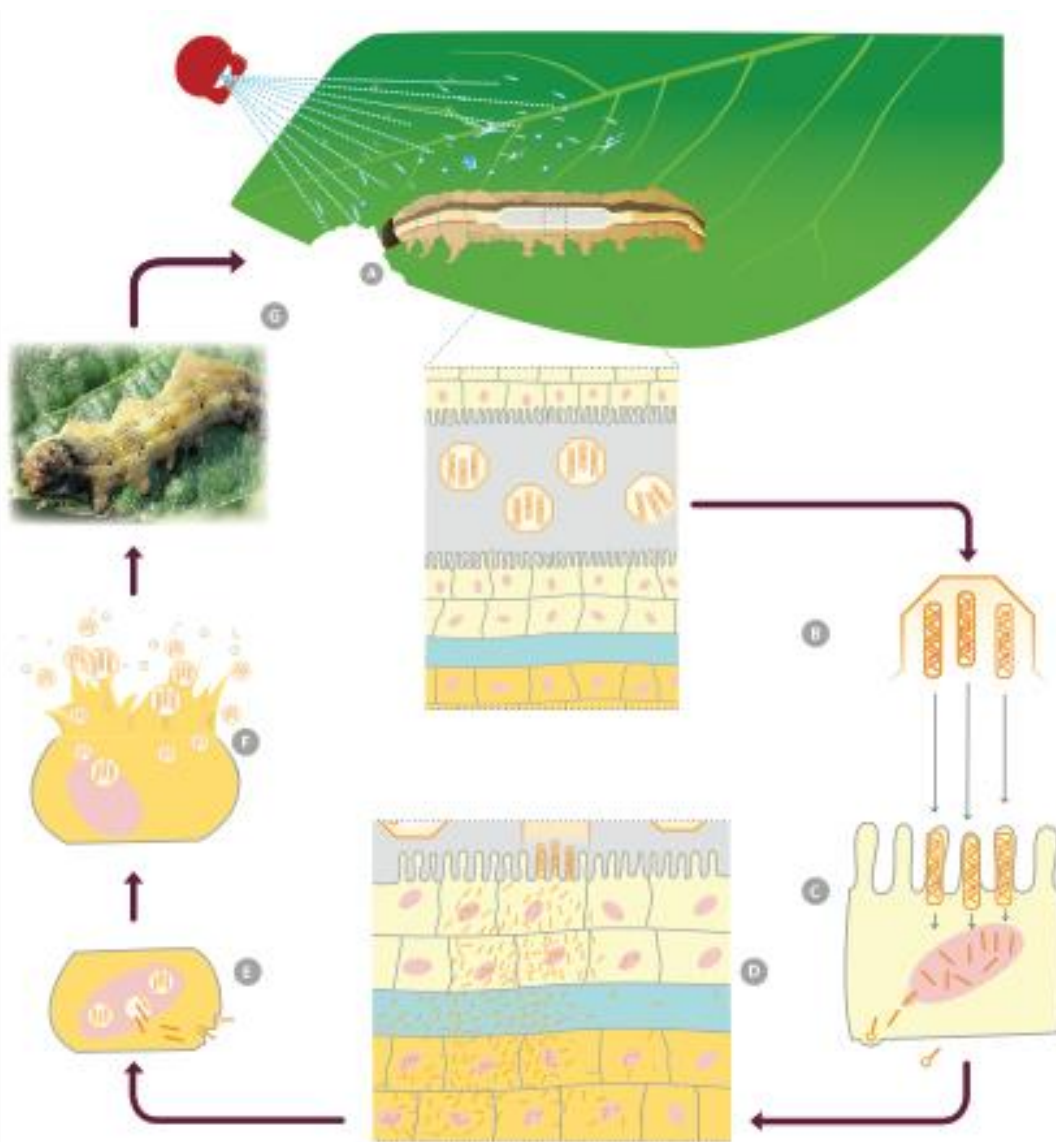


# Heligen

*Helicoverpa* Nucleopolyhedrovirus (NPV)  
Dennis Long – Technical Specialist, Mid-South



## BACULOVIRUS LIFECYCLE IN HELIOTHINES

- A** Larva ingests virus occlusion bodies (OB's) from spray
- B** OB dissolves in midgut releasing virus particles
- C** Virus enters nucleus of midgut cells, replicates and forms non-occluded (budded) virus
- D** Budded virus invades all of a larva's tissue via the haemolymph
- E** OB's form in nucleus
- F** Formation of virus OB's cause cells to rupture
- G** Upon death, larva releases OB-laden liquid = source of secondary infection

### LEGEND



## Early symptoms of NPV infection



“Swollen” look

Sweat beads  
Excess frass production



Loss of control in hind legs

# NPV Infection

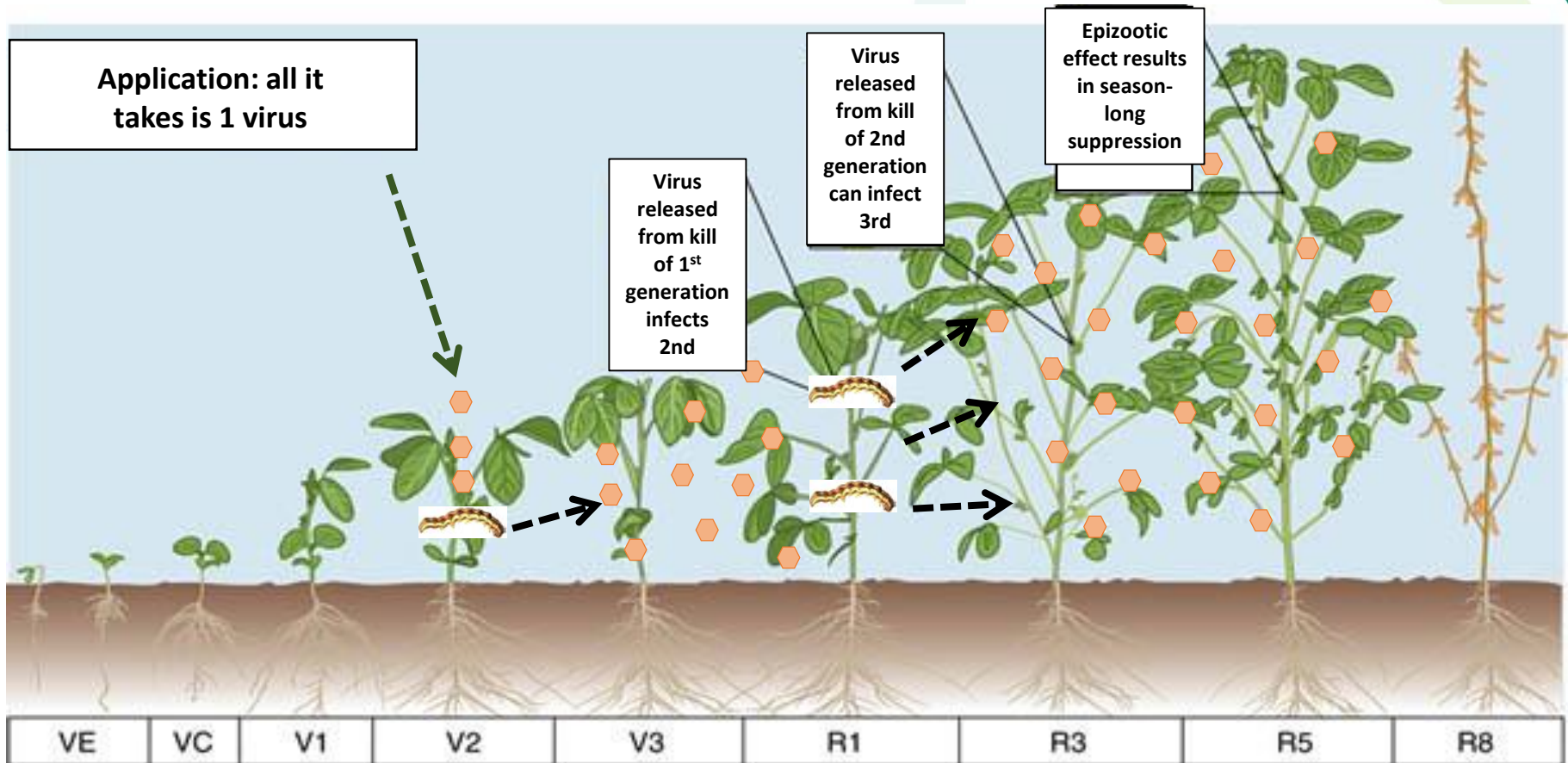
Later Stage  
Symptomology



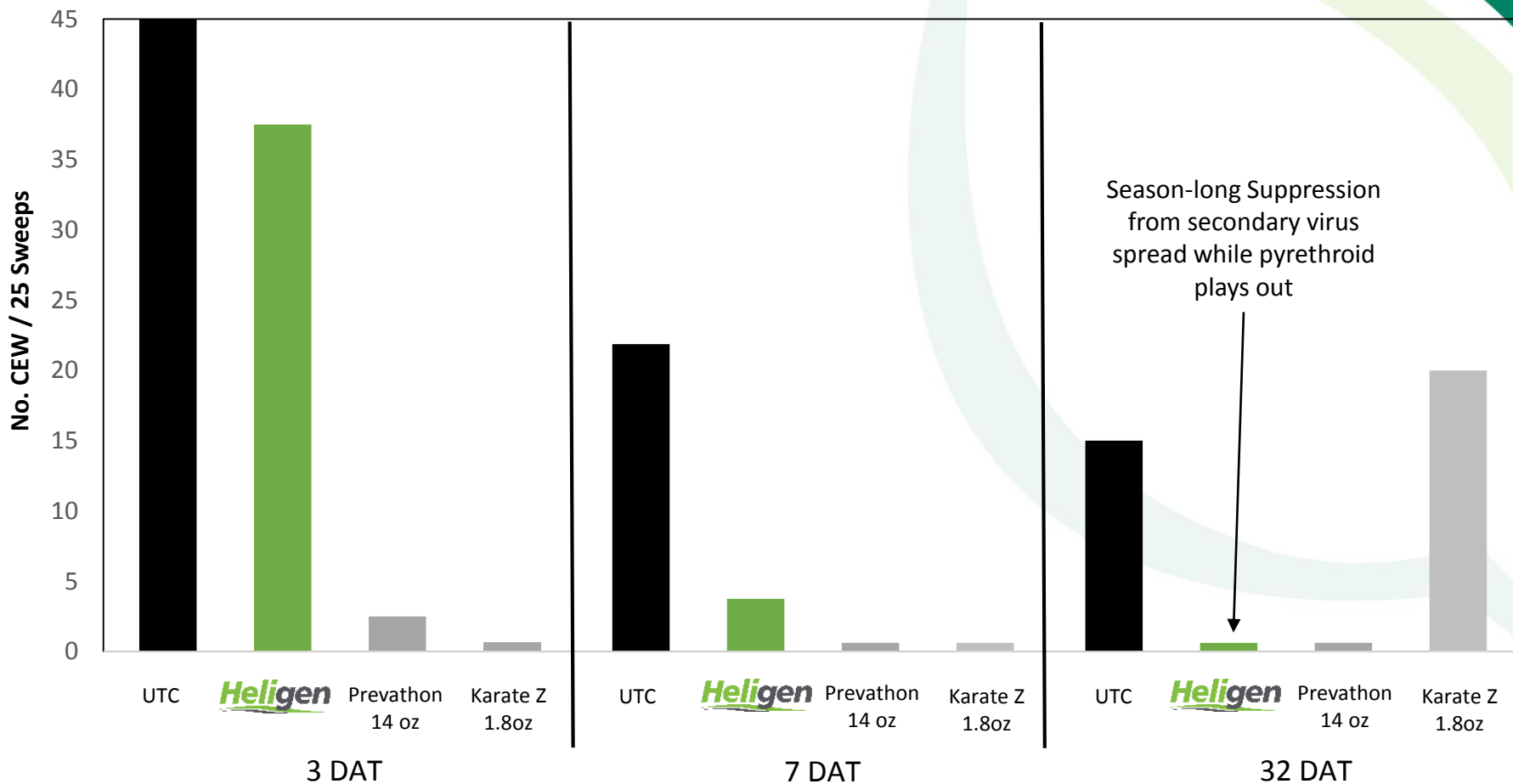
Virus can be spread by other insects,  
rain, dews, wind, cannibalism, frass



# Early spray to cause virus magnification & season-long suppression



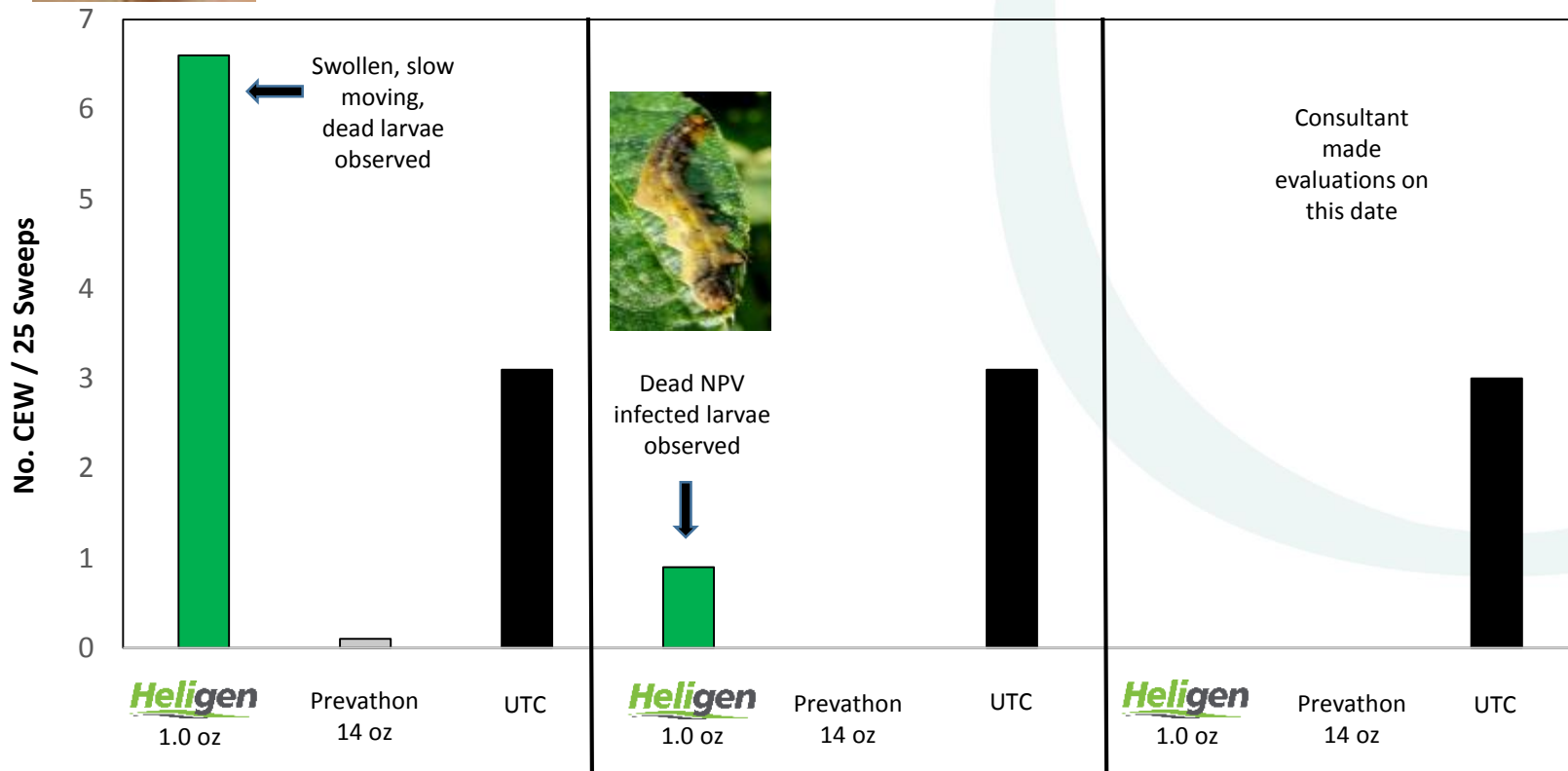
# Corn Earworm Control On Soybeans



# Heliothine Control On Soybeans



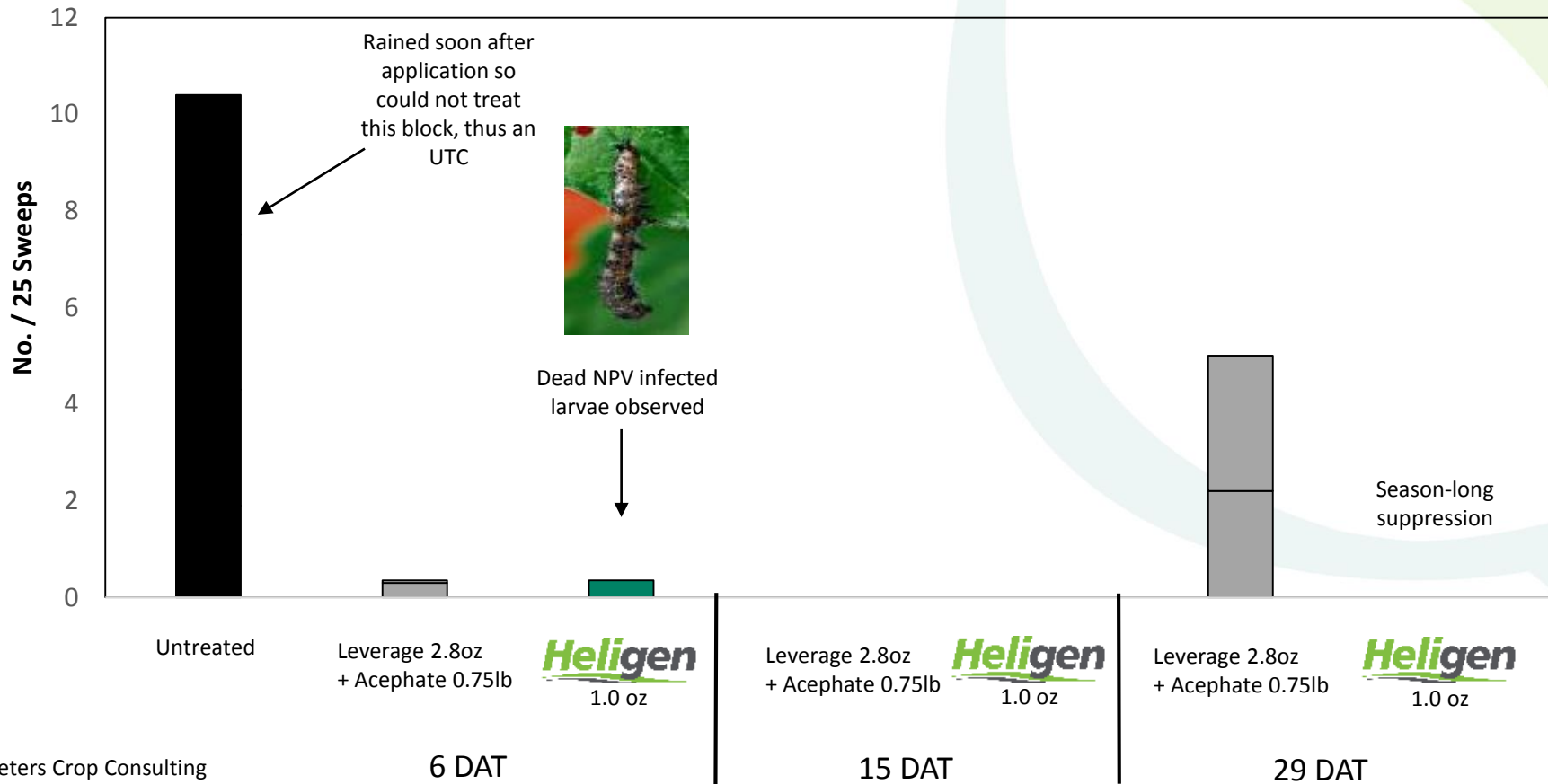
2X More in Heligen block because worms come to the top to die





# Heliothine Control On Soybeans

Pre-treatment: 5/25 sweeps

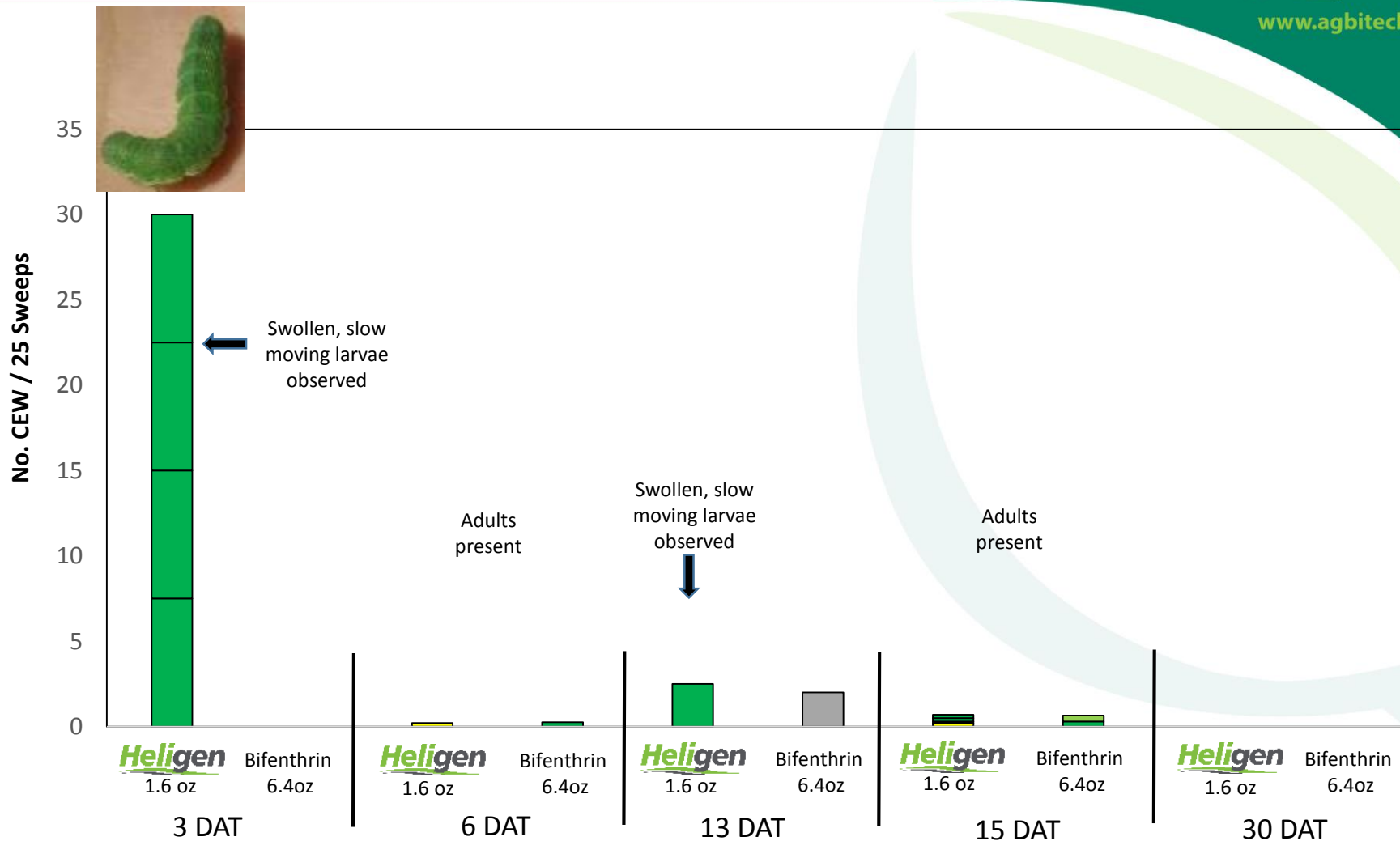




**CEW Larvae cling onto the leaf rather than drop to the ground. They then get counted in a sweep net sample**



# Corn Earworm Control On Soybeans



Tim White, Agricultural Mgmt Services  
North Point, LA – 2016  
Ground application; rained 3 hrs after application  
100 acre blocks  
(16-021)

# HELIGEN vs Synthetic Chemistry

PYRETHROIDS

DIAMIDES

Heligen

	PYRETHROIDS	DIAMIDES	Heligen
SEASON LONG SUPPRESSION OF CORN EARWORM	X	X	✓
PRESERVATION OF BENEFICIALS	X	✓	✓
WON'T FLARE PESTS	X	✓	✓
TANK MIX COMPATIBLE	✓	✓	✓
LESS THAN \$4 PER ACRE	✓	X	✓
KILLS PYRETHROID RESISTANT CORN EARWORM	X	✓	✓
GROUND & AIR APPLIED	✓	✓	✓

## Soybean

Insect	Insecticide	Amount of Concentrate per Acre	Pounds Active Ingredient per Acre	Acres Treated per Gallon or Pound	When to Treat (Economic threshold)
<b>Corn earworm</b> <sup>5, 8</sup>	Blackhawk (0.36)	1.7 – 2.2 oz.	0.038-.049	9.4-7.3	After bloom, 3 worms per row foot or 38 in 100 sweeps.  <b>Use Pyrethroids With Caution:</b> Pyrethroid resistance is prevalent in corn earworms in Louisiana. <sup>8</sup>
	Asana XL (0.66)	5.8-9.6 oz.	0.03-0.05	22-13	
	Sevin (Carbaryl) (4)	24-32 oz.	0.75-1.0	5.3-4	
	Heligen	2.0-2.4 oz.		64-53	
	Orthene (Acephate)	12-16 oz.	0.75-1.0	1.3-1	
	Steward (1.25)	5.6-11.3 oz.	0.055-0.011	22.8-11.3	
	Karate (2.08)	0.96-1.60 oz.	0.015-0.025	133.3-79.4	
	Declare (1.25)	0.77-1.28 oz.	0.0075-0.0125	166.2-100	
	Mustang Maxx/ Respect (0.8)	2.8-4.0 oz.	0.0175-0.025	45.7-32	
	Baythroid XL (1)	1.6-2.8 oz.	0.013-0.022	80-45.7	
	Cyfluthrin (2)	1.6-2.8 oz.	0.025-0.044	80-45.7	
	Brigade (2)	2.1-6.4 oz.	0.033-0.1	61-20	
	Hero (1.14)	4.0-10.3 oz.	0.04-0.1	32-12.4	
	Besiege	5-8 oz.	premix	25.6-16	
	Prevathon (0.43)	14-20 oz.	0.047-0.067	9.1-6.4	

1.0-1.6oz →

## ***Pioneers of Emerging Technology***

***Heligen***

**Hank Jones (RHJ Consulting)**  
**Ashley Peters (Peters Crop Consulting)**  
**Tim White (Agricultural Mgmt Services)**  
**Dr. David Kerns (LSU)**  
**Dr. Sebe Brown (LSU)**

**Dennis Long – Technical Specialist; Mid-South**

**Cell: 931-218-3545**

**dlong@agbitech.com**