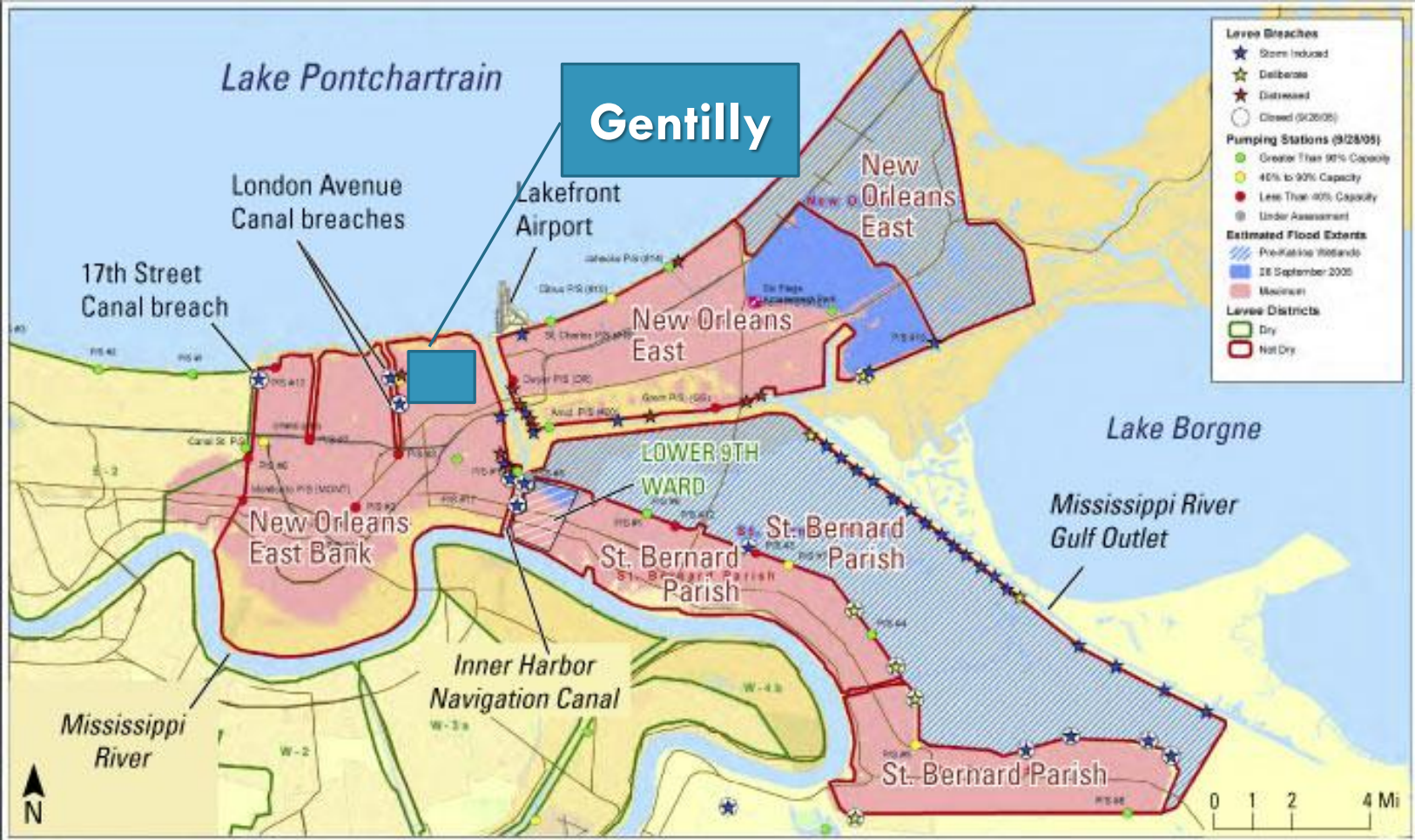


# THE MAKING OF A PLANT PATHOLOGIST

February 13, 2015

Rebecca Sweany  
LSU- Plant  
Pathology and  
Crop Physiology

# MY BEGINNINGS: BIOLOGIST IN TRAINING



# MY BEGINNINGS: AG-BIOLOGIST IN TRAINING?



Scharff family farm in Wyanet, IL

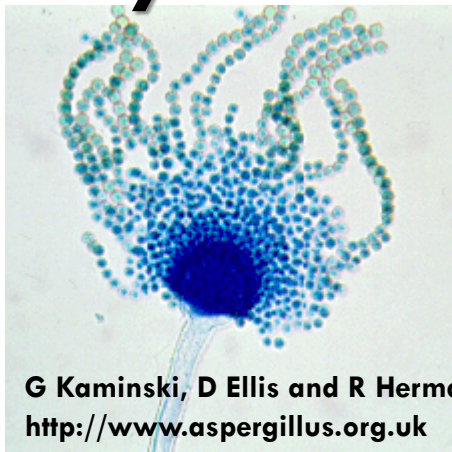


# *MY INTRO TO PLANT PATHOLOGY: ASPERGILLUS FLAVUS*



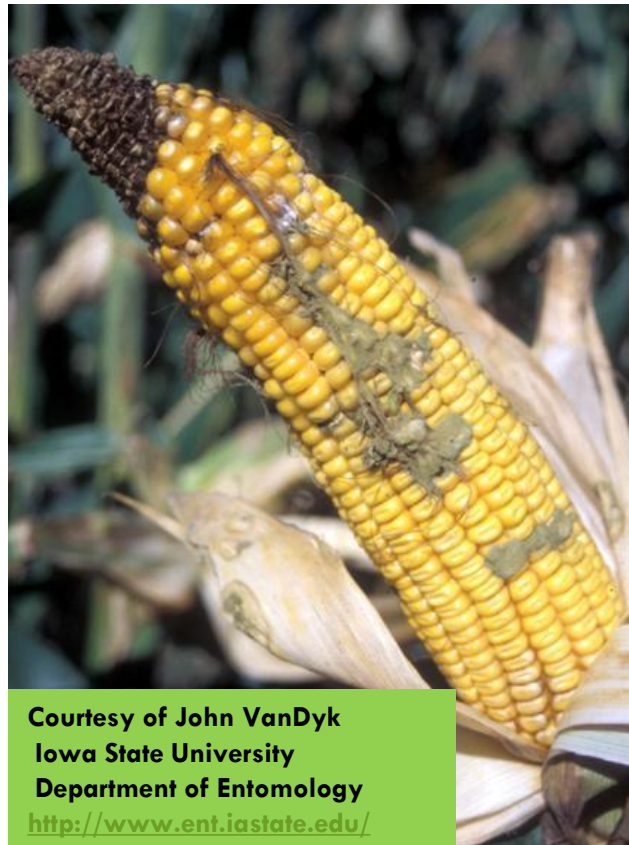
C.Venturelli and G. Bertazzoni  
<http://www.aspergillus.org.uk>

## **Colony**



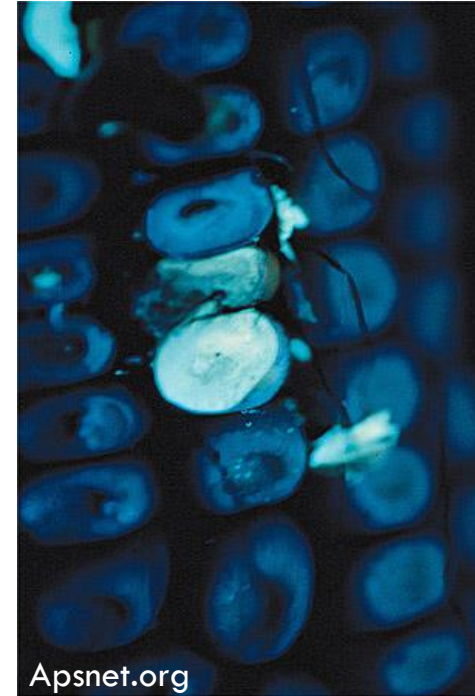
G Kaminski, D Ellis and R Hermanis  
<http://www.aspergillus.org.uk>

## **Conidial head**



Courtesy of John VanDyk  
Iowa State University  
Department of Entomology  
<http://www.ent.iastate.edu/>

## **Infected corn ear**



Apsnet.org

## **Aflatoxin contaminated corn kernels fluorescing under UV**

# BIOCONTROL



- ❖ **Distribution of Atoxigenic strains of *A. flavus***
- ❖ **My 1<sup>st</sup> project (with Dr. Damann):**  
**60% of kernel isolates were Afla-Guard**  
**82% of remaining isolates were**  
**atoxigenic**
- ❖ **Master's thesis: Natural biocontrol?**

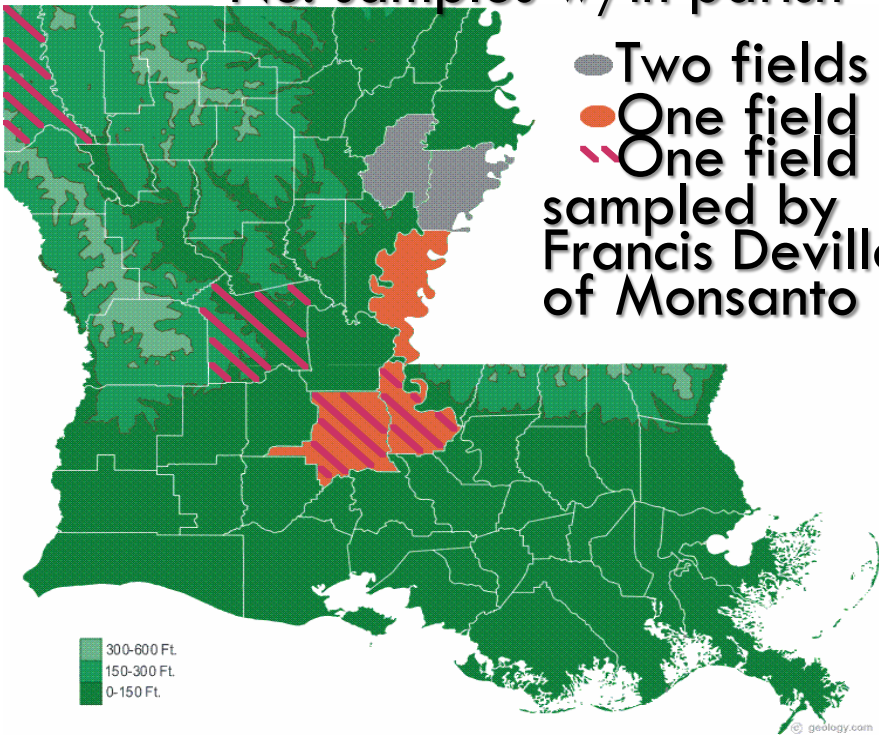


# MASTER'S: COMPARISON OF SOIL AND KERNEL *A. FLAVUS* POPULATIONS

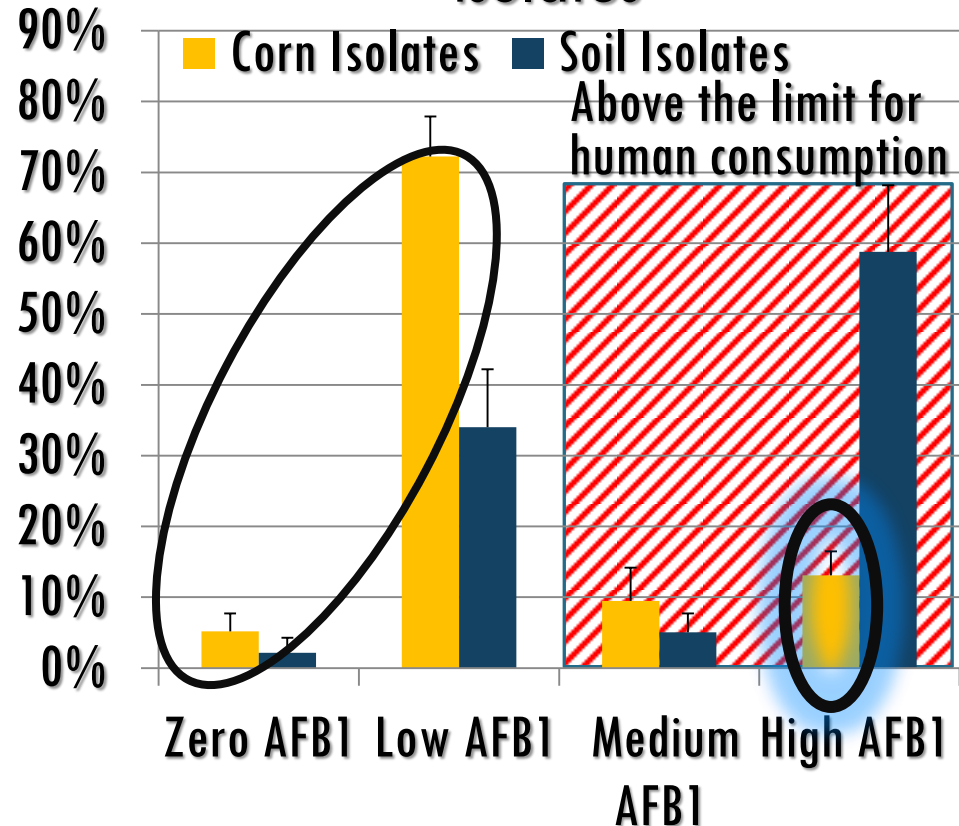
No. samples w/in parish

Two fields  
 One field  
 One field  
 sampled by  
 Francis Deville  
 of Monsanto

300-600 Ft.  
 150-300 Ft.  
 0-150 Ft.



Aflatoxin production by *A. flavus* isolates





# BIOCONTROL



- ❖ **Distribution of Atoxigenic strains of *A. flavus***
- ❖ **My 1<sup>st</sup> project (with Dr. Damann):**  
**60% of kernel isolates were Afla-Guard**  
**82% of remaining isolates were**  
**atoxigenic**
- ❖ **Master's thesis: Natural biocontrol?**
- ❖ **Competitive Exclusion**
  
- ❖ **Touch inhibition of aflatoxin production**



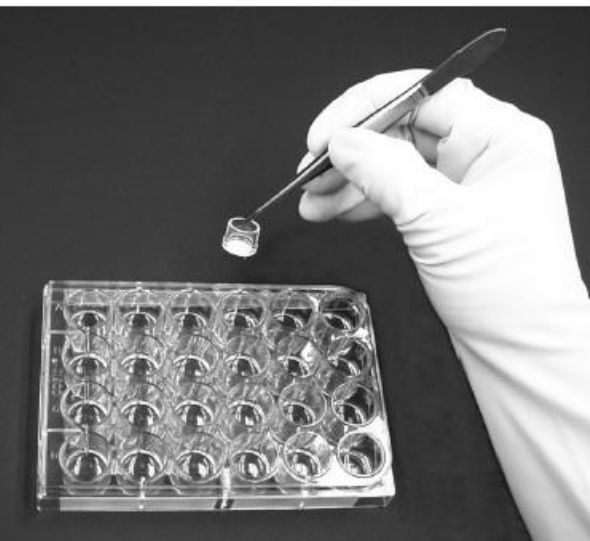
# BIOCONTROL: TOUCH INHIBITION

In insert:  
**Toxigenic isolate**

0.45  $\mu\text{m}$  Filter membrane

In well:  
**Atoxigenic isolate**

**Toxin**



In insert:  
 $\frac{1}{2}$  **Toxigenic** +  $\frac{1}{2}$  **Atoxigenic**

Filter membrane

**No Toxin**

In well:  
 $\frac{1}{2}$  **Toxigenic** +  $\frac{1}{2}$  **Atoxigenic**

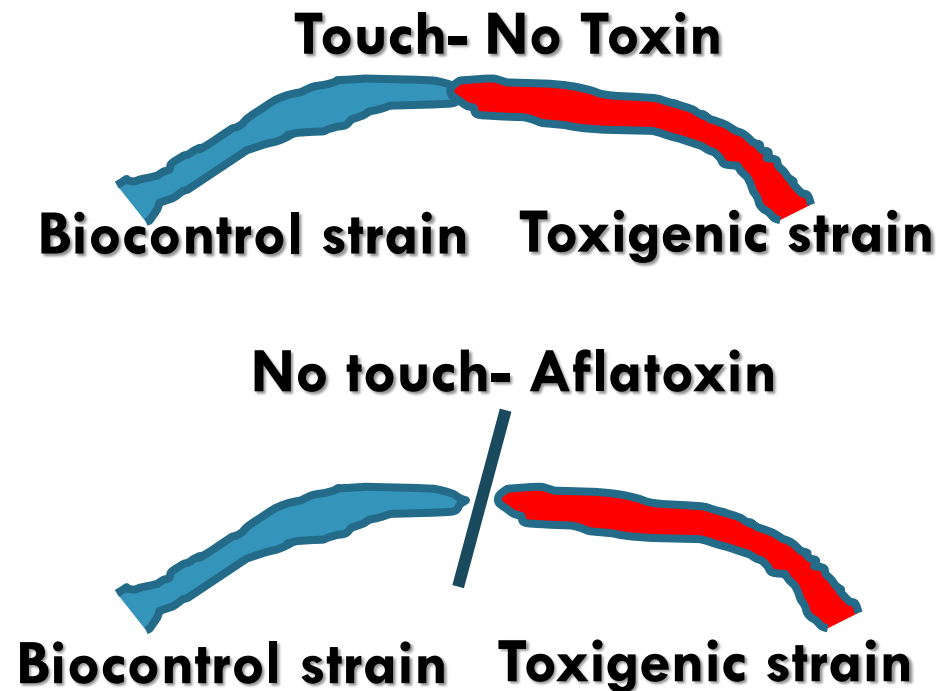


# DISSERTATION RESEARCH: INVESTIGATING TOUCH INHIBITION

**Questions to be answered:**

**What genes are regulating the touch inhibition?**

**Is there a chemical produced during the touch inhibition?**



# THANKS

Louisiana Agricultural Consultants Association

Members who've donated to: Ray and Dorothy Young Endowed Assistantship in Louisiana Row Crop Integrated Pest Management

How your contributions have been used:

- Travel to meetings
- Travel to learn techniques
- Purchase of supplies

