SPIDER MITES IN CORN

We are finding increasing evidence of spider mites as we scout corn fields. Weber and Box Elder Counties are finding similar concerns. Unfortunately, it appears many local growers will be spraying their corn for spider mites. Some already have. It's quite pricey to apply miticides, especially when corn is too tall for ground rigs. Experience, however, shows that failure to control infestations will significantly reduce yields and forage quality. Colorado researchers have documented commercial yield losses as high as 40 percent for silage (dry matter). Fortunately, normal losses are usually much lower. Corn grain losses average approximately 20 percent. With losses like that it makes sense economically to spray. Since beneficial insects are also killed with sprays it's even more important to scout fields to see if mites are present. Some areas may be just fine.

Two common mite species for this area are twospotted spider mite (TSSM) *Tetranychus urtica* and Banks grass mite (BGM), *Oligonychus pratensis*. Hot, dry summers favor the reproduction and survival of these pests. In hot summer weather, a generation may pass from egg to adult in 5 to 10 days. Under cooler conditions a generation may take a month.

Spider mites pierce plant cells with their whip-like stylet mouthparts. They smash and bruise plant cells and remove juices from the corn leaves. Infested leaves appear yellow or brown and may look like they are burnt on the upper surface. Decreased chlorophyll in the leaves leads to a reduction in photosynthesis and a lessening of transpiration (cooling potential). Damage is not reversible. Some have referred to spider mite damage as "death by a thousand cuts".

Evidence of damage is usually noticed first at the edges of fields, especially in fields that are close to roads, ditches and grass ways. Spider mites strongly prefer the underside of leaves and are typically found in the lower leaves first and gradually move to the upper parts of the plant. Mite damage can be verified by carefully looking on the underside of leaves for mites, eggs and webbing. All stages of the mites may be present at the same time. Some agronomists have suggested collecting some lower leaves and then shaking them over a white sheet of paper or on the white hood of a pickup truck. Mites will fall off and movement is easier to detect on a white surface.

Corn appears to be the most susceptible to yield damage from tasseling to soft dough. Rapid mite population growth most commonly occurs after pollen shed. With severe damage, dry leaves fall off, stalks break and kernels shrink. Silage quality and yields can be greatly reduced in only days with exploding populations of mites feeding.

Proper irrigation to avoid drought stress is a key cultural practice for avoiding mite outbreaks. Frequent overhead irrigations, or heavy rains, can reduce the rate of mite population increase. Unfortunately, once mite infestations are established, irrigation cannot reduce mite densities. When checking a field for mites, it is best to start with drought-stressed areas or the earliest planted fields.

Growers can get nervous and overreact with a broad spectrum insecticide application that will reduce the population of naturally occurring biological agents and beneficial predators. A Colorado Extension fact sheet reports 35 natural enemy species from 15 families of predatory insects, mites and spiders.

Many corn fields go untreated each year because the mites are held in check by various predatory mites, lady beetles, minute pirate bugs, lacewing larvae, and thrips. Sometimes, however, biological control agents cannot keep up with the increasing mite population. That's why it is so important to be scouting the fields on a regular basis.

When the decision is made to control spider mites with a miticide, timing is critical. Most available products require early season, pre-tassel application since they are not systemic and their activity is primarily against mite eggs and immature stages. Comite II and Oberon 2 SC are two products that have worked quite well. Onager, Hero, Zeal, Portal and Dimethoate are additional considerations. Effective mite control requires good spray coverage. Increasing the gallonage of water per acre is the easiest way to increase coverage. Because of general differences in resistance between BGM and TSSM it is essential to determine which species are present in a field prior to treatment. Both species may occur in the same field. An assessment of defining characteristics will require at least a 10X magnifying glass.

It is difficult to know where the economic threshold may be for treating spider mites in corn. Colorado State University entomologists suggest growers respond to the following questions before making that determination. Is the crop near tasseling? Are a majority of the corn plants infested with at least small colonies of mites? Are the daily high temperatures expected to be above 95 degrees? Is the field suffering from drought stress? Are predator populations low? Does the field have a history of mite problems? Are two spotted mites expected to be a problem in the field? If at least three of these questions receive a "yes" answer, a treatment may provide an economic benefit to growers.

Clark Israelsen
USU Extension Ag Agent
Cache County

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