

Bug-Wise

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**Bermudagrass Stem Maggot:** Last summer hay producers in South Mississippi began to notice their bermudagrass hay fields had an unusual appearance—they looked a bit like they had frost damage because the new leaf blades at the ends of the stems were dead and brown (see photo above). Field visits revealed this damage was caused by the bermudagrass stem maggot, *Antherigona reversura*, a small, non-native fly first detected in Georgia in 2010. Some South Mississippi producers had noticed similar symptoms in 2011 but were unsure of the cause at that time. By the end of 2012 this new pest had spread to hay fields throughout the state. Damage was reported and specimens were verified from many Mississippi counties, including: Stone County in the south end of the state, Tishomingo County in the north, Yazoo County on the west side, and Neshoba County on the east.

Like fire ants, it looks like this little fly is here to stay, and we are going to have to figure out how to live with it. Mississippi hay producers and cattlemen need to be aware of this new pest, know how to recognize it when it appears in their hay fields this year, and know what management and treatment options are available.

Bermudagrass stem maggot flies lay their eggs in the tips of the shoots in forage-type bermudagrass. The resulting larvae bore inside the shoot and feed down to the first node. This causes death of the last two or three leaves growing out of the end of the shoot. The dead, yellow leaves are easy to spot, and easy to pull out of the shoot. After these leaves are pulled out, tunneling and feeding damage can be seen at the base of the damaged leaves. The small legless, white maggots can sometimes be extracted from damaged tips, but it usually takes a good bit of time and effort to find a maggot (look in shoots that are just beginning to show signs of damage).

Adult flies are easier to spot. They are about 1/3 the size of house flies (or about the size of horn flies) and have yellow abdomens with four dark spots on the upper part of the abdomen. Although the flies are small, they are usually present in high numbers in heavily infested fields, and are relatively easy to spot with careful observation. The flies seem to be especially attracted to areas of grass that have been recently walked through or otherwise disturbed. Walk into the hay field and check your back trail. Just stand still and watch for a minute or two. In late summer or fall you may see hundreds of flies flying over such disturbed areas of grass. If you notice large numbers of small insects jumping up in front of you and flying straight away as you walk into a field these are leaf hoppers and not the flies. The flies fly around in erratic circular patterns, often alighting to rest on a stem or leaf blade.

Bermudagrass stem maggot completes a generation in about three weeks and populations increase with each generation. Fields that have few damage symptoms in the first cutting or two of hay can exhibit heavy damage symptoms by late summer and fall. So far this year there have been no reports of heavy infestations, but low numbers of infested shoots are present in many fields, and infestation levels will continue to increase as the season progresses.

This fly is primarily a pest of bermudagrass grown for hay and is more damaging to some varieties than others. Fine stemmed varieties, including common bermuda, are more favored and sustain more damage

than coarser stemmed varieties. Damage is not likely to be significant on bermudagrass pastures with grazing animals present because constant grazing removes much of the growth the flies need to reproduce. Also, stem maggots are not expected to be a problem on bermudagrass in lawns or other turf-type bermudas that are mown frequently. They will attack turf-type bermudas, but the frequent mowing helps prevent damage.

In highly-managed, fast-growing hay fields damage usually “looks worse than it really is” because damage is confined to the terminal leaves of the shoots where it is easy to see but actually only accounts for a small fraction of the total dry matter production in the field. However, last fall we observed some fields where the flies appeared to have “stopped the grass from growing” by killing most of the terminal stems as well as the side shoots the grass was attempting to produce.

Research is still needed to determine the overall yield effects of this pest. On well-managed, fast-growing fields that are cut as soon as the field reaches maturity, yield losses are likely to be minimal (less than 10 %), but last year some Georgia producers estimated yield losses of up to 50%. Heaviest yield losses are most likely to occur in late summer and fall on fields that are growing slowly due to drought or other factors, allowing fly populations to build to high numbers and interfere with further growth.

There are currently no insecticides that can be used to control maggots feeding inside grass stems, but adult flies can be controlled with low-end rates of any of the pyrethroid insecticides recommended for fall armyworms. This includes products containing cyfluthrin (Baythroid XL), zeta-cypermethrin (Mustang Max), or lambda-cyhalothrin (Karate Z). (See Extension Publication 2717, Fall Armyworms in Hay Fields and Pastures for recommended rates.). Multiple sprays (at least two) are required to produce a cutting of hay that is relatively free of damage, and the economic benefits of control are yet to be determined.

*Management and Control:* Prompt cutting and harvest is one of the best tools we have for dealing with stem maggots. Cutting the field creates a break in population development and build-up by temporarily removing all suitable egg-laying sites. Recent experience in Georgia suggest that spraying the field with a pyrethroid insecticide a few days after cutting, applying a second pyrethroid spray 5 to 7 days later, and cutting as soon as maturity and weather allow is the best means of reducing heavy infestations in late season. Note that these sprays will only kill adult flies and will not control larvae that are already feeding inside stems. Mississippi hay producers may want to “experiment” with this approach on some late-season fields this year to determine if they feel it is worthwhile in their particular situation. Fields that had heavy levels of shoot damage in the previous cutting would be some of the most likely candidates for such a trial.

Note: Although pyrethroid insecticides also control fall armyworms, do not assume sprays applied for stem maggots will also protect the field from armyworms. This will depend on the timing of the sprays relative to the fall armyworm egg lay. **Fall armyworm will continue to be the most important insect pest of bermudagrass hay fields**, and serious hay producers should continue to check fields regularly for fall armyworms through the remainder of the season. Don't let “tip frosting” caused by stem maggots cause you to overlook or ignore a heavy fall armyworm infestation. See Extension Publication 2717, Fall Armyworms in Hayfields and Pastures, for information on scouting, management and control of fall armyworms.

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