Forage News

MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

Bermudagrass Stem Maggot: Pest on the Move Across MS

Volume 6, Issue 8

Rocky Lemus
Extension Forage Specialist

August 2013

Visit us at: **http://mississippiforages.com**

Bermudagrass is an important forage crop in grazing and hay production systems in Mississippi covering over 800,000 acres. In the last two years, production has been hampered with a new pest that can cause up to 50% loss in forage yields if left unattended. The stem maggot (*Atherigona reversura*) was discovered in Georgia in 2010 and since then it has spread west with first cases reported in Mississippi in 2012 and number of infected fields doubling in 2013. The damage of the stem maggot is usually evident from late May until early September resembling a frost look like damage across the field. This pest pressure could be considered a major problem based on the number of acres affected across Mississippi and the southern USA.

Insect and Infection Mechanism

A fly is the adult form but the feeding maggot causes the damage in bermudagrass. The fly lays its eggs in the node of a bermudagrass stem. Once the eggs hatch and the larvae (maggot) develop, it begins its journey to the upper most node where the leaf blade emerges from the primary shoot. Once the feeding begins, the stem and upper 1 to 3 leaves start to die and appear chlorotic (pale yellow color) giving the impression of frost damage. This damage can continue downward in the stem restricting growth and causing yield losses (Fig. 1a-d). The fly has a life cycle of twelve to twenty-one days, which makes it possible for multiple generations of maggots to be produced between hay cutting intervals.

Observations in several fields across Mississippi, as well as experimental plots containing different hybrid bermudagrass, have shown no specific preference by the maggot (all bermudagrass varieties are being affected). This is contrary to observations and preliminary work done in GA where they observed fewer damaged stems in coarse hybrid varieties such as Tifton 85 and Tifton 68. One interesting observation in some of the Sumrall 007 fertility plots at Mississippi State University demonstrated a greater fly population and subsequent damage in plots receiving higher nitrogen rates and longer cutting intervals (>30 days) (Fig. 1e).

Management Practices

The effectiveness of chemical control is unknown since insecticides labeled for bermdugrass production have not yet shown efficacy. Although attempts have been made to try to control the flies, it has not been successful due to their mobility from field to field. Killing the larvae is problematic because it enters the stem of the plant which means that a systemic insecticide will be needed. Unfortunately, systemic herbicides are not labeled for forage production in Mississippi because they can be ingested by animals and move up through the food chain. University of Georgia has recommended spraying pyrethroid based compounds after grass regrowth. Applications can be made up to two times after regrowth with five to seven days interval between the insecticide applications to kill the adult flies. If insecticide is applied, it is important to pay close attention to grazing and hay restrictions for the different livestock classes when using approved insecticides for forage production.

Forage specialists and entomologist across the southern USA are developing studies that could help control and mitigate the damage caused by the stem maggot. In the meantime, only cultural practices are in place until the efficacy of a pesticide(s) is identified. Although there might be lower yields and the cost of harvesting the hay might increase, it is recommended to harvest the bermudugrass hay when visual damage from the stem maggot ranges from 50 to 60 percent and if the yields are substantial enough to justify baling. If the damage is found within a week of the scheduled harvest, it is recommended to harvest as soon as weather conditions are favorable.

Once a hay field is baled, it is recommended to remove the bales immediately allow faster plant recovery. Remember not to store the hay directly into the barn once it has been removed from the field. Moisture level and microbial respira-

tion can increase the bale's temperature and therefore, increasing the chances of overheating and potential fire. In a pasture situation, it will be beneficial to maintain a consistent rotation to prevent an extensive population buildup of maggots since the maggots will consumed along with the forage and preventing them for reaching the adult stage. Keep in mind that there is very little information on how to manage this pest, the cost of treatment and the economic impact in forage production.

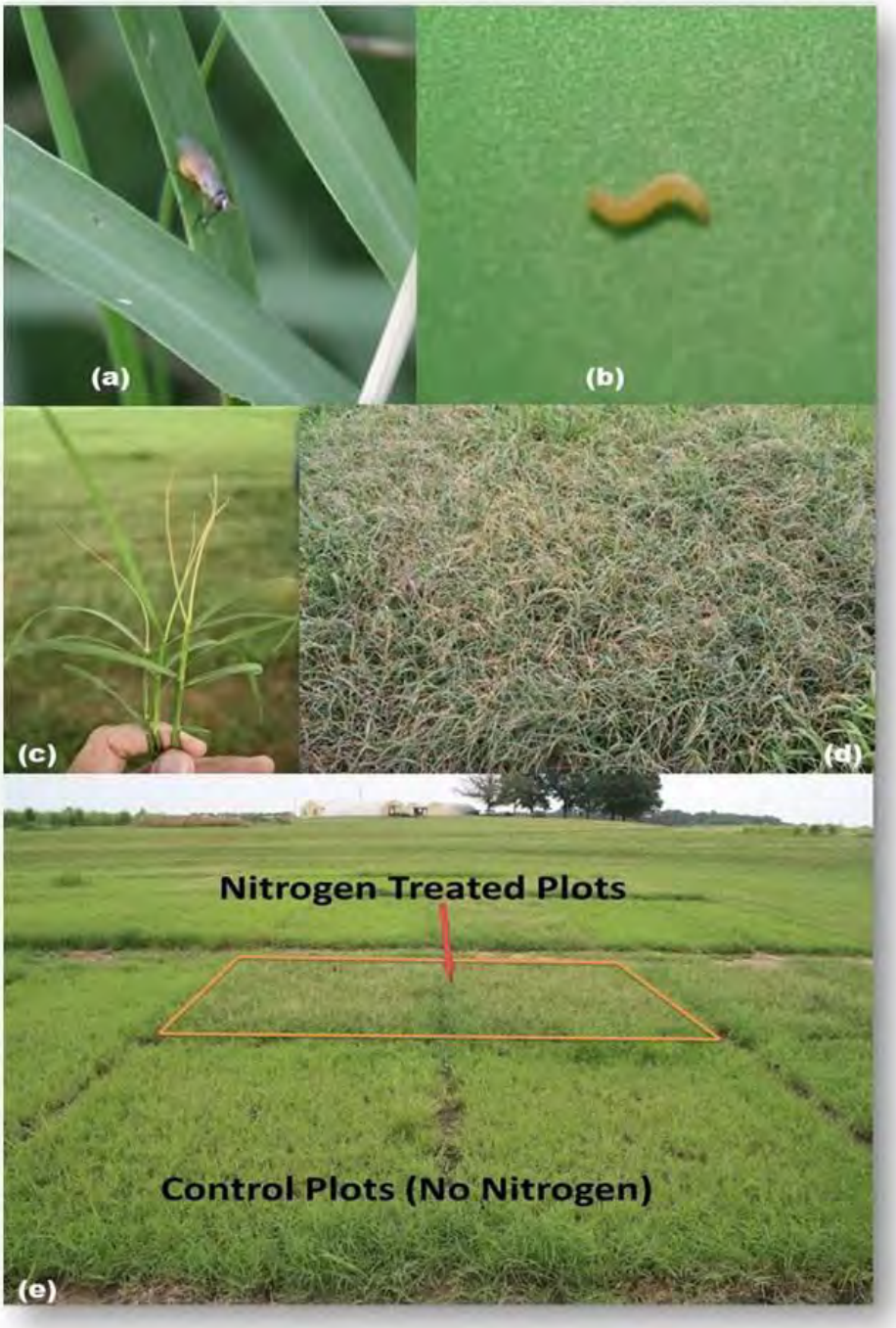

Figure 1. The adult and larval stages of bermudagrass stem maggot (a & b). Dead upper leaves and stem in bermudagrass plants (c). Frost like damage observed in the field (d). Damage in nitrogen treated plots compared to no nitrogen (e).

Upcoming Forage Events:

Cattlemen College, August 28 & 29, Pickens (Cain Cattle) and Seminary (JRW, LLC).

Beef Field Day, September 5, Enid (James Cattle Co.)

GLCI Conference, September 9 & 10, Natchez (Convention Center).

Forage Field Day, September 14, Philadelphia.

Marshall Co. Forestry & Livestock Field Day, *September 28,* Holly Springs

Hay Contest, October 4, Sample submission due

Grasslander Award, October 4, Nominations due.

SE Mississippi Forage Field Day, October 25, Petal (Simmons Farm).

NW Mississippi Forage Field Day, November 1, Batesville (Gordon Farms).

Mississippi Forage & Grassland Annual Conference, November 15, Hattiesburg (Multipurpose Center).

More detail information on forage related events visit:

http://forages.pss.msstate.edu/events.html

http://mississippifgc.org/events.html