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# TEXAS A&M AGRILIFE EXTENSION

WIZZIE BROWN

EXTENSION PROGRAM SPECIALIST-IPM

TRAVIS COUNTY

# VEGGIE PEST IPM





## SAP-SUCKING: APHIDS

- Tiny: less than 1/4"
- Various colors: pink, grey, green, black, yellow
- Pudgy, oval shaped bodies
- Long antennae
- Cornicles off tip of abdomen
- Immatures look like adults, but smaller

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- On underside of leaves
- Adults small, white with wings
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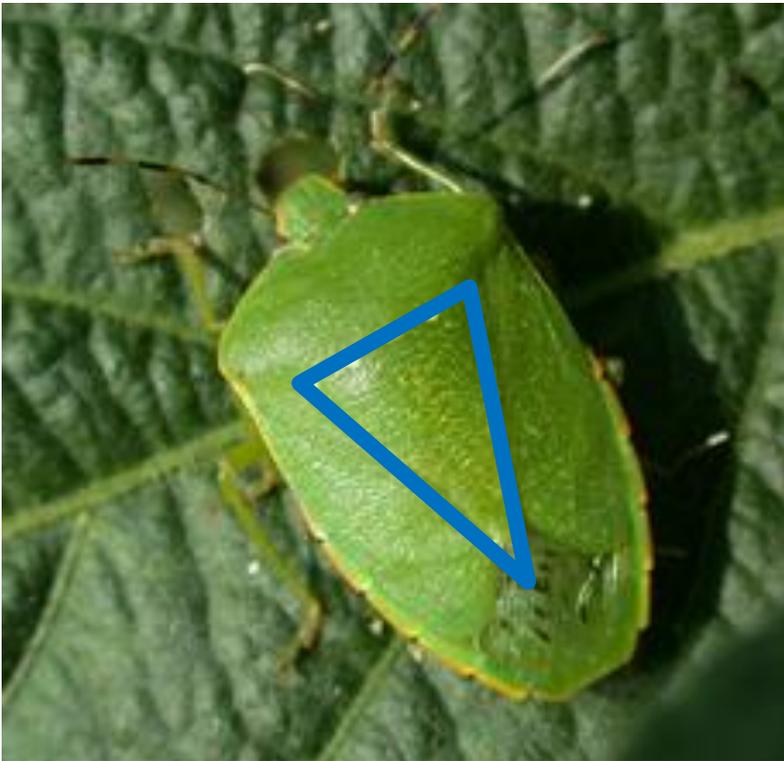


## SAP-SUCKING: STINK & HARLEQUIN BUGS

- Adults
  - Shield-shaped
  - Triangle on back
  - Variable color
  - Wing with front half hardened & tip membranous
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# SAP SUCKING- SQUASH BUGS

- Greyish color, similar to stink bugs
- Immatures look similar to adults, no fully developed wings
- Hide under foliage
- Piercing-sucking mouthparts
- Yellowing/ bronzing of foliage



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## FOLIAGE FEEDERS- SPIDER MITES

- Very tiny
- Oval shape
- 8 legs
- No antennae
- Various colors
- Create webbing
- Start on underside of leaves & expand webbing
- Immatures look like adults but smaller





## FOLIAGE FEEDERS- FLEA BEETLE

- Small: 1/16" to 1/4"
- Various colors, black, bronze, blueish, brown, grey
  - Some species with stripes
- Enlarged hind legs for jumping
- Immatures small, white, wormlike
  - feed on roots, so often not seen





## FOLIAGE FEEDERS- CORN EARWORM

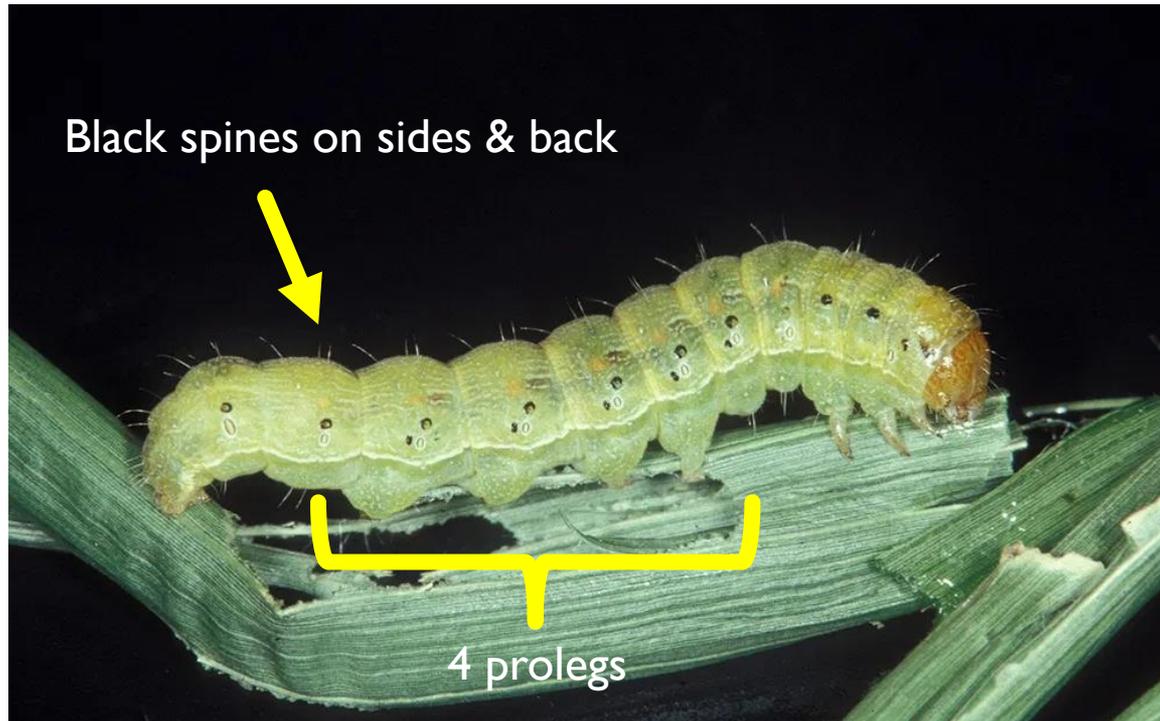


- Tomato fruitworm, bollworm, soybean podworm
- Small larva are cream colored
- Larger (damaging) larva green to pink to brown
- Stripes run longitudinally along body
- 4 prolegs
- Small black spines on back & sides
- When disturbed, wiggle or curl into c-shape

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## FOLIAGE FEEDERS- CUTWORMS

- Up to 2"
- Smooth with very few hairs
- Brown, pink, black, green, black in color
  - Shiny or dull
- Spotted or striped or uniform in color
- Curl into C when disturbed



Fall



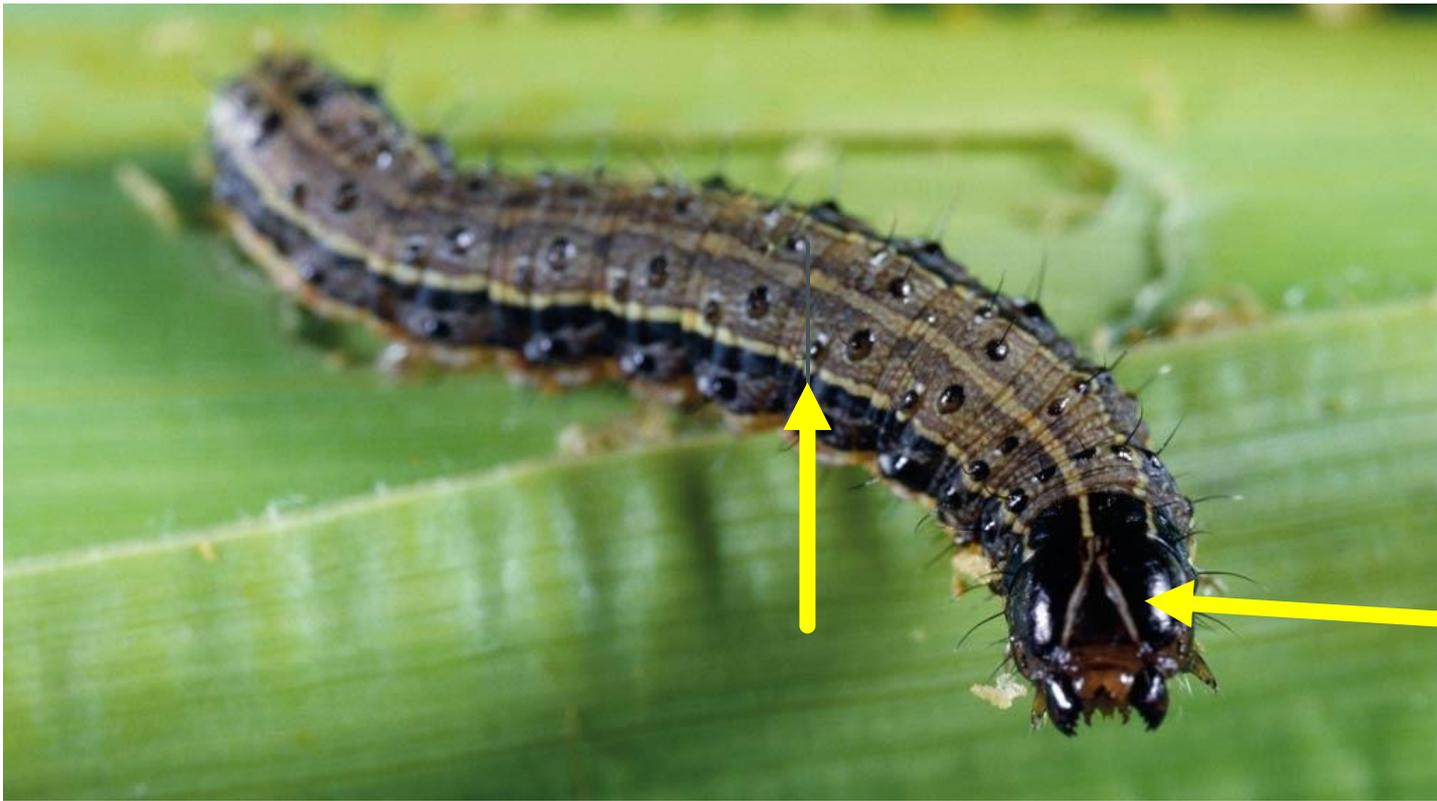
Beet



## FOLIAGE FEEDERS- ARMYWORM: FALL & BEET

- Feed in groups
- Smaller larva: greenish with dark head
- Fall larger larva: brown, grey, green color; inverted Y on head, lateral stripes, raised spots on body
- Beet larger larva: green on dorsal surface, yellow to pink on sides; black spot on mesothorax

Fall



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## FOLIAGE FEEDERS- CABBAGE LOOPER

- Small caterpillars, up to 1.5"
- Light green with white stripes (usually)
- 3 pair true legs & 3 pair of prolegs



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FOLIAGE FEEDER:  
SOUTHERN CORN  
ROOTWORM/ SPOTTED  
CUCUMBER BEETLE

- Adults yellow-green with 12 black spots
  - About 3/8"
- Larva cream colored, brown head capsule, 6 legs
  - About 3/4"



# TUNNELER- SQUASH VINE BORER

- Adult moth orange body & legs; head, thorax, FW blueish-black
- Eggs brown, laid singly
- Larva (caterpillar) creamy white with brown head capsule- inside the stem
- Frass (waste material) may pile up outside plant

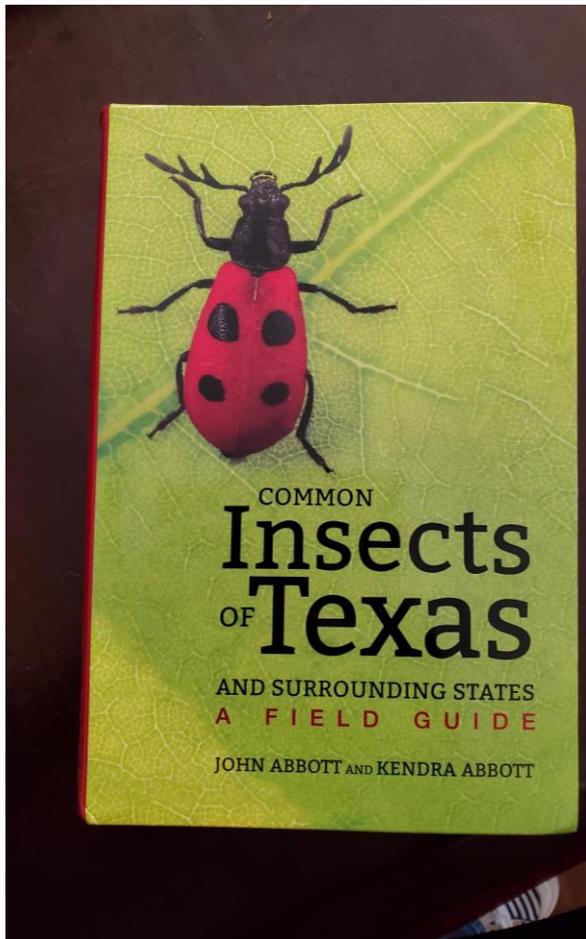




## INSPECTION

- Hand lens
- Collecting equipment
- Get up close

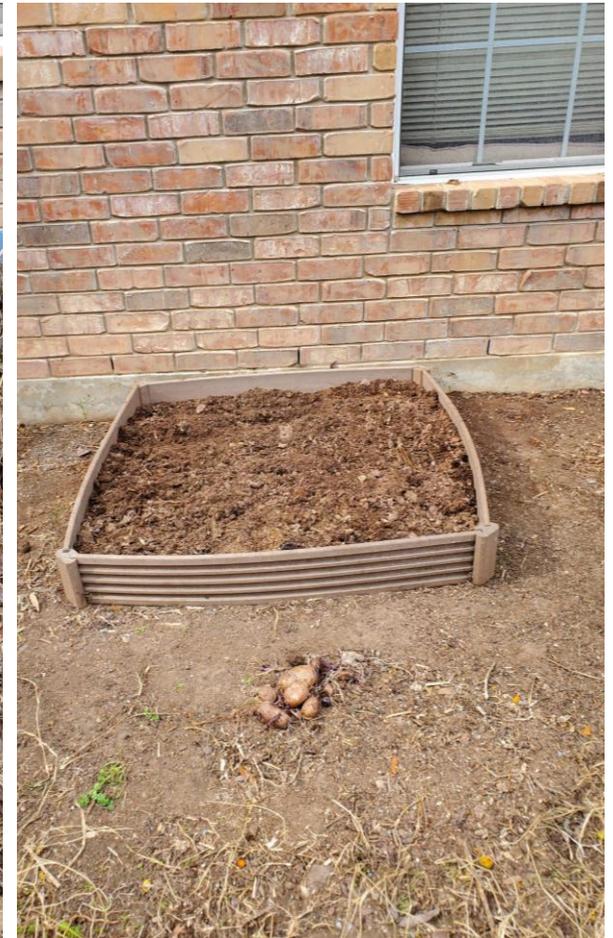
# IDENTIFY PESTS/ BENEFICIALS



- Field guide
- Camera
- Size reference (coin/ ruler)

# SANITATION

- Remove sources of overwintering pests
- Reduce weeds/ competing plants



# WATERING



- Create healthy plants
- Improved productivity
- Know your soil to know how it drains
- Water in morning to mid-day
- Check soil moisture with finger or moisture meter
- Soaker hoses & drip irrigation best

# FERTILIZATION

- Fertilizer, compost, manure
- Provides nutrients to plant
- Need to have good soil drainage for fertilizers to work properly
- Manmade products usually with higher nutrient content



# SPACING



- Allows air flow
- Reduces diseases
- Go vertical!



## PLANT SELECTION

- Plants adapted to certain areas
- Can reduce chance of pests/ diseases
- Determines planting time

# CROP ROTATION

- Avoid growing same plant in same location
- Switch areas for different plant families



# SOIL PREPARATION



- Providing what plants require to grow
  - Improve drainage
  - Add nutrients
- Tilling loosens soil
  - kill overwintering pests

## USE OF ROW COVER

- Physically blocks pests from getting to plants
- Put on BEFORE pests arrive
- Build frame & stake down bottom





# VACUUMING/ HAND PICKING

- No pesticides applied to plants
- Hand picking
  - Wear gloves
  - Dump wingless insects in tray bird feeder
  - Winged insects can be killed in bucket of hot soapy water
- Vacuuming
  - Dedicated vacuum
  - Handheld/ backpack
  - Cordless



A person with short grey hair and glasses, wearing a white shirt, is using a long-handled high-pressure water spray wand to clean plants in a garden. The garden is enclosed by a chain-link fence. In the background, there are trees and a building. The scene is outdoors during the day.

## HIGH PRESSURE WATER SPRAYS

- No pesticide applied to plants
  - No resistance
- Works best on small, soft-bodied insects
- Damage exoskeleton
- Knock off of host plant
- Won't work as well with flying insects

# PLANT COLLARS

- Physically blocks soil level insects from plants
  - Works well with cutworms
- Easy to use household materials



# USE MULCH

- Prevent water loss via evaporation
- Reduce growth of weeds
- Maintains soil temperature
- Prevents soil splashing- diseases
- Improve soil structure
- Improve movement of water into soil





## TRAPPING

- Great monitoring tool!
- Choose correct trap for pest

# COMPANION PLANTING

- [http://sfyl.ifas.ufl.edu/sarasota-docs/ag/OrganicVegetableGardening\\_CompanionPlanting.pdf](http://sfyl.ifas.ufl.edu/sarasota-docs/ag/OrganicVegetableGardening_CompanionPlanting.pdf)
- <http://ulster.cce.cornell.edu/resources/companion-planting-and-flower-borders>
- <http://chemung.cce.cornell.edu/resources/companion-planting>
- <https://uiarchive.web.illinois.edu/cook/downloads/69320.pdf>



# TRAP CROPPING

- Plant crop of lesser value to draw in pests to particular area
- Sacrifice crop
- Treat trap crop

<https://ipm.missouri.edu/MPG/2011/5/Using-Trap-Crops-to-Minimize-Damage-by-Insect-Pests-to-Veggies/index.cfm>



# USE PESTICIDES WISELY



Choose targeted pesticide if possible



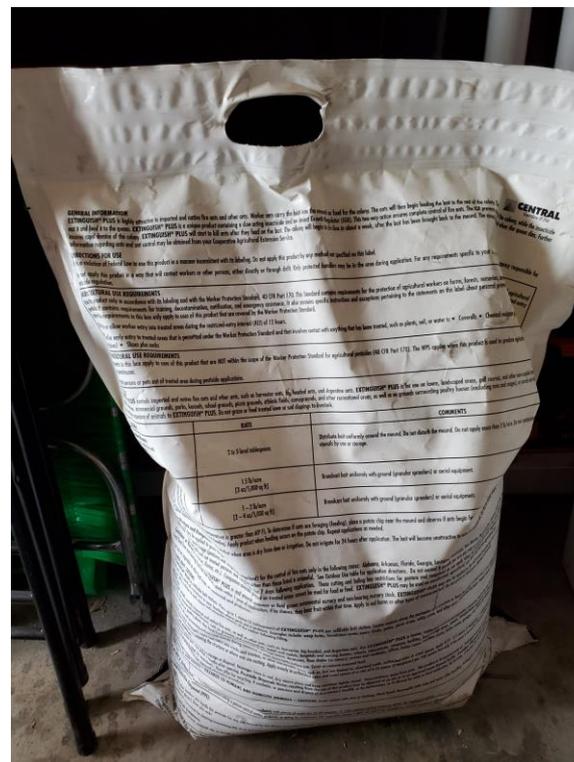
Target treatment area



Read & follow label instructions



Texas is a SITE state



# RESOURCES

- <http://entomology.tamu.edu/>
- <http://aggie-horticulture.tamu.edu/>
- <http://texashighplainsinsects.net/>
  
- Books:
  - Garden Insects by Whitney Cranshaw
  - Common Insects of Texas by John & Kendra Abbott

# Podcasts

My contact information:

Wizzie Brown  
[ebrown@ag.tamu.edu](mailto:ebrown@ag.tamu.edu)  
512-854-9600

Facebook page:  
<https://www.facebook.com/UrbanIPM>

Instagram: urbanipm

Twitter: @UrbanIPM

YouTube:  
<https://www.youtube.com/channel/UCayKPoGaI534vQWxG3IRNEQ>

