Management of foliar diseases of lentils, chickpeas, and field peas

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1. Sources of Ascochyta disease outbreaks

A subject of critical importance given increases in chickpea acreage, new chickpea producers
Different pathogens cause Ascochyta on chickpeas, field peas, and lentils.

- the causal pathogens are different for each crop
- ... but the biology of each pathogen is similar
Seeds within diseased pods are often infected with Ascochyta
Local, in-season movement of Ascochyta

Spores produced on diseased tissue move short distances via splash dispersal, wind-driven rain.
Long-distance movement of Ascochyta

Spores produced on overwintered crop residues

Sexually produced ascospores are produced on overwintered infested residues.

Can be carried aloft by air currents
The release of ascospores from overwintered residues can be significant:

200-1,600 ascospores/mm² per day recorded in Pacific NW

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**Genesee, ID**
- 1985-1986

**Genesee, ID**
- 1986-1987

**Pullman, WA**
- 1986-1987

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Long-distance movement of Ascochyta
Spores produced on overwintered crop residues

Ascospores produced on residues can impact fields miles away.

Pre-1983: No Ascochyta blight known to occur in Washington or Idaho

1983: Ascochyta blight observed in chickpea variety trials in Pullman, WA

SOURCE:
Walter J. Kaiser
Plant pathologist (retired), USDA-ARS in Prosser, WA
1984: Ascochyta blight observed in 23 of 30 commercial chickpea production fields in northern Idaho

1987: Over 50% of the chickpea crop in Washington and Idaho severely impacted by Ascochyta blight
Persistence of Ascochyta in the soil

Disease transmission from residues directly to a new crop

When crop rotation intervals are short, Ascochyta can be directly transmitted, infested residues to new crops

Transmission of Ascochyta blight from residues / infested soil

Disease transmission from Ascochyta-infected chickpea residues can occur for at least 4 years after harvest.

Ascochyta-infected chickpea leaf residues
Saskatoon, Saskatchewan - heavy clay loam soil

Transmission of Ascochyta blight from residues / infested soil

Disease transmission from Ascochyta-infected chickpea residues can occur for at least 4 years after harvest.

Ascochyta-infected chickpea stem residues
Saskatoon, Saskatchewan - heavy clay loam soil

Transmission of Ascochyta blight from residues / infested soil

Disease transmission from Ascochyta-infected lentil residues can occur for at least 3 years after harvest.

Ascochyta-infected lentil leaf and pod residues
Saskatoon, Saskatchewan - heavy clay loam soil

Disease transmission from Ascochyta-infected lentil residues can occur for at least 3 years after harvest.

Ascochyta-infected lentil stem residues
Saskatoon, Saskatchewan - heavy clay loam soil

Ascochyta blight management
lentils, chickpeas, and field peas

1. Clean seed
2. Long crop rotation intervals
3. More rigorous fungicide usage may be needed when Ascochyta outbreaks occurred in last 1-2 years within region