

Pathology in New Pulse Crops

Robert M. Harveson

Extension Plant Pathologist

UNL - Panhandle REC, Scottsbluff

New Pulse Crops Being Studied

- Dry Yellow Peas
- Chickpeas
- Cowpeas
- Mungbeans



Ascochyta blight



Root rots



Root rot



Management Options for A. blight

- Breeding for resistance in chickpeas is ongoing
- but takes time
- Have chemical options – but limited
- Resistant to strobilurins – Headline and Quadris
- Test the copper alternative chemicals as with bacterial diseases in dry beans

Diseases Identified – Cowpeas (2018-2020)

- Bacterial wilt and common blight
- Root rots – *Rhizoctonia* and *Fusarium spp.*
- Unidentified foliar disease
- White mold
- Phomopsis stem canker
- Unknown viruses?

Root Rot – Foliar Symptoms



Rhizoctonia Root Rot



Fusarium Root Rot



Cowpeas – Bacterial Wilt



White Mold/Phomopsis - Cowpeas



White Mold - Cowpeas



Phomopsis - Cowpeas



Unknown Virus - 2018



Chemicals Employed (2018-2020)

- Kocide
- Proline
- SaniDate
- OxyDate
- ecoAgra A300
- Double Nickel
- Life Guard
- Miravis
- Amplitude

2020



Unknown Viruses?



Virus 4



Mungbeans



Mungbeans in Australia



Bacterial Diseases



Conclusions 2018-2020

- All studies inconclusive in 2018 due to lack of disease pressure
- 2019 - Ascochyta blight and bacterial disease were very severe - both cowpea and chickpea studies inconclusive due to poor yields after hail storms
- Results in 2020 were confounded by extremely hot and dry conditions
- Much more work needed

Future and Ongoing Studies

- Conduct same field experiments on chickpeas, peas, and cowpeas evaluating currently available fungicides and copper-alternative products - PHREC and grower fields
- Continue characterizing bacterial and fungal isolates from new pulses (2018-2020) and testing for pathogenicity on dry beans
- Investigate and identify the new viruses in cowpeas
- Observe and document diseases occurring in mungbeans in Nebraska in 2020

Questions?

