" with it being an "easy backpack, good gun, (and) quick to use". Another farmer found the product "easy to apply once I found a decent applicator gun to use. An old Clikzin gun worked ideal and gave a nice fanned application."

The added colorant was also a benefit since being "coloured green (makes it) so easy to see which ones you've done" making "the dosage clear" and therefore "how good the coverage is", with the latter farmer further noting that its "consistency is much more like a conventional product." "Can get a better spray across the animal, green is easy to see

When considering efficacy, feedback was positive with two farmers reporting no "fly strike problems" when using this product. In a group of lambs with coccidiosis, "only 1 lamb treated with Oxylis had a mild case of strike." another benefit was that "the dosage is clear"

The same criticism was raised about longevity, as for Blowfly Repel, with one farmer stating that the "only real negative for me with these natural products is they don't last as long as conventional ones. Reapplying every 4 weeks or so is needed, possibly sooner depending on the weather".

Further positive outcomes include an absence of "lingering chemical smell that gets in your mouth and nose as found with Crovect," along with "no chemical products on the fleece (being) key due to the wool being one of the main products off the sheep for me".

There is a willingness to continue using this product, e.g., "I have continued with this product as it seems much more effective," with a second farmer stating that they "would definitely use in future dependant on cost."

4.3 Trail stage 3 - Finally for Treatment

The two alternative products tested for the treatment of flystrike were Blow Fly Repel (BFR) or tea tree oil mix (TTOM)

Tea tree oil mix – consists of 3% tea tree oil and a v-6 carrier oil. Research in the lab shows tea tree oil at 3% killing eggs larvae and maggots, however on sheep it needs a carrier oil to keep it in fleece make it easy to use, it is not available as a ready mixed preparation but it is not difficult to prepare and is easy to put in a spray bottle or small drinks bottle to keep handy in the truck.

4.3.1 Trial Farmers' Thoughts

Farmers commented that the TTOM *"Soothes skin, kills maggots and eggs".* And that *"With the added tea tree oil maggots seemed to last for a few minutes before dying. It seemed to make them all come out rather than die in the fleece as you get with Crovect".* It was considered *"Easy to use in spray or small bottle".* And seamed to help deter flies with *"No more eggs laid on it".* An added bonus was *"Nice to use with bare hands in field situation". When used on lambs another advantage was "No meat withdrawal so ideal if drawing lambs to go for meat boxes"*.Finally several farmers

commented *"Both the barrier and tea tree seem effective at killing maggots and stopping further strike".*

Blow Fly Repel from Barrier Health –can be used for both prevention and treatment of flystrike. When a sheep is struck, BFR 'rids sheep of maggots, protects against further strike' is soothing and 'protects (and) aids natural healing'. Furthermore, 'blood sucking and biting pests stay away from sheep' reducing any distress from further aggravation of wounds.

4.3.2 Trial Farmers' Thoughts

The handy 500m spray bottle is "*easy to carry and use*" improving ease of handling when spot treating. When treating flystrike, BFR "*definitely drives maggots out"* and *"both the barrier and tea tree seem effective at killing maggots and stopping further strike*". Furthermore, the BFR *"keeps skin supple".* And also the farmers noted *"No meat withdrawal so ideal if drawing lambs to go for meat boxes".*

5. Discussion

5.1 Whole Health Approach

As with all disease some animals are more affected than others so there is a balance between vitality of the host animal and the vitality of the parasite, therefore alongside the use of products it's important to consider reducing triggers affecting this balance; dagging shitty bums, dealing with worm or cocci issues and bad feet, calling in or clearing up road kill carcasses, considering which fields are high risk and which can be grazed in high risk weather, looking at genetic susceptibility, and indicator sheep and making appropriate breeding/culling choices. Promoting numbers of dung beetles and parasitic wasps that kill blow fly pupae to decrease numbers of blow fly along with using bait traps which, if done early in the season, can help control numbers all season long. All of this is important in a farm's blow fly strategy and will affect which other options need to be adopted.

5.1.2 What can be used and at what cost

There are many well-known effective chemicals available, however, what is less known is the true cost of these to sheep, shepherd and the environment, also less well known are the natural products and the research on them.

Current commonly used chemical options are Ectoparasiticides which act either systemically - carried in the bloodstream - or topically, by direct contact with the target organisms. Systemic acting products may be given by injection or applied topically to the skin as pour-on or spot-on formulations, from which the chemical compound is absorbed through the skin and is taken up into the blood then excreted onto the soil. Most existing products act on the parasites' nervous system i.e., Molecto. whereas Clik and Clikzin are IGRs (insect growth regulators) containing Dicyclanil – which stops the moult from first to second stage larva rather than stopping eggs being laid. Organophosphates and synthetic pyrethroids have broad-spectrum activity against ectoparasites not just blow flies and some like Crovect, Dysect and Ectofly are effective strike treatments as well as being preventative.. The BVA President Dr. Elizabeth Mullineaux stated in July 2025 *"The treatment of grazing animals with parasiticides is one of the ways in which these products enter the environment, which is why it is vital they are used appropriately, when needed, and their impact monitored. Maintaining the safety and efficacy of parasiticides in the future is important not only for animal health and welfare but also human health and food security."*

5.1.3 These chemicals may currently be effective but there are other costs to consider. Their data sheets are not attached to sold products but contain important advice on use and impacts .

- **The health and welfare implications** for sheep, shepherd and shearer i.e., Molecto data sheet states you should wear 'eye protection, protective clothing, rubber gloves and boots along with a disposable face mask when applying.'

  Clickzins data sheet states "you should minimise handling after treatment but if you need to handle within **2 months** of treatment, wear synthetic rubber gloves, long trousers or coveralls, and if sheep are wet waterproof trousers"[3]. Shearers are increasingly reluctant to handle animals that have been treated with certain insecticides and particularly those that still have weeks left on their efficacy dates. Health concerns for shepherds include the common practice of treating strike in the field by clipping out the wool and maggots and rubbing in a chemical treatment with bare hands

- **Resistance** is an increasingly serious issue Molectos data sheet has a special warning: 'frequent and repeated use of antiparasitics from the same class may increase the risk of development of resistance' BVA 'Drug resistance is a threat to the efficacy of all parasiticide groups.'

- **The effect on dung beetles** which of course aid us in the control of internal and external parasites on the farm so this cycle is important. Molecto's data sheet states Cypermethrin is toxic to dung insects. Clickzin's states 'the use of the vet med product has harmful effects on dung flies and beetles'. Dectospot states 'it's very toxic to dung flora, aquatic organisms and honey bees, is persistent in soils and may accumulate in soils' [...and…] 'reducing risk by only using a single treatment in one year on the same pasture'[4]. British Veterinary Association (2025) states, 'There is also substantial evidence on the impact of parasiticides on invertebrate species in the environment, many of which are key to biodiversity and soil health'. In its new policy position on the responsible use of parasiticides in grazing animals, launched July 2025, BVA is recommending that 'the use of ectoparasiticides in cattle, sheep, horses, goats and camelids needs to be more targeted and based on diagnostics, rather than relying on blanket treatments at certain times of year' (British Veterinary Association, 2025).

- **The lower value of chemically-sprayed fleece** may be an issue for some producers and those marketing skins. Organic fleece is now attracting a premium payment from the British Wool Marketing Board (BWMB) and others and non-sprayed fleece is wanted by those handling raw wool for spinning etc. The problems of scouring plant effluent are also important to consider, some smaller wool processors are refusing wool that has been treated with organo-phosphates (OPs) or synthetic pyrethroids (SPs) because they are potentially dangerous to human health and to the environment. The Natural Fibre Company, for example, won't accept wool treated with OPs/SPs in the 4 months prior to shearing. Haworth Scouring one of the only two large commercial scouring plants left in Europe are currently having several huge digester tanks installed to manage/improve the effluent situation.

- **The effect of these chemicals on water sources is also important** Clickzin's data sheet states 'treated sheep should be kept away from water courses for at least one hour after treatment as there is a serious risk to aquatic life'[5]. Molectos says 'its extremely dangerous to fish and other aquatic life and empty containers should be disposed of appropriately.'

[3] https://www.noahcompendium.co.uk/?id=-473167

[4] https://www.noahcompendium.co.uk/?id=-446983&fromsearch=true#iosfirsthighlight

[5] https://www.noahcompendium.co.uk/?id=-473164&fromsearch=true#iosfirsthighlight

British Veterinary Association President Dr. Elizabeth Mullineaux stated in July 25 *"The treatment of grazing animals with parasiticides is one of the ways in which these products enter the environment, which is why it is vital they are used appropriately, when needed, and their impact monitored. Maintaining the safety and efficacy of parasiticides in the future is important not only for animal health and welfare but also human health and food security"*[6].

5.1.4 Many farmers are now looking for solutions to protect sheep from blow fly strike that also protect farms, the livestock and the environment.

Solutions have to be practical and work on the ground. The group of farmers were already aware of the off-the-shelf natural alternatives for fly strike prevention and treatment along with some farmers using 'home-made' mixes. During the design of the trial, the farmers looked at available research, finding for example, lab results of tea tree oil at 3% killing eggs, larvae and maggots in lab conditions (Ellse and Wall, 2014). The field lab restricted us to off-the-shelf products so they decided to test two of these for fly prevention and two for treatment of strike patches, against what was conventionally used on each farm, along with a product to boost the vitality of the sheep against attack from strike.

[6]https://www.bva.co.uk/news-and-blog/news-article/bva-urges-vets-livestock-owners-and-horse-owners-to-take-holistic-approach-to-parasite-control-to-counter-environmental-damage-and-drug-resistance/#:~:text=As%20with%20dogs%20and%20cats,of%20parasiticides%20in%20grazing%20animals.

Fly Strike Decision Framework

This section distils the key variables farmers consider when assessing a group of sheep and deciding whether to increase flystrike protection. For example, moving from Helios Blowfly Combi to herbal sprays, or from herbal sprays to chemical treatments. These considerations have emerged directly from farmer discussions and are presented to support both new sheep farmers and those adopting a graduated scale to flystrike control.

Explainer:

- This decision framework is designed to help farmers quickly assess how at risk their sheep are to fly strike by working through the main variables in each category that influence risk i.e., livestock vitality, weather, field conditions, handling facilities etc. Not all variables will apply to every group of sheep and the assessment of risk level should be tailored to your individual circumstances.
- Using the traffic-light risk scoring system for each variable tick – **Green (low), Orange (medium), or Red (high) r**elative to the individual group of sheep, some examples have been provided and may be of use.

Category 1 – Assess Vitality of Livestock

Variable	**low risk**	**medium risk**	**high risk**
Dirty bums	•	•	•
Foot root/poor feet	•	•	•
Strike cases in the last 24 hours	•	•	•
Worm burden	•	•	•

Category 2 - Assess Field and Environmental Setting

Variable	**low risk**	**medium risk**	**high risk**
Flies present in the field	•	•	•
Field aspect	• i.e., windy/open	• i.e., low lying/enclosed	• i.e., wet/still

Potential deer or other roadkill carcass	•	•	•
Wooded edges	• i.e., sheep distributed across field	•	• i.e., sheep seeking shade/high dung volume
Weather/temperature Risk	• i.e., cool/breezy	• i.e., hot/dry conditions	• i.e., wet/warm/muggy

Category 3 – Assess Handling and other Practicalities

Variable	**low risk**	**medium risk**	**high risk**
Handling Facilities Nearby	• i.e., pens or race within easy reach	• i.e., facilities are further away or extra time needed to gather sheep	• i.e., no pens or difficult gather
Labour Available	•	•	•

Assessing Forward Planning (to determine optimum time to act):
When deciding whether to use a flystrike treatment, it can help to think about what else is coming up on the farm. The additional points below are designed to help streamline your decisions around when to apply further fly strike treatments.

- **Meat withdrawal limits:** if sheep are due to be sold for meat within 1-2 weeks, check whether a product's withdrawal period fits your plans to use a product. For example, a longer-acting product with a 40-day withdrawal may not be suitable compared to a product with a shorter-withdrawal option or no withdrawal.
- **Next grazing move/field risk:** consider where the sheep are going next and the flystrike risk of that ground. If your sheep are being moved to low-lying/sheltered fields that may hold more moisture, the volume of flies might be higher, influencing your decision to apply a product before moving.
- **Timing of workload and other tasks:** consider whether sheep are already going to be gathered or handled for another job. Combining tasks can be a good opportunity to apply fly strike treatments and save time and reduce stress on both sheep and farmers or other labourers on farm.
- **Planned holiday or time away:** if you are going to be away from the farm, consider who will be checking the sheep and what they are realistically able to do if a problem arises. For example, if a neighbour is tasked with looking after the sheep, ensure they can make a judgement and treat the sheep appropriately.

Parasite Control Management - Conventional and Holistic Product Options

The table below builds on the Animal Horticulture Development Boards (AHDB) 2026 parasite control guide[7]. The information AHDB provide has been expanded to include additional variables of importance. In addition, the table now includes the homeopathic and natural remedies used to control fly strike in this research trial. Farmers can use the table to understand critical information about each product, including whether it is safe to sheer, the types of PPE to use, the environmental impact associated with each product and the meat withdrawal period. An extended version of this table, including cost comparisons and appropriate doses can be found on the Innovative Farmers website

Natural Products	**Active Ingredient**	**Safe to Sheer**	**Personal Protective Equipment**	**Environmental Impact**	**Meat Withdrawal**
Helios Fly Combo 30C	Cina, Staphasagria, Sulphur, Psorinum, Lav-ls	No shear restriction	No	Low toxicity; minimal environmental impact	No withdrawal period
Blowfly Repel	Concentrated Plant Derivatives	No shear restriction	No	Low toxicity; minimal environmental impact	No withdrawal period
Tea Tree Oil Mix	3% percent tea tree oil in v-6 Young Living carrier oil	No shear restriction	No	Low toxicity; minimal environmental impact	No withdrawal period
Oxylis	Java citronella and geraniol from palmarosa, geranium species	No shear restriction	No	Low toxicity; minimal environmental impact	No withdrawal period
Chemical Products	**Active Ingredient**	**Safe to Sheer**	**Personal Protective Equipment**	**Environmental Impact**	**Meat Withdrawal (days)**
CLiK	Dicyclanil (IGR)	Do not shear for 3 months after treatment	YES (wear synthetic rubber gloves, face mask and PVC trousers when applying; wash hands and exposed skin after	The product is harmful to dung flies and poses a serious risk to aquatic life; treated sheep must be kept away from	40

[7] https://ahdb.org.uk/knowledge-library/parasite-control-guide

			handling treated animals; remove contaminated clothing and wash skin if exposed; rinse eyes or seek medical advice if exposed or ingested; avoid eating, drinking or smoking during use.)	watercourses for at least one hour after treatment.	
CLiK EXTRA	Dicyclanil (IGR, higher strength)	Do not shear for 3 months after treatment	YES (avoid skin and eye contact as the product may cause irritation; wear synthetic rubber gloves and PVC trousers when handling; wash skin and remove contaminated clothing if exposed; wash hands after use; avoid eating, drinking or smoking; minimise handling of treated sheep and wear protective clothing if handling within 3 months).	Treated sheep must be kept away from watercourses for at least one hour after treatment to prevent serious risk to aquatic life.	40
CLiKZiN	Dicyclanil (IGR)	Do not shear for 3 months after treatment	YES (avoid skin and eye contact as the product may cause irritation; wear synthetic rubber gloves and PVC trousers; wash skin and remove contaminated clothing if exposed; wash hands after use; avoid eating, drinking or smoking; minimise handling of treated sheep and wear protective clothing if handling within 2 months).	Treated sheep must be kept away from watercourses for at least one hour after treatment to avoid serious risk to aquatic life.	7
Crovect	Cypermethrin	Do not shear for 3 months after treatment	YES (ensure applicator is securely fitted; wear eye	As a precaution, treated sheep must be kept away	8

			protection, protective clothing, rubber gloves and boots (and a disposable face mask when fan-spraying); avoid inhalation; wash skin and eyes immediately if exposed; remove contaminated clothing; wash hands after use; avoid eating, drinking or smoking, as cypermethrin may cause skin and eye irritation).	from watercourses for at least one hour following treatment.	
Dectospot 10 mg/ml	Deltamethrin (10 mg/ml) spot-on	Do not shear for 3 months after treatment	YES (wear protective clothing (impervious gloves, waterproof apron and boots) when applying or handling treated animals; wash skin and remove contaminated clothing if exposed; rinse eyes or mouth and seek medical advice if exposed; wash hands before meals; avoid eating, drinking or smoking; deltamethrin may cause skin irritation).	Deltamethrin is very toxic to dung fauna, aquatic organisms and honey bees, persists in soils and may accumulate in sediments; risk is reduced by limiting repeated use and keeping treated sheep out of watercourses for at least one hour after treatment.	35
Deltanil (cattle & sheep)	Deltamethrin 10 mg/ml	Do not shear for 3 months after treatment	YES (people with hypersensitivity should avoid contact; wear protective clothing (impervious gloves, waterproof apron and boots) when applying or handling treated animals; wash skin and remove contaminated clothing if exposed; rinse eyes or mouth and seek medical	Deltamethrin is very toxic to dung fauna, aquatic organisms and honey bees, persists in soils and may accumulate in sediments; risk is reduced by limiting repeated use and keeping treated sheep out of watercourses for at least one hour after treatment.	35

			advice if exposed; wash hands before meals; avoid eating, drinking or smoking; deltamethrin may cause skin irritation).		
Dysect	Alphacypermethrin (pyrethroid)	Not able to obtain information from Noah Compendium*	Not able to obtain information from Noah Compendium*	Not able to obtain information from Noah Compendium*	Not able to obtain information from Noah Compendium*
Ectofly 12.5 mg/ml (includes molecto)	Cypermethrin 12.5 mg/ml	Do not shear for 3 months after treatment	YES (harmful if swallowed and may cause skin, eye or respiratory irritation; avoid contact and keep children away; use in well-ventilated areas; wear eye protection, protective clothing, gloves and boots (and face mask if fan-spraying); wash skin and eyes if exposed; remove contaminated clothing; wash hands after use; do not eat, drink or smoke; seek medical advice if ingested or irritation persists).	Cypermethrin is extremely toxic to aquatic and dung organisms; keep treated sheep away from watercourses for at least 12 hours; limit use to one treatment per year per pasture, and avoid repeated treatments to prevent long-term effects on dung insects.	8
Fly & lice spot-on	Deltamethrin	Do not shear for 3 months after treatment	YES (wear protective clothing (gloves, boots, waterproof apron) when applying or handling treated animals; avoid eating, drinking or smoking; wash skin after use; remove contaminated clothing; rinse eyes or mouth if exposed and seek medical advice, as deltamethrin may cause skin irritation).	Dangerous to fish and other aquatic life. Do not contaminate ponds, waterways or ditches with the product or used container.	35

6. Conclusions

In conclusion, a graduated scale fly strike prevention approach, along with the farm's normal shearing routine in many cases can ensure most groups of sheep go through the season without the need for more damaging parasiticides. It fits with the farm's normal routines and shows that the group-by-group approach is possible on the ground.

The Helios fly strike combi in the water trough, the natural fly spray repellants - Oxylis and Blow Fly Repel and the treatments - Tea tree oil mix and Blow Fly Repel enable this graduated scale. The Helios Fly Strike Combi helped to build resilience in the sheep. The farmers noticed that the sheep were less bothered by all flies when this product was in their drinking water.

Closer shepherding and decisions on what to use and when need to be tailored to each group of sheep on a farm and the changing risk levels they face during the season. For example, when moving fields or at weaning this needs to be reassessed. This trial demonstrates that different groups of sheep on the same farm can go through the season on different stages of treatment rather than an overall blanket treatment for all stock.

The application of the natural alternatives can be as quick as existing conventional products (in the trial, the process was initially slowed by also having to spray mark the sheep for trial recording purposes which would not normally be needed). However, with a shorter efficacy time, the reapplication of the product, if the risk remains high, may be necessary. When the risk is low, the product does not need to be reapplied, and the group can drop back to the homeopathic preparation and vigilance whereas a conventional longer-lasting product remains on the fleece unnecessarily in low-risk weather.

The fly strike combi and herbal sprays help to slow the development of blow fly resistance to chemical parasiticides and provide a better outcome for people and the planet.

Barriers to change may be overcoming the fear of not using blanket protection and ensuring good shepherding, observation and the ability to gather, catch and treat any sheep affected. These can be balanced by the ability to treat safely in the short term i.e., whilst waiting for a shearer, no meat/milk withdrawal and the ability to safely handle sheep for other tasks such as dealing with lameness, even when sprayed.

By changing the general mindset from one of blanket conventional spraying (determined more by time of year rather than actual risk) to a field-by-field strategy that uses a graduated scale of natural products, while reserving chemical treatments for serious cases i.e., low immunity/vitality, or worm/ cocci issues) - the clear benefits to animal health, farmer safety and the wider environment will be achieved.

In the trial, the majority of groups of sheep went through the season on natural products alone, only two groups of lambs with seriously compromised health (cocci and worm issues) required conventional sprays.

7. Next steps

The farmers in the trial are all keen to continue a graduated scale to fly strike control going forward, starting with the Helios Fly Strike Combi and watching and waiting, taking each field of sheep individually, rather than a blanket farm approach to better reflect actual risk.

Once risk levels rise or cases begin, the farmers will move onto a herbal/essential oil spray, depending on their shearing time and risk levels, and then hold the option of chemical sprays for use in situations where livestock vitality is low i.e., due to worm or cocci issues) coupled with high pressure from blow flies, particularly when more serious strike cases occur. This approach is in line with the new BVA advice (British Veterinary Association, 2025).

In the future, for any necessary treatments, the group is confident to continue using the tea tree oil mix (TTOM) to help any fly strike patches heal and prevent further egg laying and the development of maggots. Only a few cases of fly strike were experienced by the whole group this season, further years testing would give a greater amount of evidence for the efficacy of these preparations.

The farmers are also keen to continue with Blow Fly Repel to drive maggots out of the fleece and support with healing any wounds. Very few cases were treated by the whole group, therefore, gaining more evidence of effective treatment would be useful.

The farmers in this group are keen to continue this trial over subsequent years to gather more evidence on the graduated scale. Other aims would be:

- To consider looking at a cheaper carrier oil for the tea tree
- To trial the tea tree mix as a preventative spray on sheep, given the lab results of studies showing prevention of egg laying for 44 days in a lab situation.

Further research into the effects of real farm temperature fluctuations on pupae, larvae and egg hatching would give more information to farmers to help them better grade the risks on the ground during the season.

The group is also keen for ongoing collaboration and knowledge exchange on this subject. The group have created a decision framework and comprehensive product spreadsheet, as useful tools giving real choice and would like to further share and refine these with more years experience.

8. Tips and recommendations

- Taking a field-by-field, group-by-group approach to strike prevention, and matching treatment used to the vitality of the stock and risk level is key.
- High risk factors include: low-lying fields by rivers, shitty bums from worms or cocci, or foot problems increase risk. Also, hot summers with sheep gathering in small amounts of shade.
- Dead carcass, road-kill etc, quickly increase the number of blow flies if not cleared swiftly. This is a local authority responsibility, but they have to be notified. Farmers should be aware of how to do this and encourage their community to also do so.
- Ensuring you have time to observe, can watch and wait, walk through groups of livestock to check them and have appropriate handling systems available and the ability to catch up livestock when needed is vital.
- Shorter duration of natural products means a second application may be needed if risk is still high four weeks on, but this also means you won't waste spray when the risk is low.
- Following weather patterns and considering washout when looking at the duration of efficacy of all products is important. In addition, being prepared and able to spray a less harmful product more frequently can help with washout issues.

8.1 Practical tips for trial work

- Consider WhatsApp messages for recording as it is easy for farmers in the field, and captures real-time, detailed insights that more accurately reflect on-farm conditions than forms or tick box responses.
- Schedule in plenty of time for writing up and disseminating the results.
- Make the research fit the real-life needs of the farming systems, not the other way round.

9. Further reading

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