Diagnostics of Wheat Samples

Jan Byrne, MSU Diagnostic Services
2017

- 28 samples
- Submitted by extension educators, agribusiness, and growers
- Samples processed for signs of disease and abiotic problems
- Nutrient testing where appropriate
Samples received from 17 counties
Findings in 2017
Root rots

• Take-all
  – One sample

• Pythium sp.
  – Two samples
Foliar Pathogens

- Rust
  - Stripe
  - Leaf
- Powdery mildew
- Septoria
- Bacterial mosaic
Viral Pathogens

• Potyvirus

• Barley yellow dwarf virus
  – Branch
  – Sanilac
Impacts on Heads

• Sooty mold
• Black mold (*Alternaria sp.*)
• Loose smut

• Received late June to mid-July
Loose Smut
Powdery Mildew
Concerns about viral pathogens
Nutrient Related Issues

• Few nutrient related samples in 2017
• Low in
  – Sulfur
  – Zinc
  – Boron
  – Phosphorus
• Soil pH issues
Diagnostic Support

• Field visits by Dennis Pennington and Martin Nagelkirk
  – In response to sample submitted to the MSU lab
  – Or
  – Lab work to support field visits
2018 Proposed Funding

- Maximum 50 diagnostic samples
  - 5 samples for nematode analysis
- In-house ELISA testing for 4 pathogens
  - based on diseases found in 2013
    - BYD – pav
    - BYD – mav
    - WSM
    - *Clavibacter michiganensis* pv. *tessellarius*
- 5 samples Agdia wheat screen
2018 Proposed Funding

• Nutrient Testing
  – Testing to be done by A&L Great Lakes labs
    • Facilitate sample handling and rapid turn around
    • Manganese, sulfur, zinc
  – 15 samples
    • Soil nutrient analysis
    • Tissue nutrient analysis
  – Shipping costs from field and lab
  – Nutrient testing results will be shared with Dennis
    • He can then follow up with the client in regard to recommendations.