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# Corn & Soybean update: Insect Pest Management

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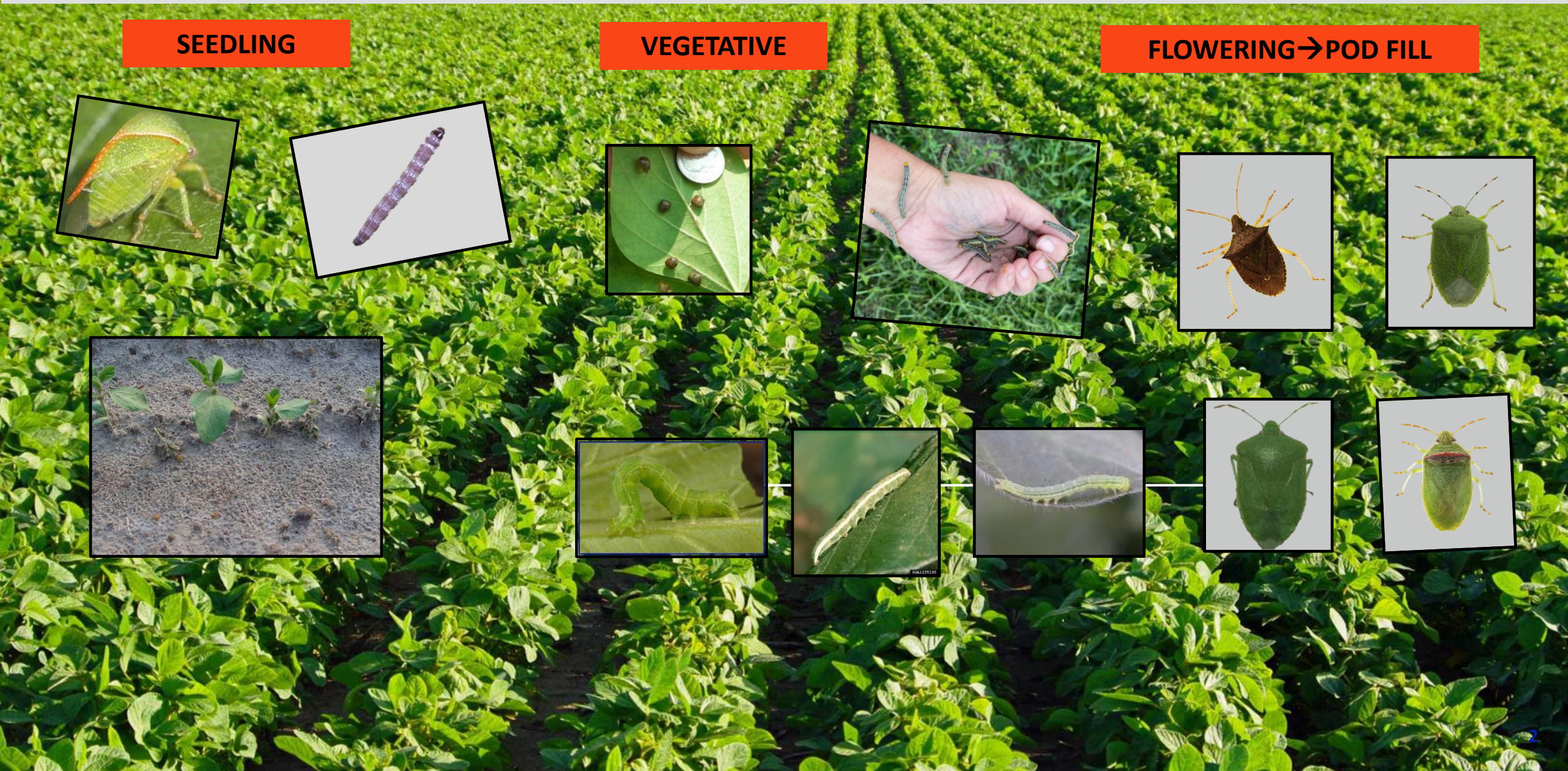
# Soybean Pests: Many Insect Pests Feed on Soybean



# Three Cornered Alfalfa Hopper (*Spissistilus festinus*)

**Identification**:
- Robust triangular shape, red tip at the point of the "triangle".

**Injury**:
- Lateral branch, main stem and leaf petiole girdling.
- If not caught early, may see effect later: lodged plants.

**Thresholds**:
- **Avg of 2/sweep**. 20 sweeps = 40 hoppers.
- **ONLY** when stands are threatened, and insects are seen. Until plants are **10-12 inches tall**.
  - Pyrethroids all you need → may cause increase other pests




Damage was done early but effects are seen later

# Lesser Cornstalk Borer (*Elasmopalpus lignosellus*):


Mature LCB larvae


LCB Female Moth

**Identification**:
Larvae brownish green to blackish purple→ move violently when disturbed

**Injury**:

- Bore into young stems, weakening them and causing plants to lodge or die.

**Threshold**

- 10% of seedlings have present larvae/injury.
  - Chlorantraniliprole: Vantacor & Beseige*
  - Diamond: Growth regulator
  - Good control and residual

# Kudzu Bug

## (*Megacopta cribraria*)

**Identification**:

- Small rotund stink bug like. Hairy nymphs

**Injury**:

- Feed on main stem and leaf petioles and can reduce number of pods /plant, seeds/pod and seed size.
- Colonize edges

**Thresholds**:

- Prior to first bloom: Avg. **5 Adults/plant**
- After FB-R6: Avg. **10 Adults/sweep** or **1 Immature/sweep**
- Pyrethroids work well

# Foliage Feeders Mid to Late Season

**A mix of species throughout season**:

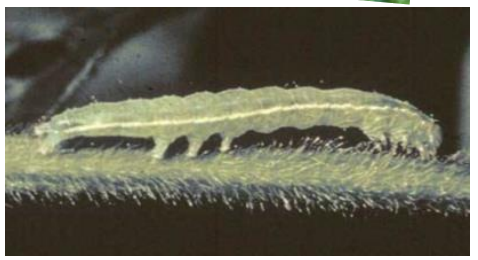
- Velvet bean, soybean looper, green clover worm most common. Some CEW, BAW, FAW.

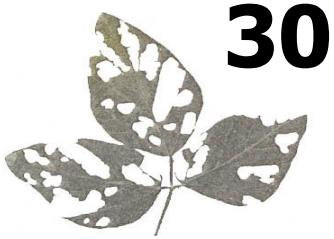
**Species ID important**:

- Soybean looper will drive insecticide choice.

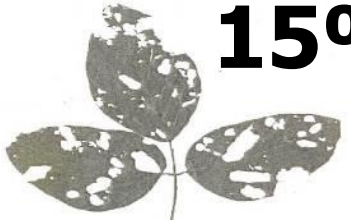
**Thresholds**:

- Prior to bloom: **30-35% defoliation**
- After Bloom: **15-20% defoliation**

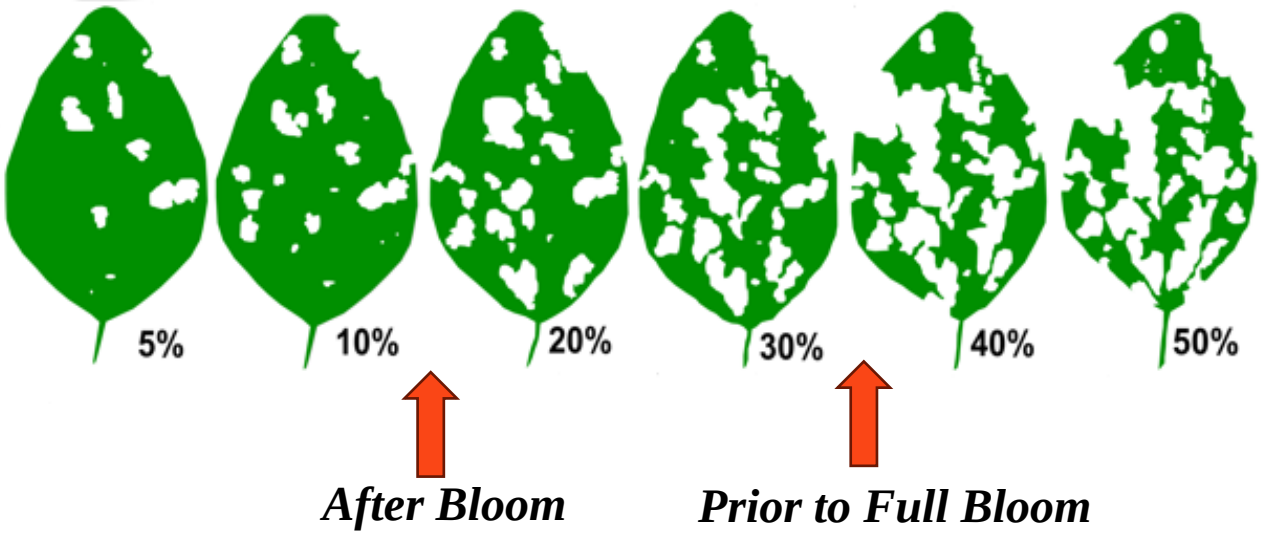




**30%**



**15%**



# What Happens When You Don’t Scout

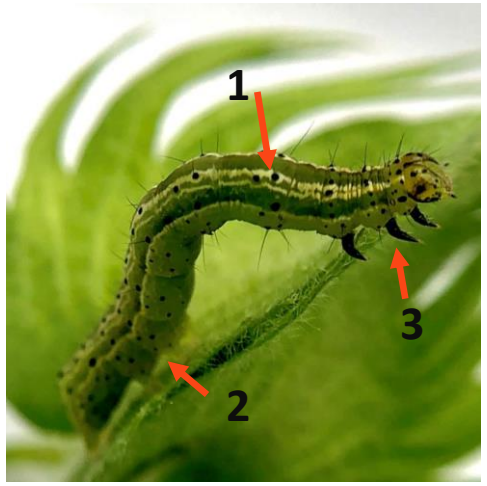
**Velvet bean Caterpillar**

Voracious feeders
can defoliate quickly

Easy to kill but…

# Quick Caterpillar ID

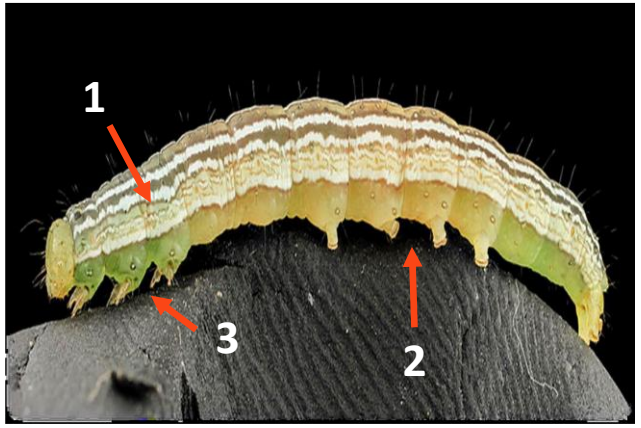
## Soybean Looper
(*Chrysodeixis includens*)




**Key Features:**
**Black spots visible on side (1)**
**2p abdominal prolegs (2)**
**Black thoracic Legs (3)**

**Management Tips:**
Hardest to Kill
Invade bottom canopy,
Coverage is Key
Pyrethroid tolerant

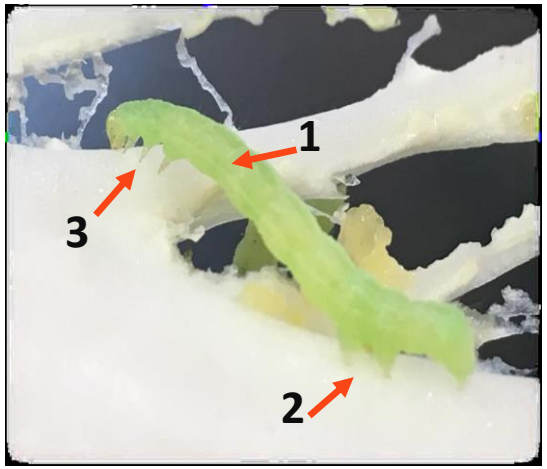
## Velvet Bean
(*Anticarsia gemmatalis*)




**Key Features:**
**No black spots on side (1)**
**4 abdominal prolegs (2)**
**No black thoracic legs (3)**

**Management:**
Easy to Kill
Voracious feeders
Feed top canopy downward

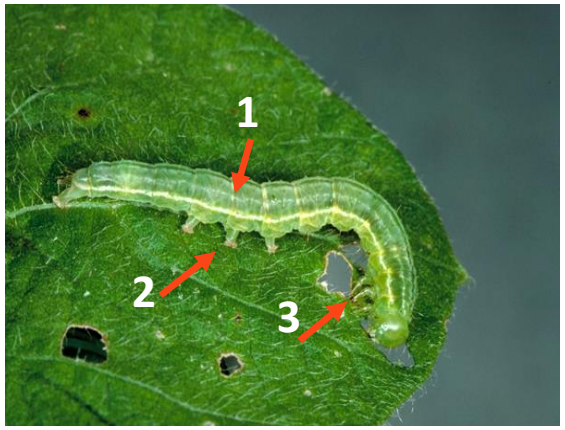
## Cabbage Looper
(*Trichoplusia ni*)




**Key Features:**
**No Black spots visible on side (1)**
**2p abdominal prolegs (2)**
**Green thoracic Legs (3)**

**Management:**
Seen earlier in season
Similar looper motion
Not pyrethroid tolerant

## Green Cloverworm
(*Hypena scabra*)




**Key Features:**
**No Black spots visible on side (1)**
**3p abdominal prolegs (2)**
**Green thoracic Legs (3)**

**Management:**
Easy to Kill
Not treated for alone
Natural enemies keep control

# Stink Bug Complex

## Injury:

- Both nymphs and adults feed on developing beans up to maturity.
- Unfilled, deformed and shrunken pods
- Aborted pods
- Feeding site acts as a pathway for potential pathogens

Brown Stink Bug


Brown Marmorated Stink Bug

Southern Green Stink Bug

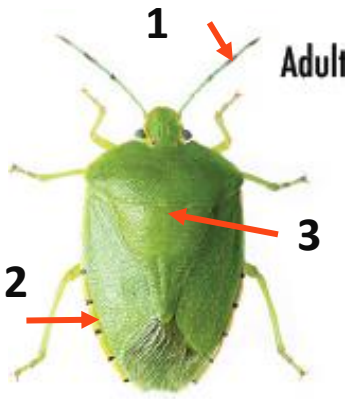
Green Stink Bug


Red-Shouldered Stink Bug

Red Banded Stink Bug

# The Greens

## Green Stink Bug
(*Chinavia hilaris*)






Eggs

3rd instar

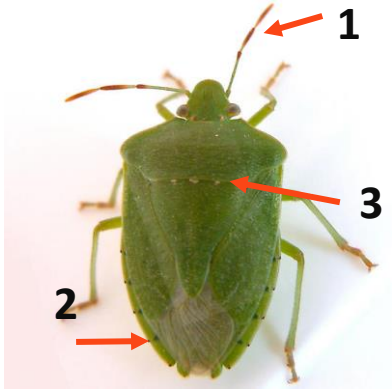



4th instar


**Key Features:**

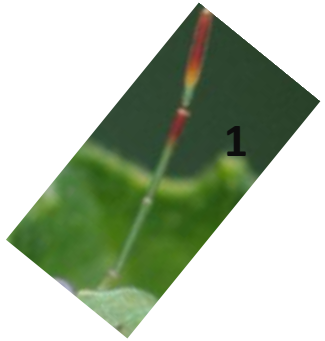
- Large
- Dark bands on antennae (1)
- Dark marks on the abdomen (2)
- 5 pale spots on base of scutellum (3)
- Late instars have orange patches on "shoulders"

## Southern Green
(*Nezara viridula*)




1st instar

2nd instar



3rd instar

4th instar

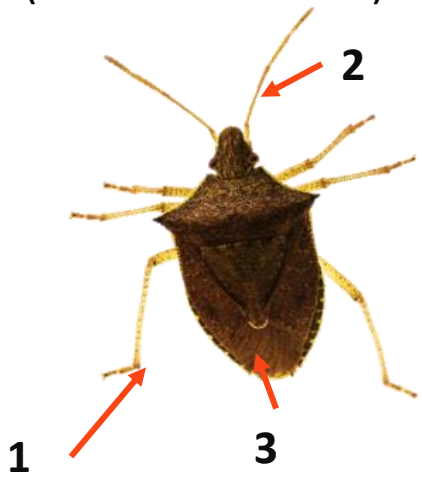
5th instar

**Key Features:**

- Also large
- Orange bands on antennae (1)
- No marks on the abdomen (2)
- 3 pale spots on base of scutellum (3)

# The Browns

## Brown Stink Bug
(*Euschistus servus*)








1st instar


Eggs


2nd instar

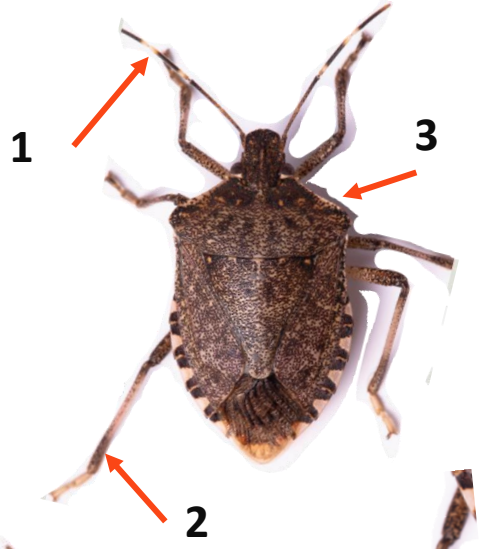

3rd instar


4th instar


5th instar

**Key Features:**
- Smaller
- Antennae w/no white band (1)
- No white band on legs (2)
- Wings w/ dark spots (3)

## Brown Marmorated
(*Halyomorpha halys*)








1st instar


2nd instar


3rd instar

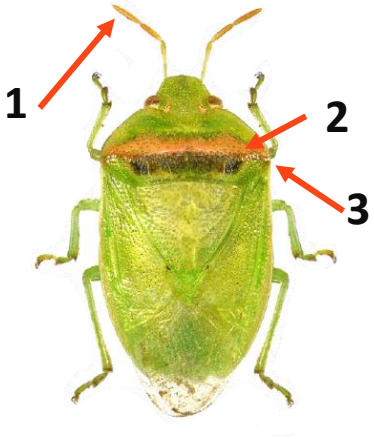

4th instar


5th instar

**Key Features:**
- Antennae w/ white bands (1)
- Legs “stripped” white/brown (2)
- No serrations on pronotum (3)
- Often confused with Brown

# The Reds

## Red Banded
(*Piezodorus guildinii*)





1st instar


2nd instar


Eggs


3rd instar

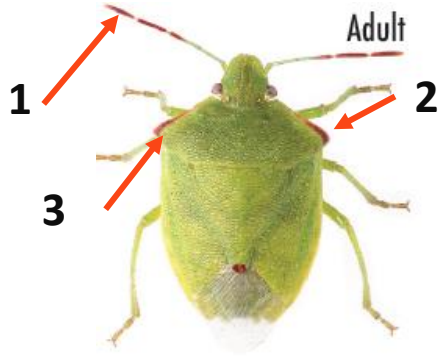



4th instar


5th instar

**Key Features:**
- Antennae w/ red-orange bands(1)
- Orange/Red band across thorax (2)
- Shoulders rounded(3)

## Red Shouldered
(*Thyanta custator*)





1st instar


2nd instar


Eggs



3rd instar


4th instar


5th instar

**Key Features:**
- Antennae redder than RBSB (1)
- Pronotum red outline on sides (2)
- Shoulders somewhat pointed (3)

# Stink Bug Thresholds:

Brown Stink Bug


Brown Marmorated Stink Bug

Southern Green Stink Bug

Green Stink Bug


Red-Shouldered Stink Bug

Red Banded Stink Bug

## Greens & Browns:

**Bloom to mid pod fill:**

- 1 stink bug per 3 row feet or 3/25 sweeps

**Mid pod fill to maturity:**

- 1 stink bug per 3 row feet or 5/25 sweeps

## Red Banded:

**Bloom to Pod fill:**

- 1 stink bug per 3 row feet or 3/25 sweeps

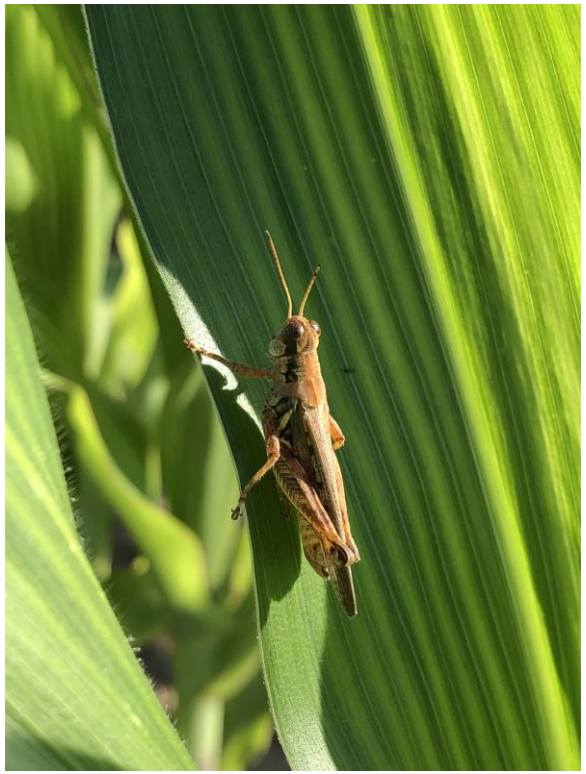
## Control:

- Any pyrethroid works well for all species EXCEPT Brown Stink Bug.
- IF majority is Brown stink bug use **Bifenthrin** at higher rate.

# CORN PESTS: More than 20 Feed on Corn

# Field Corn VS. Sweet Corn

# Grasshoppers

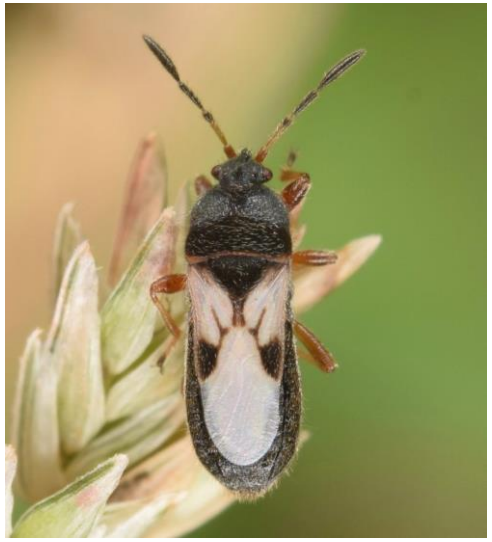


- Periodic issues → drought
- One generation/year
- Eggs hatch in March-June
- Nymphs feed on grasses and weeds → Corn,
  - feed on leaves, silks and ear tips

## Management

- Scout early in fields near preferred hosts/egg laying
  - Pastures, weedy areas, fence-rows, alfalfa, small grain
- If grasshoppers present at edge, walk into field to scout
- Best to treat when grasshoppers are still young
  - Field edge: 15 nymphs OR 8 adults/ft$^2$
  - Within field: 5 nymphs OR 3 adults/ft$^2$

# Chinch Bugs (*Blissus leucopterus*)



- Overwinter on wild grasses
- Spring move to wheat, rye before corn.
- Feed on root tissue in cracked soil, as well as stalks of developing plants.

## Management

- Can be found on edges first, tend to aggregate
- Tend to be worse in fields with heavy residue
- Seed treatments will generally prevent serious issues → difficult to control with foliars
- Can treat when populations reach
  - **Threshold**: 5 Bugs/plant found in 20% of the field

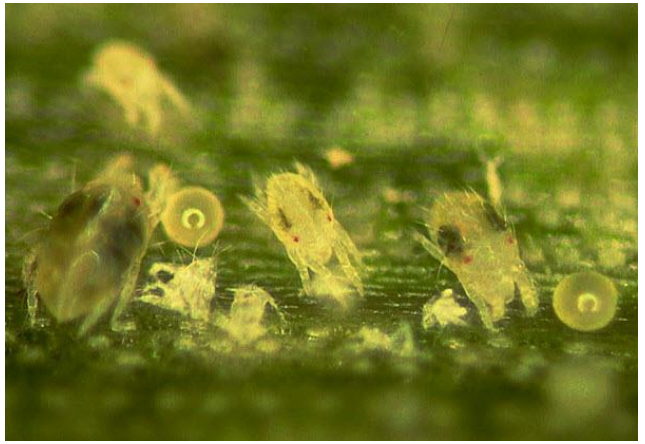
# Aphids/Corn Leaf Aphid

- You will see them
- Look worse than they are
- Usually get taken out by natural enemies
- Can affect pollination if populations are high
- No issue post tassel

## Management

- Only concern is pre tassel
- No post tassel thresholds
- Reach out to us if you think  you have a problem

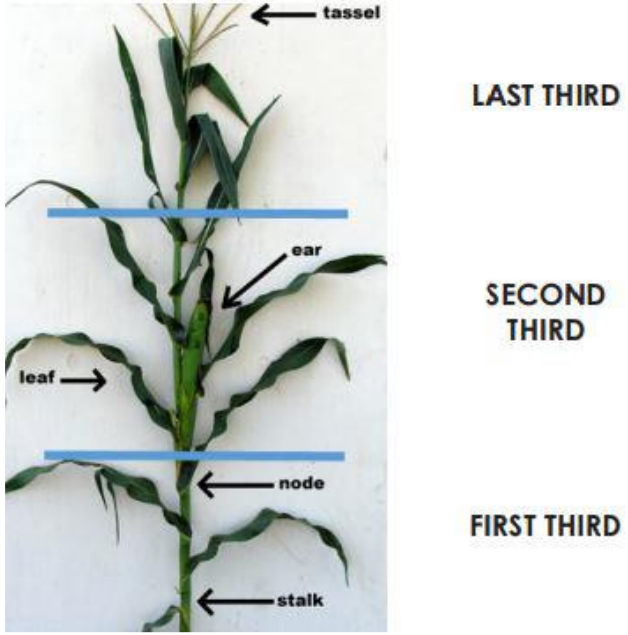
# Spider Mites



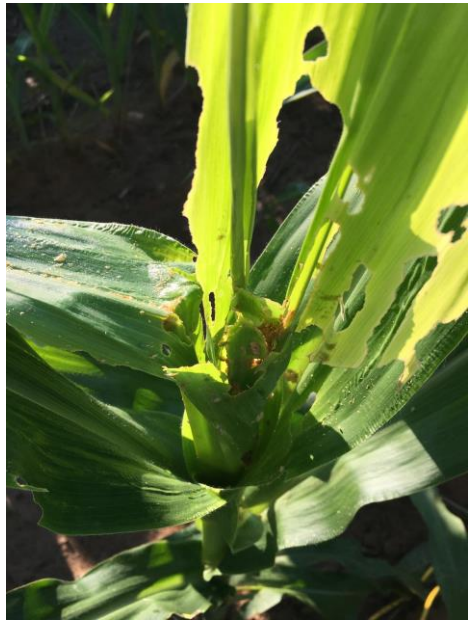

- Drought stressed fields
- Colonize bottom of plant first
- Stippling, yellowish-red spots
- Can be an issue before kernel development (<R5) otherwise not economical to treat .

## Management

- Check for spider mite  infestations if there is some discoloration
- **Thresholds.** Treatment may be warranted if:
  - **Plant stage < R5**
  - Damage **visible** in **lower 1/3**  of plant and active colonies are **present** in middle **1/3**
  - Use only miticides



# Caterpillars

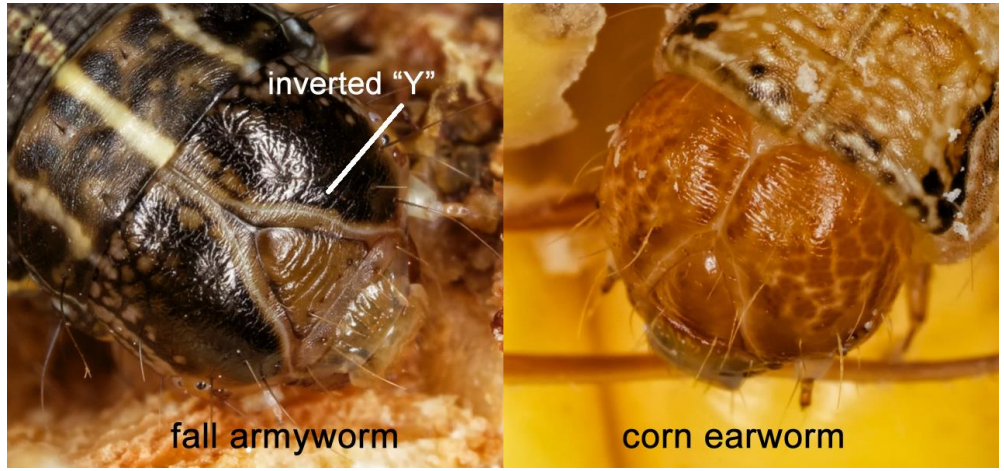



- Before Whorl: FAW
- In Whorl: FAW, CEW, BAW
- Silk & Ears: CEW, FAW

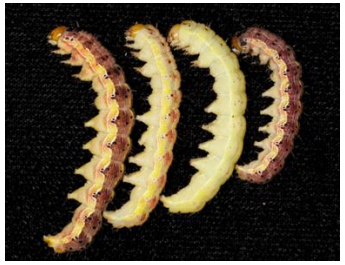
## Management: Seedlings to Whorl

- Most B*t* corn will prevent serious issues.
- 25% of plants infested, larvae present
  - Coverage is key! Need product in whorl
  - Cone type nozzles

# Fall Armyworm Vs Corn Earworm







## Fall Armyworm:

- Generally gray, light brown, mottled green in color.
- Smooth skin with relatively few "hairs"
- Distinct inverted white 'Y' on head capsule
- Larger larvae brownish head

## Corn Earworm:

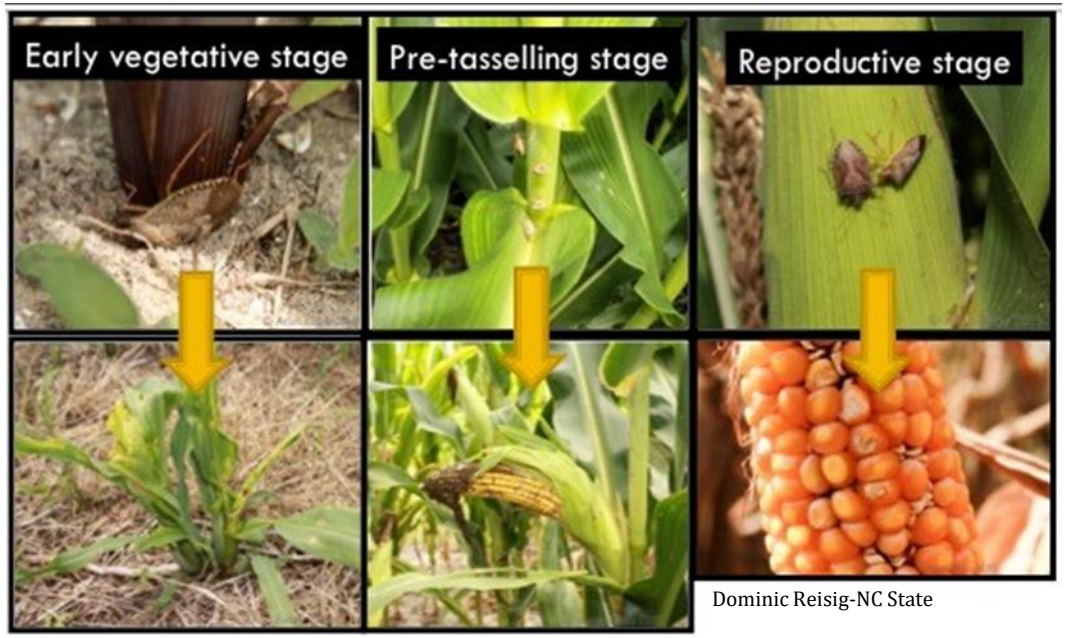
- Variable in color: green, yellow, or orangish → unreliable for ID
- Yellow strip below spiracles
- Skin coarse and covered with short black hairs

# Stink Bugs In Corn

- Stink bugs can cause 3 different types of damage during corn development
- **Injury When?**
  - V1-V6: plants can be stunted, yield-robbing tillers can be formed, or plants can be killed.
  - V14 to VT: Crooked ears and kernels can be missing.
  - R1 to R4: Reduction in kernel size and weight and secondary pathogens can be introduced that lead to *aflatoxin* or *fumonisin* contamination.

Brown stink bug feeding on kernels of developing ear.

**Injury Types**




Dominic Reisig-NC State

# Stink Bugs In corn

**Brown Stink Bug** (*Euschistus servus*)

**Southern Green** (*Nezara viridula*)

**Green Stink Bug** (*Chinavia hilaris*)


**B. Marmorated** (*Halyomorpha halys*)

**Thresholds**:

Whole plant count:

- V1 to V6: 1 per 10 plants
- V14 to VT: 1 per 4 plants
- R1 to R2: 1 per 2 plants

Options:

Pyrethroids work well for stink bugs. If mainly brown, Bifenthrin @ **.1 lbs ai/acre** is recommended compared to lower rates than other pyrethroids.

Brown stink bug feeding on stalks, no injury here. Often hide at the base of leaves

# Notes on Stink bug

**Brown Stink Bug** (*Euschistus servus*)

**Southern Green** (*Nezara viridula*)

**Green Stink Bug** (*Chinavia hilaris*)


**B. Marmorated** (*Halyomorpha halys*)

## Where to look:

- Corn fields planted in no-till fields or in a heavy cover
- Next to wheat or small grains being harvested
- Next to Tree lines, stink bugs overwinter on trees in the off season
- Clumped distributions on edge of the field

Dominic Reisig-NC State

# Potential New Invasive in Corn

## The Corn Leaf Hopper (*Dalbulus maidis*)

- Native to Mexico/Central America
  - Occasionally in southern U.S. Including Florida.
- 2024: First report in Oklahoma, appeared to be more than an isolated population
  - Found in AL, NC, GA, TX, likely FL.
- **Only reproduces on corn**
  - Can survive on grasses, alfalfa, wheat, triticale.
- A vector for **Corn Stunt Disease**.



### Symptoms:

- Chlorosis, reddening of leaf tips, tillering, stunting, spike and grain deformation.
- Plants are infected during the vegetative stages.
- symptoms are expressed later in the season when corn reaches the reproductive stage.


### Identification:

- Adults: light tan/yellow ~1/8” long
- Adults: 2 dark spots between eyes
- Hind margin of 1st thoracic segment deeply indented forming ‘V’- shape
  - See orange arrow

# Thank You! Contact info:

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