Fungicide Penetration Test on Rice

By
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BASF Fungicide Test

6 miles South of Eunice, LA

6/21/2013
Weather Conditions:

- Dry – Test not started until dew off of leaves
- Test Performed at 11:00 AM to 1:30 P.M.
  - RH% - Approx. 60% to 45% at end of test
  - Air Temp: Approx. 90°F
Example of Test Cards - 10 GPA:

Top

Middle

Lower
Example of Test Cards - 5 GPA:

Top         Middle                           Lower
Example of Test Cards - 3 GPA:

Top  Middle  Lower
Average VMD (0.05 level): About the Same for All Levels

10 gpa – 261 um

5 gpa – 271 um

3 gpa – 237 um
Percent Coverage of Test Cards:

- This was percent coverage for the cards on the heavier coated side of plant:
- Back side of plant stem did not catch many droplets
Results Normalized Based on Sphere Area for Chemical Concentration:

- 1x for 10 GPA; 2x for 5 GPA; 3.3x for 3 GPA
- These results try to account for equal chemical rates
Surface Coverage Based on Droplet Presence:

- What if any droplet will kill the fungus – Coverage shown below:
- More even between the rates, except at the water level where the 10 GPA rate still had the most area coverage and penetrating power:
  - 40% coverage for 10 GPA versus 25 and 18 for the 5 and 3 GPAs, respectively
Conclusions to BASF Test:

- 10 gpa covered much better than other two rates
  - None of the gpa rates penetrated very well to lowest plant level (but a few droplets did make it to bottom)
  - 10 gpa penetrated the best (almost the same all the way to the middle level)

- Agronomy counts showed pretty good control at all rates

- BASF will rate this fungicide at 7 GPA to be safe
Spray Plane Testing Equipment

Newer Stuff We Are Working On:
Dry Material Quick Analyzing

Plates:

- Vibratory plates tested at Biological and Ag. Department - Mazar et al., 2013
- Mainly tested on small ground application
We Tested System in the Field with Rice and Fertilizer:

- Promising results:
  - Especially for rice seed, not as much for Urea
Build Three Dimensional Array for Testing:

- Construct enough plates to create a 3-D system for analysis
- Electronics for automated data collection
Small Laser Spot Dye Excitation on System for String

No Dye  Individual Drops Dye on String
System may be able to tell individual droplets and sizes on string
The End
Top, Middle, and Lower Droplet Spectrum for 10, 5 and 3; 3 GPA Not as Well Formed