# 2016 Bean & Grain Scouting Report

## *'Fungi, Bacteria, and Insects, Oh My!'*

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# ON-FARM SCOUTING of DRY BEANS

## 5 – Locations:

- Alburgh, VT - 18 varieties
- Glover, VT- 16 varieties
- Cambridge, VT - 1 variety
- N. Ferrisburg, VT - 2 varieties
- Danby, VT – 7 varieties

***Overall warm and dry growing conditions throughout much of the season = low levels of foliar and root diseases**

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# ON-FARM SCOUTING of DRY BEANS

## *Plant Diseases Identified:*

| Location | Root rots | Anthracnose | Ascochyta | Common bacterial blight | Bacterial brown spot | Alternaria leaf spot | Mosaic virus |
|---|---|---|---|---|---|---|---|
| Alburgh, VT | X | X | | X | X | X | X |
| Cambridge, VT | | X | | | | | |
| Danby, VT | | | | X | | | |
| Glover, VT | X | X | X | X | | X | |
| N. Ferrisburg, VT | | X | | | X | | |

## ROOT ROTS:

- *Rhizoctonia* spp.
- *Fusarium* spp.
- *Pythium* spp.

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# ON-FARM SCOUTING of DRY BEANS

## Anthracnose *(Colletotrichum lindemuthianum)*:

******One exception*

- Seed borne
- Purchased contaminated seed
- Multiple farms = **60-100% loss**
  - Glover, VT
  - Cambridge, VT

***Buy certified seed**


**Typical symptoms of bean Anthracnose collected at the Cambridge field (A). Leaf underside with dark lesions along veins (B). Circular pod lesions with gray-black centers (C) and distinctive interior of the lesion exuding tan to pink/salmon masses of spores (D).**

# ON-FARM SCOUTING of DRY BEANS

## NEWLY IDENTIFIED!

### Ascochyta pod blight:


**Signs of Ascochyta pod blight. Cultivars 'Tiger's Eye' (right) and 'Black Turtle' (left). Sunken lesions with dark center visible. Detail of concentric rings of small pycnidia (dots) developing in the center of lesions were the main diagnostic characteristic (right).**

# ON-FARM SCOUTING of DRY BEANS

**Alternaria leaf spot** (*Aternaria alternate*):

- Glover, VT
- Alburgh, VT

***Will overwinter on crops and weed debris – ROTATE!**

**Common bacterial blight** (*Xanthomonas axonopodis* pv. phaseoli)

- Alburgh, VT
- Glover, VT
- Danby, VT

*Often 2nd infection, coincides with potato leafhopper damage.

# ON-FARM SCOUTING of DRY BEANS

## *Insect Pests:*

| Location | Potato Leaf-hopper | Thrips |
|---|---|---|
| Alburgh, VT | X | X |
| Cambridge, VT | X | |
| Danby, VT | X | |
| Glover, VT | X | X |
| N. Ferrisburg, VT | | |

# ON-FARM SCOUTING of DRY BEANS

## Potato leafhopper:

**'Hopperburn'**

| Variety | Alburgh, VT **Potato leafhopper damage** | Glover, VT **Potato leafhopper damage** |
|---|---|---|
| | % | % |
| Black Calypso | 78.8 | 8.75 |
| Hutterite Soup | 100 | 4.25 |
| Jacob's Cattle | 72.5 | - |
| Jacob's Cattle Gold | 76.3 | 9.25 |
| Kenearly Yellow Eye | 100 | 15.0 |
| King of the Early | 67.5 | - |
| Lowe's Champion | **7.50*** | **3.00*** |
| Lina Sisco | 58.8 | 6.75 |
| Light Red Kidney | 58.8 | - |
| Marifax | 56.3 | 10.0 |
| Orca | 41.3 | - |
| Peregion | 10.0* | 12.5 |
| Raquel | 71.3 | 3.75 |
| Spanish Tolasna | 57.5 | 6.25 |
| Tiger's Eye | 61.3 | 11.3 |
| Tongues of Fire | 97.5 | - |
| Vermont Appaloosa | 62.5 | 10.0 |
| Vermont Cranberry | 48.8 | - |
| *LSD (0.10)* | 22.4 | NS |
| *Trial Mean* | 62.6 | 8.40 |

Values shown in **bold** are of the highest value or top performing.

* Dry beans that did not perform significantly lower than the top performing variety in a particular column are indicated with an asterisk.

NS-Treatments were not significantly different from one another.

'-' indicates varieties not grown at the Glover, VT trial site

# ON-FARM SCOUTING of GRAINS

## 8-Locations:

Glover, VT
North Troy, VT
Berlin, VT
Shelburne, VT
Bridport, VT
Northfield, MA
Essex, NY
Alburgh, VT

## Grains Scouted:

- HRSW
- HRSW
- HRWW
- HRWW & SWWW
- HRWW & SWWW
- HRWW, SWWW, & HRSW
- SPRING BARLEY
- Hard & Soft, Winter & Spring Wheat, & Spring Barley

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# ON-FARM SCOUTING of GRAINS

## *Scouted twice:

- -Heading
- -Soft Dough

# ON-FARM SCOUTING of GRAINS

***Warm and dry weather = low disease pressure***

***Foliar Diseases:***

- Reduces photosynthetic leaf area
- Uses nutrients
- Increases respiration and transpiration within the infected plant tissues.

***Plant Response:***

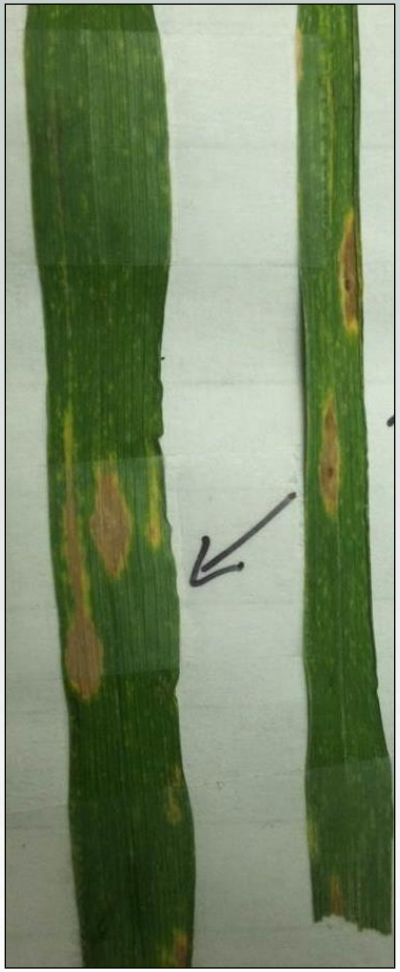
- Reduced vigor, growth and seed fill.

## *Foliar Diseases Identified:*

**Powdery mildew** *(Erysiphe graminis f. sp. Tritici)* -Likes high humidity

- Northfield, MA – SWWW
- Shelburne, VT – SWWW
- Alburgh, VT – Spring & winter wheat, & spring barley

# ON-FARM SCOUTING of GRAINS



Tan spot infected leaves ***(Pyrenophora tritici-repentis)***

## LEAF SPOTS:

- **Tan spot** *(Pyrenophora tritici-repentis),*
- **Septoria tritici blotch** (STB) *(Zymoseptoria tritici)*
- **Stagonospora leaf and glume blotch** *(Stagonospora nodorum)*

## *FOUND:

- All Locations
- All Grain Types

**Left leaf infected with Septoria tritici blotch (STB) (*Zymoseptoria tritici*) and the right with Stagonospora leaf blotch (*Stagonospora nodorum*)**

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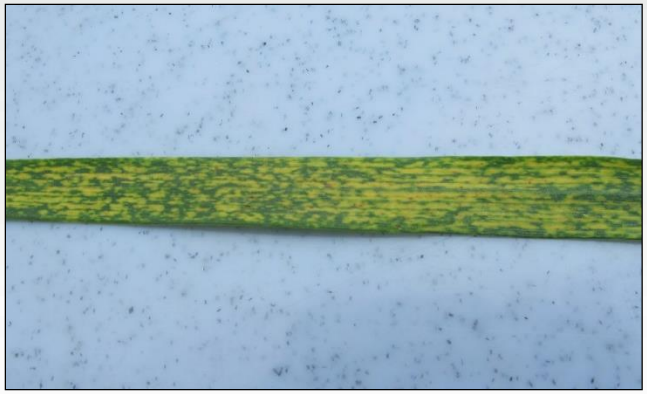
# ON-FARM SCOUTING of GRAINS

**Leaf rust** (*Puccinia recondite*)
- Alburgh, VT – Wheat and Barley
- Northfield, MA – HRWW & SWWW

**Stripe rust** (*Puccinia striiformi*)
- Northfield, MA - HRWW



What's this???

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# ON-FARM SCOUTING of GRAINS

## *Grain Head Diseases: Reduce grain yield and quality*

**Loose Smut** (*Ustilago tritici*)

- Alburgh, VT – Spring & winter wheat, & spring barley
- Bridport, VT – SWWW
- Shelburne, VT - SWWW

**Fusarium Head Blight** (*Fusarium graminearum*)

- Minimal observations

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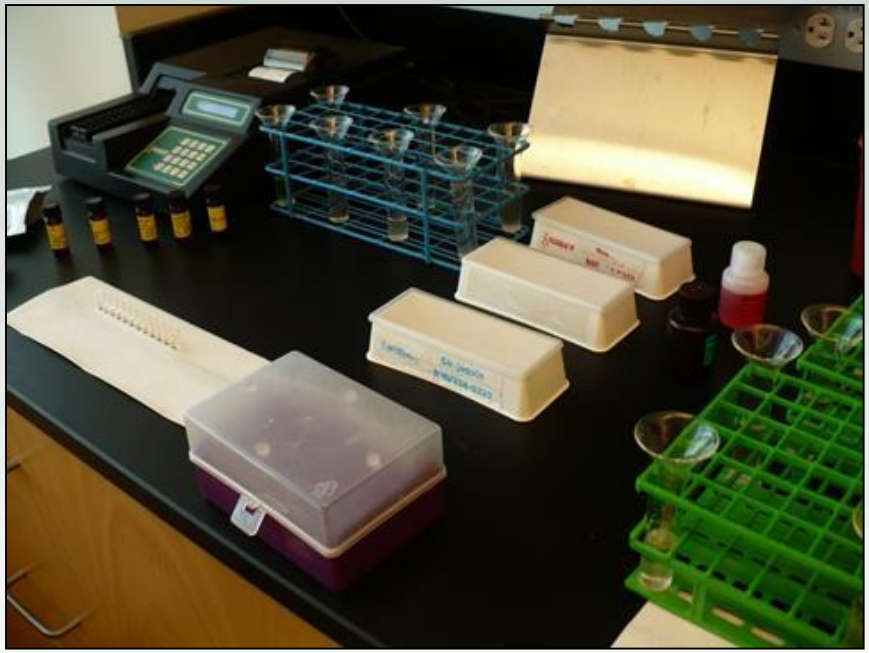
# 2016 Deoxynivalenol (DON) Levels:



## 2016 Commercial Samples

- 594 samples analyzed
- 450 DON analysis
- DON level range: 0.0 - 6.1ppm
- 59 greater then 1ppm
- SC, NC and PA = highest levels
- Grains with highest DON levels; spring barley and spring wheat.
- No Oats tested over 1ppm

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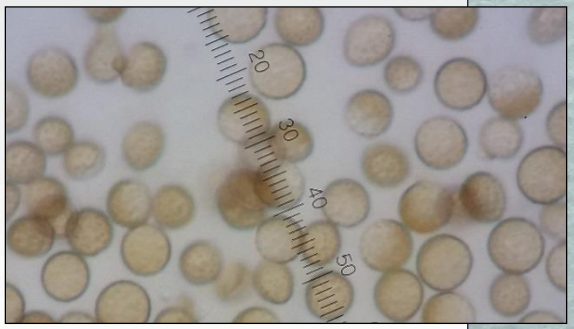
# ON-FARM SCOUTING of GRAINS

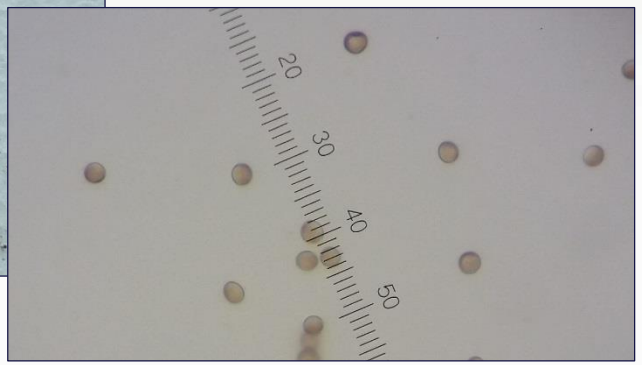
## *New! Grain Head Disease:*

Loose Smut
(*Ustilago tritici*)

Covered Smut:

- Wheat (*Tilletia caries*)
- Barley and Oats (*Ustilago hordei*)

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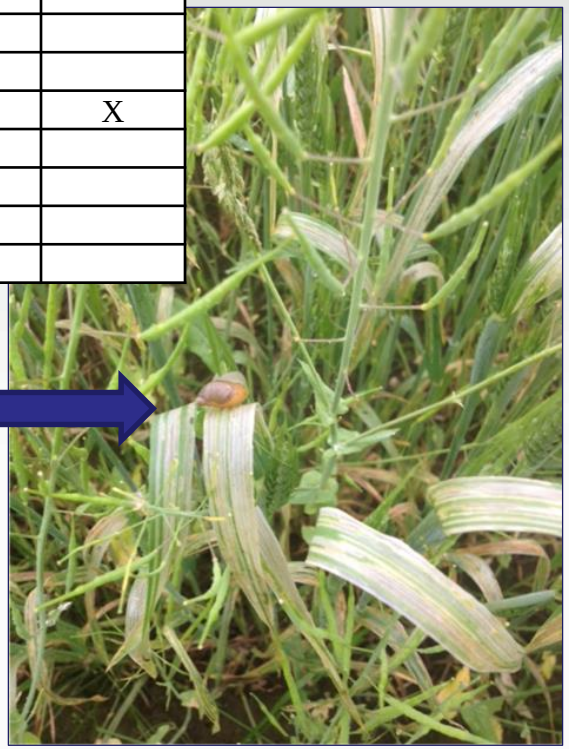
# ON-FARM SCOUTING of GRAINS

## *Insect Pests: Overall = minimal*

| Location | Grain type | Cereal Leaf Beetle | Thrips | Brown Wheat Mite | Wire worm | Slugs | Mexican Bean Beetle | Aphids |
|---|---|---|---|---|---|---|---|---|
| Alburgh, VT | Spring Wheat | X | X | X | X | | | |
| Alburgh, VT | Winter Wheat | X | X | X | X | | | |
| Berlin, VT | HRWW | X | X | | | X | | |
| Bridport, VT | HRWW | | X | | | | | X |
| Bridport, VT | SWWW | | X | | | | | |
| Essex, NY | Spring Barley | X | X | | | | | |
| Glover, VT | HRSW | X | X | X | | X | X | |
| North Troy, VT | HRSW | X | X | X | | | | |
| Northfield, MA | HRWW | X | X | | | | | |
| Northfield, MA | HRWW | X | X | | | | | |
| Northfield, MA | SWWW | X | X | | | | | X |
| Northfield, MA | HRSW | X | X | | | | | |
| Northfield, MA | HRSW | X | X | | | | | |
| Shelburne, VT | HRWW | | X | | | | | |
| Shelburne, VT | SWWW | | X | | | | | |


Not an insect
but still a pest!



# QUESTIONS???

# The 13th Annual Grain Growers Conference

*"Changing Crops for a Changing World"*

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