Fall Army Worms Monitoring and Managing

We don't know what to expect this fall but being aware is important.

ARMYWORM BIOLOGY

- Mature larvae are green to brown
- Larval life cycle takes 2 to 3 weeks
- Adult is a night flying moth
- 1 to 1 ¼ inch wingspan
- Eggs are laid in masses of 50 or more on the underside of leaves
- Eggs are covered with fuzz
- A single female can lay 2000 eggs

FAW DEVELOPMENT

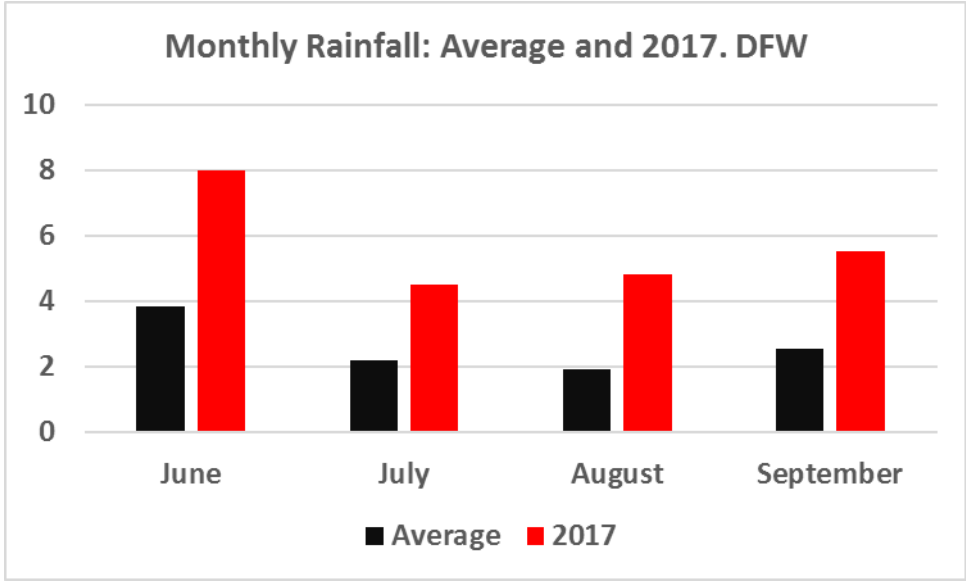
- At hatch, larvae are very small (1/16 inch)
- Feed for 3-4 weeks, depending upon temperature
- Armyworms eat 80% of total grass consumed during last 2-3 days of development

FAW DEVELOPMENT

- Larva then enters the soil and transforms to the pupa stage
- Moth emerges in 7-10 days
- Generation from egg to adult completed in about 4 weeks during summer
- Much longer during cool weather
- Cannot survive freezing weather
- Armyworms overwinter in south Texas
- Moths migrate north in summer (FAW)
- FAW outbreaks can occur in mid-summer and fall after rains

FALL ARMYWORM OUTBREAKS

- Widespread fall armyworm outbreak beginning in early October, 2017
- Biblical outbreaks in 2018 in September
- Most outbreaks occur when we get heavy rainfall in late-July or August

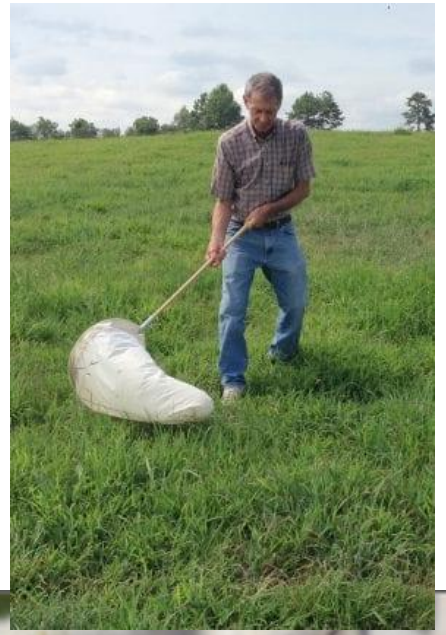


MONITORING FALL ARMYWORM

- Look for armyworms in evening, early morning when they tend to be in the upper canopy
- During hot days, they feed lower in the canopy or may even hide in soil cracks and under leaf litter
- Infestations often come in waves, about 1 month apart
- But inclement weather (rain, cool) can result in overlapping waves

MONITORING FALL ARMYWORM

- Early detection of armyworm infestations is the best defense against crop loss
- Look for outbreaks after summer rains
- Prefer dense, lush grasses (well fertilized)
- Inspect grassy areas along fence lines, tree lines, and waterways
- Pheromone traps have been used to monitor moth activity but there is effectiveness is uncertain
- Cattle egrets lingering in pasture
- Listen for reports of outbreaks
- Scout for worms and damage
  - Visually
  - Sweep net



MAKING VISUAL INSPECTIONS

- Watch for birds in the pasture (cattle egrets)
- Worms sticking to pants or boots
  - Scout these areas first, or area of dead grass
- Early signs of armyworm damage by small worms include leaves that are chewed on the underside only and fields with a slight "frosted" appearance
  - Slightly larger worms will create a windowpane effect
  - Large worms, grass is gone
- Time to look
  - On cool cloudy weather days scout early morning and late afternoon
  - On hot days, scout low in canopy and on the soil surface
- Pull back the thatch and look at the base of the base and soil for hiding worms and worm excrement (resemble dark grass seeds)
- Run your hands through the grass in a 1- to 2-square-foot area to knock the larvae to the soil and make them easier to see. Then part the grass to look for larvae on the soil.

DAMAGE

- Look for leaf feeding
- Small worms graze on green portion of leaf, resulting in window pane effect
- Larger worms consume entire leaf

USING A SWEEP NET

- Sweep net is the favored method
- Picks up easily missed small worms
- Use a standard 15-inch canvas sweep net
- Best used early morning or late afternoon
  - May miss them when hot and worms are near the soil surface
- Drag the net back and forth forcefully through the grass canopy as deep as possible without interfering with fluid motion or digging dirt
- Take 25 sweeps before checking the net for worms

WHEN TO TAKE ACTION

- Early detection and control is necessary to avoid crop loss
- Small worms are easier to kill
- Threshold varies with size of grass and size of worms
  - Big worms eat more
  - Seedling grass and new growth following cutting cannot tolerate as many worms
  - Thresholds are not written in the Gospels, nor did Moses bring them down from Mt. Sinai
- Visual: 3 or more ½ inch or larger worms per square foot
- Sweep net (15-inch): 2 or more ½ inch worms per sweep

* *count 2 smaller worms as 1 big worm*

CUTTING INFESTED HAY

- Cool temp forecast
  - Can go ahead and cut within 2-3 days
    - Worms may eat drying hay
  - Monitor survivors, and treat afterwards if necessary
    - New growth can tolerate fewer worms
- Warm temp forecast
  - Cut and bail after treatment
  - Be cognizant of pre-harvest and grazing intervals

INSECTICIDES

Class	Active ingredient	Trade names
Pyrethroids	Cyfluthrin	Tombstone
	Beta-cyfluthrin	Baythroid XL, Sultrus
	Zeta-cypermethrin	Mustang, Mustang Maxx
	Lambda-cyhalothrin	Calvary, Firestone, Grizzly, Kendo, L – C Insecticide, Lambda T, Lambda-Cy, LambdaStar, Lamcap, Paradigm, Province, Ravage, Silencer, Warrior
	Gamma-cyhalothrin	Declare
Benzoylureas	Diflubenzuron	Dimilin, Durant, Micromite, Unforgiven
	Tebufenozide	Confirm
	Methoxyfenozide	Intrepid, Invertid, Troubadour, TurnStyle, Zylo
Carbamate	Methomyl	Lannate, Nudrin
Diamide	Chlorantraniliprole	Prevathon
Spinosyn	Spinosad	Blackhawk
Diamide + Pyrethroid	Chlorantraniliprole + Lambda-cy	Besiege

INSECTICIDE PROPERTIES

Class	Active ingredient	Trade names	Properties
Pyrethroids	Cyfluthrin	Tombstone	• Fast acting • Short residual (3-5 days) • All worm sizes • Not rainfast • Contact only • Non-systemic • Inexpensive • Low toxicity • Broad spectrum
	Beta-cyfluthrin	Baythroid XL, Sultrus	
	Bifenthrin	Brigade, Bifenture, Discipline, Sniper,	
	Zeta-cypermethrin	Mustang, Mustang Maxx,	
	Lambda-cyhalothrin	Calvary, Firestone, Grizzly, Kendo, L – C Insecticide, Lambda T, Lambda-Cy, LambdaStar, Lamcap, Paradigm, Province, Ravage, Silencer, Warrior	
	Gamma-cyhalothrin	Declare	

Class	Active ingredient	Trade names	Properties	
Benzoylureas	Diflubenzuron	Dimilin, Durant, Micromite, Unforgiven	• Slow acting (3-4 days) • Dimilin provides good residual (10-14 days) • Others provide decent residual (5-7 days) • Not rainfast • Diflubenzuron only small worms • Others get all sizes	• Must be eaten • Non-systemic • Inexpensive • Very low toxicity • Target specific
	Tebufenozide	Confirm		
	Methoxyfenozide	Intrepid, Invertid, Troubadour, TurnStyle, Zylo		
Carbamate	Methomyl	Lannate, Nudrin	• Fast acting • Short residual (3-5 days) • All worm sizes • Not rainfast • Contact only • Non-systemic • Very toxic • Moderately expensive • Broad spectrum	

Class	Active ingredient	Trade names	Properties
Diamide	Chlorantraniliprole	Prevathon	• Fairly fast acting (several days) • Good residual (14-20+ days) • Rainfast • Must be eaten • All worm sizes • Translaminar systemic • Expensive • Very low toxicity • Target specific
Spinosyn	Spinosad	Blackhawk	• Fairly fast acting (several days) • Short residual (4-7 days) • Rainfast • Must be eaten • All worm sizes • Translaminar systemic • Expensive • Very low toxicity • Target specific
Diamide + Pyrethroid	Chlorantraniliprole + Lambda-cy	Besiege	See Prevathon but faster

SITUATIONAL INSECTICIDE SELECTION

- Going to cut hay soon
  - Pyrethroid
    - Short residual
    - Fast and cheap
- Most worms very small
  - Dimilin products
    - Only gets little worms
    - Will get hatching eggs
    - Cheap
- No rain in forecast but need fair residual
  - Intrepid products
    - Will get hatching worms for 3-4 days
    - Fairly inexpensive
- Rain in forecast and/or need long residual
  - Prevathon
  - Besiege
    - Rainfast
    - Long residual
    - Will get hatching worms
    - Expensive
- No rain in forecast but need good residual
  - Pyrethroid + Dimilin product
    - Fast acting
    - Will get hatching worms for up to 14 days
    - Fairly inexpensive