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Sudden outbreak of alfalfa stem nematode tackled by UC Cooperative Extension

Stem nematode symptoms in a two-year-old Yolo County alfalfa field.

Alfalfa fields should be a lush green carpet this time of year, but in many parts of California, fields are scarred with patches of stunted, dead-looking, twisted and deformed plants.

UC scientists have determined a voracious microscopic pest known as the alfalfa stem nematode may be causing the reduced growth and crop losses.

"This infestation will be devastating economically, since it will affect the first cutting, and perhaps the second in our region," said Yolo County pest management farm advisor Rachael Long. "This new infestation, on top of the severe water limitations, is bad news for alfalfa growers."

Jerry Schmierer, the agronomy farm advisor for UC Cooperative Extension in Colusa, Sutter, Yuba and Glenn counties, said there have been alfalfa stem nematode outbreaks in the past, "but never as severe as this."

Mick Canevari, who has served as the agronomy farm advisor for San Joaquin County UCCE for more than 30 years, said he has never seen such extensive alfalfa injury and believes that stem nematode infestation is a contributing factor. "Many fields are just horrible," he said.

While some plants may survive stem nematode damage and recover to produce adequate yields, a stand of alfalfa can decline rapidly after stem nematodes become established, considerably lowering productivity.

Schmierer, Canevari, Long and UC Davis specialists Becky Westerdahl and Dan Putnam are working closely with farmers, seed companies and pest control advisors to identify the problem.

No one knows for certain what triggered the alfalfa stem nematode infestation to be so severe this year, but researchers suspect that warm weather in January combined with abundant rainfall in February provided perfect conditions for the stem nematode to develop and infect alfalfa stands. Changes in cultural practices or pesticide use patterns may also be contributing factors. The UC team is studying the exact causes for this year's outbreak to better understand how it may be prevented in the future.

UC quickly implemented field trials in Glenn and Yolo counties when the stem nematode outbreak became apparent in early March. Typically farmers fight the pest by planting resistant varieties, rotating alfalfa plantings with crops not susceptible to the pest, and reducing the spread by cleaning equipment and preventing water transfer from infected fields to clean fields. Once outbreaks occur, options are limited, but researchers are trying several potential pesticide treatments in their field trials.

"We need to find out whether there are things that growers can do when they are faced with this problem," said alfalfa specialist Putnam.

Long said farmers could mistakenly think alfalfa plants are dying from water stress and irrigate unnecessarily, causing additional problems. To be certain what factors are behind plant dieback in alfalfa fields, leaves and stems of affected plants should be checked for the nematode. Infested plants typically have swollen nodes and shortened internodes. If in doubt, farmers may collect leaves and stems from several plants exhibiting symptoms of nematode infestation and deliver the sample sealed in a plastic bag to the county UC Cooperative Extension office.

If nematode infestation is confirmed, nematologist Westerdahl suggests farmers wait for warmer weather, which will favor plant growth and cause the nematodes to die. Although scientists have found stem nematode in currently affected

fields, the widespread damage is not typical for this nematode. If stem nematode is the primary problem, the dead-looking crowns will regenerate and grow new buds and stems with increased yields by the second cutting.

Further information on stem nematodes in alfalfa is available at http://alfalfa.ucdavis.edu, in a chapter titled “Parasitic Nematodes in Alfalfa,” written by Westerdahl, and in “Background information on alfalfa stem nematodes,” http://ucanr.org/alfalfa, by Long.

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