



# MONSANTO

## Corn & Soybean Biotech Traits

### - QA/QC Requirements -

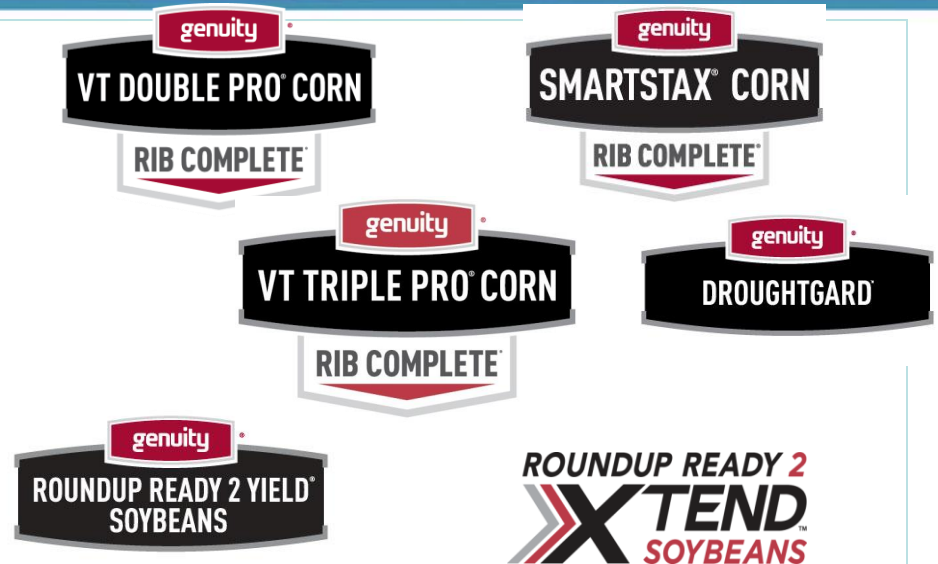


ICIA Seminar  
August 14, 2015

Dale Aaberg

# Discussion Focus: Trait QA/QC

- Existing Traits
  - corn & soybeans
  - refuge blends



- 'Newer' Traits

RHS

*Trecepta*<sup>™</sup>

Pending regulatory approval

*SmartStax*<sup>®</sup> PRO

- Q & A

# Trait QA/QC - Corn



## Inbred corn seed

- 'Intended' and 'unintended' event testing

## Hybrid corn seed

- *Product performance...*
  - one time hybrid qualification to check for background interference
  - encompasses trait efficacy or tolerance and commercial yield/agronomic performance
- *Trait purity...*
  - levels must be tested for each seed lot produced



# Corn Trait Purity Testing

- **All hybrid seed lots must meet trait purity specifications prior to commercial sale**
- **Bulk/sheller run tests**
  - can complement BUT, does not replace finished lot tests
- **One test per finished lot if trait is on the Female**
- **Each grade size of each finished lot must be tested when trait is on the Male inbred**

# Corn Trait Purity Testing

- **Seed companies are responsible for maintaining copies of all trait purity tests including...**
  - **Wholesale purchases**
  - **Seed produced by**
    - **Growers**
    - **Subcontractors**
  - **Brokers**
- **When a hybrid is issued a new lot number, an additional trait purity test is required**

**Example:**

**blending several lots together to form one new lot**

# Requirements for Trait Testing GENVT2P hybrid seed



- ***Validate minimum hybrid trait purity specifications in 'finished' lots –***

<b>MON89034 (Cry2Ab and TIC105)</b>	<b>96%</b>
<b>NK603 (CP4)</b>	<b>98%</b>

<b>Refuge blend (5%)</b>	<b>RR</b>	<b>98%</b>
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# Requirements for Trait Testing GENVT3P hybrid seed



- ***Validate minimum hybrid trait purity specifications in 'finished' lots –***

<b>MON88017 (CP4 and Cry3Bb)</b>	<b>98/96%</b>
<b>MON89034 (Cry2Ab and TIC105)</b>	<b>96%</b>

**Refuge blend (10%)**

**RR**

**98%**

# Requirements for Trait Testing GenSS hybrid seed



- ***Validate minimum hybrid trait purity specifications in 'finished' lots –***

**MON88017 x MON89034 x TC1507 x DAS59122-7  
(CP4, Cry3Bb, Cry2Ab, TIC105, Cry1F, Cry34, Cry35, PAT)**

**CP4 98%**

**Other events 96%**

**Refuge blend (5%)**

**RR2/LL**

**98/96%**



# Requirements for Trait Testing DroughtGard™ hybrid seed



- ***Validate minimum hybrid trait purity specifications in 'finished' lots –***

**MON87460 (csp B)**

**96%**

The drought-tolerance trait is available in:

Genuity® VT Double PRO® corn

Genuity® VT Triple PRO® corn

Roundup Ready® Corn 2

# RIB review

- **Blender qualifications**
- **Hybrid specifications**
- **Seed color**
- **Trait testing**



# Trait QA/QC - Soybeans

## Soybean varieties

- *Varietal performance...*
  - ‘Intended’ and ‘unintended’ event testing
  
  - one time verification of commercial tolerance to Roundup® herbicide and yield performance
- *Trait purity...*
  - levels must be tested for each seed lot produced



# Soybean Production & Trait Testing



- **Production requirements**
  - **Crop stage, herbicide rate & formulation(s)**
- **Each finished lot of Roundup Ready<sup>®</sup> and RR2Y must be trait purity tested**
- **NEW\*\* Roundup Ready<sup>®</sup> 2 Xtend (dicamba) soybeans must be tested to the same standards for both herbicide traits**

# Other corn & soybean requirements

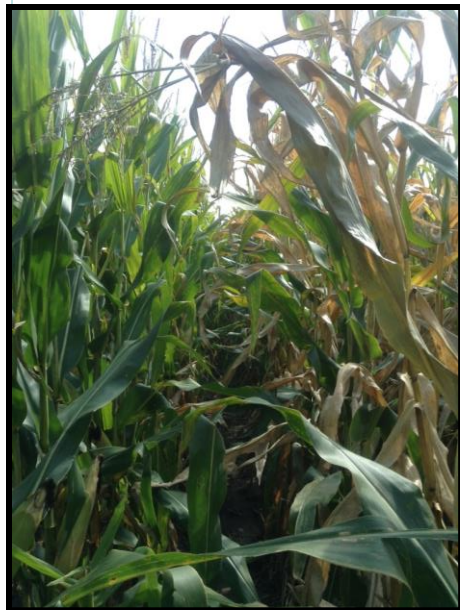


- **Retain a file sample of each hybrid and variety for each lot which is consistent with state/federal seed laws.**

# Advancements in conventional traits



**Anthracnose  
stalk rot**



**Gray Leaf Spot**



**Goss' Wilt**



# Q&A



## Contact information...

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