

Popular Article

Prevention and Control of flies in a dairy farm

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Introduction

India is the tropical country and flies remain active year-round in warmer climates. In summer population of flies will be very high which adversely affects the animal health and production. Manure, bedding materials are the primary breeding site for flies in the animal houses and these flies are a nuisance, just buzzing around and being annoying, and are major cause for occurrence of disease and economic losses and may also compromise the animal welfare, therefore it is very important to control the flies and mosquitoes in the dairy farm.

Life cycle of fly: life cycle of fly consists of four stages i.e., Egg, larva, Pupa and adult. Adult flies lay eggs on or close to the larval food, the eggs hatch into larvae, and the larvae feed and develop into pupae. Pupa is the non-feeding stage from which adult fly emerges. This whole life cycle may take about 30 days. Under ideal conditions, a house fly can complete its life cycle in 9 to 14 days. In cooler climates it will takes longer period than the warmer climates.

Common flies of dairy farms:

Blood sucking flies:

- Horn flies (*Haematobia irritans*)
- Stable flies (*Stomoxys calcitrans*)
- Horse flies (*Tabanus sp.*)
- Deer flies (*Chrysops sp.*)

Non-blood sucking flies:

- Face flies (*Musca autumnalis*)
- House flies (*Musca domestica*)
- Cattle grubs (*Hypoderma lineatum*)
- Heel flies (*Hypoderma bovis*)

Harms caused by flies in dairy animals

1. Blood loss and irritation: The average meal size by a single horn fly is 1.5 mg of blood per feeding.
2. Biting flies transmit diseases like Surra and E fever.
3. Heavy infestations may lead to anaemia and significant loss in productivity
4. Tick and biting flies cause severe discomfort to the animal. May also cause allergic reactions at the biting sites.
5. House flies and stable flies' infestation leads to decrease in milk production
6. Tabanid flies cause loss of weight per day when animal exposed to 66-90 flies. Decreased feed efficiency
7. Mosquitoes reduced the milk quality and milk fat content
8. Face flies can cause tissue damage with their rough spiny mouthparts. Because they are constantly feeding on the fluid, these flies spread diseases of the eye.
9. Horn fly takes up to 40 blood meals a day and is responsible for reduced weight gain, decreased feed efficiency and decreased milk yields.
10. Saliva present in the fly prevents or delays the wound healing and attracts other flies to the site.

First line of defence mechanism of dairy animals to Pest flies

1. Tail flicking
2. Leg stamping
3. Head throwing
4. Ear flicking
5. Skin twitching
6. Kicking and striking
7. Evasive displacement to bunching behavior

Control measures of flies in a dairy farm

1. Environmental management
2. Insecticidal agents
3. Biological control

Environmental management

- Remove the manure from the livestock pen frequently
- Proper manure and urine disposal should be done at a reasonable distance from the dairy shed
- Avoid stagnation of drainage water in and around the shed and provide proper drainage
- Eliminate wet litter, silage seepage areas, manure stacks, old wet hay or straw, and any other organic matter accumulations that may attract flies.
- Thinly spread the manure, this facilitates the drying of larvae and fly eggs to prevent further reproduction. Or else cover the manure heap with black plastic wrap
- Smoking the shed with raw neem leaves during evenings would help reduce the nuisance
- Improve air flow by installing fans to produce a downward and outward air flow that can limit fly activity in barns.

Insecticidal agents

- Natural plant extracts and essential oils have various bioactive compounds like nitrogen compounds (e.g., alkaloids), terpenoids, phenolics, proteinase inhibitors, and growth regulators which have pest repelling activity
- Garlic, Neem have insecticidal, fly and mosquitos' repellent properties
- Lemongrass extract contain the monoterpene citral bioactive agent which have insecticidal activity
- Eucalyptus oil contains various active which are toxic to various flies.
- Castor bean contains ricin which is notably toxic and have fly repellent activity
- Essential oils of Camphor (*Cinnamomum camphora*), Onion (*Allium cepa*), Peppermint (*Mentha piperita*), Chamomile (*Matricaria chamomilla*) have the fly repellent, larvicidal and pupicidal properties.
- Chemical insecticides like emulsifiable concentrate formulations of dichlorvos, dimethoate, Fenvalerate, methoxychlor, and permethrin can be used as residual sprays.

- Many synthetic insecticides formulated as dusts, sprays, pour-on, feed additives, and insecticide impregnated ear tag were mostly used as tool against pest flies.

Biological control

- Biological control components are naturally occurring fly enemies like predatory beetles and mites, parasitic wasps, and fly pathogens.
- Sometimes chickens and ducks are also used for fly control on livestock farms.
- Gambusia fish, purple martin, Bats, Dragonfly, frog, ladybird beetles are commonly used.

Other control measures

- Provide fly proof net shed for livestock is novel concept for pest control
- Use Deltamethrin treated net fencing around the livestock shed to prevent the flies and mosquitoes
- A simple fly swatters or sticky fly paper inside the shed is beneficial to catch the flies.
- Flies are draw to light; down draught light trap (220 v) equipped with 8-watt black light tube is useful to trap the flies.
- Some jug, bag, and jar traps can be used with bait and water to attract and capture flies.
- For some reason, horse flies are attracted to large black balls so use black ball horse fly traps to catch the flies.

Conclusion

Flies are a nuisance, just buzzing around and being annoying, and are major cause for occurrence of disease in animals and may also compromise the animal welfare, so it is very important to control the flies in livestock farms to increase the productivity and the improve income. By effective environmental management and use of essential oils, natural and chemical insecticides we can effectively control the fly population in the livestock farms.

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