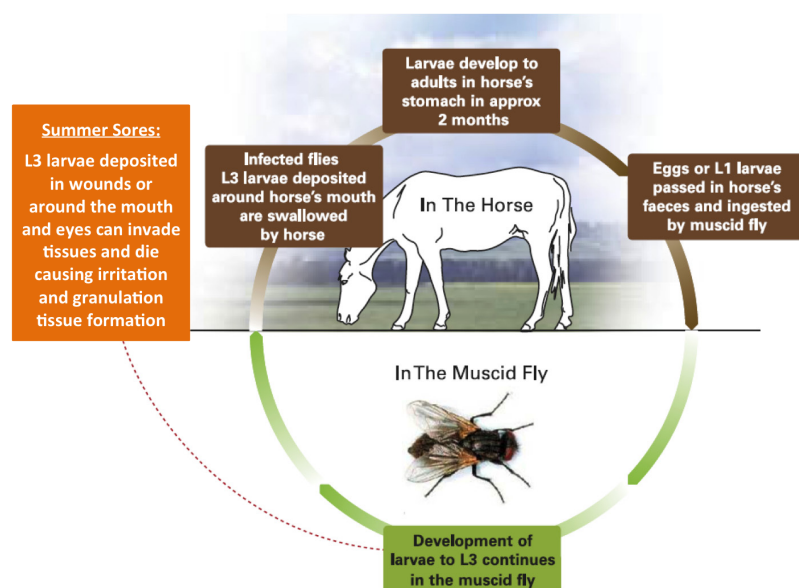


A TWO-PRONG APPROACH TO PREVENTING SUMMER SORES



Summer sores result from wound or mucocutaneous junction (tissues around the eyes or lips) infection by infective larvae of the equine stomach worm (*Habronema muscae*) carried in the mouthparts of flies, deposited during feeding activities. Historically, *Habronema microstoma* and *Draschia megastoma* have been identified as causative parasites, however, *H. microstoma* has never been detected in America¹, and *Draschia megastoma* has become quite rare.²



Stomach worm life cycle and route of infection

Adult stomach worms (*Habronema muscae*) shed larvated eggs into the environment through the feces of infected horses. Larvae are ingested by maggots and develop into infective third-stage larvae within about week. Infective larvae persist within the maggot as it develops into an adult fly, where they reside in the fly's mouthparts. Horses are infected with stomach worms through the ingestion of dead flies in feed and water or the ingestion of infective larvae deposited around the horse's mouth during fly feeding activity. Once ingested, *Habronema* larvae will continue to mature in the horse's stomach and begin laying

eggs within 8 weeks. The gastric stage of the stomach worm can cause mild inflammation (gastritis), but usually causes no clinical problems to the horse. However, this adult stage of the *Habronema* lifecycle lays the eggs which contaminate the environment, supplies a source of new fly infections for the next generation of stomach worms and amplifies the risk of aberrant larval infection and summer sore development.

In the case of summer sores, infective larvae carried in the mouthparts of flies are deposited into open wounds or the tissues around the horse's eyes, lips or other mucocutaneous junctions during fly feeding activities. The larvae irritate the tissues leading to wounds that do not heal and proliferative granulation formation. Horses subjected to these cutaneous granulomas experience intense pruritus (itching) and often ulcerate the lesions as a result of secondary injury from the horse's efforts to find relief by rubbing or chewing. Resolution of these non-healing wounds requires intensive medical management (topical therapy and bandaging) or surgical debridement.

Zoetis Solutions

QUEST®/QUEST® PLUS for the treatment and control of the Stomach worm (*Habronema Muscae*). Solitude IGR to control house and stable flies (*Musca domestica* and *Stomoxys calcitrans*) in and around horses, horse barns, horse stables, paddocks and horse race tracks.

Stomach worms

QUEST® and QUEST® PLUS contain the active ingredient moxidectin which is effective in the treatment and control of stomach worms. In a recent study conducted at a farm where 18 of 49 horses were found to be infected by *Habronema muscae*, flies caught at the farm in monthly intervals up to the end of observation (8 months after treatment) were negative for *H. muscae* larvae within 2 weeks of the horses on the farm being treated with moxidectin.¹ Use of QUEST in herds with horses affected with summer sores is effective in the treatment and control of stomach worm (*Habronema muscae*) infections which will eliminate egg shedding into the environment and stop newly developing flies from becoming infective intermediate host vectors.

Flies

SOLITUDE® IGR contains the active ingredient cyromazine, an insect growth regulator that inhibits the development of the exoskeleton in immature house and stable flies, preventing them from becoming adults. The intermediate host vector of *Habronema larvae* is *Musca domestica* (the common house fly). In addition to *Habronema*, the common house fly can transmit other diseases including: pigeon fever, strangles, influenza, *Onchocerca*, vesicular Stomatitis, E. coli and Salmonella.

When a horse is fed SOLITUDE IGR, the active ingredient cyromazine passes through the horse as part of its manure. When flies lay their eggs in the manure, the eggs hatch into the larval or maggot stage.

As the fly continues to develop, the maggot feeds on the manure. With the ingestion of cyromazine, the maggot does not successfully molt to the pupal stage due to the disruption of chitin formation and the immature fly dies before it can transmit disease.

Egg hatch studies have consistently demonstrated 100% prevention of house and stable fly larval development with freshly treated manure. Studies have also been conducted where manure samples were aged for 14 days, and again the results were extremely consistent with 99.5-100% of larval development halted. There is no other fly control product that can demonstrate this level of effectiveness.

The two critical control points of summer sore prevention: Stomach worms and house flies

Many treatments for summer sores have been reported, suggesting that there is no single treatment that is routinely successful.³ By controlling both the causative parasite, the stomach worm (*Habronema muscae*), and the intermediate host vector, the house fly (*Musca domestica*), veterinarians and horse owners can feel assured they are doing everything possible to prevent this terrible condition.

IMPORTANT SAFETY INFORMATION: Do not use QUEST Gel or QUEST PLUS Gel in foals less than 6 months of age or in sick, debilitated and underweight horses. These products should not be used in other animal species, as severe adverse reactions, including fatalities in dogs, may result.

REFERENCES

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3. Pusterla, N., Watson, J.L., Wilson, W.D., Affolter, V.K., Spier, S.J., Cutaneous and ocular habronemiasis in horses: 63 cases (1988-2002), *JAVMA*, Vol 222, No. 7, April 1, 2003

