



Every farm has flies and while they are all considered a nuisance, certain types are responsible for spreading diseases. To decrease disease risk to your livestock, it is important to understand where flies live and breed and the various control methods available.

## Life cycle

- Flies progress through 4 life stages: egg, larva (maggots), pupa, and adult. For some species, these stages can take less than 2 weeks to occur in warm weather.
- The adult is the stage capable of spreading disease as they contact the environment and animals, carrying disease organisms on their legs and mouthparts.
- Adult flies prefer to lay their eggs in wet organic matter, such as fresh manure and spilled feed.
  - Moisture is needed to prevent the fly eggs, larvae and pupae from drying out; controlling this moisture is an important step in the reduction of fly numbers on your farm.
- Either way, knowing the challenge level helps when planning to target them for removal.
- Areas to monitor include: calf housing, accumulated wet bedding in pens, manure around feeders, lagoons, feed storage areas (bins, troughs, bunkers, silos), wet areas in the environment and carcasses.
  - It is best to monitor these areas before fly season begins and every two weeks throughout fly season.
- Small wasps lay one of their eggs on the pupal stage of a fly in manure; the wasp egg then develops into a larva which kills the fly pupa by feeding on it.
- However, the manure cannot be excessively wet as this prevents parasite movement and larva/pupa destruction.
- Some wasps feed by piercing through the outer protective layer of fly pupae and consume them, resulting in fly death.
- Certain fly parasites can only be used in specific geographic areas because they may feed on other beneficial insects, so check with your local extension specialist for recommendations.

## Environment

- The environment must be managed to decrease the areas where flies can lay their eggs.
- Manure must be disturbed once a week to prevent fly eggs from hatching. This can be done by dragging dry lots, pastures, scraping and hauling manure to storage or spreading it in thin layers on pastures.
  - Stored manure can be an egg laying area for flies if it does not have a hard crust on top. Agitating regularly or adding water will drown the fly larvae.
- Organic debris (e.g. spilled feed, bedding, rotten vegetation and leaf litter) should also be disturbed once a week to prevent fly eggs from hatching.
  - Cleaning up spilled feed, scraping around bunks and preventing accumulations of moist bedding will decrease the adult fly population.
- Fly parasites have been used with success on some farms.
  - Predatory mites and beetles eat fly larvae that live in manure, bedding and vegetation.
- Area sprays (knockdown) are fine mists of insecticide that rely on contact with the adult fly to kill it.
  - They should be used the same day they are mixed and applied in areas of high fly concentration because they do not last long in the environment (1-2 hours).
  - Due to evaporation, they should not be used at temperatures over 90°F and they are not effective at low temperatures (below 65°F).
  - If used in combination with predatory parasites, be sure to use products with a low toxicity to those species.
- Residual sprays are insecticides that can be applied to shaded surfaces where flies rest to kill them through contact.
  - Places such as barn walls, ceiling, rafters and calf hutches are commonly treated areas.
  - Reapply after a rain as it will wash off the insecticide.
  - To avoid insecticide resistance, it is a good idea to alternate between area and residual sprays.

## Integrated pest management

- Integrated pest management is the best approach to controlling flies. This involves monitoring, environmental control and treatment of animals as a multiple attack on flies.
  - Resistance to pesticides has occurred over the years, so incorporating multiple management strategies has been the most successful control program.
  - There is no insecticide on the market that will make up for poor sanitation.

## Monitoring

- Monitoring can be as sophisticated as counting fly specks on paper placed throughout a barn or as simple as observing animal housing areas and the environment for the presence of adult flies.

- These cannot be used in dairy milking parlors.
  - If used in combination with predatory parasites, be sure to use products with a low toxicity to those species.
  - Baits and fly traps have efficacy against house flies and can be used as part of a pest management program, especially in areas where chemical sprays are prohibited (dairy milking parlors).
    - Baits should NOT be placed in areas where animals will have access to them or where they could fall and contaminate feed, water or milk.
- ### Animals
- Dusters or dust bags that contain insecticide work well for pastured cattle if the animals are forced to pass by them to get to feed, water or mineral.
    - Monitor the dusters for use; cattle should use them every 2-3 days to be effective.
    - To ensure insecticide is applied to their face, they should be placed low enough so cattle have to drop their heads to go through them.
    - There should be 2 dust bags for every 50-60 animals to ensure every animal has access.
    - With the smaller stature of calves, dusters must be hung at a level that is appropriate.
  - Back rubbers or oilers are similar to dusters; they rely on contact with the insecticide but use an oil solution (diesel fuel #2) instead of dust.
    - Monitor the back rubbers for use; cattle should use them every 2-3 days to be effective.
    - To ensure insecticide is applied to their face, they should be placed low enough so cattle have to drop their heads to go through them.
    - There should be 20 feet of contact space for every 50-60 cows to ensure every animal has access.
    - Add insecticide every 2-4 weeks to maintain effectiveness.
  - Pour-ons or sprays are absorbed by the animal and act to repel flies that feed on blood (as well as lice and grubs).
    - They are directly applied to animals and have to be re-applied every 3 weeks in the case of horn flies.
    - Pour-ons are more labor intensive than some other options listed here, but effective.
  - Impregnated ear tags can provide many weeks of protection against flies.
    - Due to resistance to pesticides, it is recommended to alternate between a pyrethroid ear tag and an organophosphate or a pyrethroid/organophosphate mixture every year.
    - Two ear tags are recommended for face fly control.
    - Contact your local extension specialist for recommendations in your area.
  - Feed with larvicide in it passes through the cow and the product kills the larvae in the manure so that adults cannot emerge.
    - They are very effective at killing developing flies but must be included in the feed ration at least 3 weeks prior to fly season.
    - For maximum efficacy, all animals on a farm and in a region must be treated or flies will deposit their eggs in untreated animal manure and adults will emerge.
  - Boluses with insect growth regulators (IGR) have efficacy against flies and can be used early in the fly season to delay use of ear tags or use them late in the season to extend treatment.
    - These can affect non-target insects like the dung beetle and should only be used in high fly infestation areas.
- It is a violation of state and federal law to use a pesticide in any manner that differs from the product label. Use only according to label directions to avoid meat or milk residue hazards, environmental damage, and animal or human injury.**

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