Fall Armyworm
Overwinters in Florida and the Caribbean.
Moths fly into Southeast in late spring (April or May)
5 or more generations per year.
Strains: Corn strain, Grass strain
- Hot, dry summers favor the development of fall armyworm!

Fall Armyworm Outbreak of 2010
- Fall Armyworm Sampling and Thresholds
  Scout pastures and hayfields during hot, dry summers. (Pheromone traps for moths)
  Sweep net foliage for small larvae.
  Examine 1 sq. ft area and count larvae.
  Check brown/dead grass or where birds are feeding.
  3 or more larvae (½ inch or longer) per sq. ft
  Treat larvae with an insecticide when they are small, before they have caused damage.

Fall Armyworm Control: Broad-Spectrum Insecticides
- Insecticide
  Rate per acre
  Grazing Interval (Days)
  Sevin / carbaryl maximum 14
  Lannate 2.4LV§ 2 pt 7 (3 for hay)
  Mustang MAX 4 fl. oz. 0 (1 for hay)
  Karate Z (2.08) 1.28 - 1.92 fl. oz. 0 (7 for hay)
  Baythroid XL 2.6 - 2.8 fl. oz. 0 (0 for hay)

§Lannate for use on bermudagrass only.
Methyl parathion is labeled but is only effective on small larvae.
Fall Armyworm Control: Selective Insecticides

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Rate per acre</th>
<th>Grazing Interval (days)</th>
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</thead>
<tbody>
<tr>
<td>Tracer 4SC</td>
<td>1 - 2 oz</td>
<td>Dry (3 for hay)</td>
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<tr>
<td>Coragen (1.67SC)</td>
<td>3.5 - 5 fl. oz.</td>
<td>0</td>
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<tr>
<td>Intrepid 2F (suppl.)</td>
<td>4 - 8 fl. oz.</td>
<td>0 (7 for hay)</td>
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<tr>
<td>Dimilin 2L</td>
<td>2 oz</td>
<td>0 (1 for hay)</td>
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**Dimilin 2L, Intrepid 2F**
- Growth Regulator - molting
- Preventive use, Not effective for large larvae.
- Persistent on foliage, 1 application per cutting

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**Fall Armyworm Control Summary**

**Rescue Treatment**
- 3 larvae per sq. ft
- Broad Spectrum
  - Sevin, Carbaryl (14 day)
  - Pyrethroids
  - Use Maximum label rate.
  - Short residual
- Selective Insecticides
  - Tracer, Coragen
  - Lower rate.
  - Longer residual
- Good coverage.

**Preventive Treatment**
- Dimilin @ 2 oz/acre
- Intrepid 2F
- Apply to small larvae
- Not effective on large larvae.
- Apply after some regrowth.

**Grasshoppers**
- Eat foliage, nymphs most damaging.
- Worse in dry conditions.
- Edge treatment possible.
- Adults hard to kill.
- Insecticides,
  - Sevin / Carbaryl 4L, 80S
  - Baythroid XL (2.8 oz)
  - Mustang MAX
  - Karate Z
  - Dimilin 2L (1-2 oz/A, small nymphs (preventive)).

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**Stem boring maggot (fly) damaging bermudagrass hay fields, Irwin County, GA, July 2010**

**Bermudagrass stem maggot, Atherigona reversura, native to Asia**

(Larval photos by Ruth Donaldson, UGA-Griffin)
Bermudagrass stem maggot damage and management?
- Little information.
- Multiple generations.
- Yield, quality loss??
- Thin-stemmed varieties seem less preferred.
- Farmer trials: single appl. of pyrethroid insecticide provide only short-term control.

Green June Beetle, Cotinis nitida
- "Grubworms" 
- "June Bugs"

Chicken litter / cow manure / wet decaying hay attracts Green June beetles

Green June beetle infestations in tall fescue after repeated spring chicken litter applications (Winfield, Alabama)

Litter starting spring 1996
3 tons per year

Source: K. Flanders, Auburn Univ.

Life Cycle of the Green June Beetle
- 1996
- 1997
- 1998

Litter

Photo: University of Arkansas.

Larvae tunnel and pulverize soil, damages roots, disrupt soil contact with roots, plants desiccate and winterkill

Dr. David Buntin, Extension Entomologist
Green June Beetle Control

- Thresholds:
  - Overseeded winter grasses: 1-2 per sq. ft
  - Fescue: 3-4 per sq. ft
  - Bermudagrass: 10 per sq. ft.
- Insecticides:
  - Sevin (80S, 50WP, 4F) other brands of carbaryl
  - Max. label rate
  - 14 days grazing / harvest interval.
- Coverage is important –
  - Mow or graze before applying insecticide.
  - Adequate water for good coverage
  - Apply late in the day.

May beetles, Chafers & Japanese beetles

- Other grubs: complete renovation and replanting

Dung beetles and manure recycling

- Numerous species; Native and introduced; 28 in NC.
- Life cycle: 8 – 10 weeks.
- Bury manure – 3 days.
- Reduce manure for horn flies, face flies, parasites.
- Soil nutrient recycling, aeration.
- Forage availability.

Dung beetle biology and habits, Scarab beetles

- I = tunnelers, II = dwellers, III = rollers

Fire Ant Life Stages

- Social insects with division of labor among castes
- Queens lay as many as 200 eggs per day
- The average colony contains 100,000 to 500,000 workers.
- Winged reproducives leave the mounds in nuptial flights and found new colonies

Dung beetles and Insecticides

- Cattle treatments
  - Direct dusks, ear tags – little effect
  - Ivermectin, etc pour-on, injection: pulse in manure and kill dung beetles
  - Moxidectin: least toxic
  - Bolus of Altosid (methoprene): toxic for weeks.
- Foliar to pasture –
  - Pyrethroids, Sevin: kill adults short term
  - Dimilin: past through hay / grazing into dung – kill grubs.
Perennial Pastures
- Treat in pastures where heavy livestock birthing will occur.
- In hay pastures, treat when mounds are so numerous they interfere with haying operations.

Fire Ant Quarantine Areas in United States
- Introduced Mobile, AL in 1918 and 1930’s

Fire Ant Management in Stored Hay
- Quarantine for hay and crop straw; pine straw not covered.
- Pick up bales as soon as possible.
- Only 1 – 2 days in field.
- Bottom layer cannot be shipped outside quarantine area.
- No Insecticide to treat hay.
- Control fire ants around storage area with registered product.

Fire Ant Baits for Hay Fields
- AMDRO PRO
  1 to 1.5 lbs per acre.
  7-day harvest interval
- EXTINGUISH
  1 to 1.5 lbs per acre.
- EXTINGUISH PLUS (AMDRO)
  1.5 lbs per acre.
- ESTEEM Ant Bait
  1.5 – 2 lb per acre;
  1 day harvest interval.
- Mix with Amdro Pro
- AWARD (Non-food animals, Horse only)
  1 – 1.5 lb per acre

Questions?

Control may not be feasible in southern GA.
Stop control; re-infestation may be worse.