LATMC 2010: Grain Crops Session

Stink Bug and Lepidopteran Control in Soybean

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LSU AgCenter Research & Extension

Topics to Cover

- **Stink bug control options**
  - **Action Thresholds**
  - **Insecticides**
  - **Site Specific Insecticide Applications**
  - **Host Plant Resistance = Varietal Differences**
- **Lepidopteran Defoliators**
- **New invasive soybean pests to watch for**


Stink Bugs

- **Stink bug feeding:**

  -Reduces yield, quality and oil content

  -Causes delayed maturity

Soybean Yield and Quality 2008

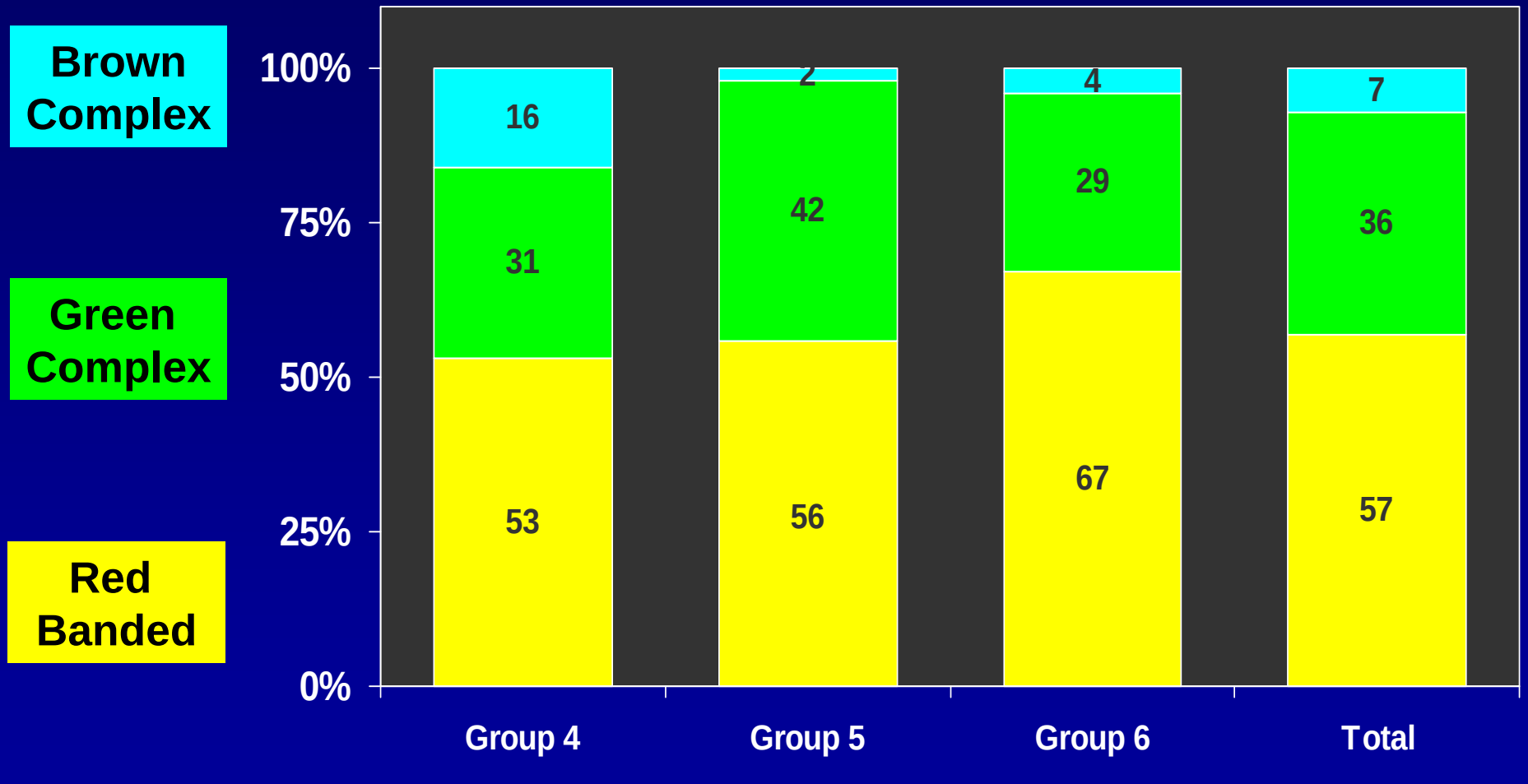
Treatment	% seed dmg	Yield (bu/A)	% Oil
Non-treated	63 a	21 b	19.6 ± 0.5 b
Treated*	31 b	37 a	21.1 ± 0.2 a

*Treated 4 times w/Acephate

Delayed Maturity

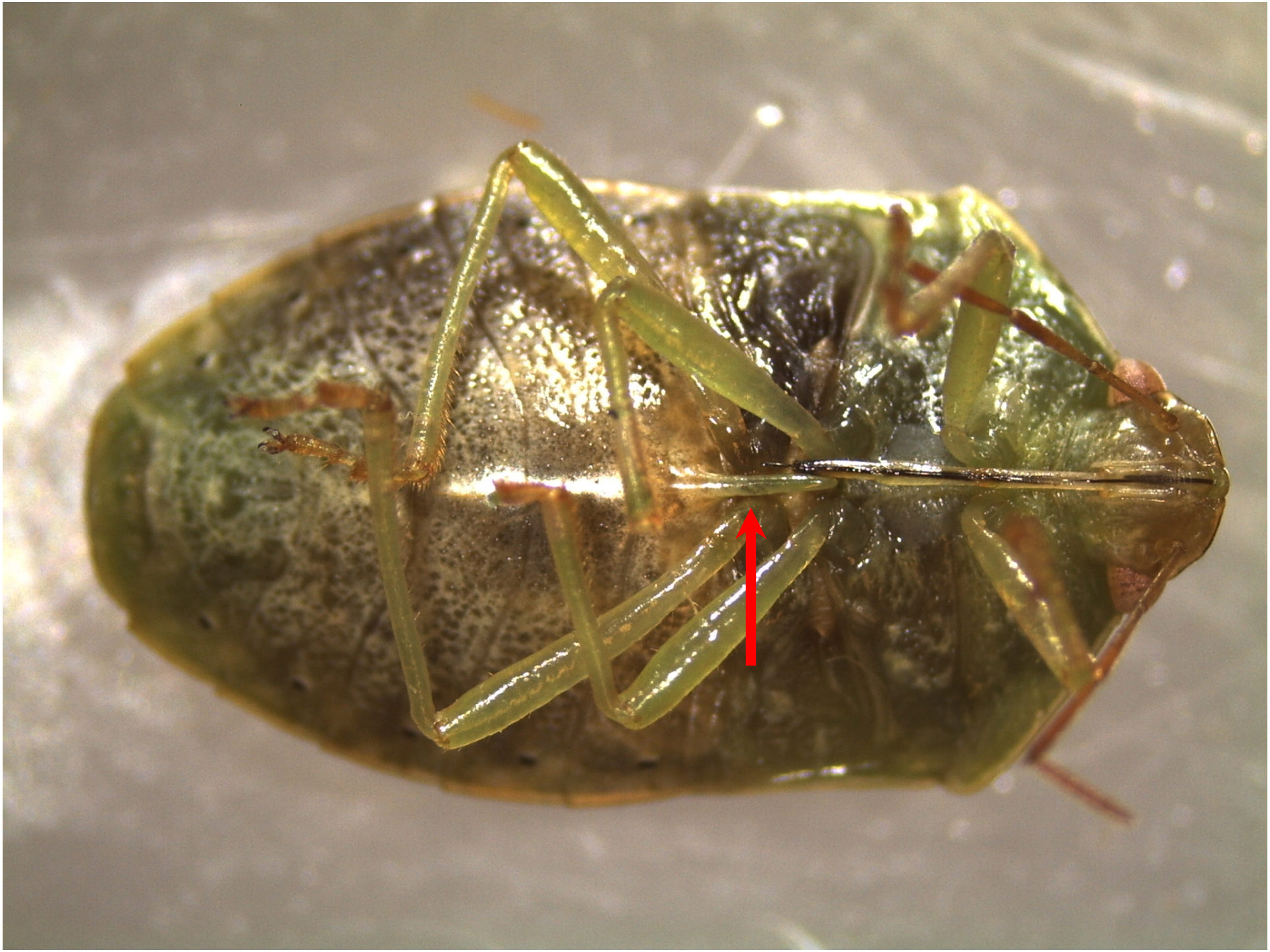
LA Stink Bug Species Composition

MRRS-2009



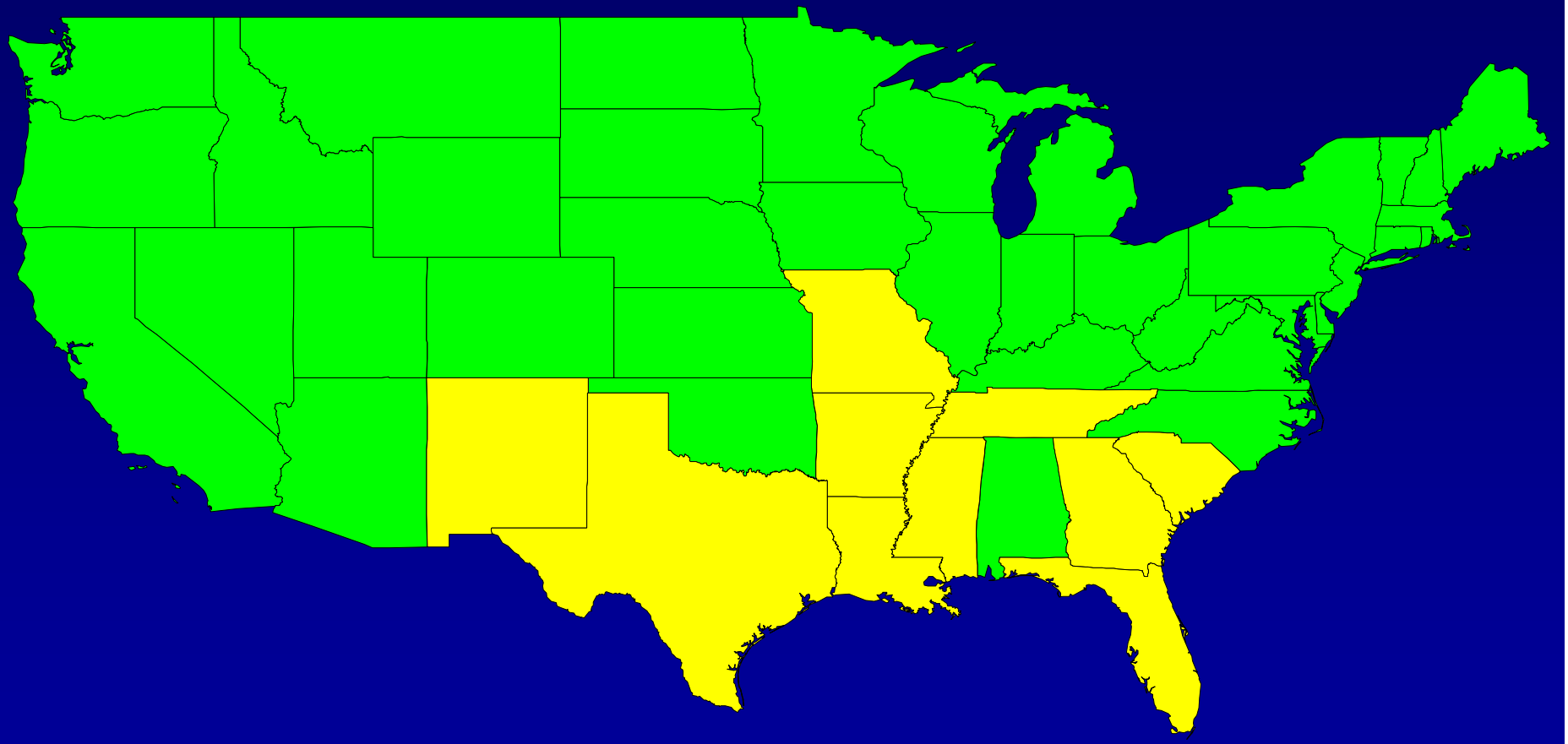
- **Common name:**
  redbanded stink bug

- **Scientific name:**
  Piezodorus guildinii (Westwood)

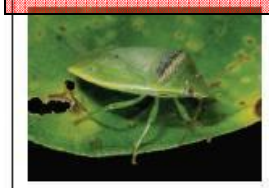


Piezodorus guildinii

US Distribution – Positive ID 2009

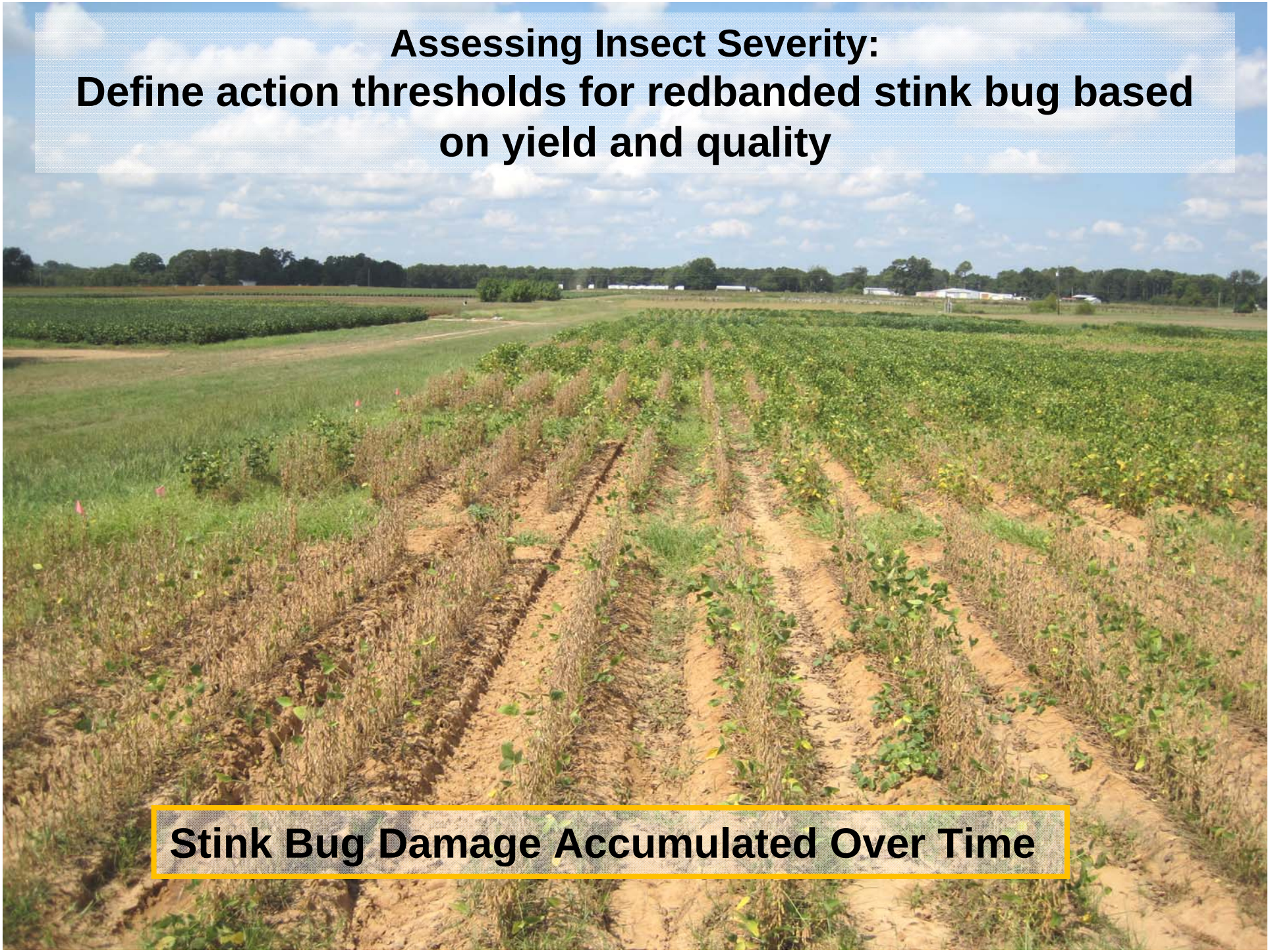


Louisiana Soybean Insecticide Guide 2008

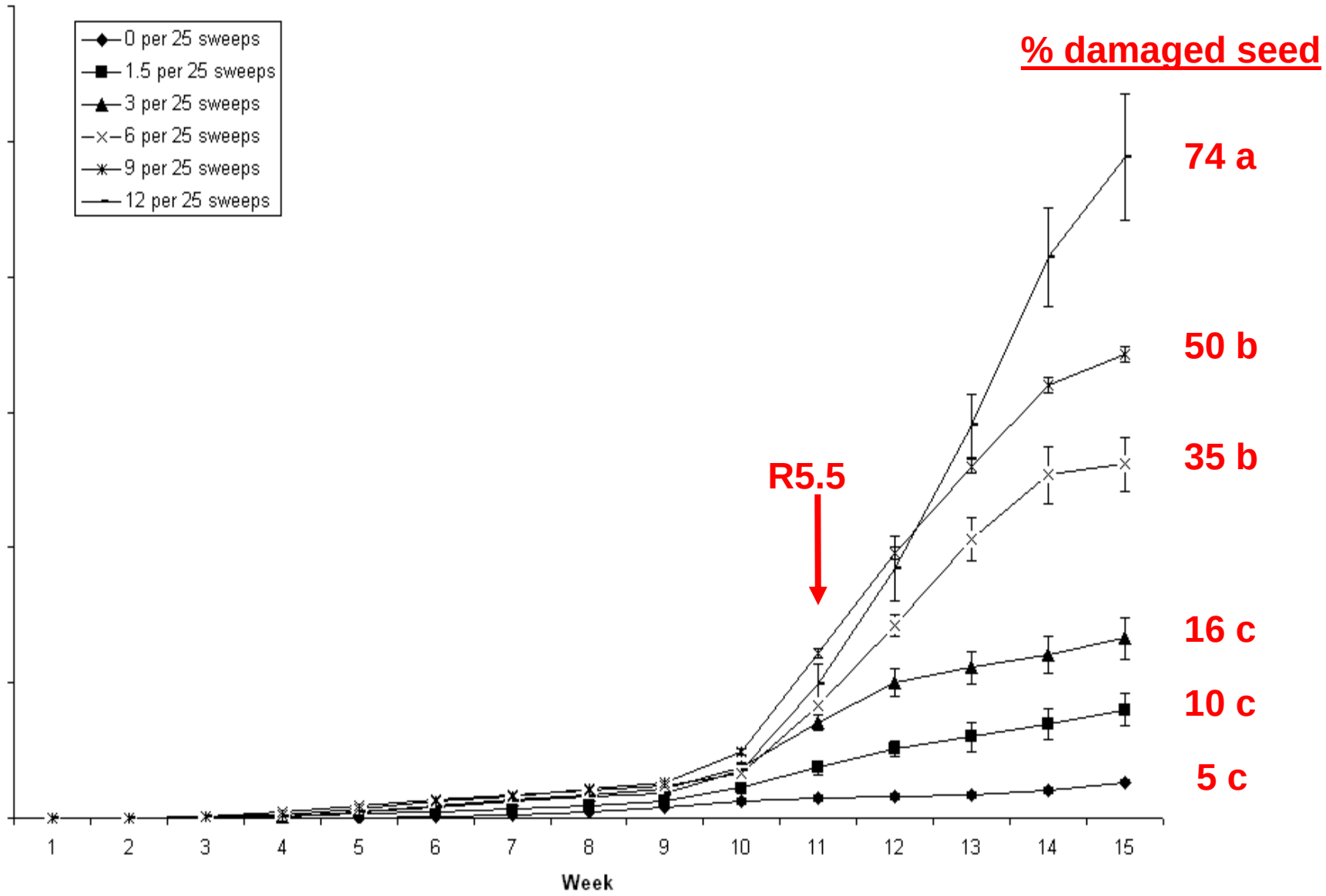
Insect	Insecticide (Lb. AI/ Gallon)	Pounds Active Ingredient Per Acre	Acres Treated Per Gallon	When to Treat
Brown Stink Bugs				
	Baythroid XL (1)	0.022	45	Treatment threshold same as for Green/Southern Green stink bugs.
	Orthene (Acephate 90)	0.75	NA	
	Methyl parathion (4)	0.5-1.0	8-4	
	Cyfluthrin (2)	0.044	45	
	Mustang Max (0.8)	0.025	32	
Red Banded Stink Bug[9] (*Piezodorus guildinii*)				
	*Control*			24 stink bugs in 100 sweeps
	Orthene (Acephate 90)	0.75-1.0	NA	
	Endigo	see label	32-28.4	
	Suppression			
	Cyflurthrin (2)	0.044	45	
Green/Southern Green Stink Bugs				
	Baythroid XL (1)	0.013-0.022		After pods appear, 1 stink bug per row foot, or 36 in 100 sweeps. Stink bugs should be 1/4 inch or larger. Treat soybeans grown for seed at 1 stink bug per 6 row feet or 6 stink bugs in 100 sweeps.
	Orthene (Acephate 90)	0.75	NA	
	Methyl parathion (4)	0.25-0.5	16-8	
	Mustang Max (0.8)	0.02-0.025	40-32	
	Karate Z (2.08)	0.025-0.03	83-69	
	Prolex (1.25)	0.0125-0.015	100-83	
	Cyfluthrin (2)	0.025-0.044	80-45	
	Trap Crop [4]			

Redbanded Stink Bug: Cumulative Damage and Action Thresholds

Assessing Insect Severity:
Define action thresholds for redbanded stink bug based on yield and quality

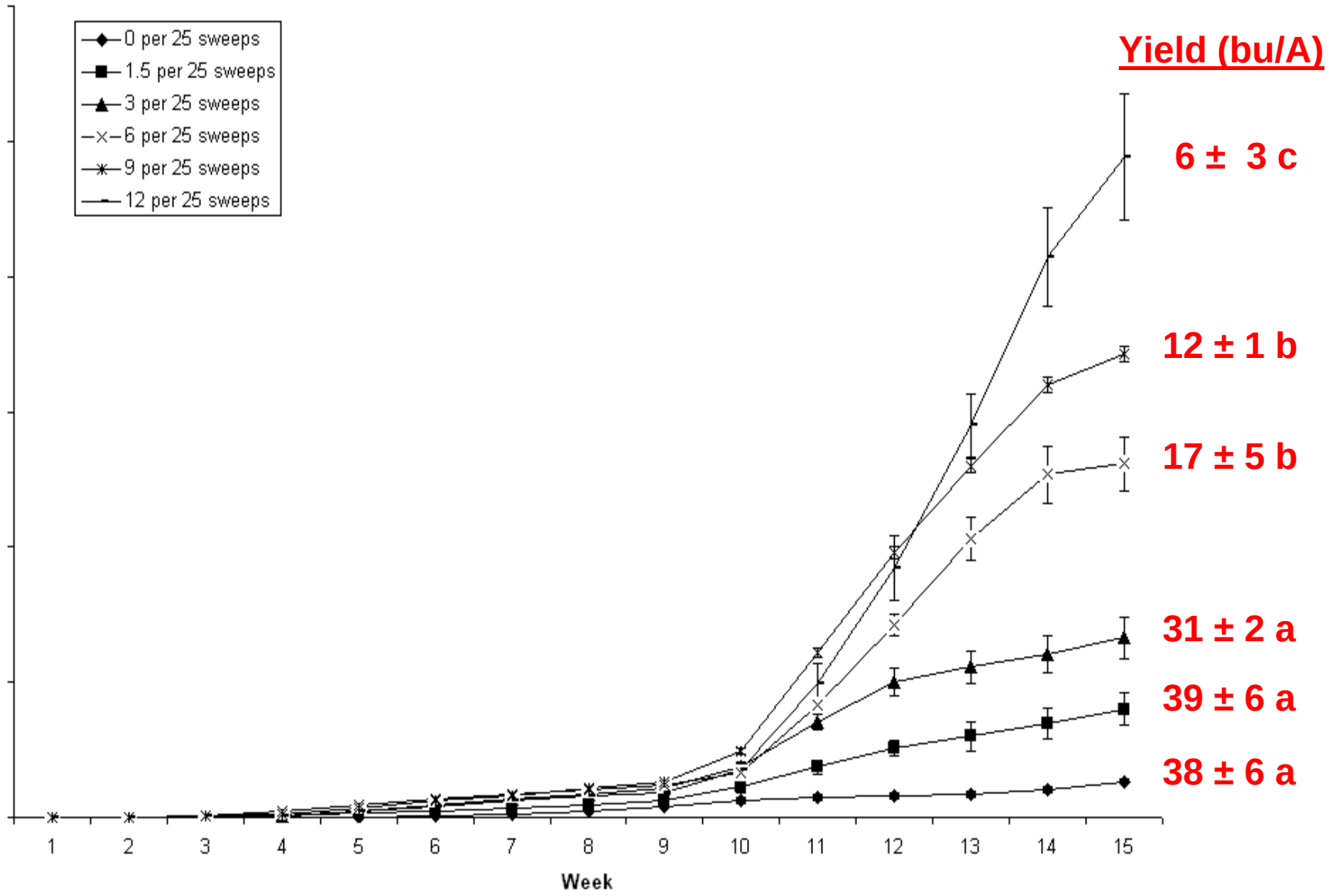


Stink Bug Damage Accumulated Over Time


0 per 25 sweeps
1.5 per 25 sweeps
3 per 25 sweeps
6 per 25 sweeps
9 per 25 sweeps
12 per 25 sweeps
% damaged seed
74 a
50 b
35 b
16 c
10 c
5 c
R5.5
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Week

k bugs per 25 sweeps

nk bugs per 25 sweeps



Yield (bu/A)

6 ± 3 c

12 ± 1 b

17 ± 5 b

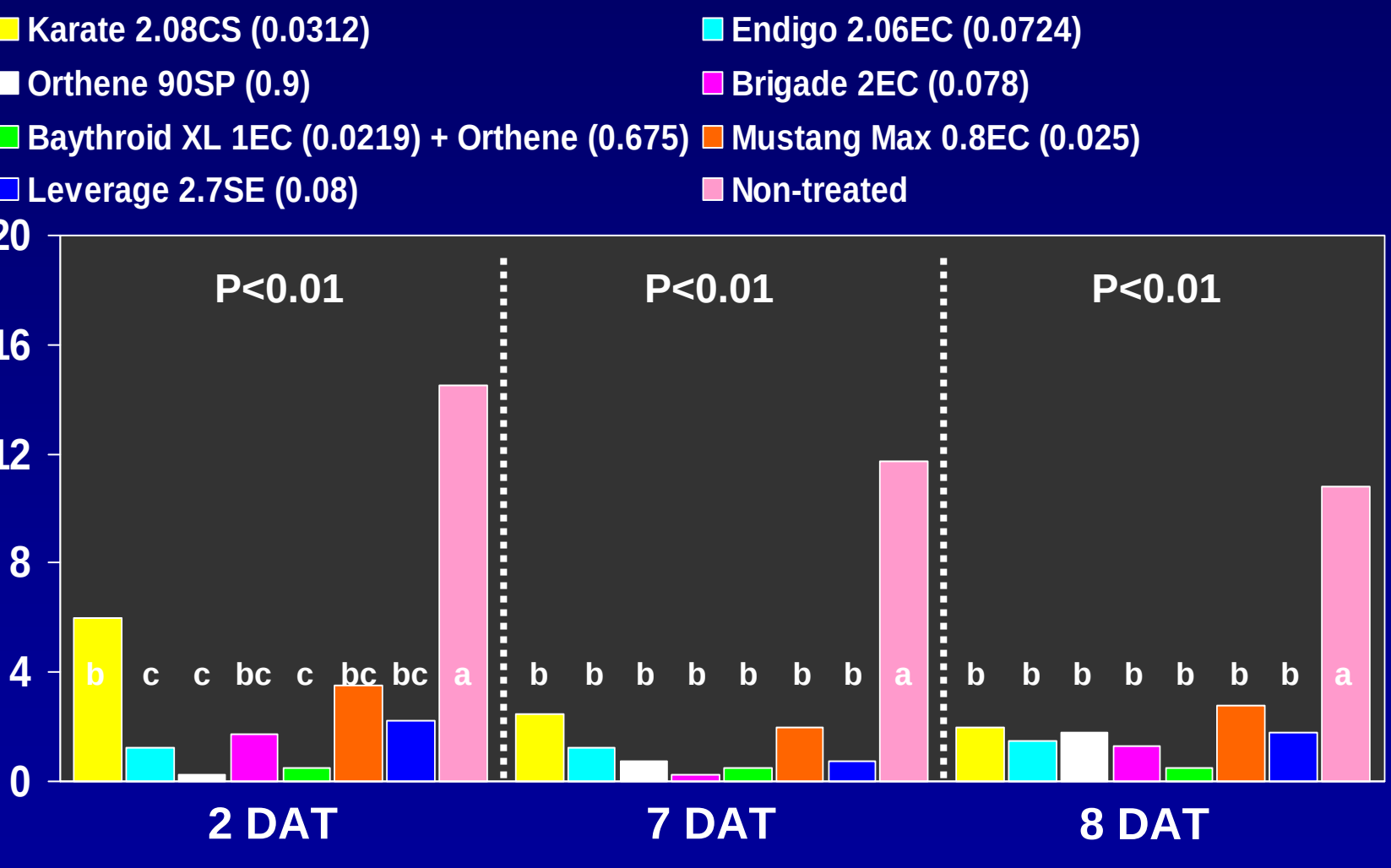
31 ± 2 a

39 ± 6 a

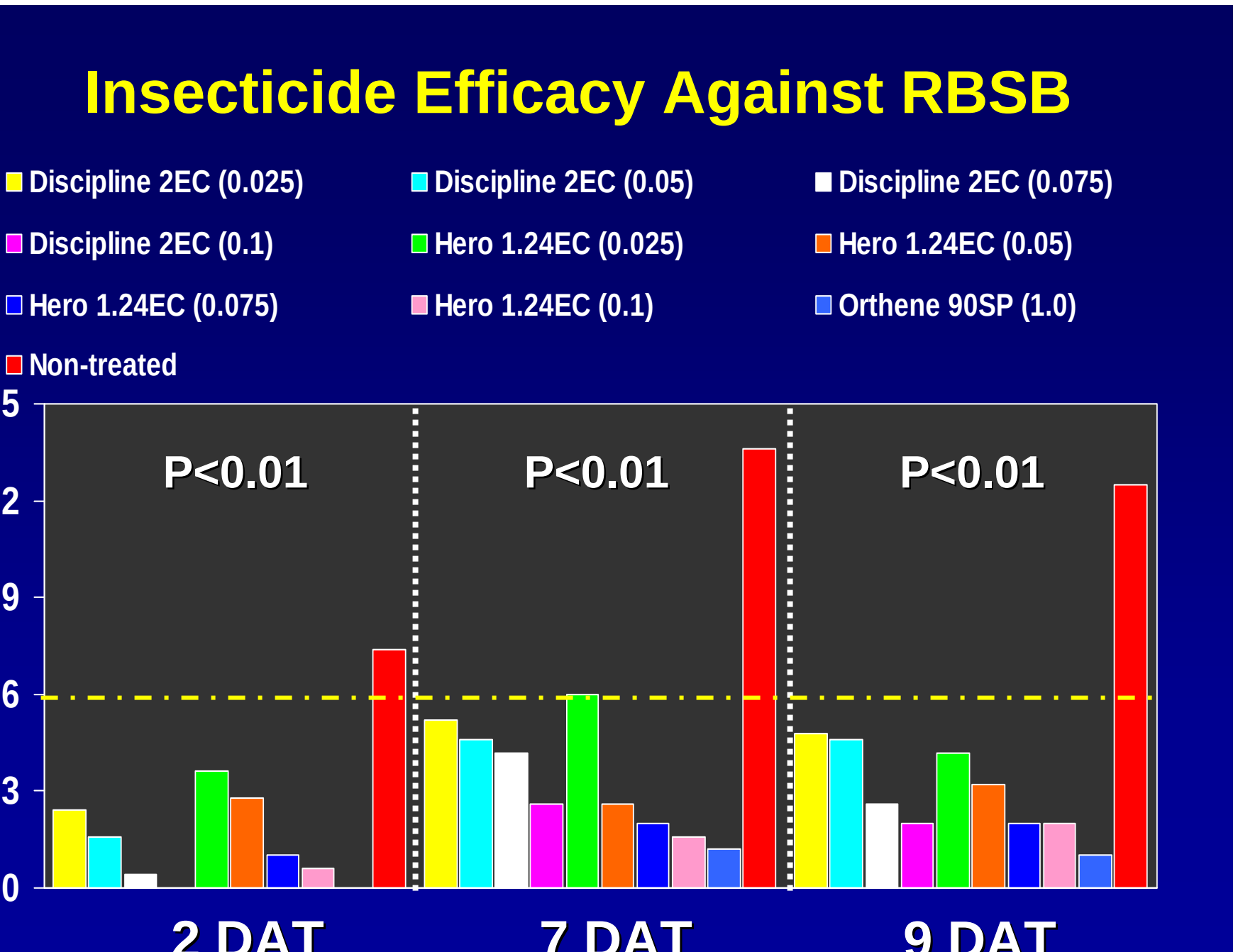
38 ± 6 a

Redbanded Stink Bug Control:

secticide Efficacy Against All Stink Bugs, 2008



Insecticide Efficacy Against RBSB



Insecticide Use Strategies For Redbanded Stink Bugs

- Treatments
  - Acephate
  - Endigo, SP + Orthene, Leverage
  - Bifenthrin, Hero

- Application Frequency
  - 3 - 5 sprays/acre/year
  - 5 - 7 day interval

Redbanded Stink Bug Control:

valuate redbanded stink bug control options: Site Specific Field Applications

If stink bugs are aggregated along field edges, spray only these edges

Reduce amount of product used and application time

Save grower money and protect natural enemies

Can applications along
ield edges reduced field
olonization by stink
ug?

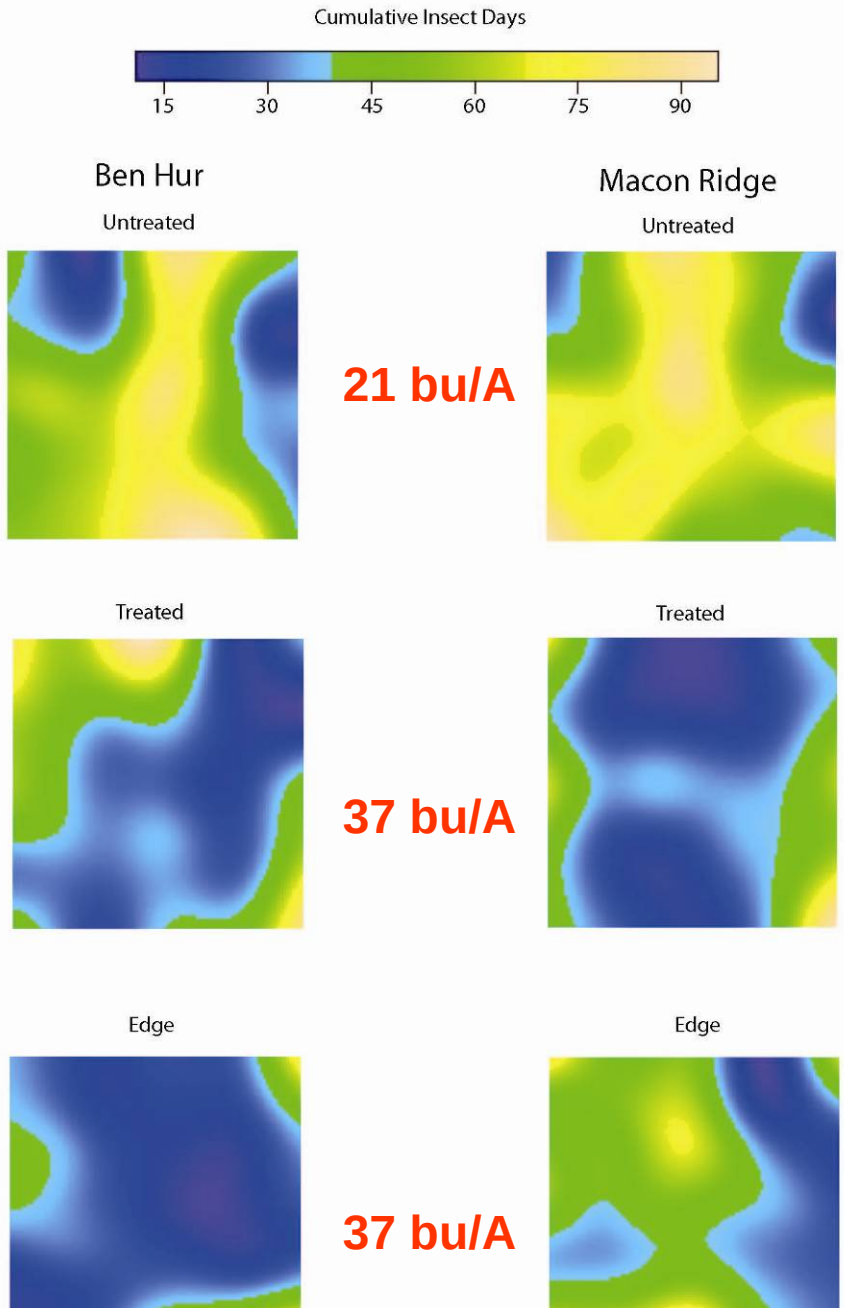
YES

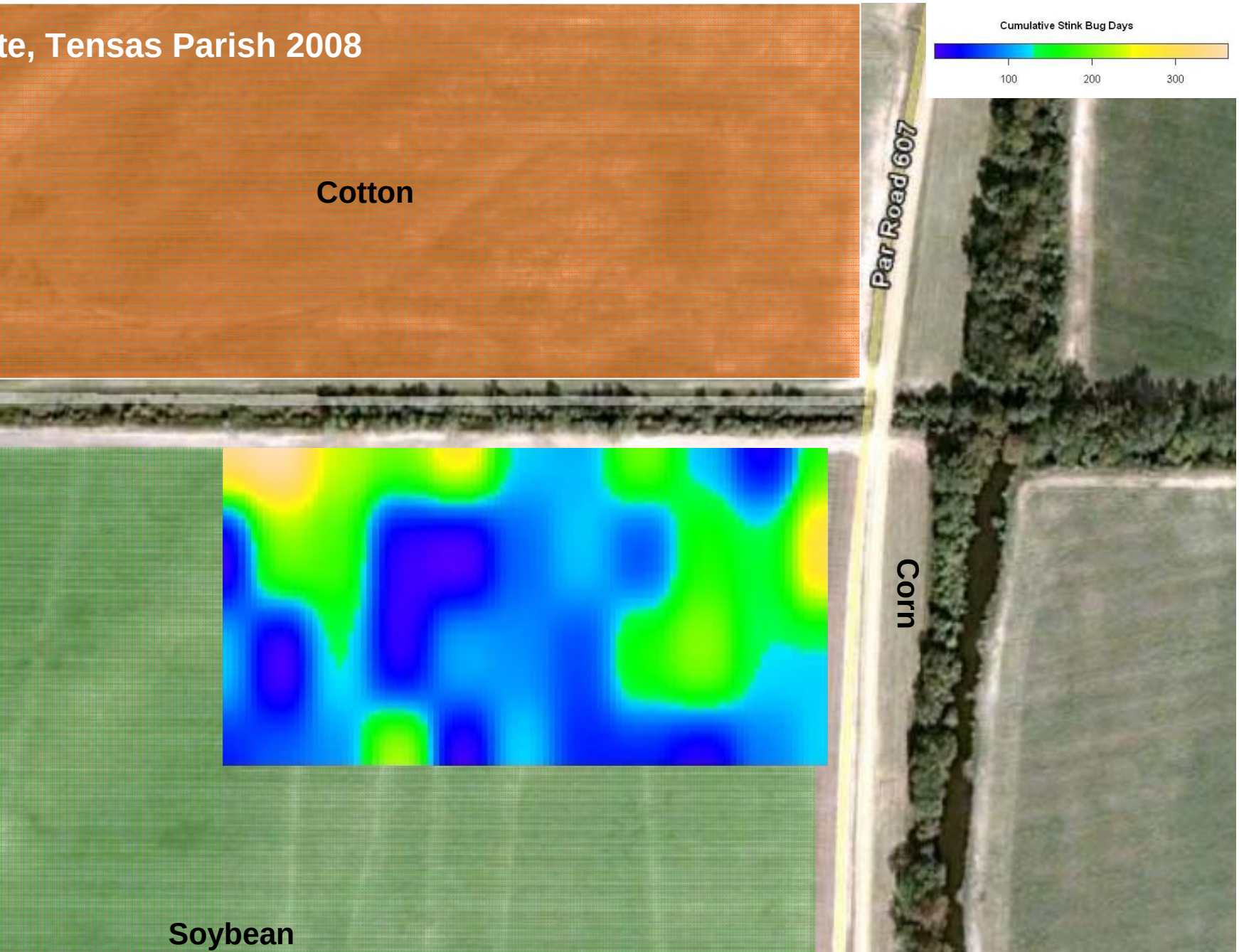
Reduced field
olonization by two
weeks

Reduced overall stink
ug populations when
oybeans had reached
R6

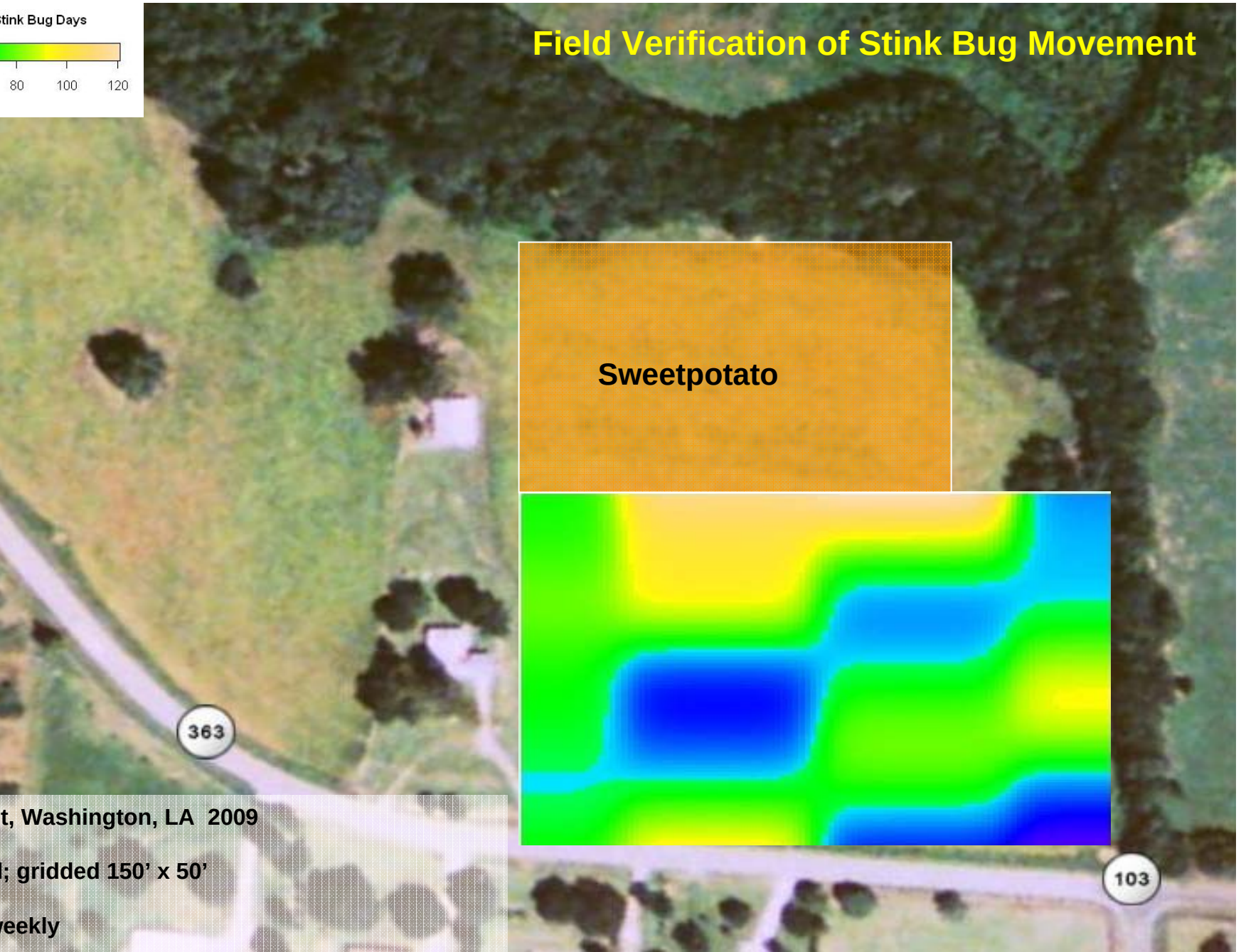
4 per 25 sweeps on
ield edges

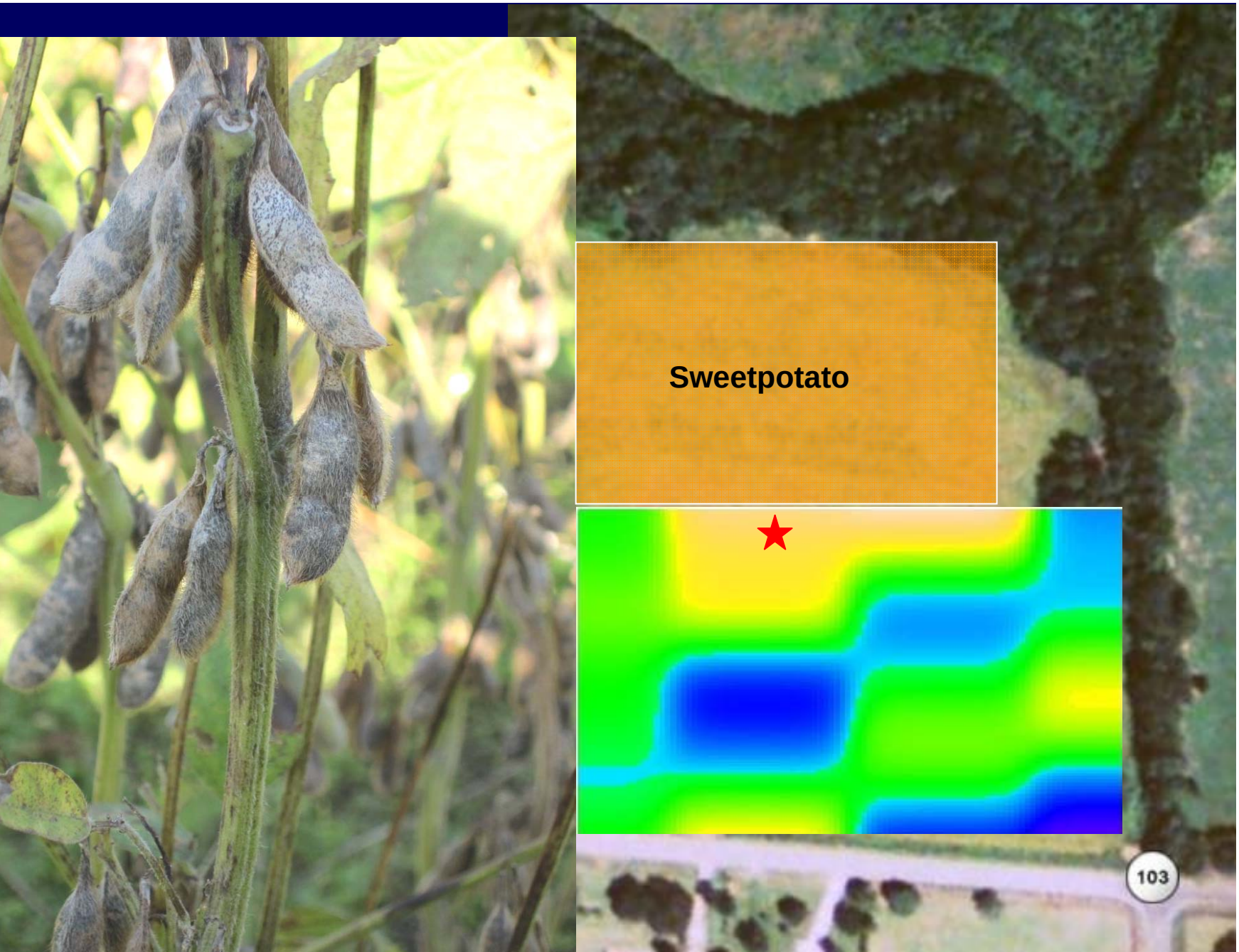
per 25 sweeps in field
nterior



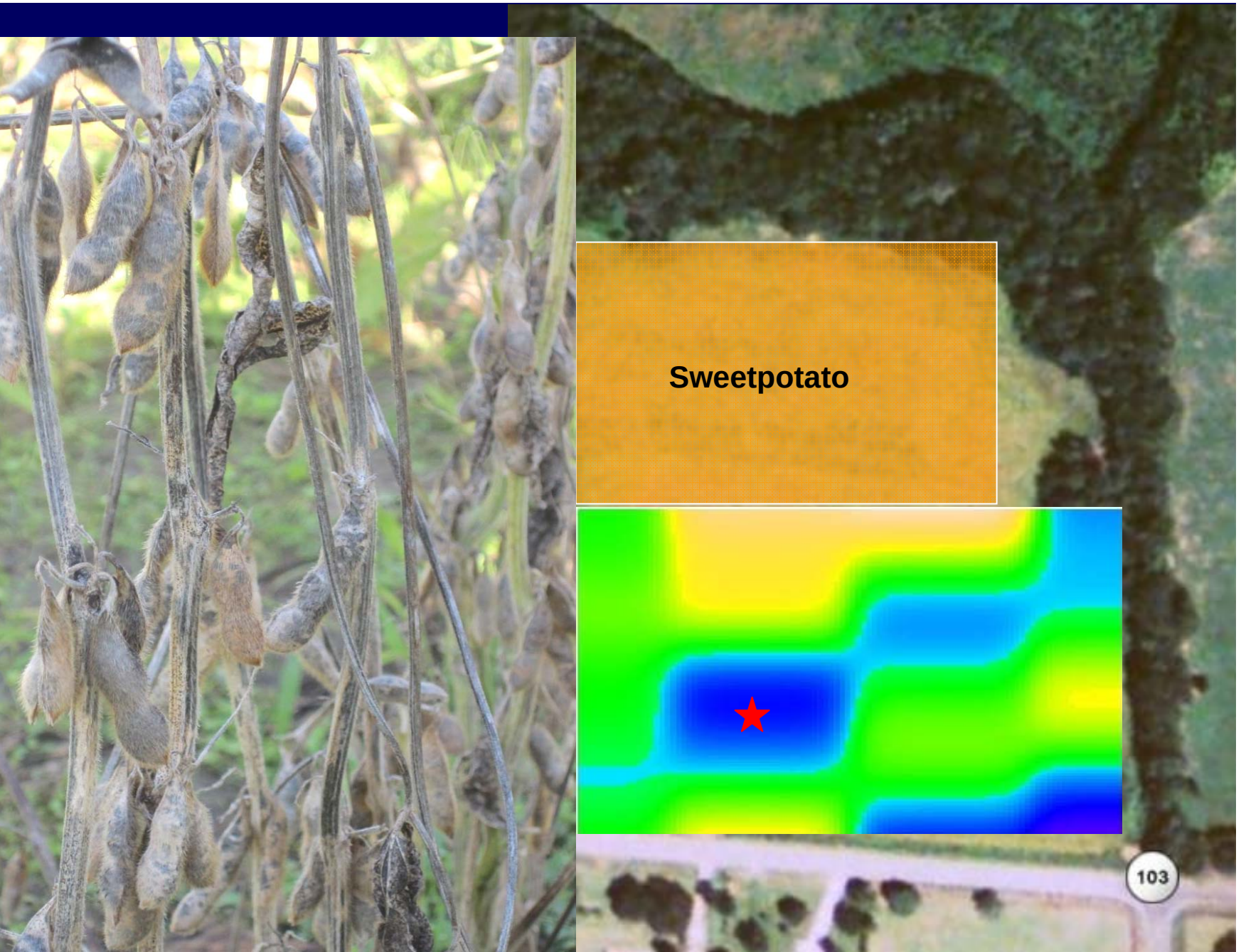

te, Tensas Parish 2008
Cotton
Par Road 607
Cumulative Stink Bug Days
100
200
300
Corn
Soybean

Field Verification of Stink Bug Movement





Sweetpotato
103


Sweetpotato
103

Redbanded Stink Bug Control: Varietal Differences

tink bugs/25 sweeps/week
6 (from R3 to R8)

% green stems
60

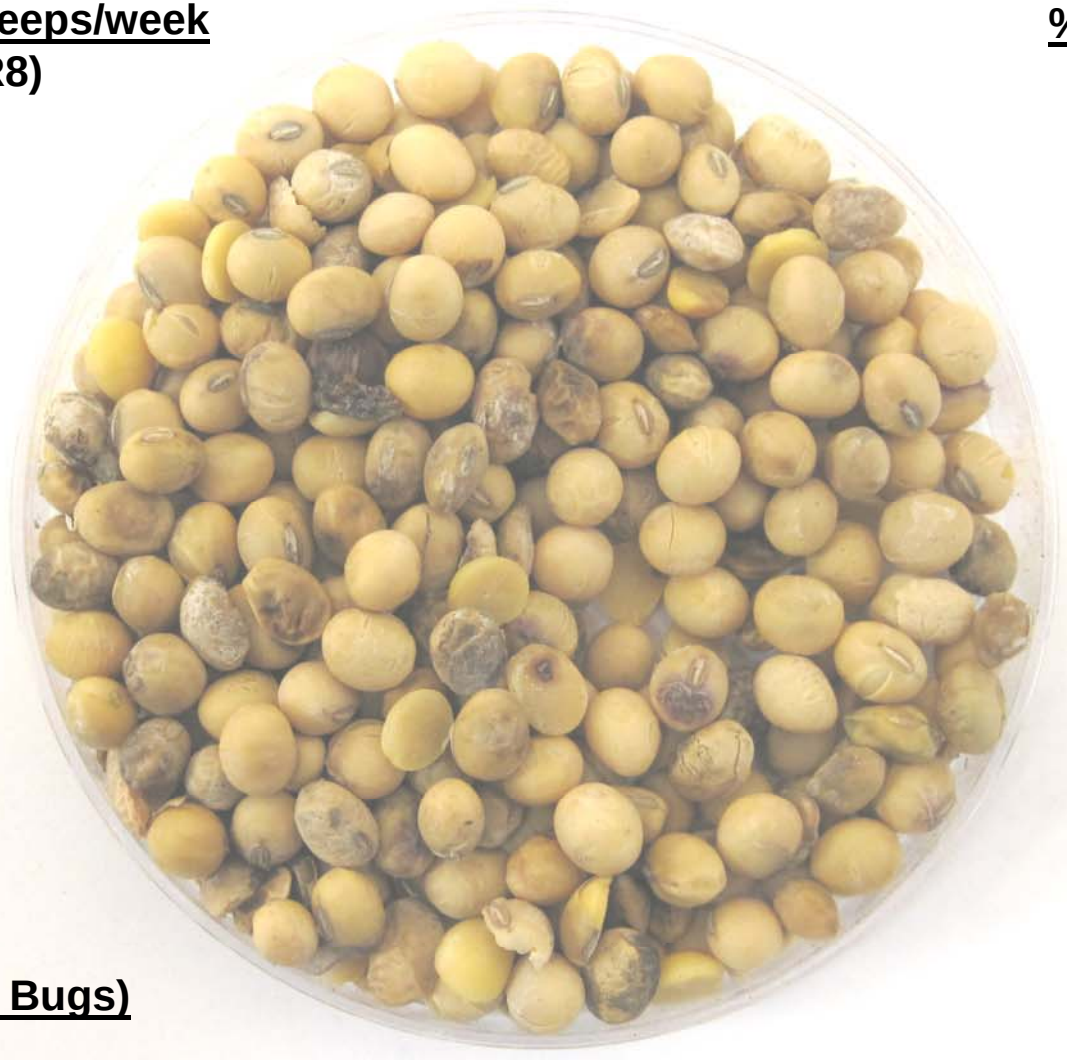
aged seed (Stink Bugs)
69

Yield
57 bu/A

Terral 48R14
Untreated

tink bugs/25 sweeps/week
1 (from R3 to R8)

% green stems
30



aged seed (Stink Bugs)
57

Yield
58 bu/A

Terral 48R14
Treated

stink bugs/25 sweeps/week
2 (from R3 to R8)

% green stems
5

aged seed (Stink Bugs)
30

Yield
58 bu/A

Pioneer 95Y20
Untreated

stink bugs/25 sweeps/week
0 (from R3 to R8)

% green stems
0

aged seed (Stink Bugs)
16

Discounted Yield
62 bu/A

Yield
76 bu/A

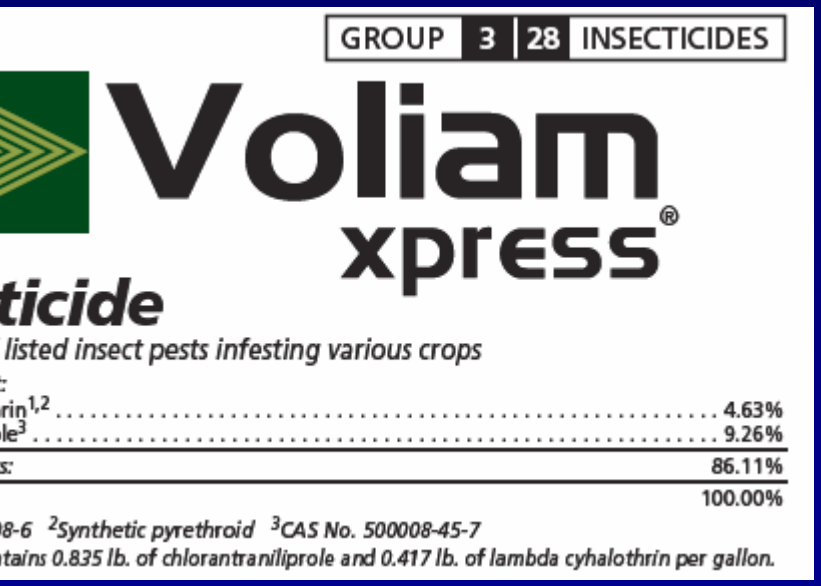
Pioneer 95Y20
Treated

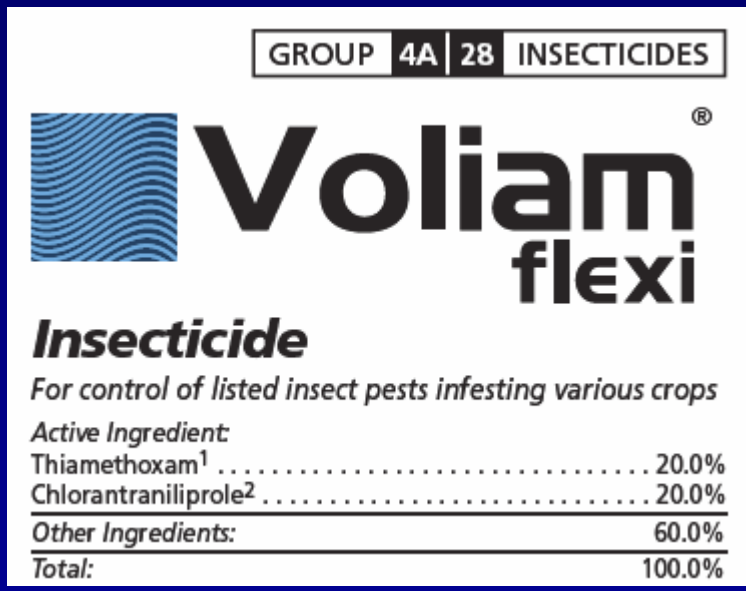
Coragen
Belt

Steward
ntrepid
Larvin

Non-treated

Efficacy of new and current insecticides for control of soybean loopers





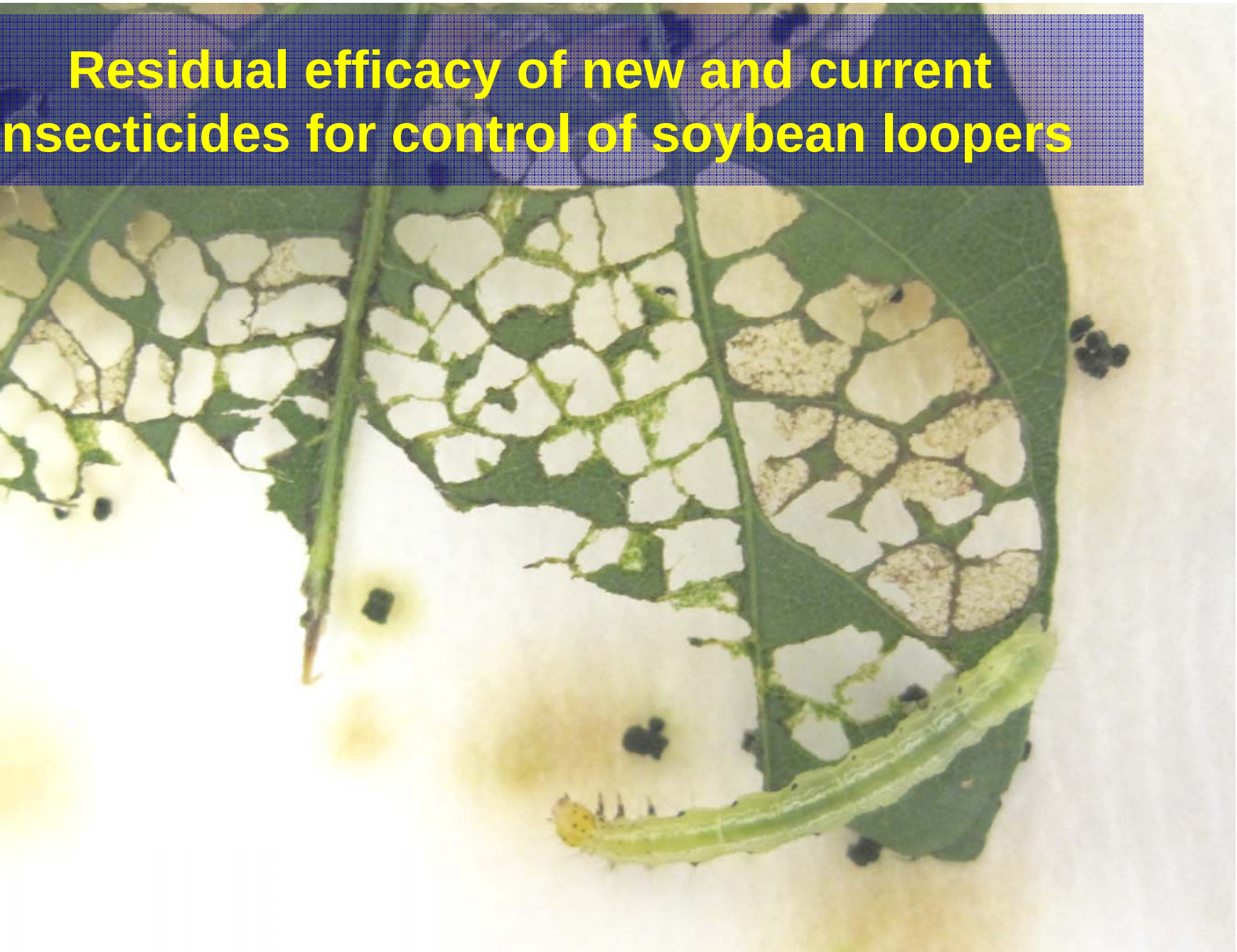
Efficacy of new and current insecticides for control of soybean loopers

tment/ nulation	Rate lb (AI)/acre	
am Flexi 40%WG	0.100	thiamethoxam + chlorantraniliprole
am Flexi 40%WG	0.128	
am Xpress 150ZC	0.068	lambda-cyhalothrin + chlorantraniliprole
am Xpress 150ZC	0.087	
ard 150SC	0.078	indoxacarb
te w/Zeon 250CS	0.031	lambda-cyhalothrin
go 2.06EC	0.072	lambda-cyhalothrin + thiamethoxam
pid 2SC	0.094	methoxyfenozide

Efficacy of new and current insecticides for control of soybean loopers

Treatment/ Formulation	Mean number of SBL per 25 sweeps			
	3 DAT	% control	7 DAT	% control
UTC	25.3a	—	32.8a	—
Voliam Flexi 40%WG	2.0c	92	0.3c	99
Voliam Flexi 40%WG	1.8c	93	0.0c	100
Voliam Xpress 150ZC	0.3c	99	0.0c	100
Voliam Xpress 150ZC	0.0c	100	0.0c	100
Steward 150SC	2.3c	91	0.0c	100
Karate w/Zeon 250CS	12.0b	53	13.5b	59
Endigo 2.06EC	12.5b	51	13.3b	59
Intrepid 2SC	5.8bc	77	0.8c	98

Residual efficacy of new and current insecticides for control of soybean loopers



Residual efficacy of new and current insecticides for control of soybean loopers

		Percent Control	
eatment	Rate	14 DAT	21 DAT
elt SC	3.0 oz/A	91	91
oragen	5.0 oz/A	88	88
trepid 2F	4.0 oz/A	70	35
arvin 3.2	20.0 oz/A	85	53
eward 150EC	6.4 oz/A	24	19

nitoring for Soybean Looper Tolerance to Intrepid 2F

ected from 4 sites in LA in 2009

g a diet incorporated method

earch is ongoing

ORTHENE® 97

(Soluble Insecticide)

SOYBEANS

NERAL USE PRECAUTIONS

Do not graze or cut vines for hay or forage.

Do not apply more than 1.5 lbs./A (1.5 lbs. ai/A) of ORTHENE 97 per season.

Do not apply ORTHENE 97 within 14 days of harvest.

For rates up 0.5 lb/A, at least 3 days must pass between applications of ORTHENE 97.

For rates between 0.5 lb./A and 1.0 lbs./A, at least 7 days must pass between applications of ORTHENE 97.

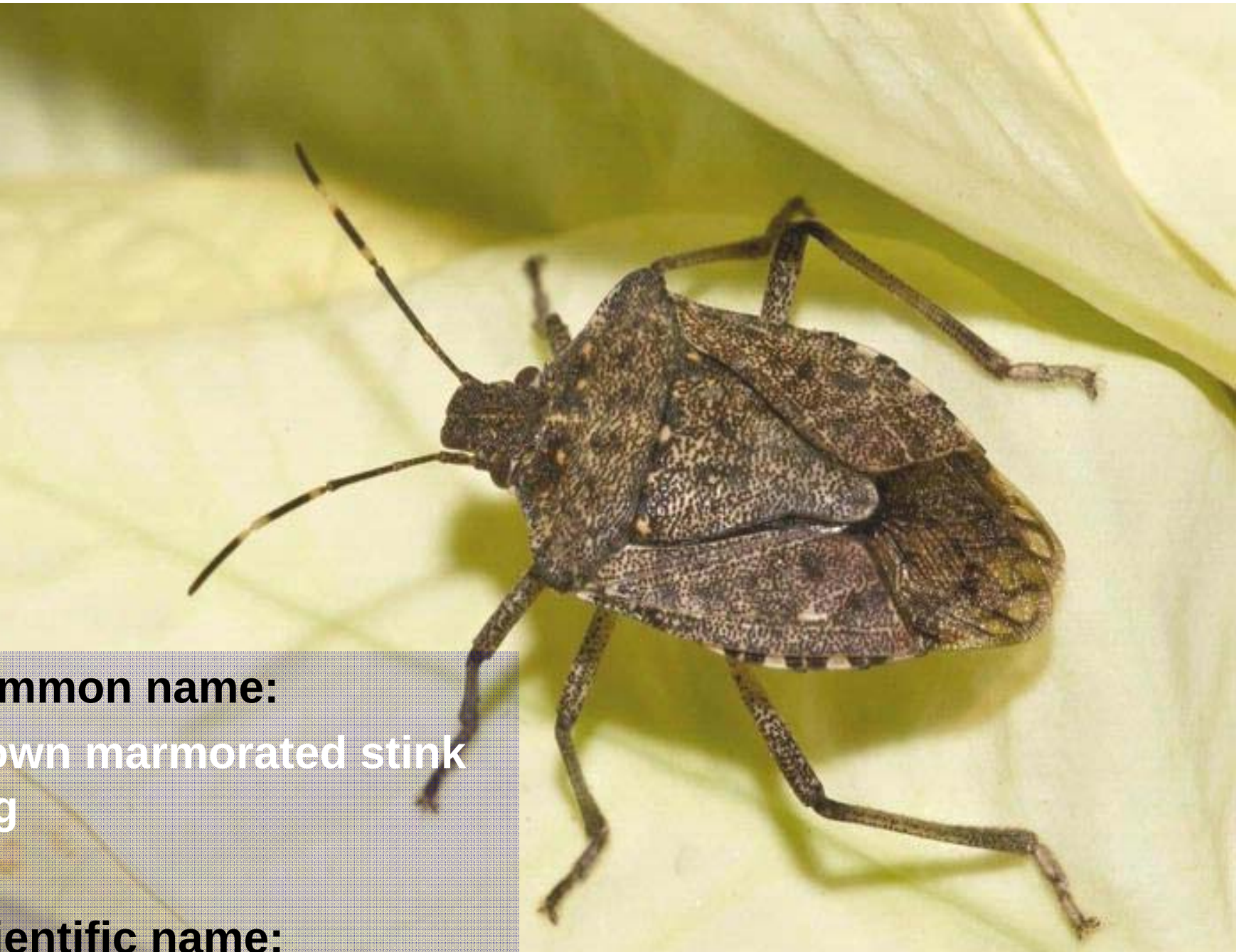
Always read and follow all label directions, restrictions and precautions when using any pesticide alone or in tank mix combinations. The most restrictive labeling applies when using a tank mix.

U AgCenter recommends co-applications with pyrethroids

igade® 2EC
Insecticide/Miticide

SOYBEANS*

PEST	DOSAGE LB/AI/A	DOSAGE FLOZ/A	REMARKS
Alfalfa Caterpillar Aphids Aster Leafhopper Bean Leaf Beetle Beet Armyworm* Cloverworm Corn Earworm Corn Rootworm Adult Cucumber Beetles Cutworms European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Imported cabbageworm Japanese beetle Adult Leafhoppers Leafminer Loopers Mexican Bean Beetle Adult Pea Leaf Weevil Pea Weevil Plant Bug Saltmarsh caterpillar Sap Beetle Southern Armyworm Stink Bugs Tarnished Plant Bug	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallon per acre by aircraft at a minimum of 30 day intervals. Do not apply more than 0.3 lb ai per acre per season. Do not apply within 18 days of harvest *Pyrethroid resistance is common for Beet Armyworm and Tobacco Budworm. Please consult your local or state agricultural authority to determine if resistance pest populations are in your area. If so refer the the resistance management statement in the DIRECTION FOR USE section of this label.



mmon name:

own marmorated stink

g

ientific name:

rown marmorated stink bug

- Importance: invasive;
- Native to Asia

- Agricultural pest of apples, pears, peaches, figs, mulberries, citrus, persimmon and soybeans

egacopta cribraria (4-5 mm)
. Eger, Dow AgroSciences

Insects aggregated in a corner.
D. Suiter, UGA

mmon name: **Bean plataspid**

entific name: ***Megacopta cribraria***

egacopta cribraria (4-5 mm)
. Eger, Dow AgroSciences

Insects aggregated in a corner.
D. Suiter, UGA

asive; native to China

ous pest of soybean

Can cause up to 50% yield loss

rently, found in Georgia on kudzu

ouisiana
Soybean
And
Grain
Board

LSU
AgCenter