

Ag Extension News

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“Don’t Ever Ask....What Else Can Wrong?” Hay Producers Struggle in 2018

2018 has been a true struggle for hay and forage producers all over East Texas. We had cold temperatures in late April which delayed summer grasses from growing, then the rain stopped. To top it off, producers have had to deal with grasshoppers and now that some have gotten a little rain, the dreaded army worms are emerging to wreak their havoc. I went to look at a hay meadow today that was sprigged in late April and was very pleased with the overall growth of the field. As I was half way through the field, I started seeing grass that looked as if it had been hit by a frost on the tips. I grabbed some samples to take back to the office to examine, and what did I find, Bermudagrass stem maggots. So the old adage of not asking, “what else can wrong” certainly came into play.

I covered grasshopper control back in June, but I want to spend a little time on army worm control and tell you a little bit more about Bermudagrass stem maggots.

Army worms -

With the much needed rain that some folks have been getting, we have already have received a few calls from agents in neighboring counties to the north that producers need to be diligent in watching their pastures and fields.

The fall armyworm has four life stages: egg, larva, pupa and adult. The fall armyworm has not shown the ability to go into dormancy so its ability to survive winter depends on the severity of the temperature. The fall armyworm does overwinter in the southern regions of Texas in the pupal stage. The adult is a moth that migrates northward as temperatures increase in the spring. The adult moth has a wingspan of about 1.5 in. The hind wings are white; the front wings are dark gray, mottled with lighter and darker splotched. Each forewing has a noticeable whitish spot near the extreme tip.

Eggs are very small, white laid in clusters of 50 or more and are covered with grayish, fuzzy scales from the body of the female moth. The eggs are seldom seen and are laid at the base of appropriate host plants.

Larvae hatch from the eggs and when full-crown larvae are green, brown, or black and about 1 to 1.5 in. long when full grown. The larva has a dark head capsule usually marked with a pale, but distinct, inverted "Y." Along each side of its body is a longitudinal, black stripe, and along the middle of its back is a wider, yellowish-gray stripe with four black dots on each segment. The larvae have five stages or instars and usually hide in debris on the soil surface in the middle of the day. When full grown, larvae will enter the soil and form the pupal stage. Adult moths emerge from pupae. Moths mate and lay eggs, thus starting the life cycle over again. Lush plant growth is preferred by the adults for egg laying.

Several generations (A generation is the development from egg to adult stage.) occur each year and typically the life cycle from egg to adult takes 28 days. The life cycle can be extended if cooler temperatures occur and can last up to several months. Armyworms in the spring and summer occur in more distinct groups than later in the season. Fall populations of larvae often blend together several generations and may appear to be continually occurring.

When feeding, larvae strip foliage and then move to the next available food. High populations appear to march side by side to the new food. Thus, the name armyworms has been applied. Armyworms attack many different kinds of plants. When food is scarce, they will move to plants that are not normally attacked. Thus, armyworms can be found on nearly any plant as they migrate in search of edible foliage. Plants attacked by armyworms include: bermudagrass, grain and forage sorghum, corn, small grains, sweet potato, beans, turnip, clover, tobacco, spinach, cucumber, potatoes, tomatoes, cowpeas, cabbage and bluegrass.

Damage consists of foliage consumption. The small larvae will chew the green layer from the leaves and leave a clearing or "window pane" effect. The first three instars do very little feeding while the last two instars consume 85% of the total foliage consumed.

Armyworms should be controlled when they occur in large numbers or plant damage is becoming excessive. The fall armyworm attacks grain in the fall in the seedling stage; therefore, a relatively small number of larvae per square foot can do heavy damage. Preventive treatments normally are not justified because attacks are sporadic and egg mortality is usually high. During favorable seasons, a number of parasitic enemies keep fall armyworm larvae down to moderate numbers. Early detection works best and is achieved by frequent, thorough inspection of plants. Outbreaks seem to occur shortly after a rain or supplemental irrigation.

Fall armyworms feed any time of the day or night, but are most active early in the morning or late in the evening. Susceptible fields or lawns should be scouted by counting the number of armyworms in a square foot area in 8 different sites. Divide the total worm count by 8 to find the average number of armyworms per square foot. Be sure to take samples in the interior of the field because this pest is often heaviest near the field margins. Sometimes, only the field margins require treatment.

The threshold level ranges from two to three larvae per square foot for seedling wheat. For older plants, three to four larvae and obvious foliage loss justify control measures. Thresholds in improved pastures and lawns vary with conditions but treatment should be considered when counts average three or more small worms per square foot.

Insecticides Labeled for Armyworm Control in Pastures and Hayfields.

Always read and follow all label instructions on pesticide use and restrictions. Information below is provided for educational purposes only. Read current label before use.

Karate Z. 13.1% lambda cyhalothrin. Fall armyworm and grasshoppers. Pasture and rangeland grass, grass grown for hay and silage and grass grown for seed. Pasture and rangeland grass may be used for grazing or cut for forage 0 days after application. Do not cut grass to be dried and harvested for hay until 7 days after the last application. **Restricted use insecticide.**

Lambda-Cy. 11.4% lambda cyhalothrin. Fall armyworm and grasshoppers. Pasture and rangeland grass, grass grown for hay and silage and grass grown for seed. Pasture and rangeland grass may be used for used for grazing or cut for forage 0 days after application. Do not cut grass to be dried and harvested for hay until 7 days after the last application. **Restricted use insecticide.**

Mustang Max. 9.6% zeta-cypermethrin. Fall armyworm and grasshoppers. Applications may be made up to 0 days for forage and hay, 7 days for straw and seed screenings. **Restricted use insecticide.**

Tombstone Helios. 25% cyfluthrin. Fall armyworm and grasshoppers. Pasture, rangeland, grass grown for hay and seed. Zero days to grazing or harvesting hay. **Restricted use insecticide.**

Warrior II. 22.8% lambda cyhalothrin. Fall armyworm and grasshoppers. Pasture and rangeland grass, grass grown for hay and silage and grass grown for seed. Pasture and rangeland grass may be used for used for grazing or cut for forage 0 days after application. Do not cut grass to be dried and harvested for hay until 7 days after the last application. **Restricted use insecticide.**

Baythroid XL. 12.07% cyfluthrin. Fall armyworm and grasshoppers. Pasture, rangeland, grass grown for hay and seed. Zero days to grazing or harvesting hay. **Restricted use insecticide.**

Dimilin 2L. 22% diflubenzuron. Fall armyworm and immature grasshoppers. Dimilin must be applied before armyworm larvae reach ½ inch or larger. Provides residual control for up to 2-3 weeks, as long as forage is not removed from the field. Label does not list a restriction on grazing.

Prevathon. 5% chlorantraniliprole. Fall armyworm and grasshoppers. Prevathon has a 0 day waiting period for harvest or grazing and is not a restricted use insecticide.

Besiege. 9.26% chlorantraniliprole and 4.63% lambda cyhalothrin. Fall armyworm and grasshoppers. Pasture and rangeland grass may be used for grazing or cut for forage 0 days after application. Do not cut grass to be dried and harvested for hay until 7 days after the last application. **Restricted use insecticide.**

Sevin 4F, Sevin XLR, Sevin 80S, Generic Carbaryl. Fall armyworm and grasshoppers. When applied to pastures, there is a 14 day waiting period before grazing or harvesting.

Malathion 57% and Malathion ULV. Fall armyworm and grasshoppers. Zero days to harvest or grazing.

Intrepid 2F. Fall armyworm (not grasshoppers). Begin applications when first signs of armyworm feedings appear. Use higher rates for heavier infestations. Do not harvest hay within 7 days of application. No pre-harvest interval for forage. 0 days to grazing.

Tracer. Treat when armyworm eggs hatch or when larvae are small. Use higher rates for larger larvae. Do not graze until spray is dry. Do not harvest hay or fodder for 3 days after treatment. Do not allow cattle to graze until spray has dried

Bermudagrass Stem Maggot -

The bermudagrass stem maggot (BSM) is a relatively new pest of bermudagrass hay fields and pasture. The larva or maggot feeds in the top shoots of the bermudagrass, causing the top 2-3 leaves to turn brown or white. This damage gives the field an appearance of being frosted.

The BSM was first reported from Texas in 2013 in Van Zandt, Comanche and Lavaca counties and since then it has been reported from many areas in east and central Texas and the Upper Gulf Coast. The bermudagrass stem maggot is native to south Asia and was first reported in the United States in Georgia in 2010. This pest only infests bermudagrass and stargrass (*Cynodon* spp.). The adult stage of the BSM is a small, yellow fly, which lays its eggs on the stem of the bermudagrass plant. Once the egg hatches, the maggot moves to the last (top) node on the stem, burrows into the shoot and consumes the plant material within the stem. This stem damage results in the death of the top two to three leaves while the rest of the plant remains green. As a result, damaged fields appear frosted. Cutting open the stem just below these dead leaves will reveal the tunnel created by the maggot and possibly the maggot. The full-grown maggot is yellowish and about 1/8 inch long. Once the maggot completes feeding, it drops to the ground and enters the pupa stage. The adult fly later emerges from the pupae. It is difficult to find the maggot as they often complete feeding and leave the stem before the upper leaves turn white or brown. The life cycle from egg to adult fly requires about 3- 4 weeks, and there are several generations a year.

The shoot stops elongating as a result of the maggot's feeding damage. In response, the plant may grow another shoot from a lower node of the damaged shoot. The impact of maggot feeding on yield loss seems to be dependent on growing conditions as well as the point during regrowth when the flies lay their eggs. If there are good growing conditions with good soil fertility and moisture, damage from the maggot seems to have minimal impact on dry matter yield. However, if forage production is limited by poor soil fertility and dry soil conditions, maggot damage has a greater potential to reduce yields.

Observations in Georgia suggest that damage is more common in finer-stemmed cultivars, such as Coastal, Alicia, Russell, and common Bermuda. Infestations in coarser-stemmed varieties such as Tifton 85 appear to be less damaging. The stem maggot is usually not a pest of grazed pastures because livestock consume the eggs and maggot with the grass, thus preventing an increase in the fly population.

Management. Management recommendations developed in Georgia and Alabama suggest that if damage is found, 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. The damaged crop should be cut and 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 time to accumulate dry matter. Maggots feeding in the stem will die once the crop is cut and dried for harvest. However, flies will emerge from pupae in the soil and re-infest the field. To protect the regrowth from infestation, apply a pyrethroid insecticide about 7 days after cutting to kill adult flies. If the infestation is extensive, a second application 5-7 days later should be considered. There are yet no effective methods for sampling BSM fly or larvae or guidelines for when an insecticide treatment is needed.

Once the hay is cut, maggots feeding in the stems die as the grass dries. For this reason, there is very little risk that Bermudagrass maggots can be transported in hay. The adult fly is a strong flier and is the stage in which this pest moves to new fields. Images below show dead leaves due to feeding by BSM, the larva and the fly.

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Outline –