Plant Disease Management Updates for Vegetable Crops

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Dry Bean Diseases

Common Bacterial Blight
- Common Name: Common Bacterial Blight
- Scientific Name: Pseudomonas syringae pv. syringae
- Pathogen Type: bacterium
- Survival Means: bacterial cells, crop debris, seed

Pseudomonas syringae pv. phaseolicola
- Common Name: Common Pseudomonas Blight
- Scientific Name: Pseudomonas syringae pv. phaseolicola
- Pathogen Type: bacterium
- Survival Means: bacterial cells, crop debris, seed

Halo Blight
- Common Name: Halo Blight
- Scientific Name: Pseudomonas syringae pv. phaseolicola
- Pathogen Type: bacterium
- Survival Means: bacterial cells, crop debris, seed
**BEAN - PEST DIAGNOSTIC PROFILE**

**Common Name:** Bacterial Wilt  
**Scientific Name:** Curtobacterium flaccumfaciens subsp. flaccumfaciens  
**Pathogen Type:** bacterium  
**Survival Means:** bacterial cells, crop debris, seed

**Bactericide Options:**  
Basicop  
Champ  
Cuprofix  
Kocide  
NuCop  
Streptomycin (seed trt)

**BEAN - PEST DIAGNOSTIC PROFILE**

**Common Name:** Rust  
**Scientific Name:** Uromyces appendiculatus  
**Pathogen Type:** fungus  
**Survival Means:** spores, crop debris

**BEAN - PEST DIAGNOSTIC PROFILE**

**Common Name:** White Mold  
**Scientific Name:** Sclerotinia sclerotiorum  
**Pathogen Type:** fungus  
**Survival Means:** spores, sclerotia, crop debris

**BEAN - PEST DIAGNOSTIC PROFILE**

**Common Name:** Soybean Rust  
**Scientific Name:** Phakopsora meibomiae, P. pachyrhizi  
**Pathogen Type:** fungus, wide host range  
**Survival Means:** spores, crop debris, legumes, weeds
Fungal Disease Management

Fungicide Options:
- Chlorothalonil
- EBDCs
- Endura
- Headline
- Quadris
- Switch
- Topsin

For Soybean Rust
- Section 44 - 2017 Soybean Labels for Soybean Rust
  - Quadris (dry edible, snap, processing)
  - Chlortoluron (Syngenta)

Lentil
- Dimethomorph (Forum – BASF)
- Scout fields frequently to monitor for early disease
  - Foliar, Orion (tebuconazole)
  - Headline SBR (tebuconazole + pyraclostrobin)

FRAC Mode of Action / Target Site Groups:
- **Group 3**: Azoxystrobin (Quilt – Syngenta) inhibitor of sterol biosynthesis
- **Group 7**: Boscalid (Endura – BASF) inhibitor of chitin and phospholipid synthesis
- **Group 9**: Pyrimethanil (Scala – Bayer), Cypredinil (Switch – Syngenta) inhibitor of amino acid synthesis

FRAC Mode of Action / Target Site Groups:
- **Group 12**: Pyraclostrobin (Cabrio, Headline, Pristine - BASF), Azoxystrobin (Quadris, Amistar – Syngenta), Trifloxystrobin (Gem, Stratego – Bayer), Propiconazole (Quilt – Syngenta, Stratego – Bayer) inhibitor of mitochondrial respiration
- **Group 13**: Fludioxonil (Switch – Syngenta) inhibitor of protein kinase production (phenylpyrroles)
- **Group 15**: Dimethomorph (Forum – BASF) inhibitor of cell wall synthesis (cinnamic acids)

Manage for Fungicide Resistance:
- Use disease predictive models to effectively time fungicide applications
- Scout fields frequently to monitor for early disease when conditions are conducive
- Follow label recommendations – rate, interval, coverage, rotate fungicide groups
- Integrated Pest Management Strategies

Common Beans: (dry edible, snap, processing)
- Chickpea (garbanzo)
- Field Pea
- Lentil

Cool-Season Legumes
- Lima Bean
- Cowpea (black-eyed pea)

Warm-Season Legumes

LEGUME IPM-PIPE

http://wiki.bugwood.org
**Legume Spot Market Prices - Future Plans**

Real-time price discovery tool could help legume stakeholders make more timely decisions in relation to disease and pest management options and strategies.

This scalable commodity component will enhance the overall utility and economic value of the Legume ipmPIPE to stakeholders, and the sustainability of their systems.

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**Legume ipmPIPE Benefits**

- Early alerts of problems that can spread quickly
- More timely state IPM recommendations & pest forecasts to stakeholders
- Enhanced communications between growers and state, federal and private agencies
- More accurate pest diagnostics and enhanced support of crop insurance claims
- More effective use of pesticides and/or deployment of resistant varieties
- Enhanced interaction between legume workers & growers

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**Iris Yellow Spot Virus symptoms**

Emerging disease in US and World

Confirmed all western US states, TX & GA

Vectored by onion thrips (*Thrips tabaci*)
**ONION BACTERIAL DISEASE**

### Purple Blotch
- **Common Name:** Purple Blotch
- **Scientific Name:** *Alternaria porri*
- **Pathogen Type:** Fungus
- **Survival Means:** Spores, crop debris, sets, culls

### Downy Mildew
- **Common Name:** Downy Mildew
- **Scientific Name:** *Peronospora destructor*
- **Pathogen Type:** Fungus
- **Survival Means:** Spores, seed, crop debris, sets, culls
Create an onion ipmPIPE network.}

- **Goal:**
  - Invest resources into aspects of onion production and this specialty crop to the ipmPIPE network, in response to the needs of onion stakeholders across the U.S.

- **Objectives:**
  1. **Create an onion ipmPIPE network** that will focus on onion thrips and IYSV, with general support for disease and pest diagnostics and IPM strategies for other priority problems of onion including bacterial and fungal diseases.
  2. Develop, improve and enhance macroarray diagnostic tools for priority fungal and bacterial pathogen groups of onion, as well as local pathogens, and diagnostic test support for these pathogen groups and thrips; relate thrips to onion and IYSV development; and implement and evaluate models via the Onion ipmPIPE.
  3. Relate Disease Risk Assessment models and IPM strategies to economic monitoring and sustainability for specialty crop stakeholders via the Onion ipmPIPE.

### Fungal Disease Management

**Fungicide Options:**
- Cabrio
- Chlorothalonil
- Coppers
- EBDCs
- Endura
- Forum
- Quadris
- Pristine
- Ridomil Gold
- Rovral
- Scala

http://wiki.bugwood.org

### ONION SENTINEL PLOTS & SURVEYS

Participants

Survey Transect(s)
Thrips

IYSV

Data Entry

Excel Application for mobile devices

Monitor Pests and Diseases, Collect Samples, Update Data

Emphasize Local & Regional Diseases & Pests

IPM Reports - Diseases & Pests, Weather, Strategies

Real-time price discovery tool will help onion stakeholders make more timely decisions in relation to disease and pest management options and strategies

This scalable commodity component will enhance the overall utility and economic value of the Onion ipmPIPE to stakeholders, and the sustainability of their systems

Links to Additional Resources

Multi-Disciplinary Resource for Colorado & U.S.A. Onion Growers

http://www.alliumnet.com/index.htm