2012 produced extreme spider mite infestations in corn

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Dr. Ed Bynum, AgriLife Extension entomologist in Amarillo, explains at a recent field day the results of his spider mite damage study looking at different irrigation levels and corn hybrids. Helping with this study were student workers Al Perez, center, and Joshua Correa, right. (Texas A&M AgriLife Extension Service photo by Kay Ledbetter)

Spider mite infestations across the entire Texas High Plains were among the worst producers have had to deal with in a number of years, according to a Texas A&M AgriLife Extension Service entomologist.

Dr. Ed Bynum, AgriLife Extension entomologist in Amarillo, said corn producers primarily saw populations of the Banks grass mite, which "are supposedly easier to control than the two-spotted spider mite."

But, Bynum said, this year many producers had a hard time controlling any mites with a single miticide application. In many instances, mites were never controlled with multiple applications.

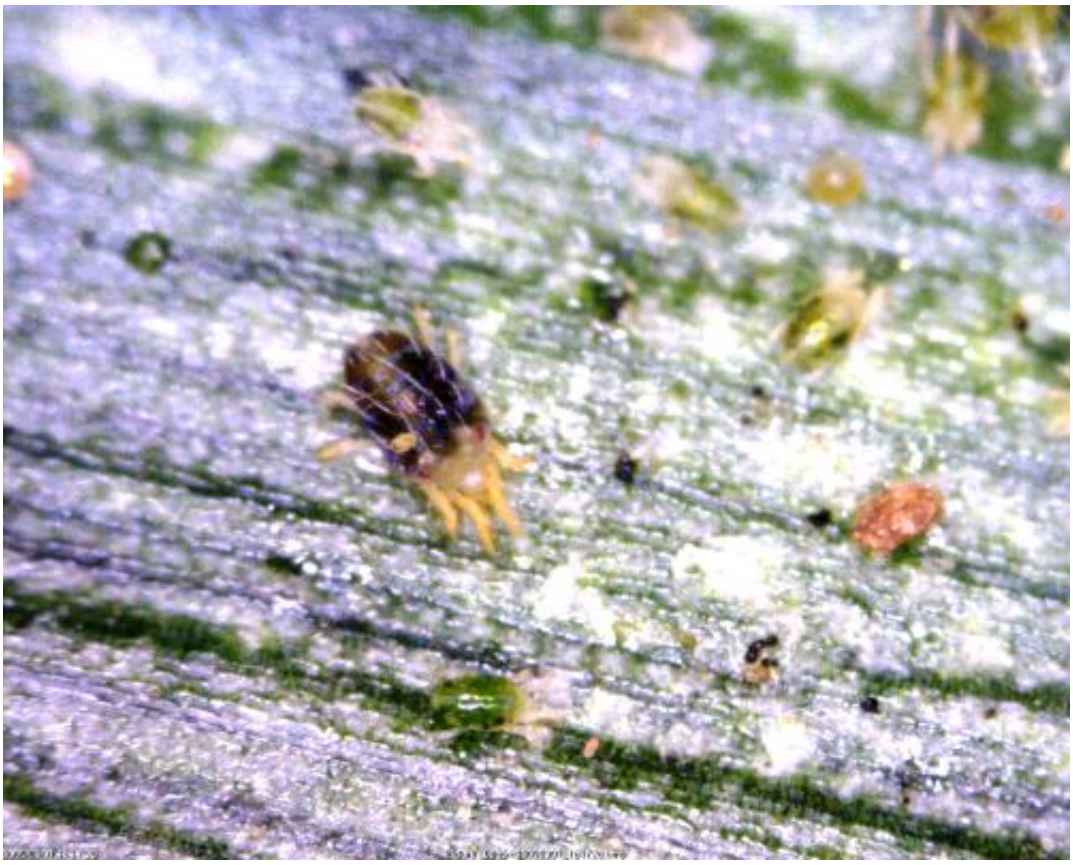
"As we look back on the season, there are some factors that contributed to the rapid mite infestation development and poor control," he said.

One factor was the timing of the hot, dry conditions this summer, which Bynum said provided an ideal environment for mite populations to get out of hand. Daytime temperatures began to reach the high 90s and into the 100s during the last half of June and again during mid-July into August.

Coupled with the dry conditions, mite populations were able to become established across the field in June, he said. Then in July, corn fields were tasseling and starting grain development growth stages, which further enhanced the reproductive capacity of mites.

"Once mite infestations moved up the plant and began causing damage below the ear leaf, the populations reached levels that even a miticide application controlling 60 percent to 80 percent of the mites left sufficient numbers to rebound rapidly," Bynum said.

The entomologist said one observation this year was that mite populations developed earlier and faster on corn grown under drip irrigation.



This is the spider mite which can damage corn. (Texas A&M AgriLife Extension Service photo)

Another factor in some fields, he said, was insecticides applied for other insects, such as southwestern corn borers, western bean cutworms and western corn rootworm adults, either eliminated natural predators and/or further stimulated the reproductive capacity of mites.

"Previous research has shown pyrethroid insecticides will flare mites. Even the use of bifenthrin will not control mites, except in a few locations," Bynum said. "Applications of dimethoate for other insect pests are also ineffective at controlling mites due to their developed resistance to this insecticide, and dimethoate further eliminates the natural predators."

Bynum said predators important to managing mite infestations are western flower thrips early in the season when migrating out of wheat, and later in the season by six-spotted thrips, minute pirate bugs, predatory mites and spider mite destroyer beetles.

Another consideration is spray coverage, which is a key factor to the level of control obtained with any miticide application, he said.

"With the currently registered miticides, spray deposition into the canopy to where mite infestations are located is even more critical for effective control," Bynum said. "Research has shown that Comite, Oberon, Onager and now Zeal are effective under most situations and conditions."

This year, even when these products were mixed with crop oil but were sprayed during the heat of the day, many of the droplets may not have made it to the canopy, he said. Also, for these products to be maximally effective, they have to rely on help from natural predators.

"Fortunately, the products are very safe on predators that eat mites," Bynum said. "The predators act in concert with the miticides to 'clean up' any escapees and usually extend control for the remainder of the season. When this balance is disrupted, mite infestations are free to blow up."

Bynum outlined some management steps for producers trying to manage future mite infestations:

- If a mite infestation is developing, a preventative miticide should be considered at least two weeks prior to any pesticide application that is "harsh" on natural predators, especially when an insecticide is planned at tassel and during the grain developmental growth stages for other corn pests.

- Consider using pesticides that are softer on predators when spraying for southwestern corn borers, western bean cutworms, western corn rootworm adults, fall armyworms and other corn pests.

- Scout fields at least once a week to know the dynamics of the mite/predator populations and damage. Consider treating if mite colonies are beginning to establish on the ear leaf and mite densities – eggs, immatures, adults – and damage continues to increase.

- Spray coverage is critical. Miticide applications to corn less than 2 feet tall only protect leaf tissue the spray makes contact with. Leaves that grow after application are not protected. Encourage applicators to spray the field in the early morning before the hotter times of the day.

- Do not rely on a single mode of action. Continued use of one product year after year and for multiple applications during a year puts heavy selection pressure for resistance development.

Provided by Texas A&M University

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