

# Emerging pests of rice: Stem borers and apple snails

**Blake Wilson**  
Field Crops Entomologist

**LATMC Rice Breakout Session**

**February 14, 2020**



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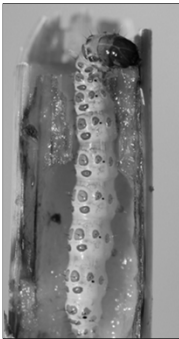
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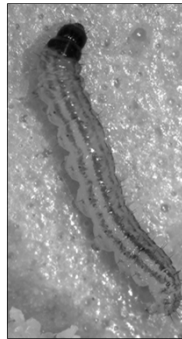
## Rice stem borer complex



**Sugarcane borer**  
*Diatraea saccharalis*



**Mexican rice borer**  
*Eoreuma loftini*



**Rice stalk borer**  
*Chilo plejadellus*

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## Rice stem borer complex Lep.: Crambidae, Snout moths



**Sugarcane borer**  
*Diatraea saccharalis*



**Mexican rice borer**  
*Eoreuma loftini*



**Rice stalk borer**  
*Chilo plejadellus*

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### Non-crop grass hosts



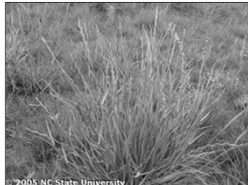
Johnson grass



Brome grass



Vasey grass



Annual rye grass

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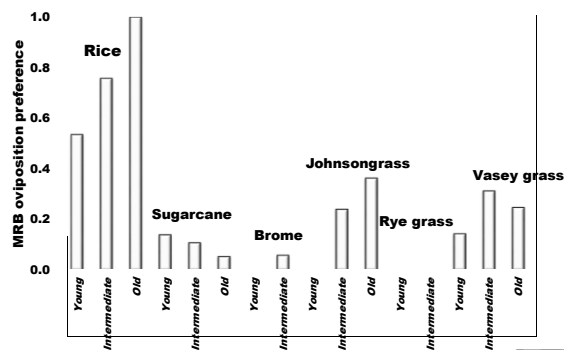
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### Host preferences: Choice tests



Beuzelin et al. (2011) ; Reay-Jones et al. (2007)




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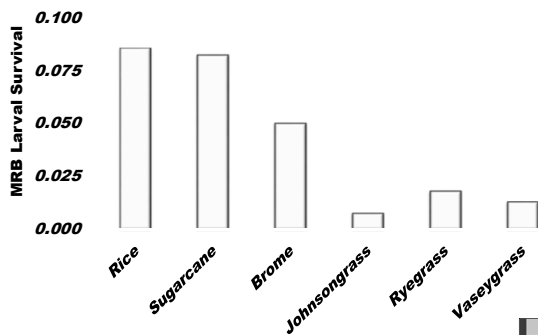
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### Host suitability




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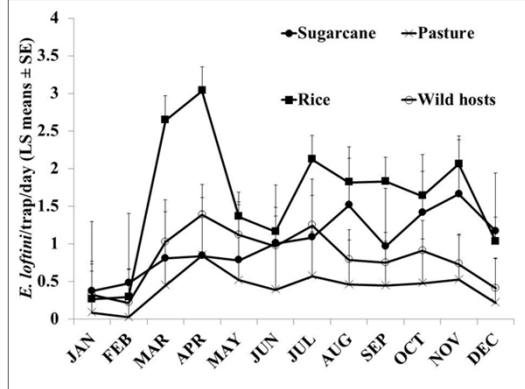
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## Rice stem borer complex




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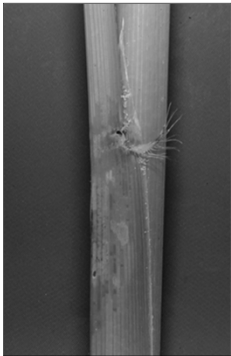
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## Stem Borer Management



Stem borer injury to leaf sheath

- Begin scouting in late tillering
- Pyrethroids can be applied with fungicides for sheath blight
- Once white-heads are present, losses have already occurred

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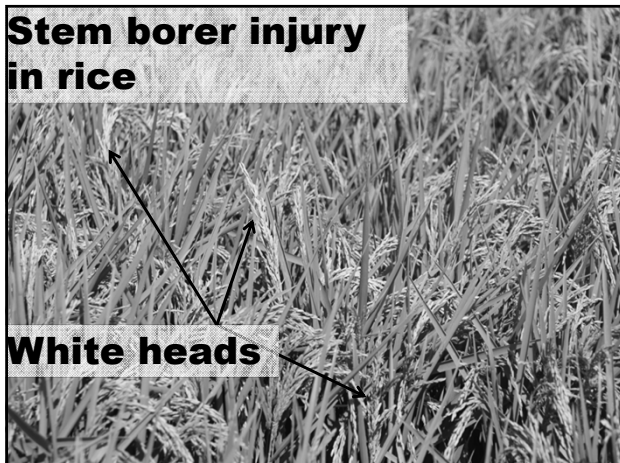
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## Stem borer injury in rice




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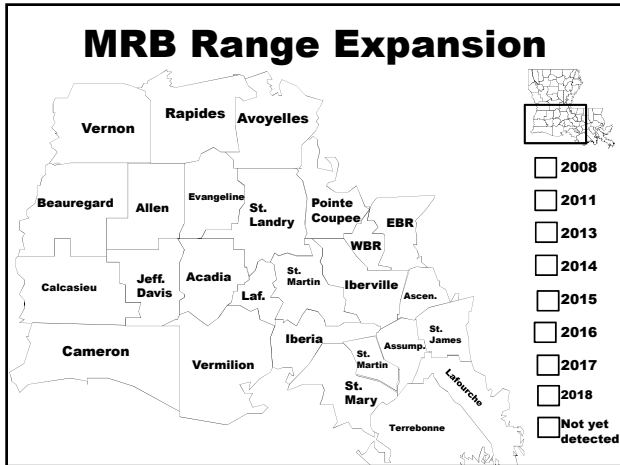
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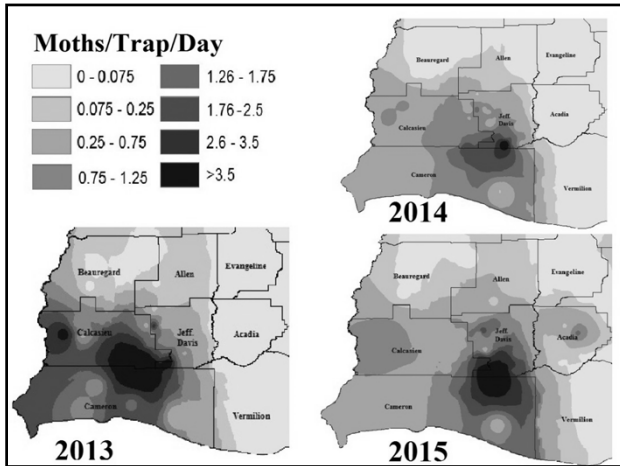
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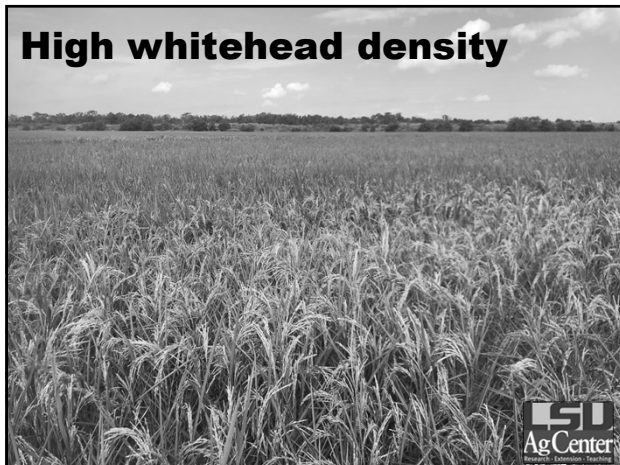
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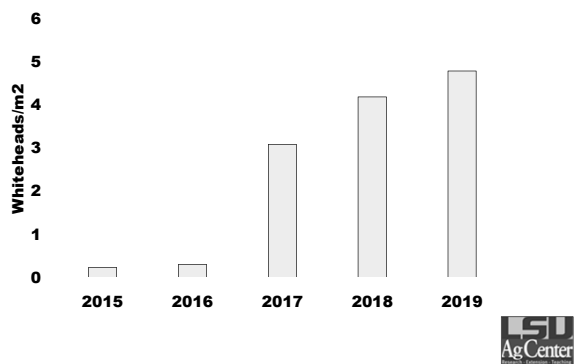
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### Average whitehead density at Crowley Station 2015-2019




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### Cultural Control: Stubble Management

- Reduce overwintering habitat




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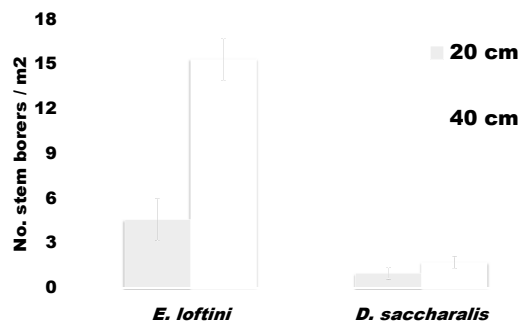
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### Cultural Control: Stubble Management



Data from Beuzelin et al. 2012




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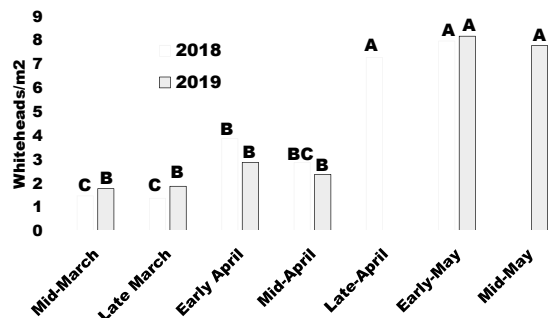
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## Cultural Control: Early planting



2018:  $F = 35.8$ ,  $df = 3, 105$ ;  $P < 0.001$   
 2019:  $F = 33.8$ ,  $df = 5, 105$ ;  $P < 0.001$




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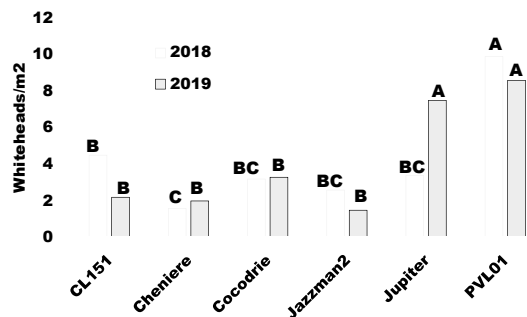
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## Varietal resistance



2018:  $F = 35.8$ ,  $df = 3, 105$ ;  $P < 0.001$   
 2019:  $F = 35.8$ ,  $df = 5, 105$ ;  $P < 0.001$




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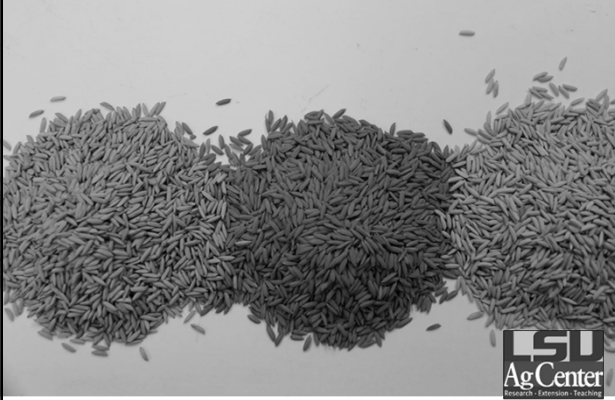
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## Insecticidal Seed Treatments




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## Insecticidal seed treatments (ISTs)

- Dermacor X-100 (chlorantraniliprole)**
  - Controls: RWW, armyworm, borers
- Fortenza (cyantraniliprole)**
  - Controls: RWW, Armyworm? Colasapis?
- Cruiser (thiamethoxam)**
- NipsIt Inside (clothianidin)**
  - Controls: RWW, colaspis, aphids, chinch bugs, thrips




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## Seed treatment trials 2019

- 10 Treatments combinations
- Early planted (March 22) and late (May 2)
- Stand counts (not presented)
- 3 cores/plot taken at 4 and 5 weeks after permanent flood
- Whiteheads and yield data




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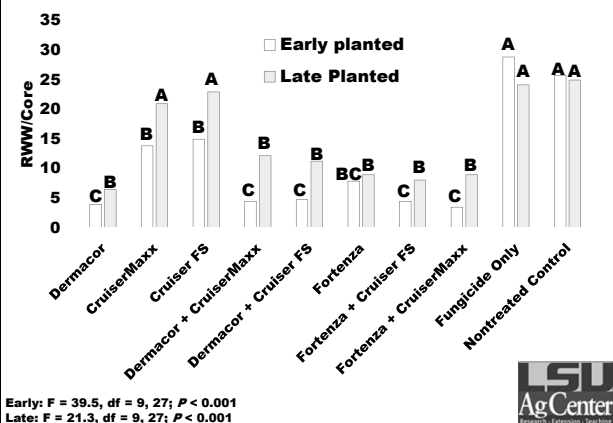
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Seed Treatment Combination Trial 2019




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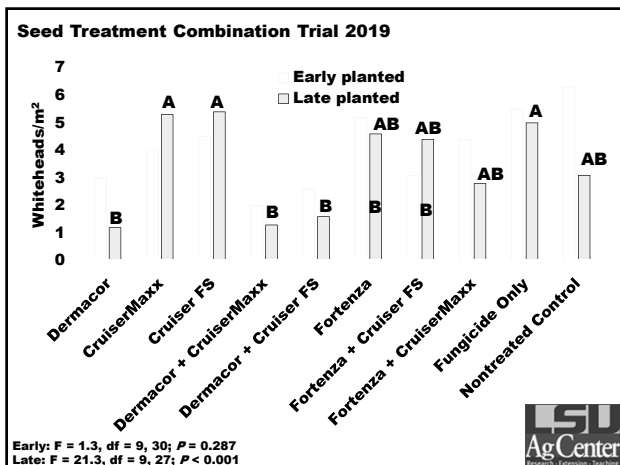
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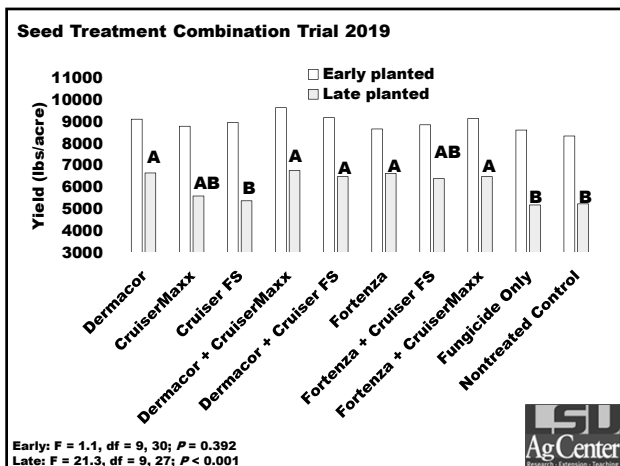
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### Relative yield loss 2019

- Unprotected (RWW and borers)
- RWW only (Prevathon sprayed)
- Borers only (Fortenza + Cruiser)
- Protected (Dermacor X100)

–Early planted (March 29) and late (May 17)

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Research • Extension • Teaching

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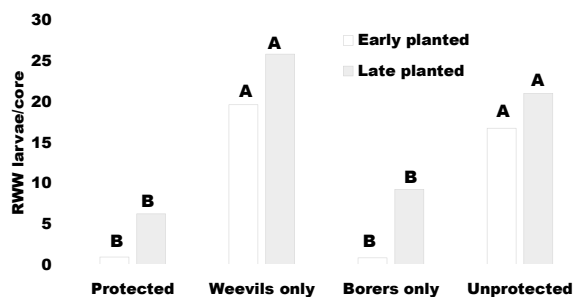
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### Relative Yield Loss Trial 2019



Means from 3 corers per plot at two sampling dates

Early:  $F = 57.8$ ,  $df = 3, 12$ ;  $P < 0.001$

Late:  $F = 27.7$ ,  $df = 3, 12$ ;  $P < 0.001$




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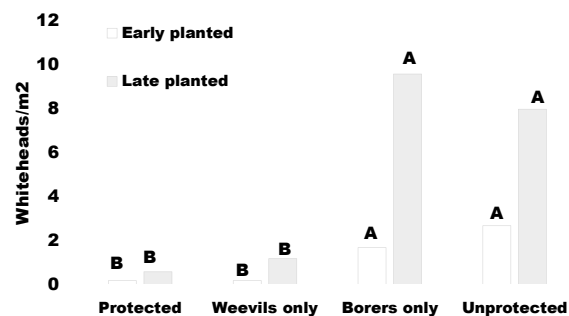
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### Relative Yield Loss Trial 2019



Early:  $F = 57.8$ ,  $df = 3, 12$ ;  $P < 0.001$

Late:  $F = 27.7$ ,  $df = 3, 12$ ;  $P < 0.001$




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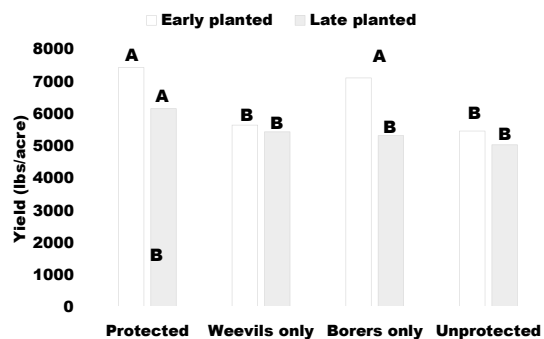
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### Relative Yield Loss Trial 2019



Early:  $F = 15.4$ ,  $df = 3, 12$ ;  $P < 0.001$

Late:  $F = 3.7$ ,  $df = 3, 12$ ;  $P < 0.044$




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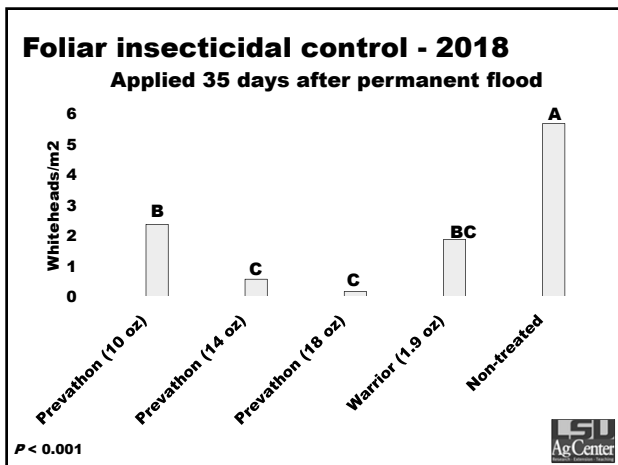
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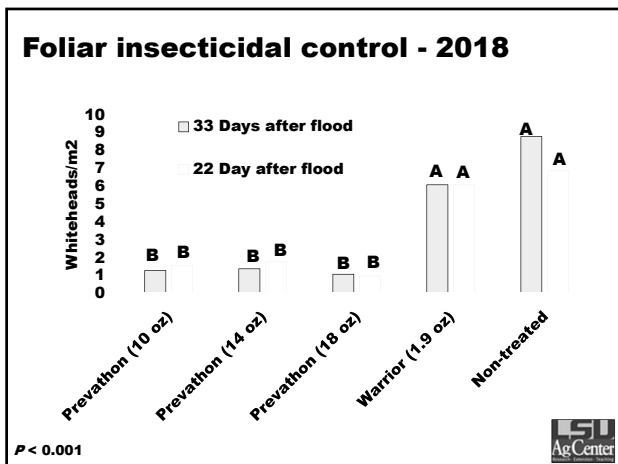
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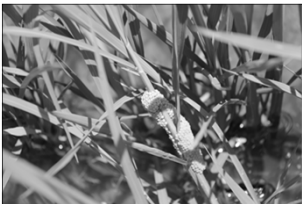
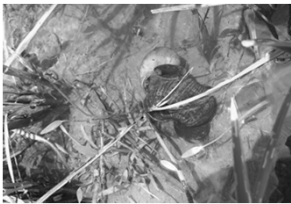
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## Apple Snails

Recorded high densities in rice and crawfish in Vermilion Parish

Impacts to rice likely minimal, research is on-going.

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## Apple Snails

**Crawfish will be impacted**




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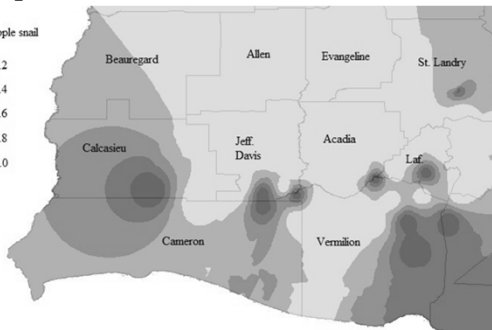
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## Apple Snail Distribution

Probability of apple snail presence

0.0 - 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0



**\*Estimated from detections in rice/crawfish farms**




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## Slow the Spread

**Mermentau and Vermilion rivers and tributaries are infested**

**Check surface water irrigation sources for presence of snails**

**Source crawfish stock from uninfested areas**

**Egg masses can be transported on boats or other equipment**

**Report new infestations to AgCenter extension agents**




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## Questions?

**Blake Wilson**  
**[bwilson@agcenter.lsu.edu](mailto:bwilson@agcenter.lsu.edu)**  
**985-373-6193**

**Call me or your extension  
agent with any questions.**



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