Insect Pest Management

Many insects found in a forage system are beneficial or incidental, but some can lead to economic losses. It is important to be able to identify different insects and know how to manage potential insect pests.

Insects have different types of mouthparts (chewing or piercing-sucking, for example) and can feed on various parts of the plant. The type and intensity of insect pest feeding determine the level of damage sustained. Damage to leaves or roots interferes with photosynthesis and nutrient uptake, while substantial feeding can cause lodging, stand loss, or delay in plant development.

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) is a strategy that uses multiple tools to combat pests and minimize economic and environmental risks. Biological, chemical, cultural, and physical controls can work together for effective management. Examples of these strategies include using varieties adapted to your region, using insect-resistant or tolerant varieties, planting on the correct date, and using insecticides.

A vital component of an IPM strategy is to scout fields once or twice a week to assess forage growth along with pest and beneficial insect populations (easily accomplished using a sweep net). Check several areas of the field and note the number and life stage of pests and beneficials present.

Many beneficial insects live in a forage stand and help to keep the pest population down. Beneficial insects include lady beetles, ground beetles, minute pirate bugs, damsel bugs, spiders, and

syrphid larvae. There is also a variety of wasps that parasitize pests. If possible, choose pesticides that are more specific to target pests and less harmful to beneficial insects.

Chemical control is a useful technique to quickly reduce a pest population in forages. However, insecticides should be used only when the plant damage by pests or the pest population approaches levels that will lead to yield loss greater than the cost of treatment. Pests have unique thresholds based on their biology and their ability to damage the crop. Following are some guidelines:

- **Do not use** preventative pesticide applications. These can decrease beneficial insect populations and promote resistant pest populations. Always read and follow label directions.
- **Rotate insecticides** with different modes of action. It is important to use chemicals that target pests in a variety of ways so as not to increase the proportion of resistant individuals in the population.
- **Consider multiple factors** when choosing an insecticide. Efficacy, safety, specificity, and timing should all factor into the decision. Refer to the insecticide label for information on preharvest or pregrazing intervals.

MAJOR INSECT PESTS

Figure 65. Fire ant mound in a field.

FIRE ANTS

The red fire ant (*Solenopsis invicta*) and the black important fire ant (*Solenopsis richteri*) were accidentally introduced into the southern United States years ago and have remained a pest ever since. They feed on a variety of sources, including plant seeds and insect pests. In hay fields, tall mounds (figure 65) can damage machinery. While uncommon, damage to young livestock, wildlife and humans is possible.

In some cases, the cost to treat may not be economical. Broadcast applications of bait are the most cost-effective in large areas.

Control can be conducted in spring or fall depending on weather conditions. Slow-release bait generally can take 4 to 8 weeks after application to control ants and last up to 12 months. Fast-acting baits (2 to 4 weeks) are available and can last up to 8 months.

For more information, see "Management of Imported Fire Ants in Livestock Production Systems" on the Extension website at www.aces.edu or scan the QR code to access the publication.

ARMYWORMS

Two species of armyworms are regular pests in Alabama. The true armyworm (*Mythimna unipuncta)* is a spring pest of cool-season grasses and tall fescue. The fall armyworm (*Spodoptera frugiperda*) is a summer pest of bermudagrass, tall fescue, and fall-seeded forages.

Figure 66. True armyworms (top) and a fall armyworm (bottom.)

A cool, wet spring generally can lead to outbreaks of the true armyworm in cool-season grasses. In the Southeast, fall armyworms are a consistent pest, and hot, dry weather can increase the chances of an outbreak.

Fall armyworms have an inverted "Y" on their head and four raised bumps that form a square on their posterior end (figure 66). True armyworms have varied coloration but will have a dark spot on each of the abdominal prolegs.

Use a sweep net to scout the fields throughout and avoid scouting in the heat of the day. Increased bird activity in the field may be a sign that you have armyworms.

Use insecticide control only after considering the size of the worms and the growth stage. If the field is ready for harvest or graze, you can promptly harvest the forage rather than apply an insecticide. Be aware of the insecticide residual period prior to applying products.

For more information, see "Management of Fall Armyworm in Pastures and Hayfields" on the Extension website or scan the QR code to access the publication.

Figure 67. Bermudagrass stem maggot adults.

BERMUDAGRASS STEM MAGGOT

Bermudagrass stem maggot (BSM) (figure 67) is the larval form of an invasive fly pest in the Southeast region. Bermudagrass varieties with finer stems tend to have greater infestations.

The life cycle of BSM lasts 21 days. The adult fly is 1/8 inch long with big, dark eyes and several dark spots on its yellow abdomen. The adults are very active in the field and easier to spot than larvae. The larvae are the damaging life stage to forages; they feed inside the plant stem and damage the younger leaves and apical meristem. These dead leaves give the field a frosted appearance and can easily be pulled from the sheath. The shoot will stop elongating, and the plant may put out lateral shoots. Newer shoots are then vulnerable to attack by the next generation of BSM.

Grazed pastures are less affected by BSM because livestock consume larvae while grazing. For hay fields the recommendation is to cut and remove the hay if the field is close to its harvest date. Any surviving larvae, however, will burrow into the soil to pupate and complete their life cycle. An insecticide application may be necessary 7 to 10 days after cutting. Pyrethroids are currently the only option for chemical control of BSM. Pyrethroids are a contact insecticide that must be sprayed when adults are present.

For more information see "Biology and Management of Bermudagrass Stem Maggot" on the Extension website or scan the QR code to access the publication.

Figure 68. Grasshoppers can cause damage in outbreak years.

GRASSHOPPERS

Grasshoppers (figure 68) are sporadic pests but capable of causing damage during outbreak years. Grasshoppers overwinter as eggs then hatch into nymphs with increasing soil temperatures and spring rains. Nymphs cannot fly and are less mobile than adults. They usually are found in the field margins next to grassy edges or a tree line.

If grasshopper populations are found early, a border spray rather than treating the entire field may be effective. However, if the grasshoppers have matured, they are more mobile and have likely moved through the entire field. Larger grasshoppers are also more difficult to kill. Treatment is warranted when populations are heavy and defoliation is occurring. If an entire field is infested, one option is to harvest the field early then apply an insecticide to protect the regrowth.

CHINCH BUGS

Chinch bugs can be a pest of some summer grass forages. They use piercing-sucking mouthparts to suck plant juices from the base of the plant. The result can be brittle stems, discoloration, or wilting. Hot, dry conditions can exacerbate chinch bug problems. Populations are hard to control once populations become high.

Scout fields early in the season when chinch bugs are easier to control. If an insecticide application is warranted, direct the spray at the base of the plants where the bugs are located.

MAY, JUNE, AND GREEN JUNE BEETLES

There are four types of grubs (beetle larvae) that can cause problems in forages. Green June beetles, May beetles, southern masked chafers, and Japanese beetles are all pests in the larval stage. Infestations of these species typically occur in mixed populations. They all have various life cycles, damage potential, and response to insecticides, making management decisions difficult.

Green June beetle larvae are associated with pastures where broiler litter or manure are used as fertilizer. Green June beetles tunnel just below the surface, disrupting the plant-soil interface. Other species of white grubs (figure 70) cause damage through root feeding. Severe infestations can take out a whole field if left unchecked. Insecticides currently are registered only for control of green June beetles in pastures. Cultural practices, such as proper varietal selection, irrigation, and fertilization, can help reduce the risk of problems with white grubs.

Figure 69. Billbugs are pests of bahiagrass..

BILLBUGS

The billbug (*Sphenophorus coesifrons*) is a pest of bahiagrass. Adult billbugs lay eggs into the tillers of bahiagrass; once the larvae hatch, they feed on the rhizomes resulting in tiller death.

Damage begins as small patches of dead grass that expand in the field throughout the year(s). Adults cannot fly, so field infestations result from crawling adults or accidental introduction from vehicles or equipment.

Billbug larvae are cream colored with a tan head capsule and no legs (figure 71). The lack of legs is the easiest way to distinguish a white grub from a billbug. Currently there are highly effective tools for managing billbugs in bahiagrass; however, if attempting to control them, spring is the best time to treat pastures for adults before they can lay eggs in the grass. Pyrethroids or carbaryl can be used for control of adults, but multiple applications may be necessary.

Figure 70. White grub.

Figure 71. Billbug larvae.