Entomology Odds and Ends

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Entomology Update

- Dermacor water-seeded label
- Dermacor v. Cruiser => Dermacor + Cruiser
- Tenchu 20SG
- Mexican rice borer
- Thresholds

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Dermacor X-100 24c – “Special local needs label”

- For use on dry rice seed broadcast into flood (no soaking)
- “Special need” addressed = Mexican rice borer
- Small-plot studies => will control rice water weevil
- “Use higher seeding rate for any given rate of Dermacor for severe infestations or longer residual” (no data)

2012 Dermacor® X-100 Seeding Rate

*Water Seeded use rates ONLY

lbs ai/ acre	Seeding rate	oz/cwt
0.098	120	2
0.081	101	2
0.116	95	3
0.092	76	3
0.114	70	4
0.102	51	4
0.092	45	5
0.061	30	5
0.061	25	6
0.056	23	6

Dermacor X-100 – What about crawfish?

- "Do not use" Dermacor-treated rice field "for the aquaculture of…crawfish…during the rice production cycle (planting through harvest)"
- LC_{50} of Dermacor ai three orders of magnitude lower than LC_{50}s of pyrethroids
- Caged crawfish showed no mortality in Dermacor-treated plots
- Still some concerns: water samples will be taken in 2012

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Dermacor v. Cruiser Maxx – 2011 small-plot study

Three planting dates- March, April, May
'Cocodrie', 30 lb seeding rate
Two core sampling dates, ~ 3weeks after flooding and ~4 ½ weeks after flooding
Visible differences in stand – Cruiser helps stand

Planting date	**Flooding date**	**Dates and timing of core samplings (three cores per plot):**	
March 21 (PD1)	21 April	12 May	23 May
April 11 (PD2)	19 May	9 June	20 June
May 9 (PD3)	2 June	21 June	5 July

Both insecticides reduce weevils, but Dermacor more effective

Treatment	Densities of larvae and pupae ± S.E. in first core sampling, 19-21 d after flooding:			Densities of larvae and pupae ± S.E. in second core sampling, 32-34 d after flooding:		
	PD1	PD2	PD3	PD1	PD2	PD3
Fungicide (control)	6.2 ± 2.6	16.8 ± 3.5 **a**	8.3 ± 2.9	13.6 ± 1.6 **a**	23.2 ± 3.5 **a**	34.6 ± 4.5 **b**
Cruiser Maxx	1.7 ± 0.7	3.8 ± 0.6 **b**	5.4 ± 1.6	6.0 ± 2.1 **b**	6.7 ± 1.1 **b**	46.7 ± 6.8 **a**
Dermacor	0.5 ± 0.1	1.0 ± 0.1 **b**	2.2 ± 0.6	0.7 ± 0.2 **b**	2.3 ± 0.8 **b**	24.6 ± 8.1 **a**
	$F_{2,6}$ = 4.2, P = 0.07	$F_{2,6}$ = 16.6, P = 0.004	$F_{2,6}$ = 3.8, P = 0.09	$F_{2,6}$ = 18.8, P = 0.003	$F_{2,6}$ = 27.8, P = 0.001	$F_{2,6}$ = 6.6, P = 0.03

Rice planted earlier in the season has lower infestations

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Low seeding rates sometimes compromise CruiserMaxx and Dermacor efficacy

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Dermacor + Cruiser: when is this combination wise?

- Practice is legal, but may result in more insecticide use than necessary
- Low seeding rates, when efficacy of seed treatments sometimes compromised (especially Cruiser)

+

- History of problems with sporadic pests or suspect you may have problems with sporadic pests

Spectrum of activity

Cruiser





Dermacor X-100




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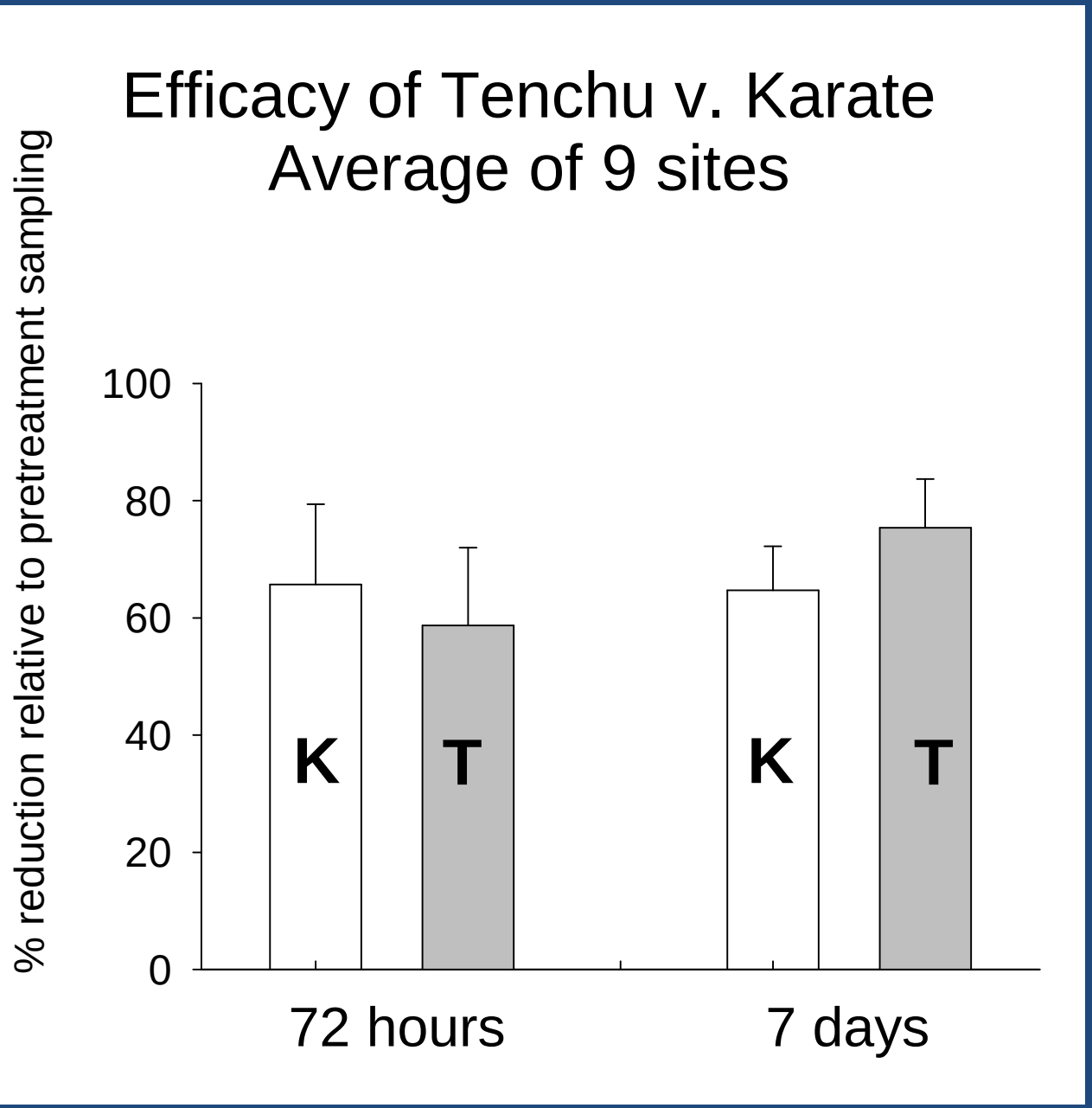
Tenchu 20SG

- Section 18 in 2011. 2012?
- Registered rate:
  - 7.5 to 10.5 oz of product per acre (0.09 to 0.13 lbs ai per acre)
- Pre-harvest Interval:
  - 7 days
- Suggested retail price:
  - $24.30 lb at ½#per acre = $12.15/ac

Tenchu 20SG – current research

- Small plot efficacy + demo trials: efficacy similar to Karate
- Longer residual?
- Effects on feeding?
- Are these benefits worth the additional cost?


Efficacy of Tenchu v. Karate
Average of 9 sites
% reduction relative to pretreatment sampling
100
80
60
40
20
0
K
T
K
T
72 hours
7 days
Days after treatment

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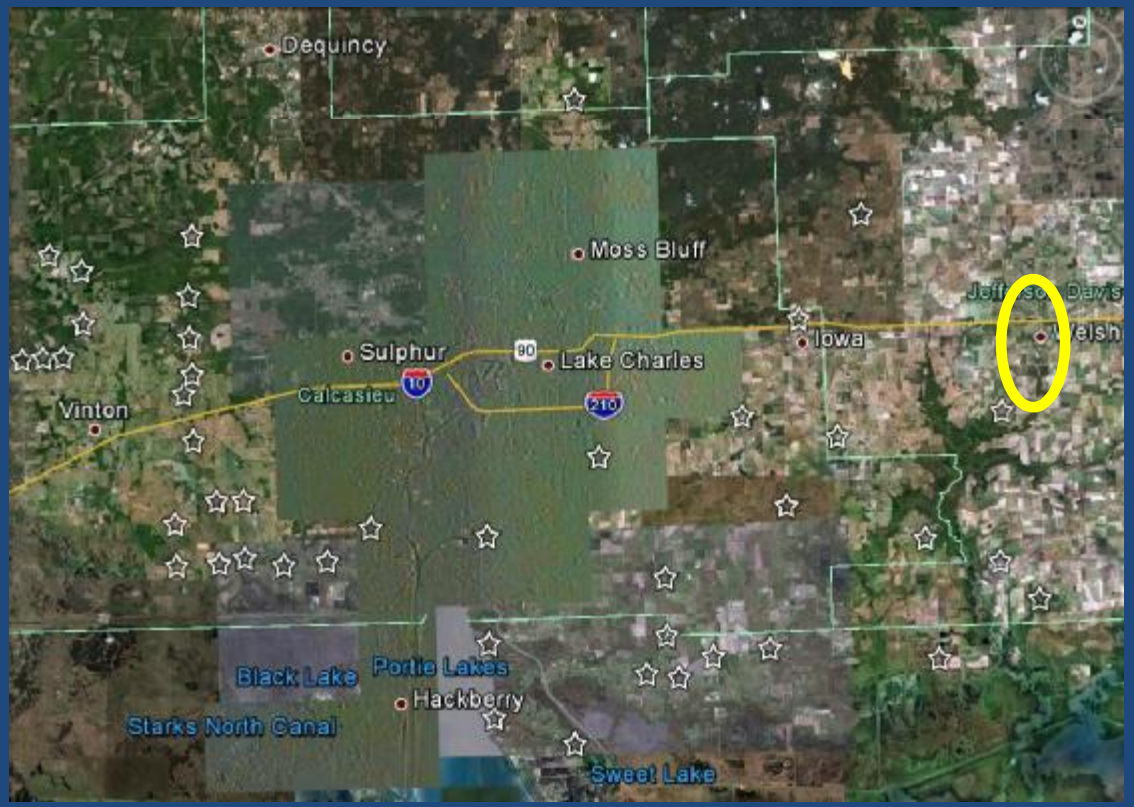
Mexican rice borer moving slowly into Louisiana

News Release Distributed 12/16/11

WELSH, La. – Entomologists continue to monitor the eastward progress of the Mexican rice borer.

Adult moths were found in October in Jefferson Davis Parish in monitoring traps approximately 10 miles south of Welsh. The traps are maintained by the Louisiana Department of Agriculture and Forestry.

The pest, which came to Louisiana from Texas, was previously found in east Calcasieu Parish in a rice crop.



2011 Season Current Stats

MRB Finds 2011

Parishes	# Sites	# + Sites	# MRB
Calcasieu	34	26	212
Cameron	14	11	27
Beauregard	2	1	3
Vermilion	1	0	0
Jeff Davis	12	2	10

LSU AgCenter Research & Extension

As of mid-November, 2011

The MRB is in Louisiana
what should you do now?

- Learn to identify the pest
- Support the pheromone trap program
- Learn to scout for visual signs of MRB
- Use a multi-tactic management strategy
  - Cultivar selection
  - Weed management
  - Aggressive scouting
  - Insecticide control
  - Stubble management

MRB identification card

Mexican Rice Borer *Eoreuma loftini* (Dyar)

The Mexican rice borer is a devastating pest of sugarcane and a serious pest of rice. It was first collected in Louisiana in two pheromone traps on Dec. 15, 2008, near two rice fields northwest of Vinton, La.

1. Identification — Mexican rice borer adults are light tan moths with delta-shaped wings (Fig. 1A). By comparison, sugarcane borer adults are larger, straw-colored moths about 3/4-inch long with a series of black dots arranged in an inverted V-shape pattern on the front wings (Fig. 1B). Mexican rice borer adults produce spherical, globular, cream-colored eggs hidden between the folds of dried leaves. After hatching, young larvae feed inside fresh leaf sheaths and then bore into the stem or stalk. This feeding causes an orange discoloration of the leaf sheath.

Fig. 1A) Mexican rice borer adult; Fig. 1B) Sugarcane borer adult. (F. Reay-Jones and T. Riley)

Mexican rice borer larvae are whitish with a light-colored head capsule and two pair of dark purple stripes running the length of the body (Fig. 2A). By comparison, sugarcane borer larvae are yellowish or white with a series of brown spots on the back (Fig 2B). As they bore into the stem or stalk, Mexican rice borer larvae pack tunnels with frass, which prevents the entry of predators or parasites (Fig. 3). Pupation takes place inside the stem or stalk after mature larvae have made moth emergence holes that are smaller than those made by the sugarcane borers in sugarcane.

Fig. 2A) Mexican rice borer larva; Fig. 2B) Sugarcane borer larva. (A. Meszaros and J. Saichuk)

2. Injury to rice & sugarcane — ***Rice injury*** begins with feeding in leaf sheaths. Borers then tunnel inside the stem. Signs of early injury in rice are withering and death of the youngest leaf, resulting in a condition called deadheart (Fig. 4A). Most infestations are not obvious until after the boot stage. Stem feeding during panicle development causes partial or complete sterility and the white-head condition (Fig. 4B). The white, empty panicles are lightweight and stand upright. Feeding inside the stem can also cause plants to lodge before harvest.

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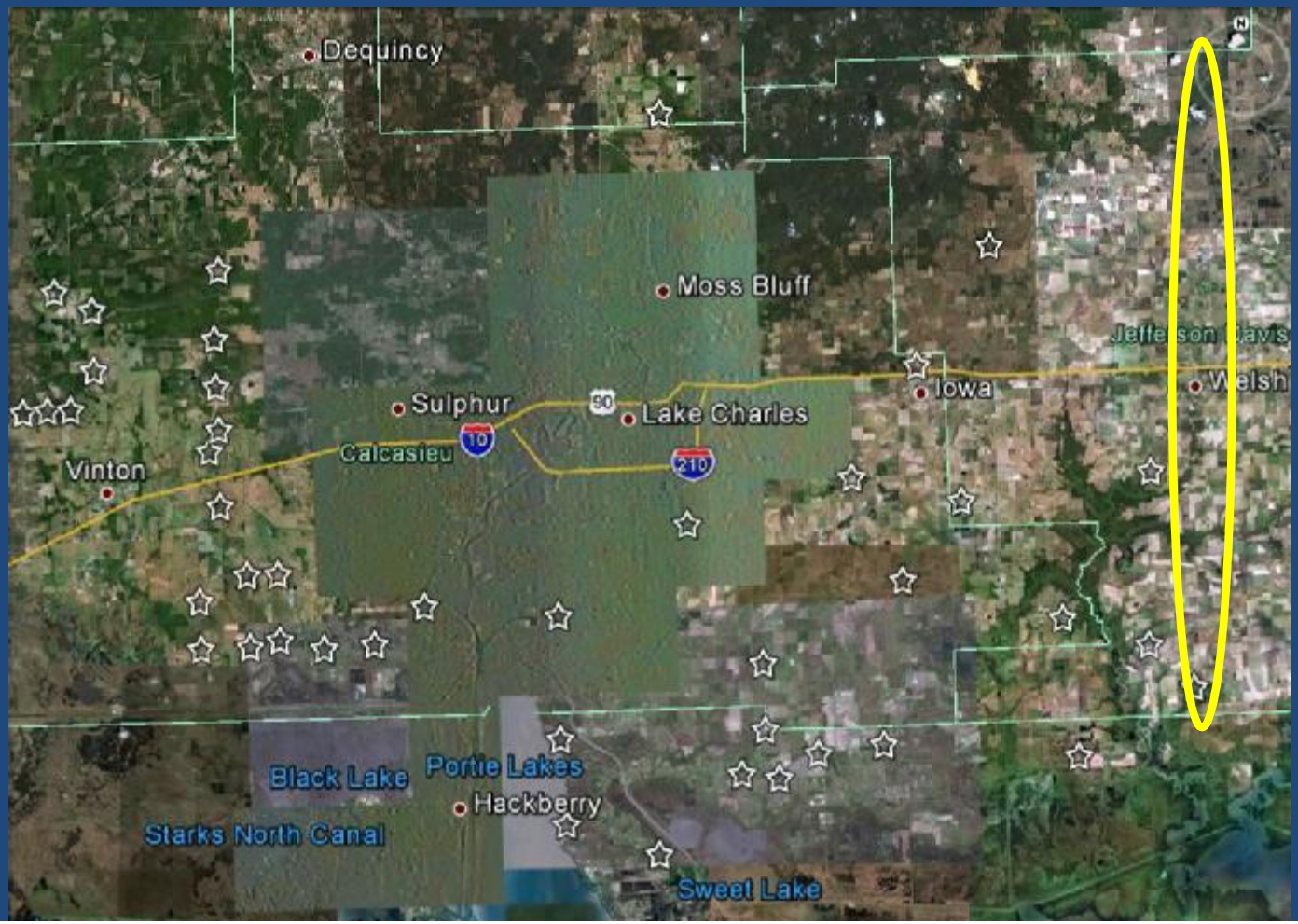
Louisiana Department of Agriculture and Forestry

MRB pheromone trapping program- LDAF and LSUAC cooperative program

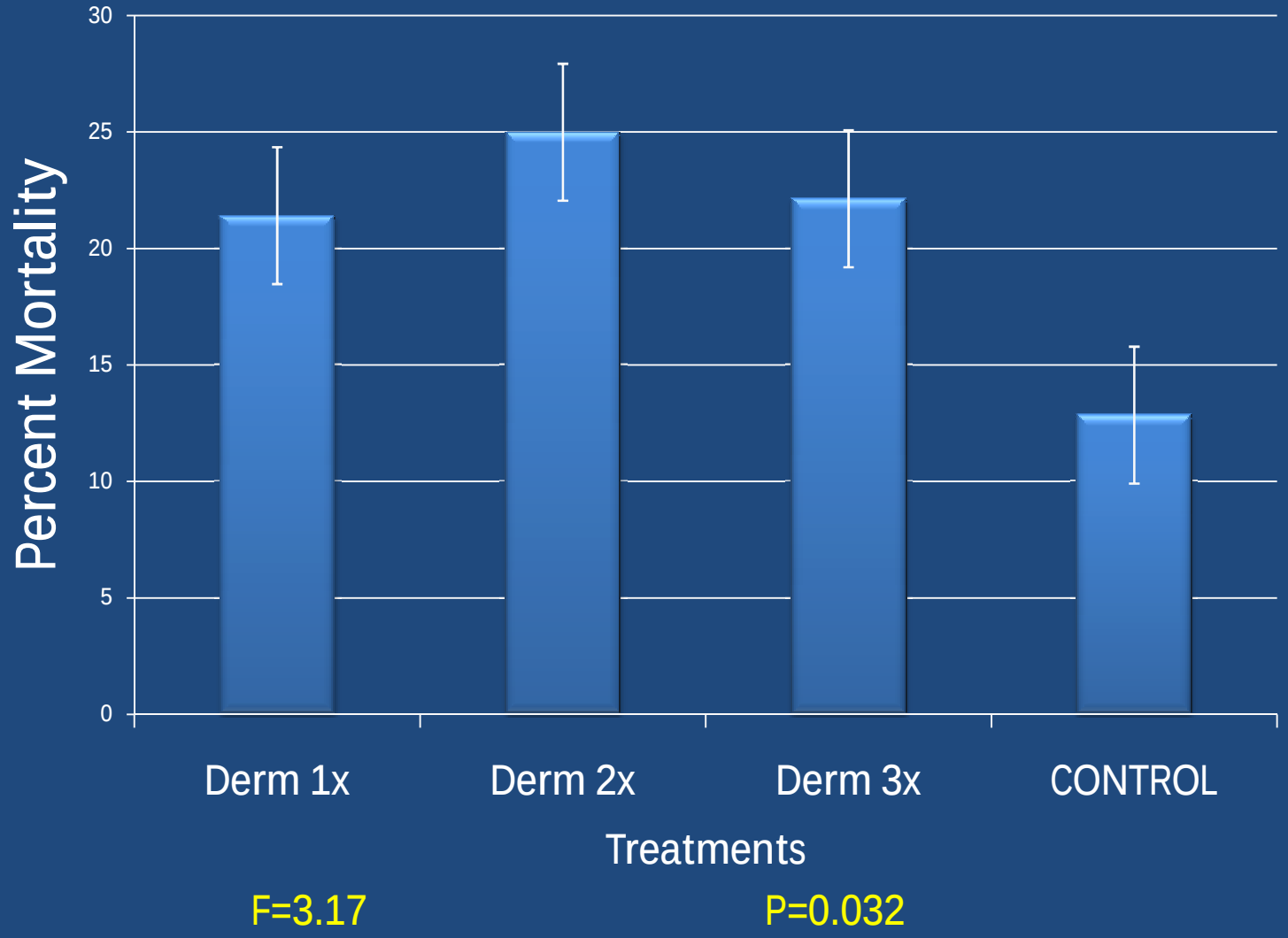
Traps in 2012 moved east ahead of anticipated spread



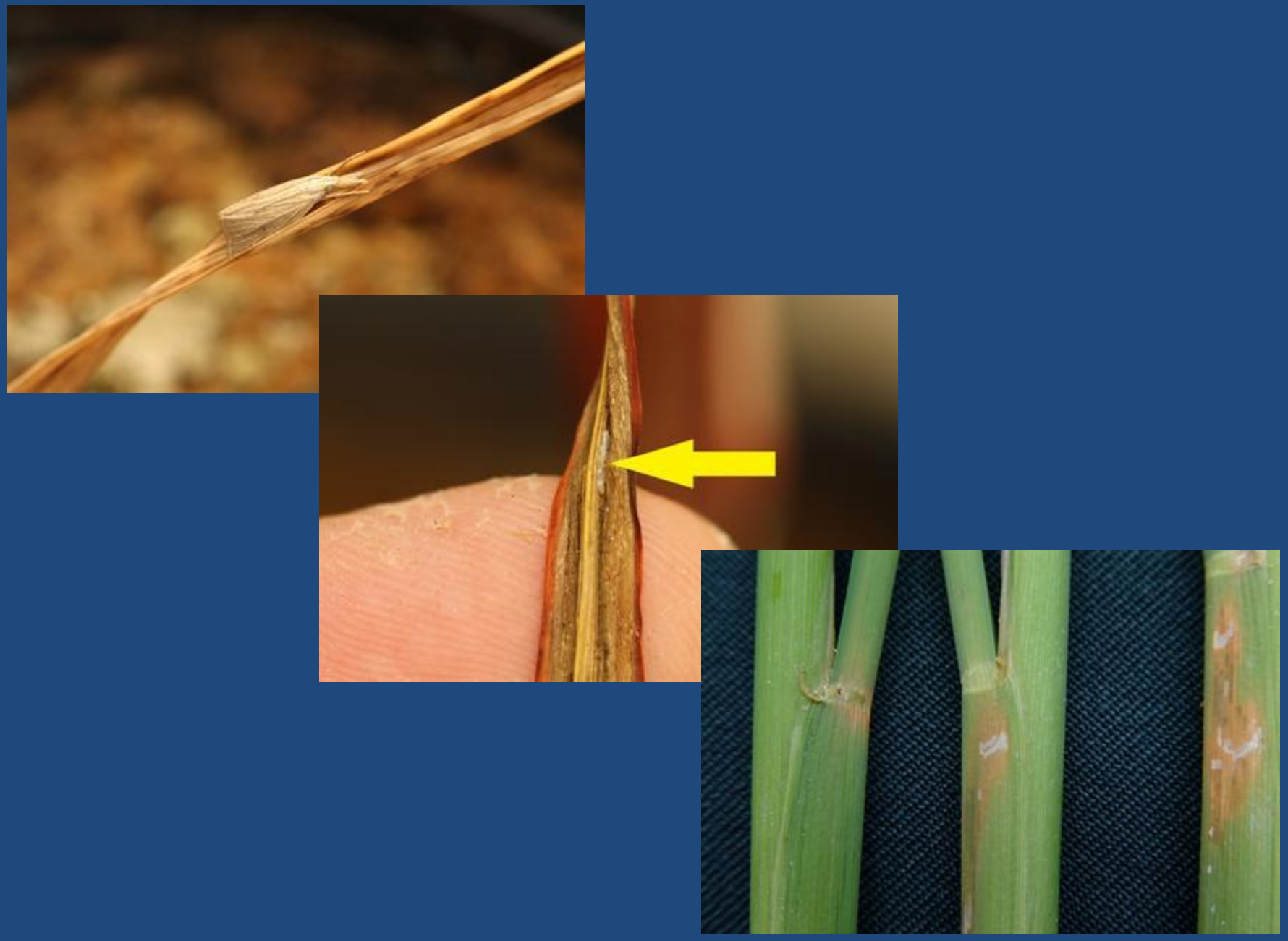
Insecticide options

- Strongly encourage use of Dermacor X-100 seed treatment if in an infested parish: Allen, Beauregard, Calcasieu, Cameron.
- New label for water-seeded rice
- Neonic seed treatments ineffective
- Scout – no thresholds yet, focus scouting during reproductive stages, use pyrethroids when eggs or feeding lesions observed
  - Must apply before larvae enter stem
  - Combine with fungicide application

Dermacor seed treatment increases sugarcane borer mortality on cut stems/leaves – 45 d old plants



F=3.17 P=0.032



Cultivars – all are susceptible

Very Susceptible	Susceptible	Moderately Resistant
Variety	Variety	Variety
CL121	Bolivar	CLXL8
Cocodrie	Cheniere	XL723
Francis	CL161	
Lemont	CLXL729	
Priscilla	CLXL730	
Saber	Cypress	
	Jacinto	
	Jefferson	
	Madison	
	Presidio	
	Trenasse	
	Wells	

Adapted from Way and Espino, 2011. Insect management, pp. 38-53. *In* 2011 Texas Rice Production Guidelines. Texas A&M AgriLife Extension Service Pub. B-6131, College Station, TX. (available at http://beaumont.tamu.edu/eLibrary/Bulletins/2011_Rice_Production_Guidelines.pdf).

Stubble management

- Second crop – reduce harvest height
  - MRB larvae feed and pupate high in the stem
  - MRB pupae overwinter in stubble
- Destroy stubble
  - Mow, flood, or plow – in fall, before winter
  - Confirm that does not conflict with duck habitat

Non-crop habitat management

- Weeds of concern
  - Johnson grass, Vaseygrass, sprangletop, others as discussed by Beuzelin
- Mow ditch banks and manage weeds in field margins – fall and early spring
- Reduce overwinter population

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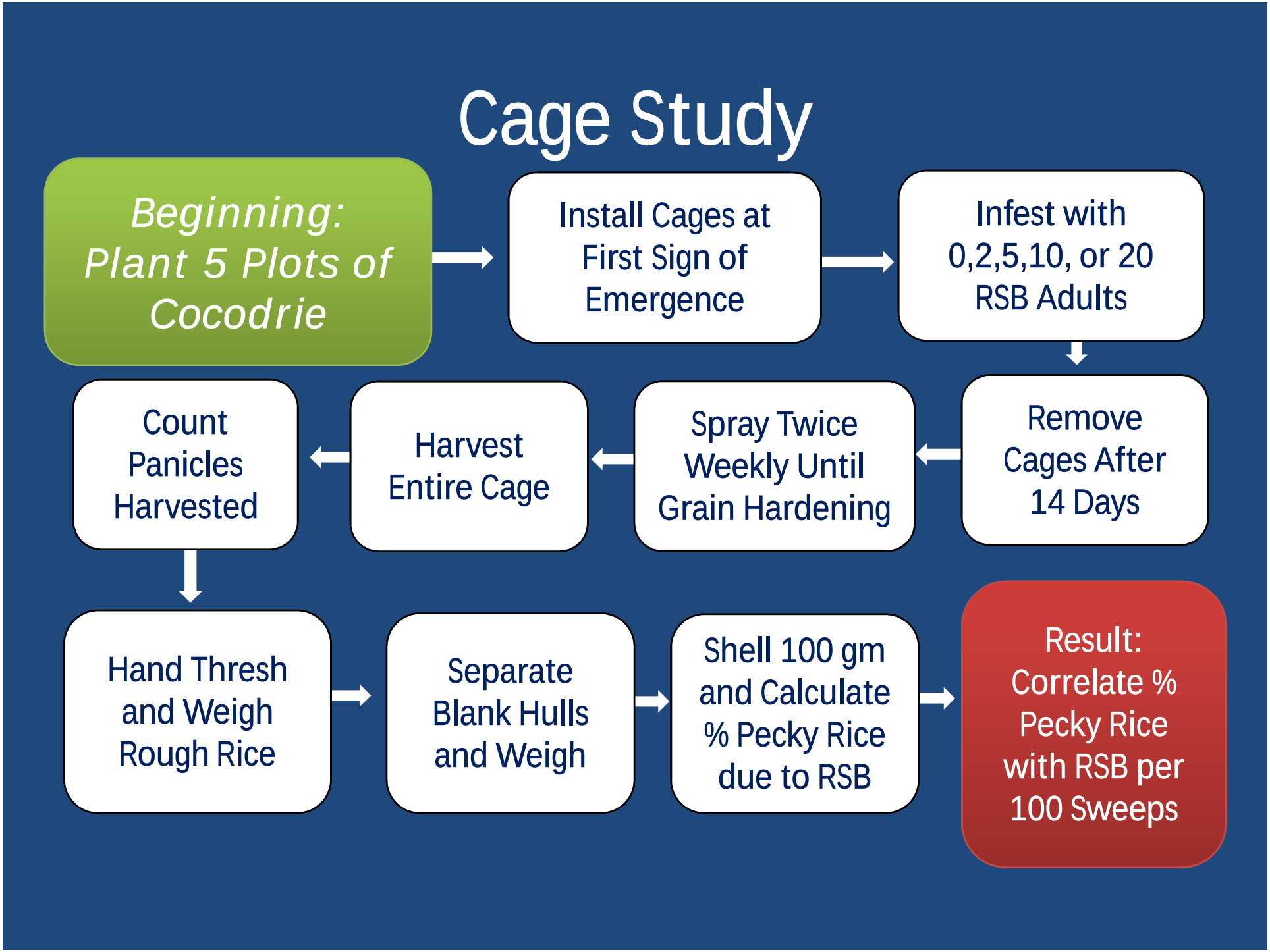
Table 27. Revised treatment thresholds for rice stink bug (RSB). Average number of RSBs per 10 sweeps

Projected yield (lb/acre)	Heading	Milk	Softdough	Harddough
4500	8	10	17	47
6000	10	14	22	63
7500	13	17	28	79
9000	16	21	34	94

Includes adults and older nymphs (4th and 5th instars).


WATER
SEED 2

Cage Study


Beginning: Plant 5 Plots of Cocodrie
Install Cages at First Sign of Emergence
Infest with 0,2,5,10, or 20 RSB Adults
Remove Cages After 14 Days
Spray Twice Weekly Until Grain Hardening
Harvest Entire Cage
Count Panicles Harvested
Hand Thresh and Weigh Rough Rice
Separate Blank Hulls and Weigh
Shell 100 gm and Calculate % Pecky Rice due to RSB
Result: Correlate % Pecky Rice with RSB per 100 Sweeps

Developing thresholds - MRB