

Reconsidering rice stink bug thresholds for crawfish production regions of southwest Louisiana

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Rice Stink Bug



Photo by J. Saichuk

Oebalus pugnax



Pecky rice

Reduced *quantity* and *quality* of rice
\$50-75 million in annual revenue loss across the Mid-South

Rice Stink Bug Sampling



Sweep net

Rice Stink Bug IPM

Current Economic Threshold (LA)

3 RSB/10 sweeps, first 2 weeks of heading
10 RSB/10 sweeps, after that

Inconsistency in past research

Cage vs field studies

Peck vs rough rice loss vs head yield?

Rice Stink Bug Literature

Rough Rice Yields

Harper et al. 1993

No impact

Swanson and Newsom 1962

Up to 50% reductions

Bowling 1963

Minimal and inconsistent impacts

**Most evidence suggests grain yield losses
are negligible**

Rice Stink Bug Literature

Milling Quality (Head yield)

Harper et al. 1993

Greatest impact at milk stage (0.5% reduction in head yield/RSB)

Swanson and Newsom

Up to 10% reductions in head yields

Bowling 1963

1–3% reductions in head yields

Brorsen et al. 1988

1.2% reduction in HY per % peck

Rice Stink Bug Literature

Peck

Harper et al. 1993

0.02%/RSB (milk) to 0.03% hard dough

Swanson and Newsom 1962

**Up to 40–50% peck reported at high RSB
infestation in cage studies**

Bowling 1963

**Related to RSB density, but minimal peck
(<1%) reported**

No previous studies examined mill grades

Rice Stink Bug Literature

Flexible Thresholds

Harper et al. 1994

(C) ADULT RSB THRESHOLDS AT SOFT DOUGH

Spray cost (\$/A)	Plant date	Yield								
		4500 lbs/A Rice price			6000 lbs/A Rice price			7500 lbs/A Rice price		
		Loan	\$9/cwt	\$11/cwt	Loan	\$9/cwt	\$11/cwt	Loan	\$9/cwt	\$11/cwt
5.20	4/1	9-13	10	10	8-12	8	8	8-11	7	7
	5/1	11-15+	10	10	10-12	8	8	7-11	7	7
	6/1	9-15+	10	10	8-12	8	8	7-11	7	7
8.35	4/1	11-15	14	14	10-14	11	11	9-13	10	10
	5/1	13-15+	14	14	12-15+	11	11	11-15	10	10
	6/1	9-15+	14	14	10-15+	11	11	9-15	10	9
11.50	4/1	15+	15+	15+	11-15+	14	14	10-14	12	12
	5/1	15+	15+	15+	13-15+	14	14	12-15+	12	12
	6/1	15+	15+	15+	15+	14	14	11-15+	12	12

**Based on relationships determined by Harper et al. 1993.
Did not consider rough rice impacts
High RSB counts, low peck estimates**

Rice Stink Bug Literature

Peck

US Rice Grades

Grade	% peck + red rice	Discount (\$/cwt)*	Discount (\$/ acre)**
1	<0.5	0.0	NA
2	<1.5	0.0	NA
3	<2.5	0.30	24
4	<4.0	0.60	48
5	<6.0	1.00	80
6 or below	<15.0	Not accepted	

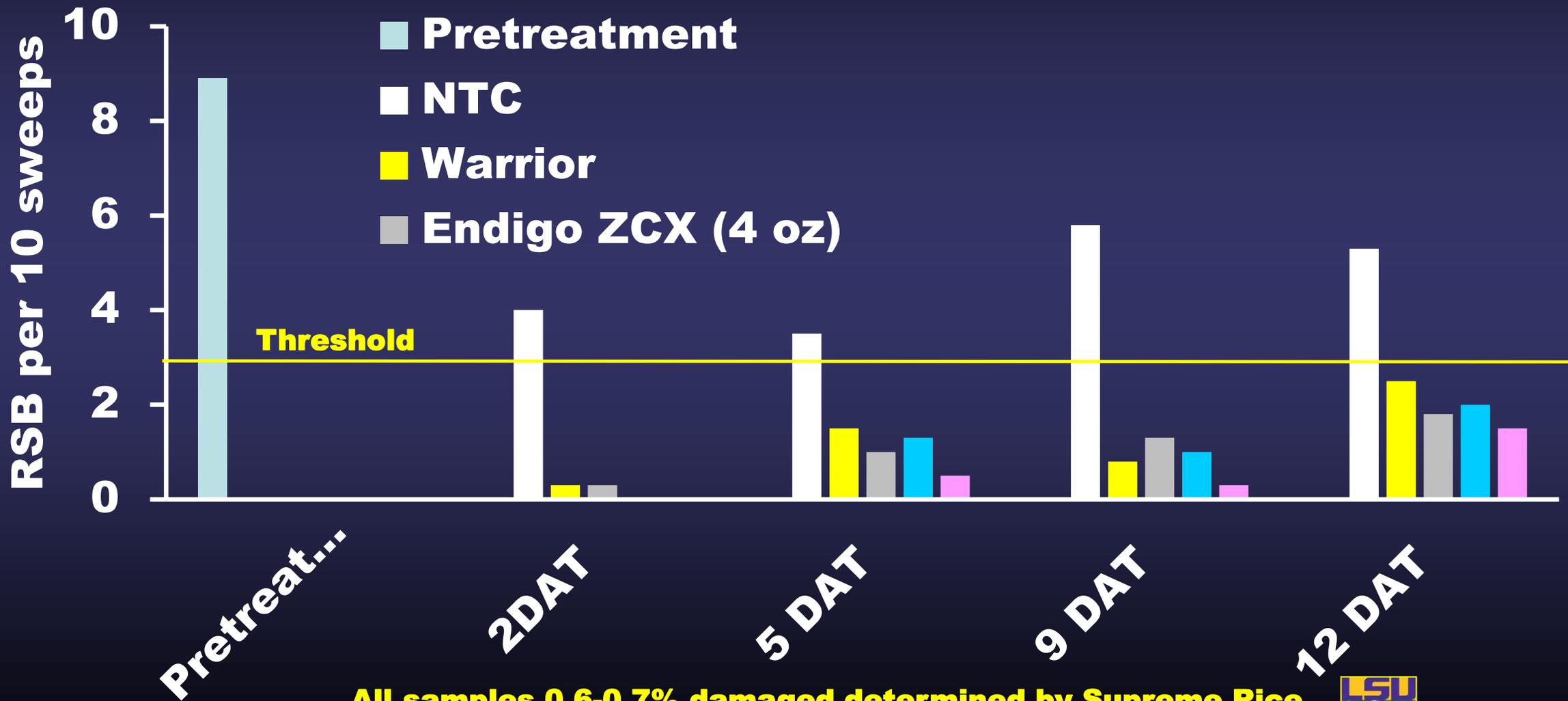
***Rice Land Mill Sampling Guide 2011**

****Based on yield of 8,000 lbs/acre**

Rice Stink Bug in SW Louisiana

- **No insecticides labeled for rice/crawfish rotation**
- **Pyrethroids are highly toxic to crawfish**
 - **Drift concerns**
- **>60% of producers never spray for RSB**
- **RSB infestations above threshold are common**
- **<3% of rice loads are penalized for peck***

Rice stink bug insecticide evaluation, HRCRRS, 2021



All samples 0.6-0.7% damaged determined by Supreme Rice

Methods - Field Study

2015-2016

Plots (28 total) treated with variable rates of pyrethroids to establish range of RSB populations

Sweep net samples taken at heading, milk, soft dough, hard dough, and maturity

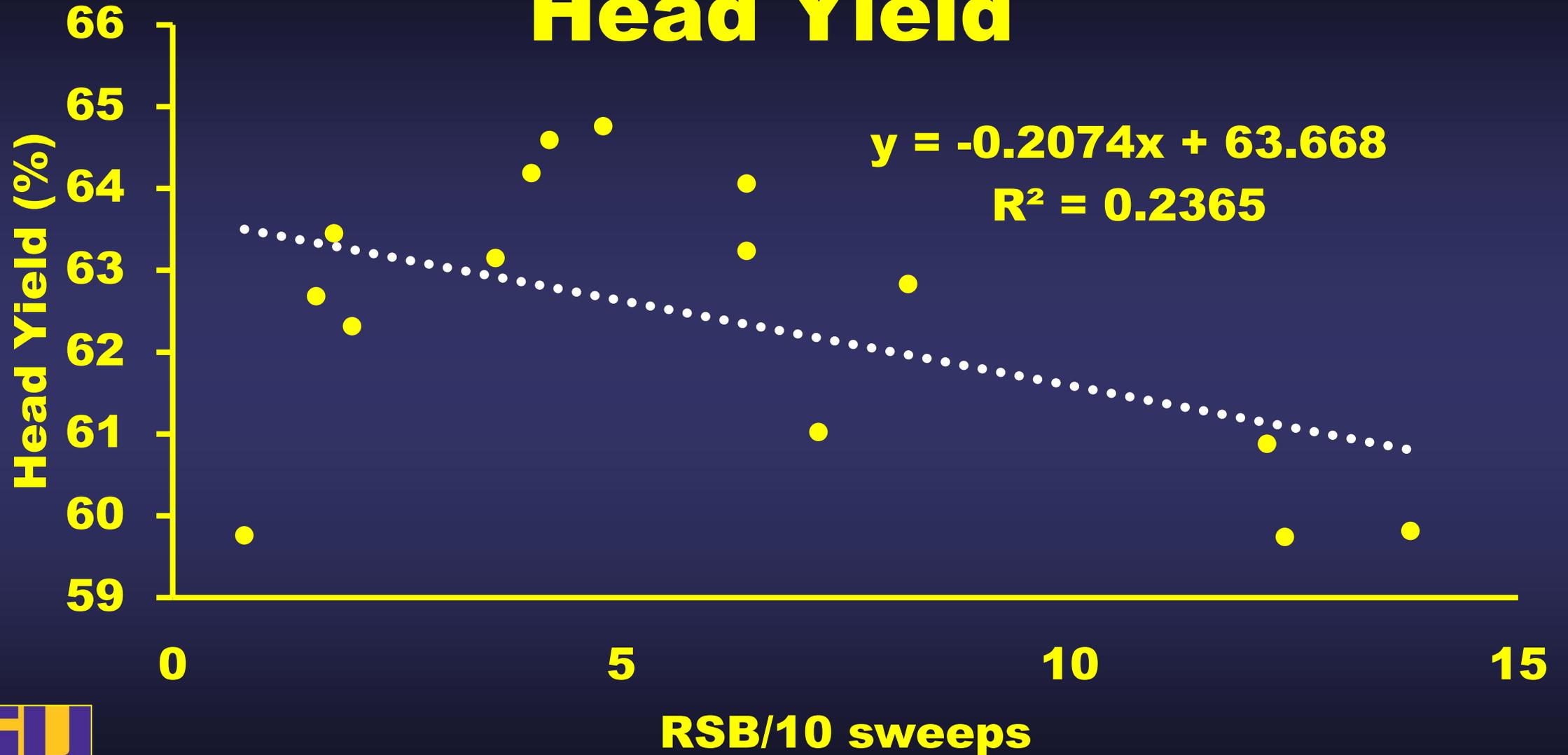
15 panicles weighed, milled, and examined for quality (empty grains, broken, peck)

Study conducted by M.J. Stout et al.



Stink Bug Thresholds

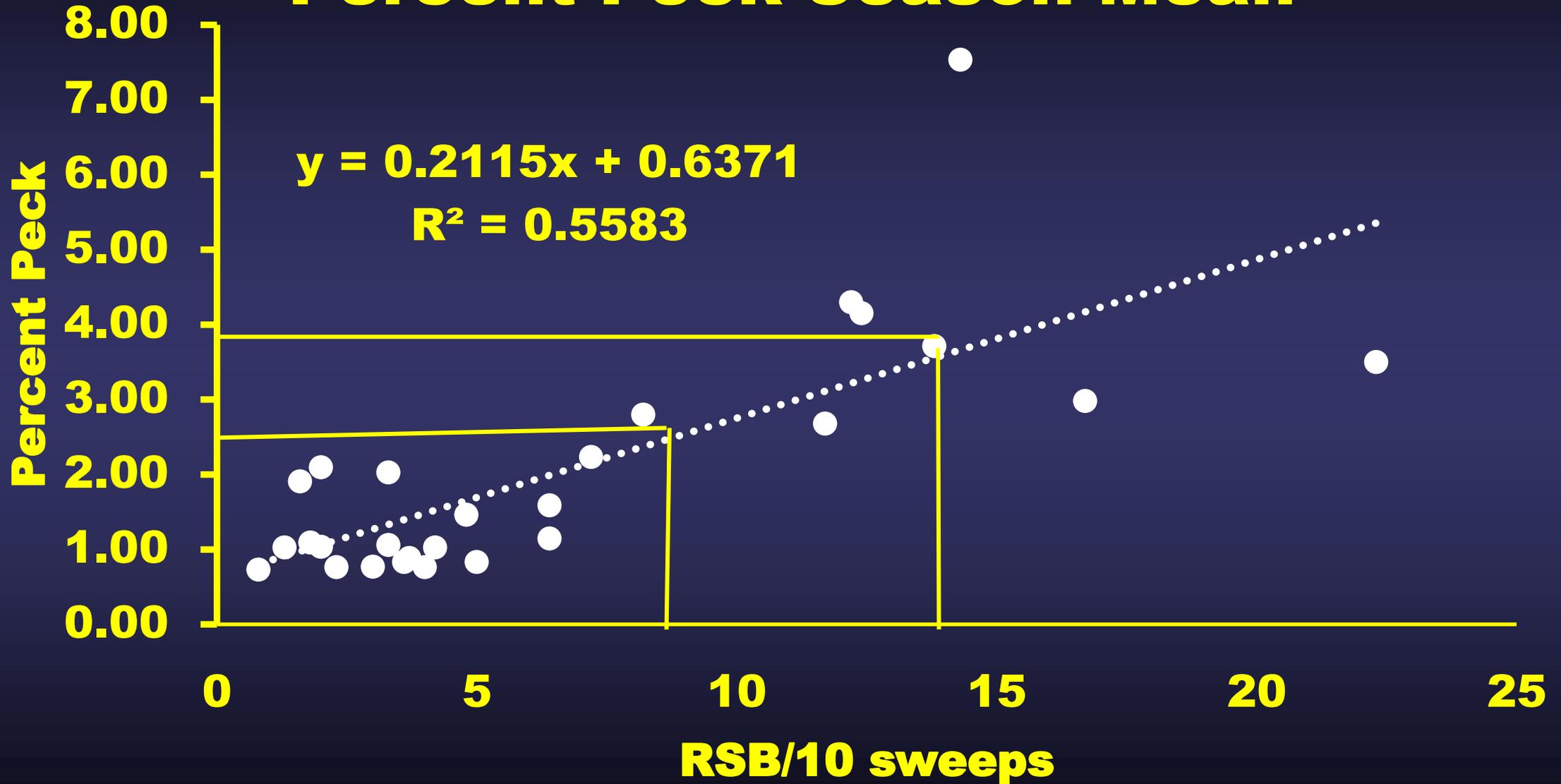
Head Yield



Reduced impact relative to Harper et al.

Stink Bug Thresholds

Percent Peck-Season Mean



Increased impact (≈ 10 -fold) relative to Harper et al.

Revenue Loss

Rough rice yields not considered

Head Yield*

**\$0.14–0.16 loss per %HY per cwt at
\$9.50 and 11.00/cwt**

***Deliberto et al. Milling Quality Calculator**

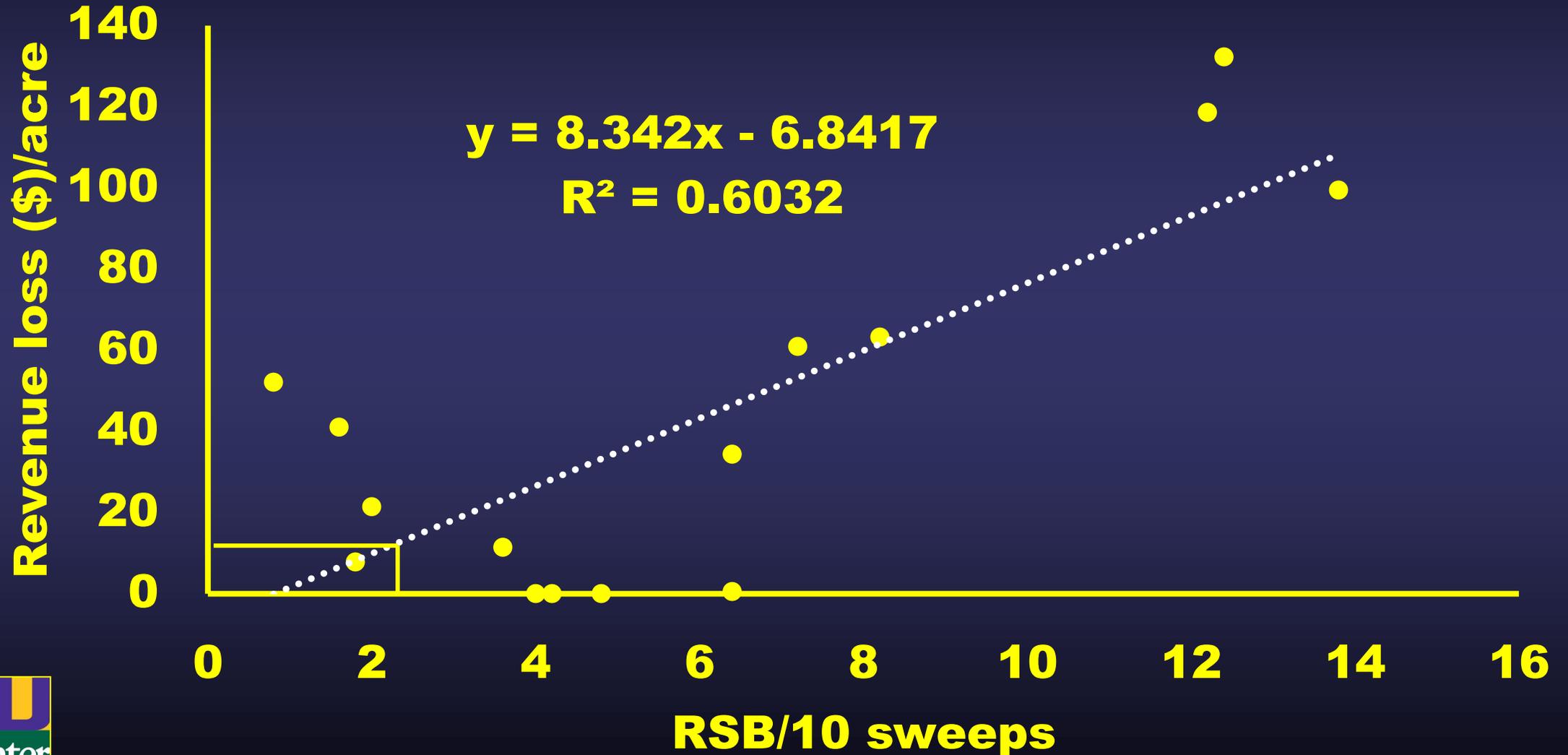
Peck

**Riceland grade discounts applied at
hard cutoffs**

Revenue loss based on 8,000 lbs/acre

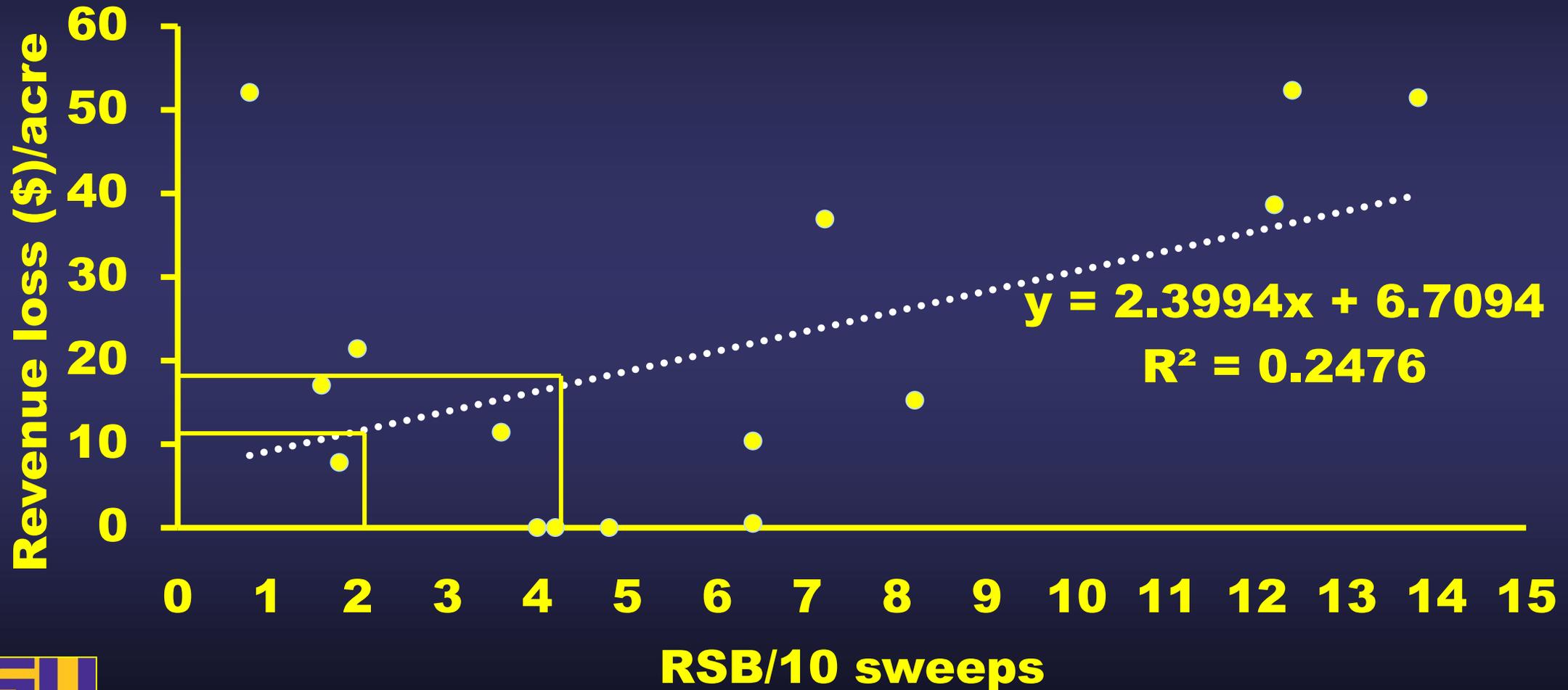
Stink Bug Thresholds

Revenue Loss – Season mean



Stink Bug Thresholds

Revenue Loss – No Peck Penalties



Rice Stink Bug IPM

- **Peck is not the sole consideration**
- **Growers in SW LA are losing revenue from reduced head yields**
- **Spraying in crawfish regions should be considered**
- **RSB thresholds need further investigation with greater mill involvement**
- **Would chemical industry consider a label for crawfish rotation?**

Acknowledgements

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Questions?

