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Blind Fly Menace in Livestock

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Biting flies are a great menace to cattle and other livestock. These flies lead to production losses and transmit several diseases thereby disrupts the farm economy. One of the major biting flies of veterinary importance is *Tabanus striatus*. These are large and robust flies measuring around 2 cm and are usually greyish/brownish in colour. *Tabanus striatus* is commonly called as blind fly, green head fly and horse fly. They have robust cutting and sponging mouth parts and hence the bites are highly painful. They cut the skin and feed on the oozing pool of blood. These flies are distributed worldwide.

Tabanus striatus

Life cycle:

The life cycle of *Tabanus* comprises of egg, larva, pupa and adult stages. Eggs are laid on the soil or under the leaves of plants overhanging water bodies in a single mass of 200-1000 eggs in 2-3 layers. Larvae hatch out from eggs and drop into the water or mud and become pupae. Pupae are usually seen in the drier parts of the breeding area partially buried in the soil and lasts for 1-3 weeks. Pupae then come to the surface of the soil and adult flies emerge from pupae in 21 days.

Habits:

These flies are very fond of sunlight, usually seen active in morning hours and in the day when there is bright sunlight. They mainly bite cattle, buffalo and horses. They are predominantly outdoor feeders.

Harmful effects:

Direct:

In general, these flies are blood feeders. The coarse mouth parts and feeding habit of the tabanids causes extreme pain to the host and hence the tabanids are interrupted while feeding which necessitates the flies to visit many animals for repletion. This intermittent feeding habit of tabanids makes them potential vectors of diseases. Female flies are haematophagous while males are phytophagous. Females suck blood around the naval area, neck, withers, abdominal region and also the hindlegs. They are vicious biters and bite intermittently. They bite indiscriminately and cannot be easily disturbed while feeding and hence the common name “blind fly”. They feed during the hottest parts of the day. Blind flies prefer large animals like horses and cattle but can attack man when animals are not available.

The sight of the fly results in panic amongst the animals and they run madly, which is commonly called as “gadding”. This results in the animals fracturing their limbs, abortion in pregnant animals and even death. The bites are painful and irritating and may give rise to wheals in soft skinned animals. The tabanids also feed on blood (0.2-0.3 mL per day per fly, usually

upto 4 times the weight of the fly) which can result in anaemia (daily blood loss is 200 mL/animal). Presence of anticoagulants in the saliva of the flies prevents blood clotting and hence blood continuously oozes from the bite sites. This attracts other flies like *Musca domestica* to feed on the oozing blood, which can lead to myiasis in the affected animal.

Indirect:

The interrupted method of feeding of *Tabanus* makes it the best mechanical vector for *Trypanosoma evansi*. Trypanosomes survive only for 15 minutes in the proboscis of the fly. *Tabanus* also act as a cyclical vector for *Trypanosoma theileri.* Mechanically, they can also transmit anaplasmosis, anthrax, tularaemia, rinderpest, hog cholera and equine infectious anaemia. The painful bites of *Tabanus* makes them efficient mechanical vectors since the host drives the fly away before it can become replete and hence the need for another host.

Production and Economic losses:

A 17% reduction in feed conversion efficacy has been recorded in animals affected by tabanid infestation since the flies attack without respite and the animals are unable to rest or graze sufficiently. Heavy infestation can result in reduction in weight gain, reduced milk yield and even hide damage due to feeding punctures. Exhaustion generally results and it may end up being fatal to the animal too.

***Tabanus* blood feeding on cattle**

Control measures for flies:

Control of blind flies is very difficult since they fly far from their breeding areas. Most effective control is to stable the animals during the fly activity and keep them indoors. Residual sprays of insecticides on the walls of sheds helps in control. Insecticide impregnated ear tags are effective deterrents to fly feeding. Grazing the animals during the sunny parts of the day should be avoided. Black coloured traps are available and these traps can be placed near breeding areas to trap tabanids since the fly is attracted by the black colour. The traps are placed in pasture or near cattle sheds/horse stables. It is eco-friendly since no insecticides are used. Electric traps are also available for the control of blind flies.

Control measures for immature stages:

Biological control using hymenopteran insects such as *Hunterellus hookeri* and ants such as *Telenomus* sp., which feeds on the eggs of tabanids. Wasps of family Trichogrammatidae are known to cause 50% tabanid egg mortality. Breeding places are difficult to identify, if identified, *Gambusia* fish can be used as biological control agent. Tabanid larvae are killed by nematodes of Mermithidae family.

Novel control measures:

Zebras are less attractive to the tabanids because of their stripes. The stripes seem to deter landing of the biting flies such as *Tabanus.* Scientists from Japan have observed significantly lower attacks by biting flies on black cows painted with black-and-white zebra-like stripes.

It is highly essential to protect livestock from the bite of *Tabanus* with the guidance of the qualified veterinarian. Livestock farmers and entrepreneurs must be aware of the ill effects caused by these flies and the control strategies adopted scientifically for effective control of these flies and to augment the livestock health and farm economy.