Arthropod and Disease Update 2019 Rice Growers Winter Meetings

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Armyworms



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Armyworms

- Armyworm pressure was lower than in 2017
- Peak moth trapping was later in 2018 than in 2017
- I got more calls about the August infestation than usual



Treated Acres

Year	Intrepid	Dimilin	Lambda- cyhalothrin
2015	843	124	31,100
2016	16,000	994	13,600
2017	41,400	10,300	44,500
2018	30,300	831	15,000



Insecticide Screening – Trial 1

Treated June 21, 2 larvae/ft², 33% 3rd instar

Treatment	Rate/a	Pre-treatment	3 DAT	7 DAT	10 DAT	% reduction from untreated
Untreated		2.25	3.00 a	3.25 a	3.50 a	
Warrior	2.56 oz	2.25	2.50 ab	2.50 ab	2.50 a	28.57
Intrepid	10 oz	2.67	0 c	0 c	0.33 b	90.57
Dimilin	8 oz	2.50	2.00 ab	0 c	0.25 b	92.86
Coragen	3.5 oz	2.50	0.50 bc	1.00 bc	0 b	100



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Insecticide Screening – Trial 2

Treated June 26, 5 larvae/ft², 60% 5th instar

Treatment	Rate/a	Pre-treatment	3 DAT	7 DAT	10 DAT	% reduction from untreated
Untreated		3.50	2.50	3.00 a	2.25 a	
Warrior	2.56 oz	4.00	2.75	3.25 a	1.00 ab	55.56
Intrepid	10 oz	3.50	2.00	1.25 bc	0.25 b	88.89
Dimilin	8 oz	3.75	2.50	2.25 ab	0.25 b	88.89
Coragen	3.5 oz	3.75	1.25	0.25 c	0.50 b	77.78
Prevathon	14 oz	3.25	1.50	0 c	0 b	100

Kernel Smut



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Kernel Smut

- Fungal disease
- First detected in 1984
- Reports of yield losses up to 15%, reduce head rice yield
- Most reports from Glenn and Butte counties





2014 Disease Survey

Percentage of inspected samples with smut

Kernel Smut Cycle

- Kernel is replaced by mass of spores (chlamydospores)
- Spores contaminate equipment, soil, seeds
- In spring, spores float and form primary spores
- Mycelium forms secondary spores – moved by air to panicles
- During anthesis, pathogen infects developing ovary





Timing of Susceptibility

Inoculation	% smutted kernels
In boot, 10 days before emergence	86.9
In boot, 3 days before emergence	34.5
Panicle emerged, before anthesis	16.2
Anthesis starting	11.8
50% anthesis	0

Webster, 1984, M-9



Kernel Smut Chlamydospores

- Are viable for two years
- Able to germinate after being submerged for 5 months
- Can germinate on the surface of soil or water



Factors that Favor Kernel Smut

- Moderate temperatures (77-86F)
- Dew, high humidity
- Excess nitrogen





Brooks, 2011, Arkansas

Varietal Response

Number of smutted kernels/25 g



Glenn County

Butte County



Effect of Kernel Smut on Milling Yield

Effect on milling yield

Milling yield decreases one point for every 15 smutted kernels/25 g





Treatment	Rate	Kernel smut spore germination
Vitavax	3 oz/100 wt	-
Kocide	3 oz/100 wt	-
Captan	3 oz/100 wt	+
Difolatan	3 oz/100 wt	-
XE779	2.5 g/100 wt	-
NaOCI	1%, 24 h soak	-

Webster, 1984



- Proper N rate
- Variety selection
- Fungicides



- Fungicides: Propiconazole (QuiltXcel, Stratego)
 - Application timing: mid-boot
 - Base fungicide application on field history

Conventional field, M206

Treatment	Rate/a
Untreated	
Quadris	15.5 oz
QuiltXcel	21 oz
Regalia	2 qt
ThermX70	7.2 oz
S-2399	2 oz
Stratego	19 oz





Fungicide Trials

Stem Rot

Aggregate Sheath Spot







Stem Rot – Trial 2

- Variety: M-206, Butte County
- History of moderate stem rot
- Average yield: 95.1 cwt, 60/71



Aggregate Sheath Spot

- Variety: M-206, Sutter County
- History of moderate AgSS
- Average yield: 86.3 cwt, 54/74



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Kernel Smut Field Evaluation



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