Louisiana Agricultural Technology & Management Conference
February 13, 2014

Soybean Insect Update 2014

J. Davis

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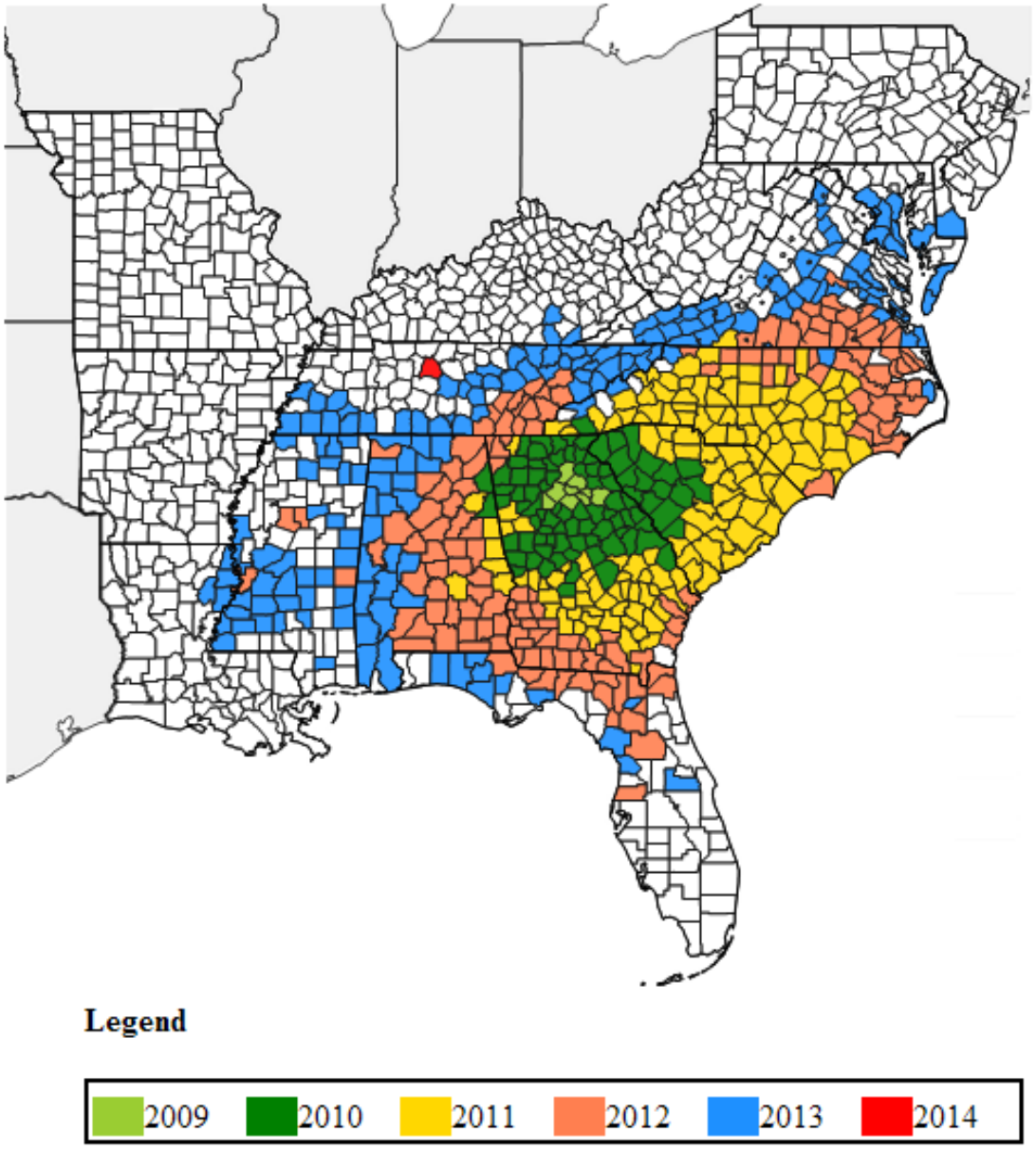
Kudzu Bug

DISTRIBUTION MAP



Louisiana Parishes:

East Carroll
Franklin
Madison
Tensas

University of Georgia
P. Roberts, J. All, D. Buntin, W. Gardner, John Ruberson, M. Toews, D. Suiter, and T. Jenkins

Clemson University
J. Greene, N. Seiter, and F. Reay-Jones

USDA---NBCL
W. Jones

Yield Loss in Soybeans

Georgia and South Carolina, n=19

Year	State	% Yield Reduction	Maturity Group	Test Type
2010	GA	11%	MGVII	Trt vs Unt
2010	GA	19%	MGVII	Trt vs Unt
2010	GA	23%	MGVII	Efficacy
2010	GA	23%	MGVII	Efficacy
2010	GA	14%	MGVII	Efficacy
2010	GA	22%	MGVII	Efficacy

18% AVG

Range: 0%-47%

Year	State	% Yield Reduction	Maturity Group	Test Type
2011	SC	0%	MGIV	Threshold
2011	SC	10%	MGVII	Threshold
2011	GA	27%	MGV	Threshold
2011	SC	14%	MGVIII	Pheno
2011	SC	12%	MGVII	Pheno
2011	GA	47%	MGV	Pheno
2011	GA	36%	MGV	Efficacy
2011	SC	20%	MGVII	Efficacy
2011	SC	25%	MGVII	Efficacy
2011	GA	30%	MGVII	Efficacy
2011	GA	0%	MGVII	Efficacy
2011	GA	13%	MGVII	Efficacy
2011	GA	0%	MGVII	Efficacy

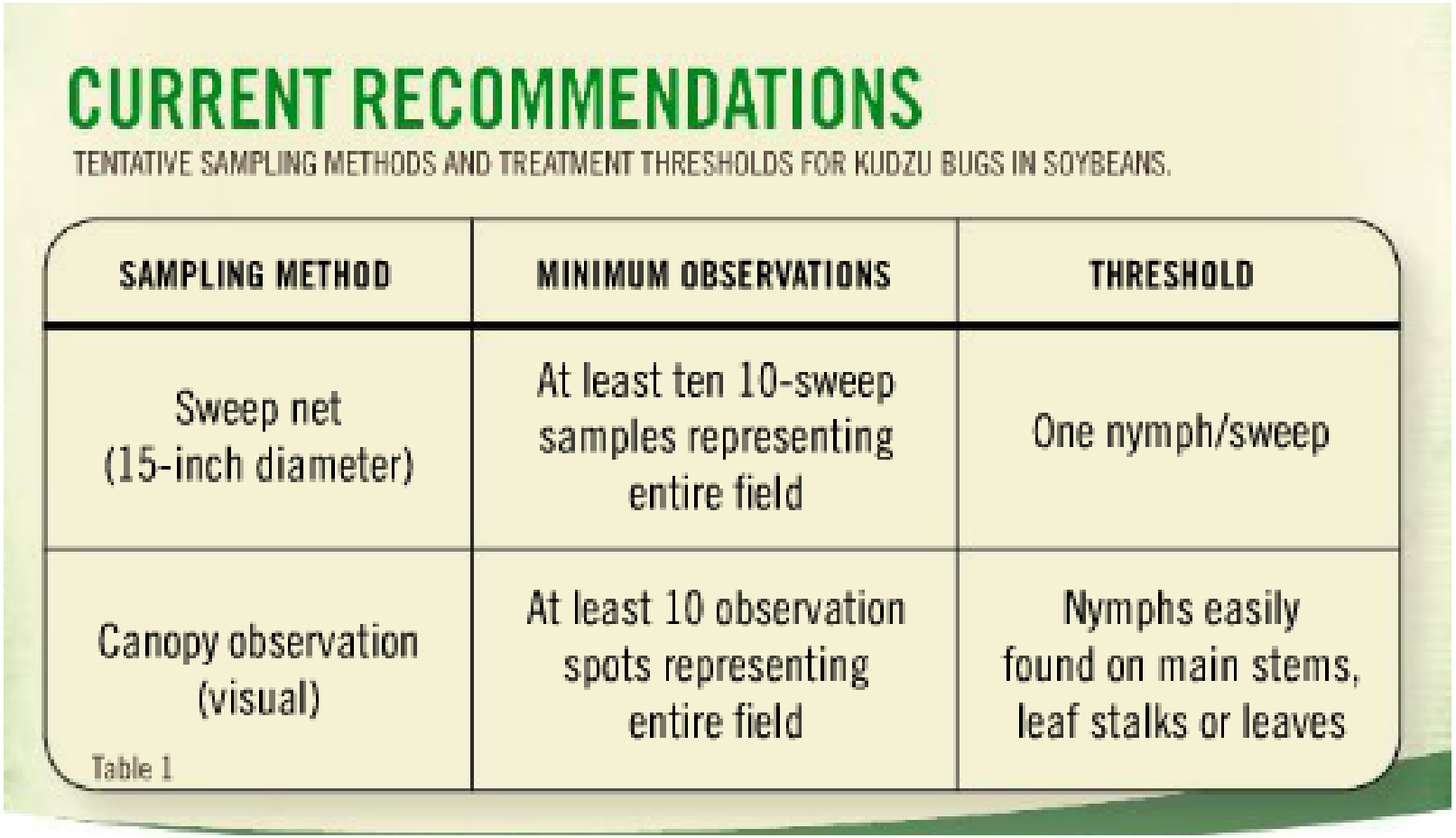
Kudzu Bug Threshold for V Stage Soybeans

Phillip Roberts
University of Georgia, Extension Entomologist
May 31, 2013

We are suggesting a treatment threshold of 5 adults per plant on vegetative soybeans.

Kudzu bug egg masses on heavily infested seedling on a field edge and a close-up inset of a hatching egg mass.

Kudzu Bug Threshold for R Stage Soybeans



CURRENT RECOMMENDATIONS

TENTATIVE SAMPLING METHODS AND TREATMENT THRESHOLDS FOR KUDZU BUGS IN SOYBEANS.

SAMPLING METHOD	MINIMUM OBSERVATIONS	THRESHOLD
Sweep net (15-inch diameter)	At least ten 10-sweep samples representing entire field	One nymph/sweep
Canopy observation (visual)	At least 10 observation spots representing entire field	Nymphs easily found on main stems, leaf stalks or leaves

Table 1

USB Kudzu Bug Guide Book

CLEMSON
COOPERATIVE EXTENSION

Controlling kudzu bug on soybeans

KUDZU BUG [By FIFRA 2(ee)(2) – check product labels for recommendations for kudzu bug]

Product (pyrethroids)	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
bifenthrin **(R)**		0.1		12 hr	18 d	Under certain conditions, kudzu bug can cause economic losses if not controlled. Insecticides should be timed for optimum control of the immature stage. Trigger initial application when immatures are first detected in sweep-net samples at approximately 1 nymph/sweep. An application at R3/R4 will likely prevent this generation from completing development on soybean. Thereafter, use 2 bugs/sweep if populations build again.
Discipline 2 EC	6.4 oz		20			
Brigade 2 EC	6.4 oz		20			
Fanfare 2 EC	6.4 oz		20			
Bifenture 2 EC	6.4 oz		20			
lambda-cyhalothrin **(R)**		0.03		24 hr	30 d	
Karate Z 2.08 CS	1.92 oz		66.6			
Warrior 1 CS	3.84 oz		33.3			
Silencer 1 EC	3.84 oz		33.3			
Lambda-Cy 1 EC	3.84 oz		33.3			
gamma-cyhalothrin **(R)**		0.015		24 hr	30 d	
Prolex 1.25 CS	1.54 oz		83			
Declare 1.25 CS	1.54 oz		83			
zeta-cypermethrin **(R)**		0.025		12 hr	21 d	
Mustang Max 0.8 EC	4.0 oz		32			
Respect 0.8 EC	4.0 oz		32			
zeta-cypermethrin **(R)** + bifenthrin **(R)**		0.062-0.1		12 hr	21 d	
Hero 1.24 EC	6.4-10.3 oz		12.4-20			

CLEMSON
COOPERATIVE EXTENSION

Controlling kudzu bug on soybeans

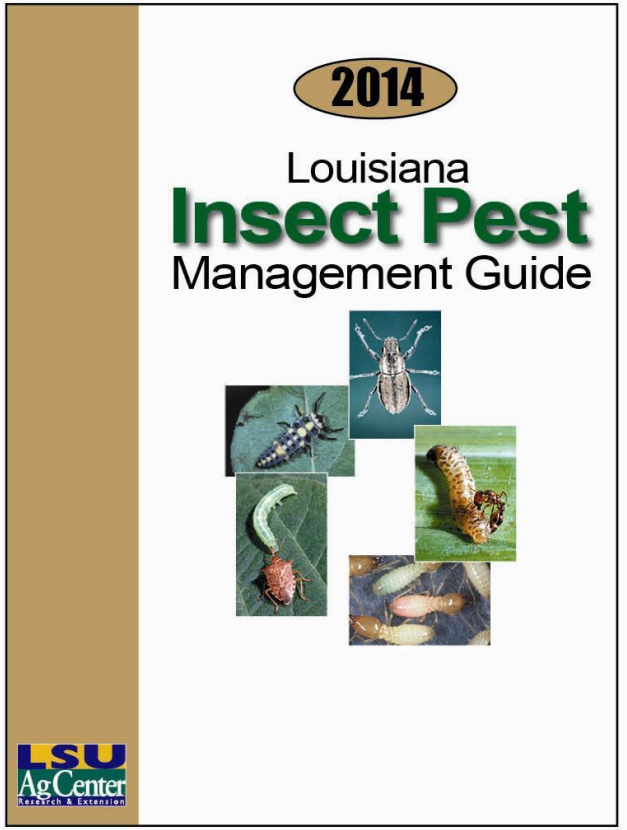
MULTIPLE PESTS – PRE-MIXED PRODUCTS

Product	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
thiamethoxam/*lambda*-cyhalothrin **(R)** Endigo 2.06 ZC*	2.5-4.5 oz	0.04-0.072	28.4-51.2	24 hr	30 d	Season limit of 9 oz Pre-mixed
imidacloprid/cyfluthrin **(R)** Leverage 2.7 SC	3.8 oz	0.08	33.7	12 hr	45 d	Pre-mixed
imidacloprid/*beta*-cyfluthrin **(R)** Leverage 360	2.8 oz	0.0656	45.7	12 hr	14 d	Pre-mixed
imidacloprid/bifenthrin **(R)** Brigadier 2 SC*	5.1-6.1 oz	0.08-0.095	21-25	12 hr	18 or 45 d	Pre-mixed
chlorpyrifos/*lambda*-cyhalothrin **(R)** Cobalt Advanced 2.63*	0.5-1.2 qt	0.329-0.78	3.37-8	24 hr	30 d	Pre-mixed

Soybean Looper

Soybeans

Insect	Insecticide	Amount of concentrate/ac	lb ai/ac	ac treated/gal or lb	When to Treat (Economic threshold)
Soybean looper[3, 5]	Lannate[6] (2.4)	24.0 oz	0.45	5.3	8 worms, ½ inch or longer, per row foot or 150 worms in 100 sweeps.
	Tracer[7] (4)	1.0 – 2.0 oz	0.031-0.062	128 – 64	
	Steward (1.25)	5.6 – 11.3 oz	0.055-0.11	22.9 – 11.3	
	Intrepid (2)	6.0 – 8.0 oz	0.09-0.125	21.3 – 16	
	Belt (4)	2.0 oz	0.0625	64	
	Prevathon	14.0 – 20.0 oz	0.047 – 0.067	9.1 – 6.4	
	Besiege	10.0 oz		12.8	



GF-3028 = Intrepid Edge

Table 1

Treatment/ formulation	Rate amt product/acre	Mean SBL/25 sweeps 5 DAT	7 DAT	14 DAT
UTC	—	29.5 a	21.0 a	11.3 a
GF-3028	4.0 oz	1.3 b	4.0 b	0.3 b
GF-3028	6.0 oz	2.8 b	1.5 b	2.0 b
GF-3028 + Karate	4.0 oz + 1.92 oz	2.8 b	2.0 b	0.8 b
Belt	2.0 oz	1.5 b	3.0 b	0.5 b
Prevathon	14.0 oz	1.0 b	2.0 b	0.3 b
Prevathon	20.5 oz	0.5 b	1.3 b	1.5 b
Besiege	7.0 oz	0.3 b	0.5 b	0.5 b

GF-3028 = Intrepid Edge

Table 2

Treatment/ formulation	Rate amt product/acre	% Defoliation 21 DAT
UTC	—	42.5 a
GF-3028	4.0 oz	11.3 b
GF-3028	6.0 oz	12.5 b
GF-3028 + Karate	4.0 oz + 1.92 oz	6.3 b
Belt	2.0 oz	11.3 b
Prevathon	14.0 oz	6.3 b
Prevathon	20.5 oz	5.0 b
Besiege	7.0 oz	6.3 b

Table 1

Treatment/ formulation	Rate amt product/acre	Mean SBL/25 sweeps		
		4 DAT	6 DAT	13 DAT
UTC	—	29.5 a	24.0 a	11.5 a
Prevathon	10 oz	1.5 b	4.5 b	0.5 b
Prevathon	14 oz	0.3 b	1.5 b	1.0 b
Prevathon+Asana+Orthene	10 oz + 7 oz + 0.75 lb	1.3 b	1.5 b	1.0 b
Belt	2 oz	2.0 b	1.3 b	1.5 b
Besiege	5 oz	1.8 b	4.0 b	0.5 b
Besiege	7 oz	0.8 b	2.8 b	2.0 b
Steward	6.7 oz	2.5 b	3.3 b	1.0 b
Steward	8.0 oz	0.3 b	1.3 b	2.0 b

Table 2

Treatment/ formulation	Rate amt product/acre	% Defoliation 21 DAT
UTC	—	40.0 a
Prevathon	10 oz	6.3 b
Prevathon	14 oz	5.0 b
Prevathon+Asana+Orthene	10 oz + 7 oz + 0.75 lb	5.0 b
Belt	2 oz	5.0 b
Besiege	5 oz	7.5 b
Besiege	7 oz	5.0 b
Steward	6.7 oz	10.0 b
Steward	8.0 oz	10.0 b

5 DAT
7 DAT
14 DAT
Mean # of SBL larvae per 25 sweeps
35
30
25
20
15
10
5
0
UTC
Endigo 4.5 fl oz
Karate 1.92 fl oz
Cobalt 27 fl oz
Besiege 9 fl oz

Mean % Defoliation 21 DAT
40
35
30
25
20
15
10
5
0
UTC
Endigo 4.5 fl oz
Karate 1.92 fl oz
Cobalt 27 fl oz
Besiege 9 oz

Soybean Looper Insecticide Tolerance Monitoring 2013

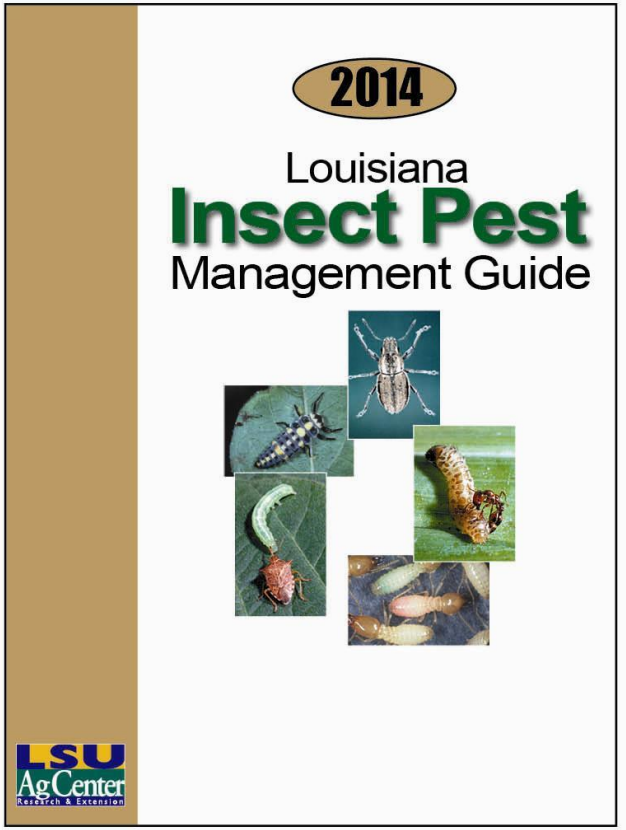
% mortality ± se at DD

Location	Intrepid 2F	Belt SC
Arkansas	61.1 ± 11.3 ab	80.0 ± 6.7 a
Georgia	56.7 ± 5.1 b	70.0 ± 10.7 a
Louisiana-BH	67.8 ± 7.8 ab	86.7 ± 3.3 a
Louisiana-NI	98.9 ± 1.1 a	96.7 ± 0.0 a
Louisiana-SJ	72.2 ± 7.3 ab	81.1 ± 2.9 a
Louisiana-US	85.6 ± 2.2 ab	87.8 ± 6.8 a
North Carolina	67.8 ± 12.4 ab	27.8 ± 2.9 b
Tennessee	68.9 ± 11.6 ab	93.3 ± 3.3 a
P-value	< 0.0001	< 0.0001

We used a diet incorporated insecticide bioassay on the F2 generation
Replicated 3X at 30 individuals per replicate
Discriminating dose (DD) was 3X mean LC90 of our susceptible strain
This kills about 50% of our resistant strain

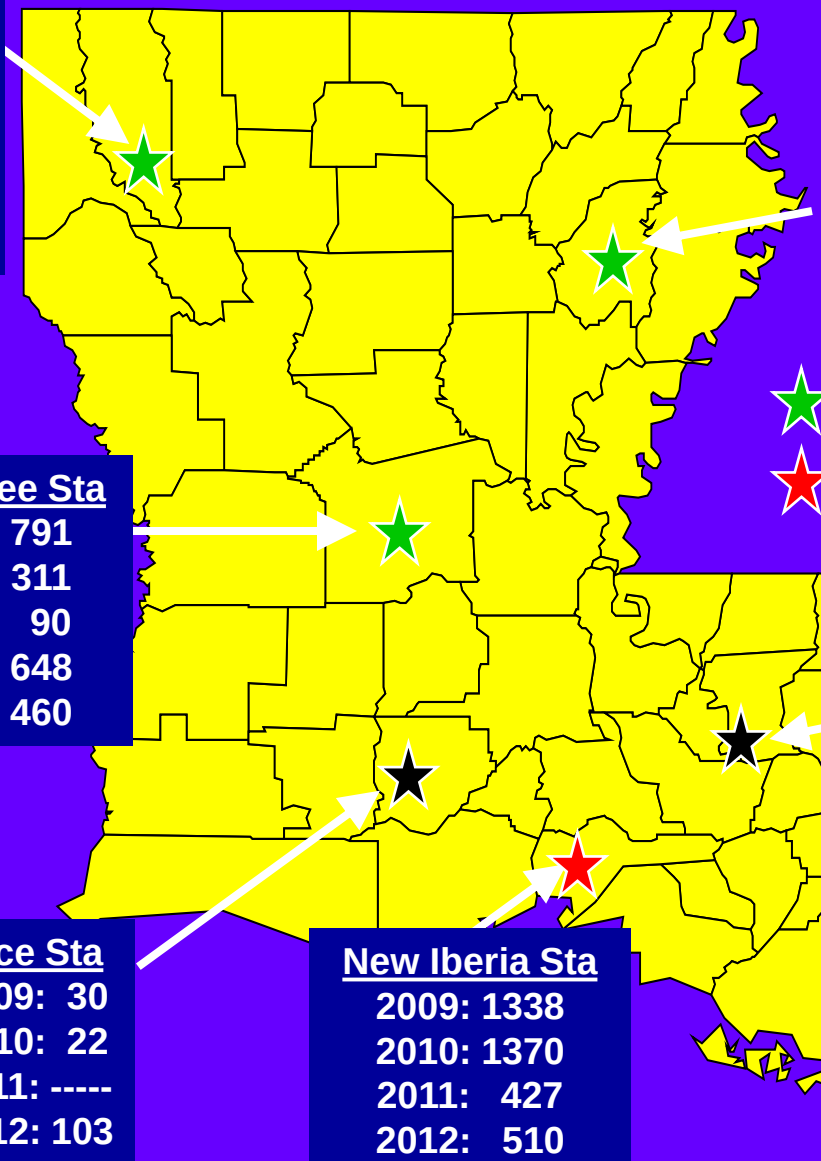
Soybeans

Insect	Insecticide	Amount of concentrate/ac	lb ai/ac	ac treated/gal or lb	When to Treat (Economic threshold)
Redbanded stinkbug[4]	Orthene (Acephate)	12.0 – 16.0 oz	0.75- 1.0	1.3 – 1	16 bugs in 100 sweeps
	Endigo ZC	4.0 - 4.5 oz		32 – 28.4	
	Brigade (2)	6.4 oz	0.1	20	
	Hero (1.24)	10.3 oz	0.1	12.4	
	Leverage 360	2.8 oz		45.7	
	Belay	4.0 oz	0.067	32	



Redbanded Stink Bug Status 2009 to 2013

Weekly samples from late May – early October



Red River Sta
2009: 848
2010: 118
2011: 3
2012: 82
2013: 204

Macon Ridge Sta
2009: 433
2010: 17
2011: 6
2012: 290
2013: 690

Cold temperatures

Drought

Dean Lee Sta
2009: 791
2010: 311
2011: 90
2012: 648
2013: 460

Ben Hur Sta
2009: 409
2010: 23
2011: 526
2012: 153
2013: 198

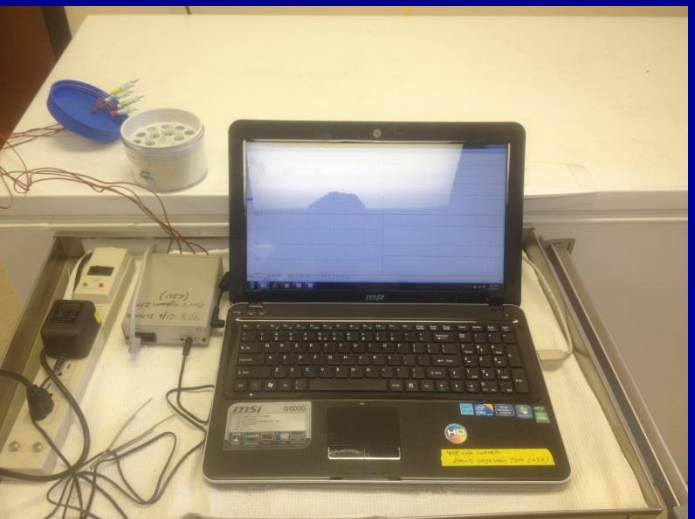
Rice Sta
2009: 30
2010: 22
2011: -----
2012: 103
2013: 202

New Iberia Sta
2009: 1338
2010: 1370
2011: 427
2012: 510
2013: 1019

10,000 sweeps per location

RBSB lower developmental thresholds and supercooling point

- Redbanded stink bug supercooling point is -4°F
- At 23°F, LT_{50} = 4 hr and LT_{90} = 7 hr
- At 32°F, redbanded stink bug had to be exposed for a week to see 95% mortality



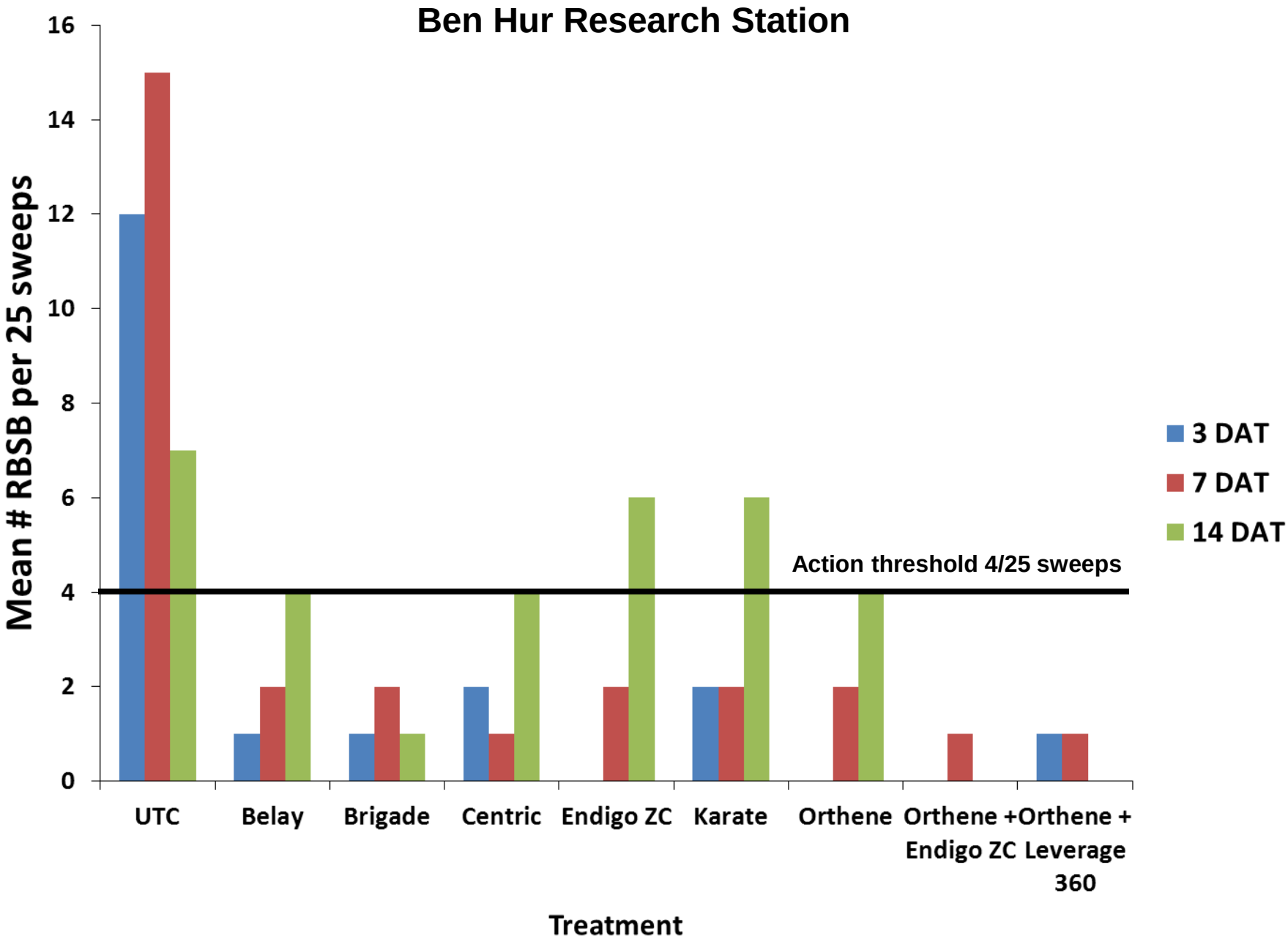
Research Station	As of Februray 3, 2014 Hrs at or below 23°C
Ben Hur	23
Crowley	9
Dean Lee	53
Macon Ridge	61
New Iberia	1
Red River	28

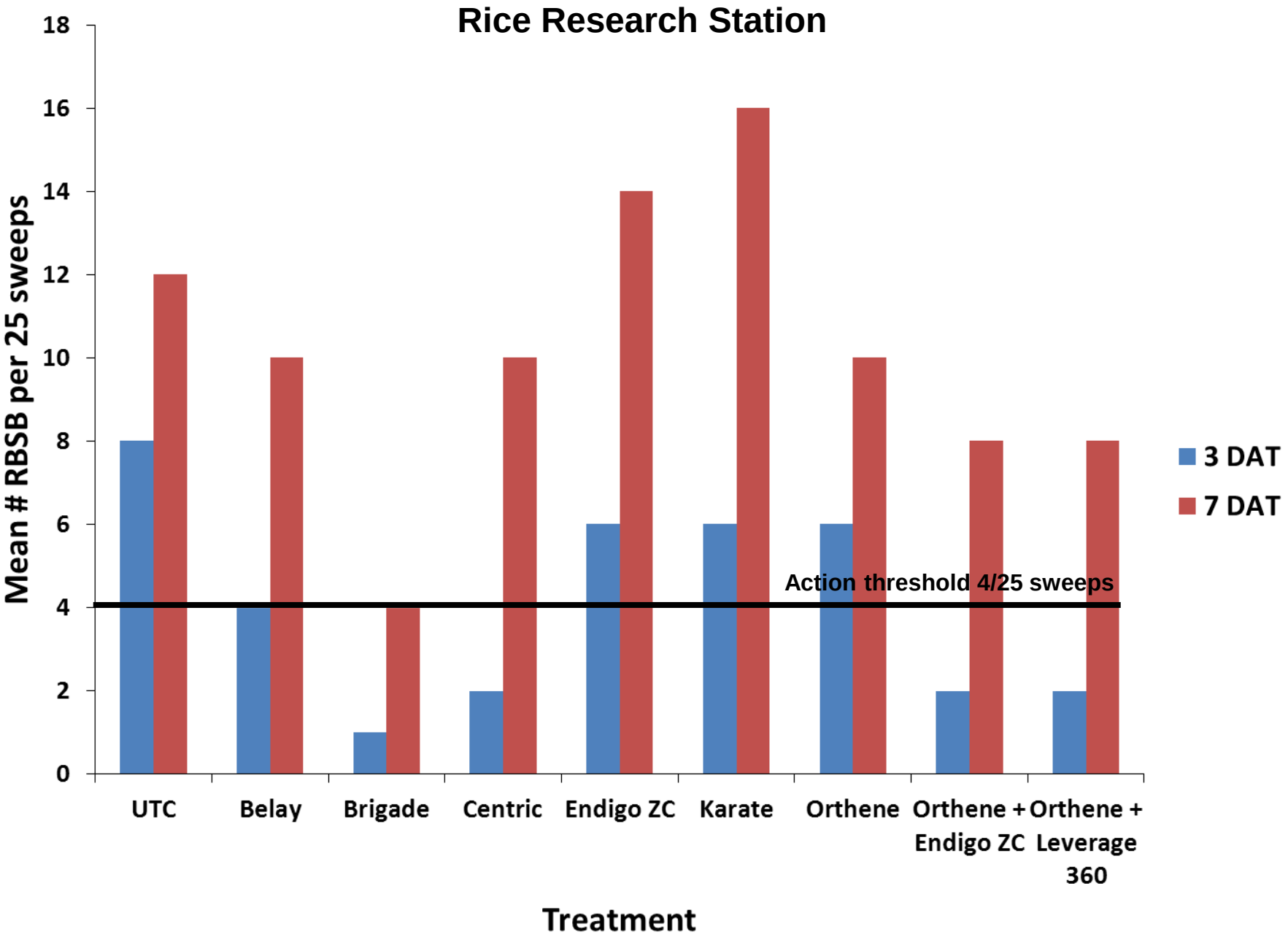
At 23°F, 50% mortality = 4 hr
90% mortality = 7 hr

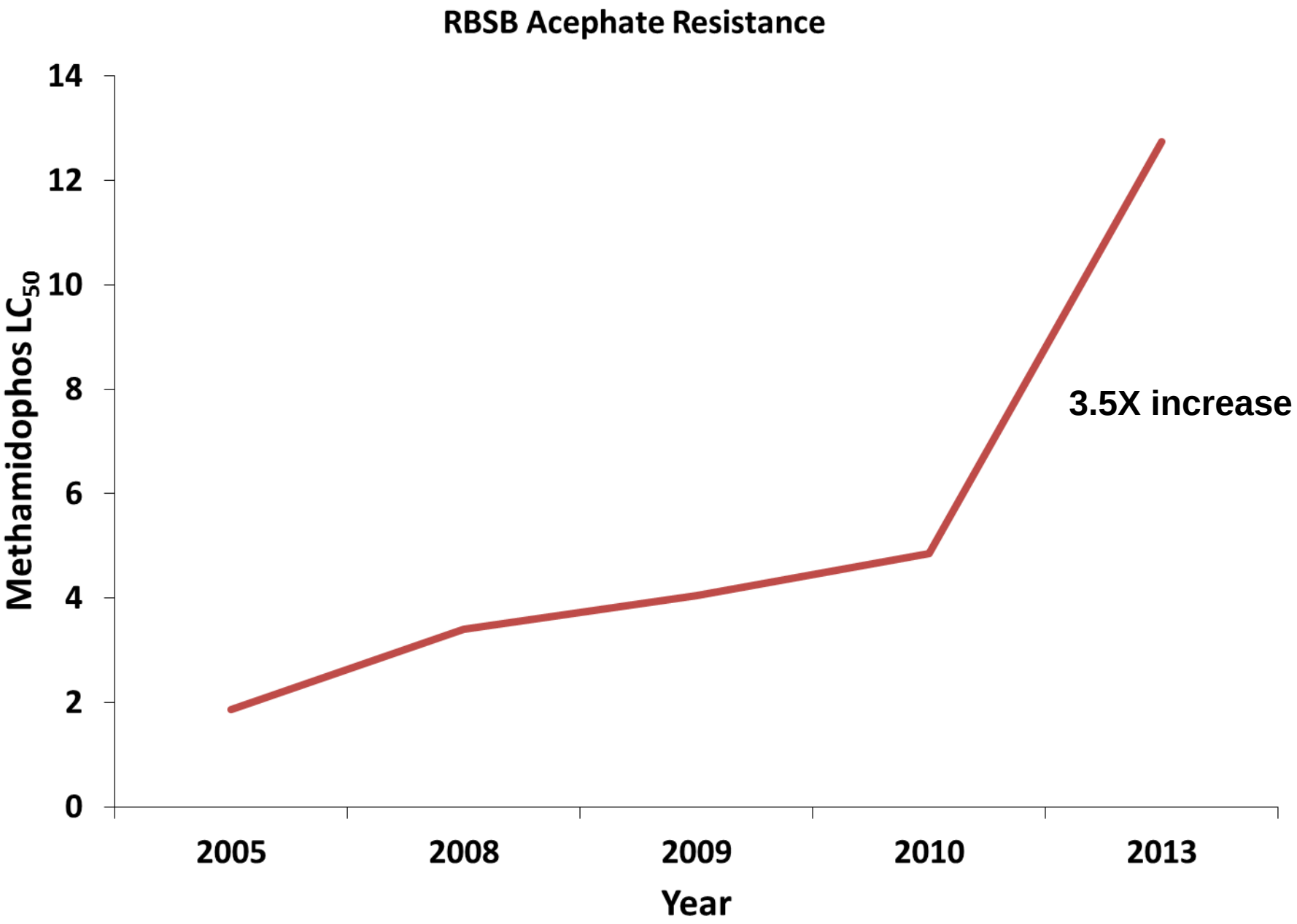
LSU AgCenter
Research & Extension

RBSB Insecticide Trials 2013

Product Name	Chemical Name	Rate
UTC	–	–
Belay	clothianidin	4.0 fl oz/A
Brigade	bifenthrin	6.4 oz/A
Centric	thiamethoxam	2.5 oz/A
Endigo ZC	lambda-cyhalothrin + thiamethoxam	4.5 fl oz/A
Karate	lambda-cyhalothrin	1.92 fl oz/A
Orthene	acephate	0.5 lb/A
Orthene + Endigo ZC	acephate + lambda-cyhalothrin + thiamethoxam	0.5 lb/A + 4.5 fl oz/A
Orthene + Leverage 360	acephate + beta-cyfluthrin + imidacloprid	0.5 lb/A + 2.8 fl oz/A


Ben Hur Research Station
Mean # RBSB per 25 sweeps
16
14
12
10
8
6
4
2
0
Action threshold 4/25 sweeps
3 DAT
7 DAT
14 DAT
UTC
Belay
Brigade
Centric
Endigo ZC
Karate
Orthene
Orthene + Endigo ZC
Orthene + Leverage 360
Treatment


Rice Research Station
Mean # RBSB per 25 sweeps
18
16
14
12
10
8
6
4
2
0
Action threshold 4/25 sweeps
3 DAT
7 DAT
UTC
Belay
Brigade
Centric
Endigo ZC
Karate
Orthene
Orthene + Endigo ZC
Orthene + Leverage 360
Treatment


RBSB Acephate Resistance
Methamidophos LC50
14
12
10
8
6
4
2
0
2005
2008
2009
2010
2013
Year
3.5X increase

Thank You

Questions?

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