BERMUDAGRASS STEM MAGGOT

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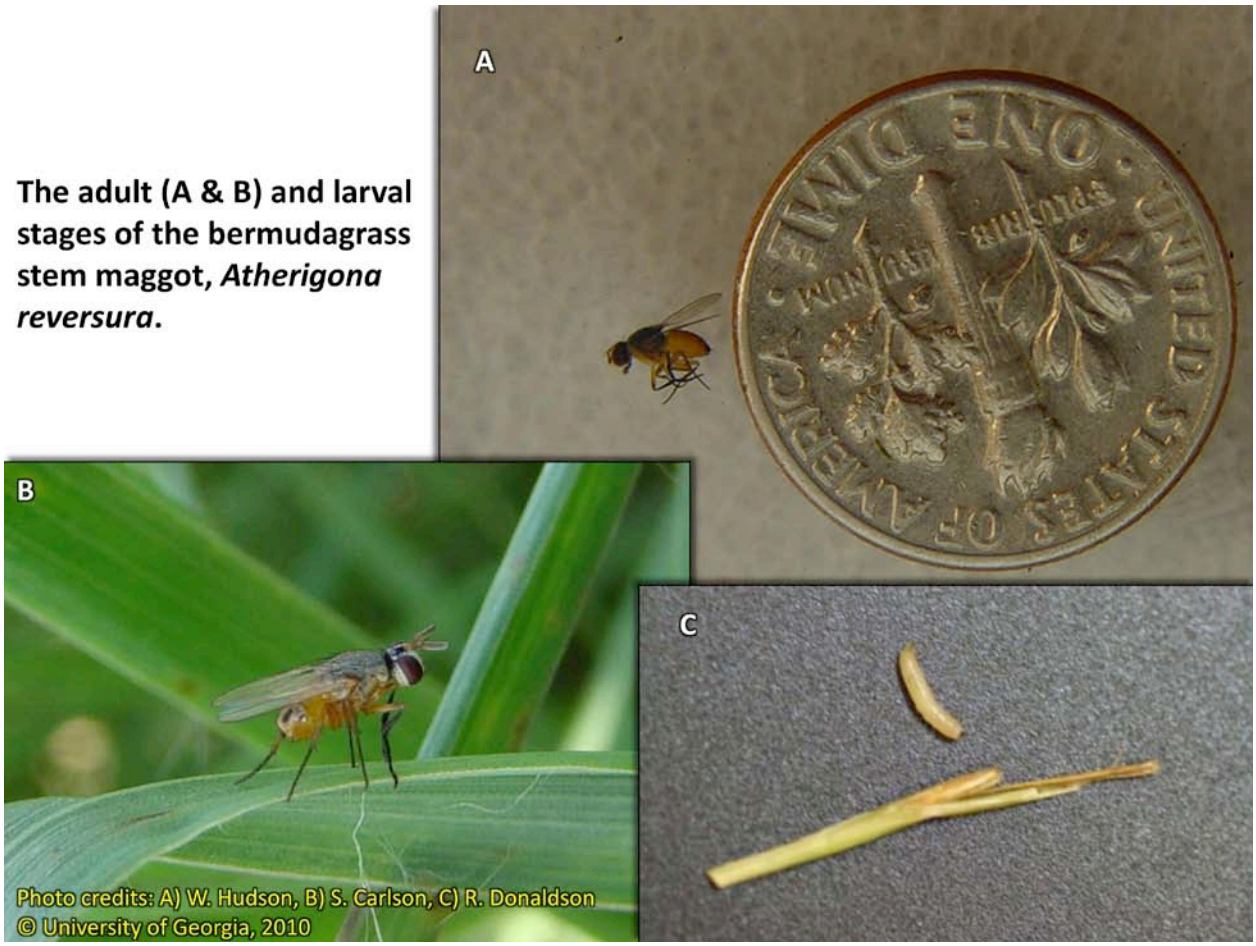
Georgia cattlemen will need to keep an eye out for a new invasive pest, the bermudagrass stem maggot (BSM). Damage caused by this new exotic species, *Atherigona reversura*, was first discovered in Pierce, Jeff Davis, and Tift Counties in 2010. The damage was much more widespread in 2011. The effects of BSM pose a significant risk to bermudagrass production in south Georgia and the Southeast.



The adult (A & B) and larval stages of the bermudagrass stem maggot, *Atherigona reversura*.

Totally New, Totally Blind-Sided

This species of *Atherigona* is native to Japan, Indonesia, India, and Hawaii. Its appearance in 2010 in Georgia was the first time the BSM had been discovered in North America. It is unclear how it got here. Nonetheless, it is here now and the fly has been confirmed from Savannah to Columbus and down into south Florida, with unconfirmed reports in Alabama and South Carolina.

It is not unusual for new species to show up in North America. Unfortunately, in this case, there is very little information about this insect, its life cycle, the damage that it could do, much less how to kill it. In fact, the length of this article is not much smaller than a complete compendium on the BSM, including all the scientific literature on the subject.

The consequence of having so little data on the subject is that there is not (yet) any good information on how to control the BSM. Dr. Will Hudson (UGA Extension Entomologist) and I are currently working on research projects that should provide us more information on how to control this insect. We have secured funding for two graduate students who will be focusing on how to manage this problem. Consequently, we should have better information on control in the coming months.

Mechanism of Damage

The larval (maggot) stage of the BSM is what is causing the damage. It is believed that the adult fly lays its eggs on a bermudagrass pseudostem. Upon hatching, the larvae works its way toward a node, where the leaf blade emerges from the stem. As the larvae develops, it feeds on the node. The feeding results in the death and chlorosis (lack of green color) of the last one to three leaf blades.

Bermudagrass stem borer damage affects the last 1 to 3 leaves on a pseudostem.

Although all varieties of bermudagrass seem to be susceptible, the number of affected stems seems to be dependent upon the coarseness (i.e., size) of the stems. Our preliminary research and some work done in Japan has shown that the thicker-stemmed varieties (e.g., Tifton 85, Coastcross-I, Tifton 68, etc.) have fewer stems affected by the damage as a proportion of the number of stems per unit area relative to the finer textured varieties (e.g., Alicia).

The amount of the damage seems to depend on the point during regrowth when the flies lay their eggs. In instances where good soil and moisture conditions allow a normal, rapid growth rate, the damage seems to occur later and the loss of the last 1 to 3 leaves seems to have a minimal impact on yield. However, many producers report major yield loss in those growth periods that are limited by poor soil and moisture conditions. In those situations, it is believed that the slow growth rate allows the egg laying and larvae development stages to occur relatively early in the growth cycle.

Management Strategies

The insecticides that are typically used on bermudagrass have not proven very helpful, as of yet. There have been many reports of producers who have unsuccessfully applied insecticides in attempts to kill either the fly or the larvae. Our preliminary experiences have resulted in similar frustration. The large numbers of flies and the ease with which they can move from field to field means that simply killing the flies is unlikely to result in satisfactory control.

Unfortunately, killing the larvae may be just as difficult. The growth habit of this insect (i.e., the development of the larvae and the damage being done inside the plant's pseudostem) means that a successful insecticide application would likely require a systemic mode of action. Systemic insecticides are generally not approved in forage production systems. Systemic action in the plant, means the pesticide is likely to also be ingested by the animal, and that it could ultimately make its way into the food system. However, we will be investigating all possible control options.

Until a pesticide option is discovered, harvest management is our only option for mitigating the damage. If damage is found within 1 week of the normal harvest stage, proceed to harvest the crop as soon as weather conditions allow. Once the damage becomes apparent, the crop is unlikely to add a significant amount of yield. If damage is observed within 1 to 3 weeks after the previous harvest, it is also likely that the crop will not add a significant amount of yield. The damaged crop should be cut and (if the yields are substantial enough to warrant) baled and removed from the field as soon as weather conditions allow. Leaving the damaged crop in the field will only compete with any attempts by the plant to regrow and decrease the opportunity that the next cutting will have to accumulate mass.

More Information

Updates on the bermudagrass stem borer problem and additional information about insect management in forage crops can be found on our website, www.georgiaforages.com. If you have additional forage management questions, visit our website or contact your local University of Georgia Cooperative Extension office by dialing 1-800-ASK-UGA1.

got questions?

Have a question or topic that you want Dr. Hancock to address? Email him at: questions@georgiaforages.com.