Update On Cereal Rust Mites In Timothy

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Pennsylvania hay producers have developed a very profitable hay market for timothy grass hay. Timothy hay is the favored species of grass hay for most horse producers throughout the state and into neighboring states. It has been estimated that there are nearly 175,000 acres of timothy in Pennsylvania and 75,000 acres in Maryland. Recent hay prices reveal a range of $90 to $170 per ton for timothy hay. At top production levels and price, timothy can gross $400/acre.

In recent years many timothy producers have noted decreased yields and thinning stands across southcentral Pennsylvania. In spring of 2000, the cause was identified as a new pest in the state, the cereal rust mite.

Travels across southcentral PA revealed that the problem is widespread and that most stands of timothy more than two years old have some level of infestation of the mite, commonly, but incorrectly, referred to as the timothy mite.

Reports from across the region indicate that the winter of 2001-2002 was a very favorable season for development of the cereal rust mite. This winter, warmer than normal conditions and the lack of snow and ice cover provided the cereal rust mite an early jump on development. As a result, agronomists are reporting heavy infestations already this spring. Before simply loading up the sprayer and taking after the pest, timothy producers should understand some basic knowledge about the mites.

Identification

The cereal rust mite is an extremely small pest, actually 1/16th the size of a spider mite. These mites cannot be seen without the use of a 16-power hand lens or a microscope. The mites are shaped like a grain of rice, soft bodied, with four legs located near the head of this critter. They can move fairly easily up and down the leaves of the timothy plant but they prefer to feed on the youngest tissue of the plant. They are not commonly found on other grass species.

The cereal rust mite feeds on single cells at the base of the grooves between the veins on the timothy leaves. The mite can be found on other grasses but does not prefer these grasses and will move in search of timothy. The mite inserts a "needle-like" mouthpart into the cell and draws out the cell contents, leaving a shrunken cell. It then moves to another cell and continues feeding. Very rapidly, the plant displays a "rolled" characteristic that is very similar to drought stress. The tip-off to an infestation is the droughty symptom in April or May when adequate soil moisture is available.

Severe mite infestations have two negative impacts on timothy producers.

First, severe feeding causes substantial yield losses. Yield loss estimates range from 30 to 70 percent. Severe feeding has resulted in stressed stands that are not able to endure extreme summer growing conditions, especially droughts and high temperatures.

A second impact of the mite is related to forage quality. Under high mite pressures, this hay cures with a brownish discoloration. This off color makes horse producers reluctant to pay top dollar.

History

In the mid 1990s, this pest was first brought to the attention of forage researchers at the University of Maryland. Entomologists Galen Dively and Terry Patton quickly noted the widespread occurrence in western Maryland and initiated small research trials to evaluate control materials and to gain additional knowledge on the mite. In the spring of 2000, ag service representatives in southern Pennsylvania informed members of the Capital Region Extension Agronomy Team of the possible spread of this pest into the state.

In travels across the region, the pest has been noted from western Franklin County to eastern Pennsylvania and north to Tioga County. It has also been noted in southern New Jersey and Delaware.

Biology

Unlike most crop pests, the cereal rust mite prefers colder conditions to summer weather. The mites overwinter in the crown area of timothy plants as adults and eggs. Maryland has recorded breeding activity as early as January. Each female can lay 20 to 30 eggs that rapidly reach maturity in 16-18 days. As a result, populations can rapidly increase. Eggs and young larva are found on the higher leaves. Adults move down into the plant crown where they prefer to feed on the youngest growth.

As the mites mature, they will move out and then "stand up" on their tails and are dispersed by winds. The mites have such a great preference for timothy that if they land on a different species of plant, they will stand up and move again. By mid-April, mite populations are rapidly building. By May, signs of heavy feeding can be noted by looking for the curled or droughted characteristic. When summer temperatures arrive, the mite enters a dormancy period and is rarely observed on regrowth.

Scouting

Growers of timothy should begin to monitor their stands of timothy for this pest. Scouting procedures have not been fully developed, but producers can collect representative samples from across their field.

Hand lenses are available from most camera stores or mail order catalogs. A minimum magnification power of 20 is recommended. Costs for a good lens is less than $25.

Look for the mite on the surface side of the leaf. Immature and adult mites are similar in shape, like a rice kernel. In many instances, eggs can be seen. The egg resembles an extremely small, round ball and will be evident across the leaf surface. Most mites and eggs will be seen between the veins on the leaf. Remember that because of population dynamics, a few mites can rapidly develop into an economic problem. If you do not have access to a hand lens, look for curled leaves. Some curled leaves were evident in fields with low soil moistures. Since the recent rains, curling is no longer as evident on these smaller plants.

Controls

There are no "natural" enemies of this pest, primarily due to the fact that it develops during the winter time and is dormant during the summer. Plant resistance is the long term solution, hopefully.

A supplemental label use was granted for Pennsylvania timothy producers to use Sevin XLR as a temporary solution for the cereal rust mite in 2001. This approval

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