



Task Force

Grain Mite Infestation: Prevention and Control

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Grain mites are becoming increasingly bothersome on stored grain and processed feed. Numerous elevators, feed lots, and feed producers have reported tremendous numbers of mites crawling in and around bagged commodities, stored grain, and processed bulk stored feed. This is primarily due to the wet, hot, humid conditions we have been experiencing this summer, in addition to the 1992 hold-over corn going out of condition.

Infestation

Mites thrive at 14% moisture content (MC) and can become serious problems when grain moistures are in the range of 15-18%. This in turn can lead to insect and mold problems. Mites, mold, and fungus feeding insects (hairy fungus beetle and foreign grain beetle) often can be found together. The grain mite can feed on fungi associated with stored grain, *Aspergillus flavus* being a favorite.

The most common mite is the grain mite *Acarus siro*. It feeds on the germ of damaged grains and, if grain is moldy, will attack the endosperm. It cannot penetrate undamaged grains. Thus, cleaning of grain and removing fines prior to storage is very important for mite management.

Mite populations can explode when they feed on wheat germ, yeast, cheese, powdered milk, flour, or grain. In finely ground commodities such as flour and powdered milk, infestations are confined to the surface layer. Whole or cracked grains and nuts may be infested throughout.

Heavily infested grain and feed become tainted and unpalatable as animal feed. When fed infested commodity, small companion

animals (e.g., dogs) can show reduced feed intake, diarrhea, inflammation of the small intestine, and impaired growth. Pigs that consume mite-infested feed have their live-weight gain, feed:gain ratio, and nitrogen retention markedly reduced.

Prevention

Unfortunately, once large numbers of mites are noted, control is difficult if not impossible. Prevention of infestation is the key and can be achieved by drying and maintaining commodities at 13% MC or below. In cereal/feed production where the final moisture content is high, ingredients should be critically examined **before** mixing air-dried diets and, when possible, dried to remove excess moisture. Contamination during storage must be avoided (cleansing and disinfection of stores, prevention of breaking packaging seals, etc.). Sanitation is the key to prevention.

Control of Moderate Infestations

There are few pesticide solutions to this problem. If infestations are extremely heavy, infested products should be destroyed.

Moderate infestations can be handled a couple of ways, depending upon the value of the commodity, type of commodity, and end use. Fumigation (either methyl bromide or aluminum phosphide) can be effective, but its effectiveness will depend on the product and the product's moisture content. Fumigants will have a difficult time penetrating tightly packed materials (e.g., meal) and moist environments. Remember that only certified applicators can purchase and apply fumigants and that all label directions must be followed.

Grain protectants, pirimiphos-methyl (Actellic), registered for corn only, and malathion reduce the population of mites and fungus feeding insects in the raw commodity and provide some residual protection. If necessary, treated grain may be used immediately for any food or feed purpose.

Synergised pyrethrins (Kicker, Gold Crest, Pyrenone, Synerol) can be applied to structures (mills, elevators, granaries, surfaces of bagged commodities, food processing plants, bins) through mechanical aerosol, ULV generators, foggers, as well as conventional spraying equipment (read the label for specific restrictions for each product). Bins walls may also be treated with malathion, methoxychlor, or Tempo 2 to provide a protective barrier for stored grain.

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For more information, obtain copies of AED-20, "Managing Dry Grain in Storage," E-66, "Stored Grain Insect Pest Management," and PIH-129, "Mycotoxins and Swine Performance" from your local CES office.

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