## Disease Management Update UCCE Rice Grower Meeting Virtual Webinar

## February 11, 2021 Luis Espino University of California Cooperative Extension



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- Blast
- Stem rot
- Aggregate sheath spot
- Kernel smut









## Blast

- Favored by excess N, drains
- Favored by long periods of leaf wetness, high nighttime temperatures
- Management
  - N fertility
  - Avoid draining
  - Varieties: M-205 and M-209 are more susceptible, M-210 is resistant
  - Fungicides: Azoxystrobin (Quadris) and trifloxystrobin (Stratego)
  - Leaf blast is an indication that a heading treatment is needed



#### M-206 vs M-210

Variety	Yield (lb/a)	Seedling vigor	Days to 50% heading	Height (in)	Lodging (%)
2015					
M-206	9,480	5	82	38	15
M-210	9,660	4.8	83	38	13
2016					
M-206	10,002	4.9	87	39	34
M-210	10,030	4.9	88	38	31
2017					
M-206	8,819	4.8	79	39	53
M-210	8,879	4.7	79	39	51
2018					
M-206	9,020	4.7	85	38	19
M-210	9,130	4.7	83	38	6



## Stem Rot and Aggregate Sheath Spot







## Effect of Stem Rot and Aggregate Sheath Spot on Yield

Category	Stem rot	Aggregate sheath spot	
0	No disease	No disease	
1	Disease lesions on outer leaf sheath	Disease affecting second leaf below flag leaf or lower	
2	Disease lesions have penetrated into inner leaf sheaths	Disease affecting leaf below flag leaf	
3	Disease lesions on culm	Disease affecting flag leaf	
4	Culm is rotted though	Disease affecting panicle	



## Effect of Stem Rot and Aggregate Sheath Spot on Yield

Summary of four years of fungicide trials M-206, M-209, M-105

Disease	Number of trials	Average % yield reduction/increase in severity
Stem rot	8	$3.16 \pm 0.88$
AGSS	3	3.7 ± 0.47

#### Percent Yield Loss vs Disease Severity





#### Stem rot

• Favored by excess N, low K levels (120 ppm optimum)

### Aggregate sheath spot

• Favored by low K levels

#### Management

- Residue management
- N and K fertility
- Fungicides





## Stem Rot and Aggregate Sheath Spot

- Azoxystrobin (FRAC Code 11) is the only registered fungicide that gives good control of both diseases
- Excalia (inpyrfluxam, Code 7) gives excellent control of AGSS
- Application timing: mid boot to early heading
- The mid boot timing allows for tank mixing with propiconazole if kernel smut was a concern

## Stem Rot - Biggs

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- Planted 6/1
- M-206





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Error Bars: +/- 1 SE



## Azoyxstrobin Resistance Management

- High risk of resistance development because specific mode of action: *"block electron tranfser at the site of quinol oxidation in the cytochrome bc1 complex, preventing ATP formation"*
- Reduce number of seasonal applications
- Mixes and rotations with different modes of action
- Use preventively (blast)
- Reduce disease development



# Effect of NaOCI soak on smut spore germination

• M-206 and L-206 from heavily infected 2018 variety trial

Variety	Smutted	Treatments			
	kernels/25 g	Sterile water	2.5 % Clorox (24 h)	5% Clorox (2 h)	
L-206	28	2.08 %	4.2 %	4.2 %	
M-206	22	3.5 %	3.13 %	15.6 %	

Percent kernel smut spore germination



## Questions

