# Ascochyta management in chickpeas and field peas

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# Ascochyta blight
## of chickpeas

## 1. Sources of Ascochyta disease outbreaks

A subject of critical importance given increases in chickpea acreage, new chickpea producers



# Review

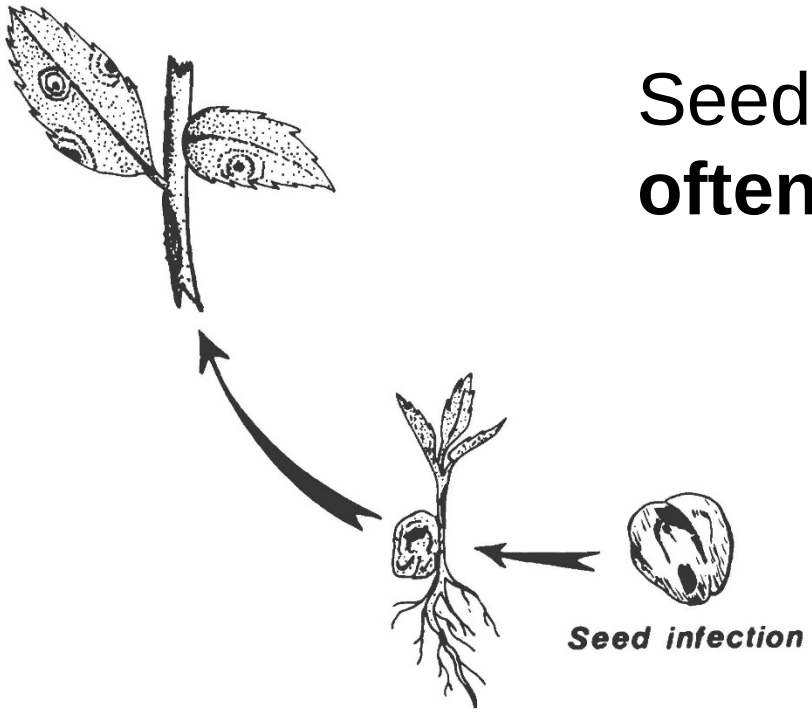
## Etiology – Ascochyta of lentils, field peas, and chickpeas

**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

# Initial introduction of Ascochyta blight

**Transmission of disease from infected seed to seedlings.**



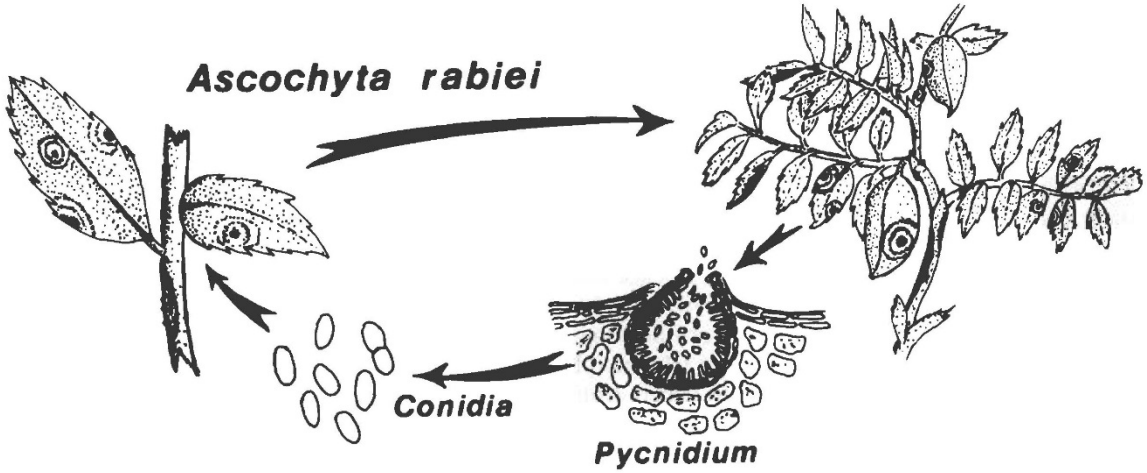

Seeds within diseased pods are **often infected with Ascochyta**

Illustration adapted from Kaiser 1997 Can. J. Plant Pathology 19(2):214-224

# Local, in-season movement of Ascochyta

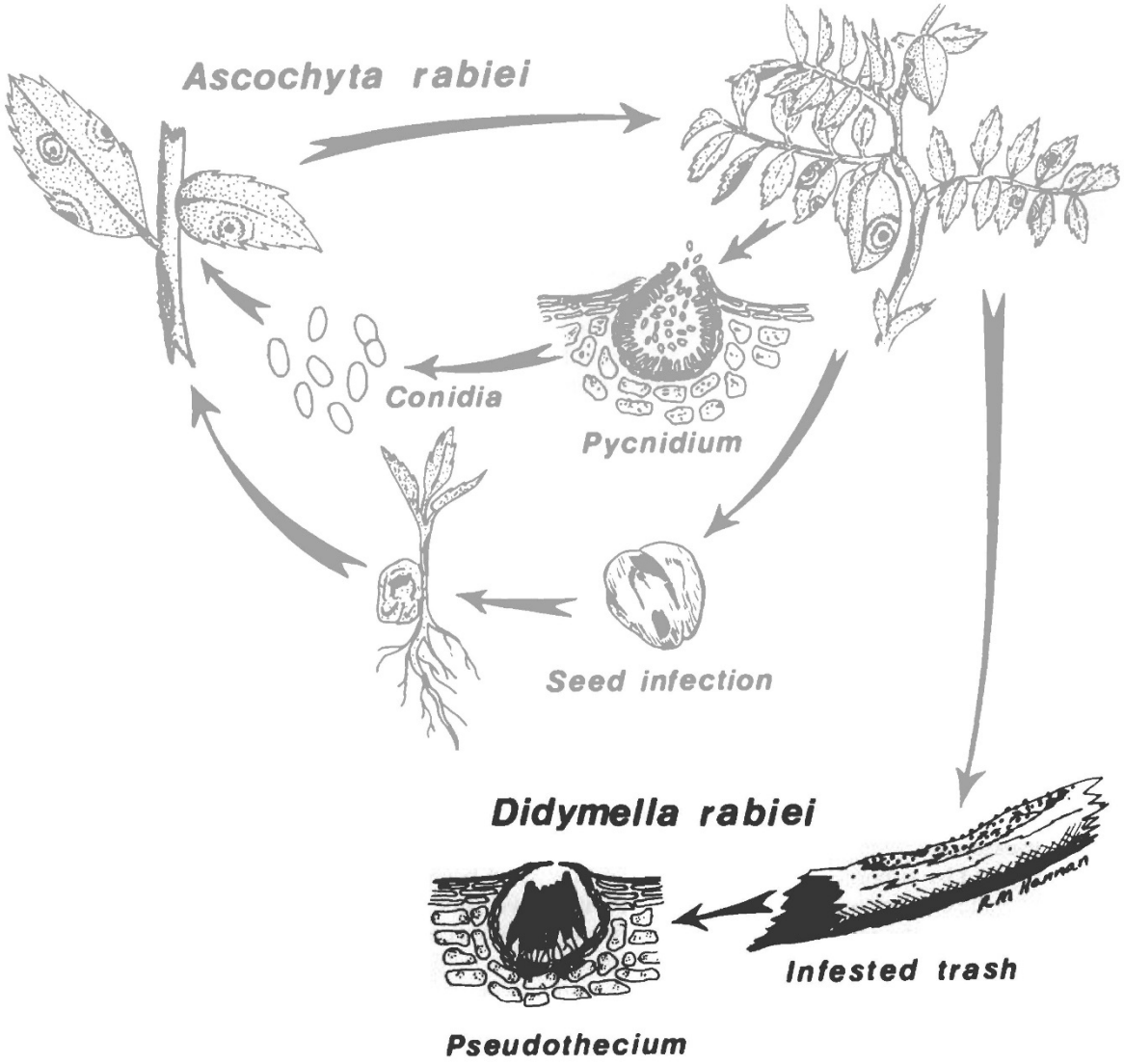
**Spores produced on diseased tissue**

Spores produced on disease lesions **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**

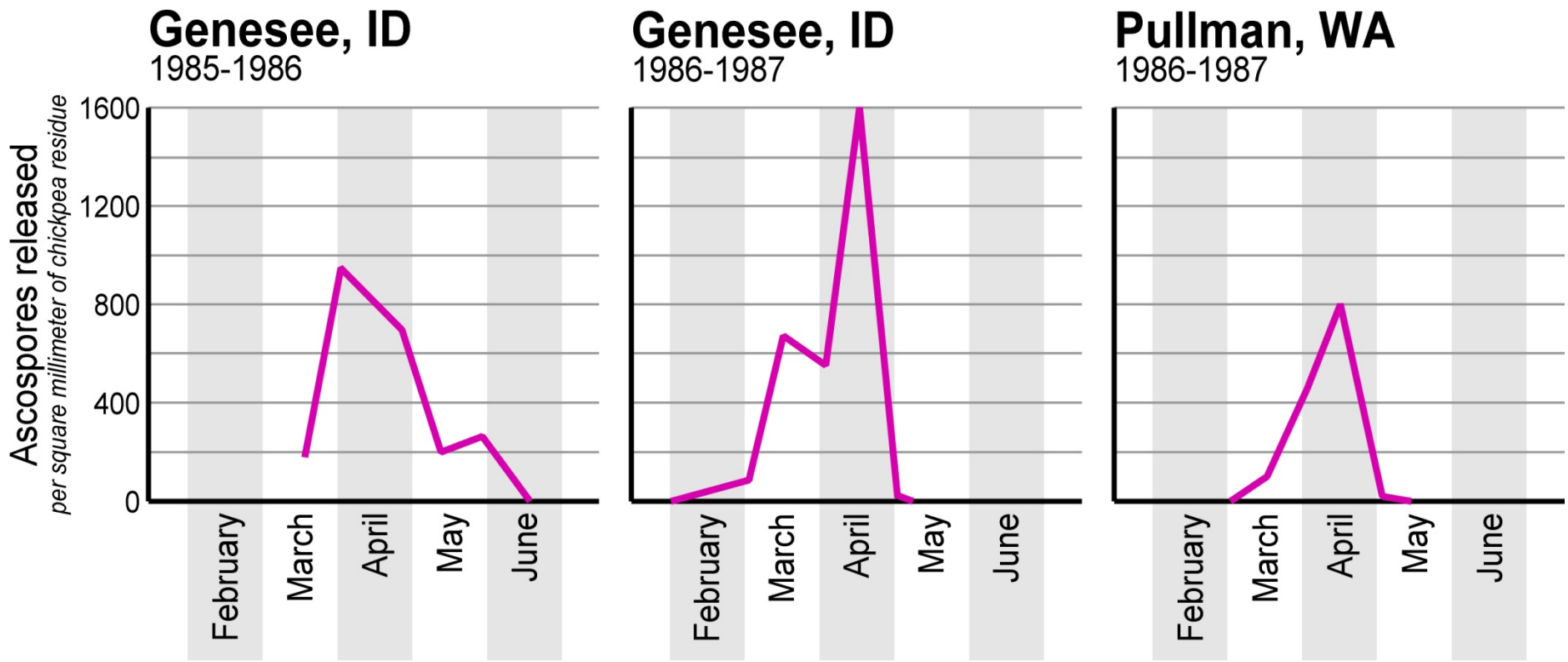
Illustration: Kaiser 1997 Can. J. Plant Pathology 19(2):214-224

# Long-distance movement of Ascochyta

## Spores produced on overwintered crop residues

**The release of ascospores from overwintered residues can be significant:**

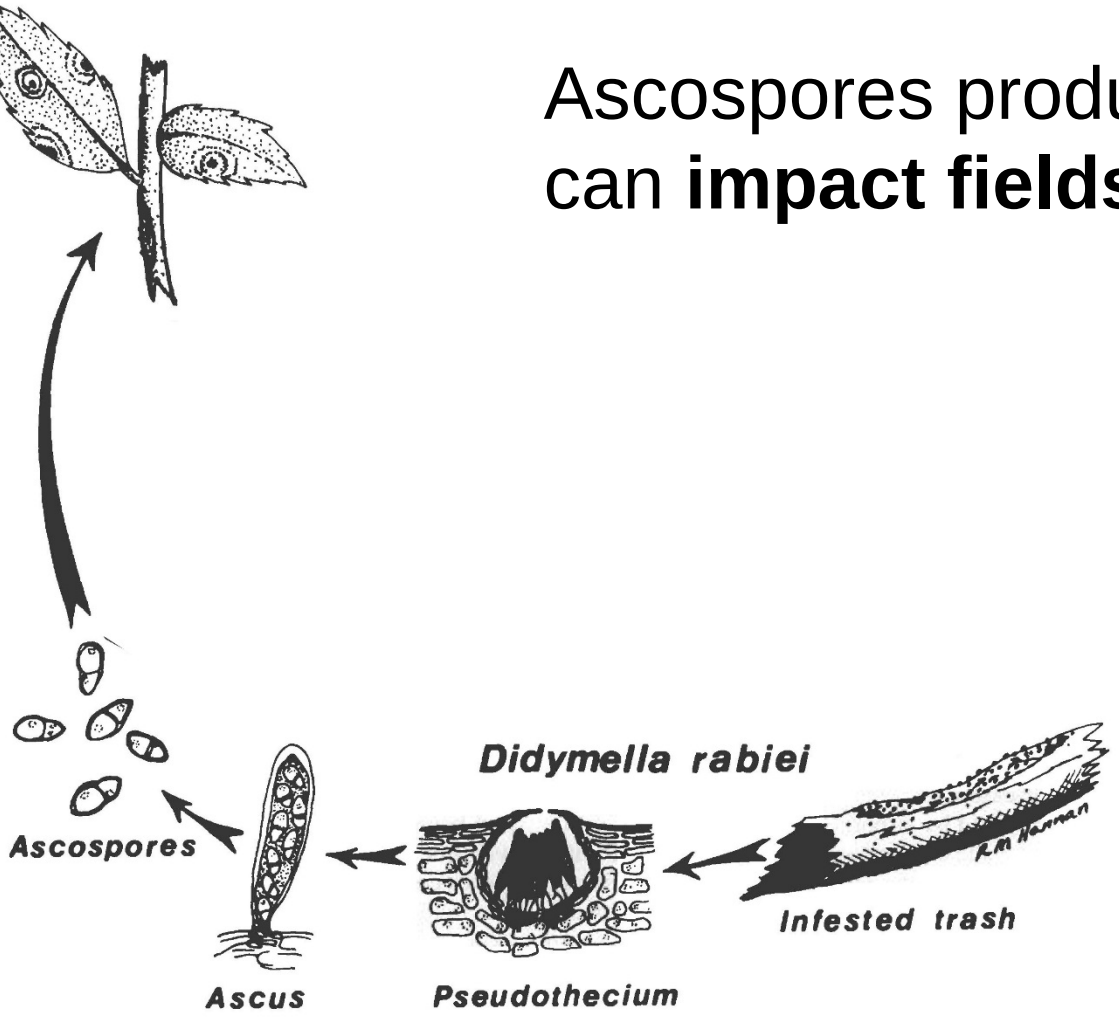
200-1,600 ascospores/mm$^2$ per day recorded in Pacific NW




Trapero-Casas and Kaiser 1992. **Phytopathology** 82:1261-1266.

# Long-distance movement of Ascochyta

**Spores produced on overwintered crop residues**




Ascospores produced on residues can **impact fields miles away.**

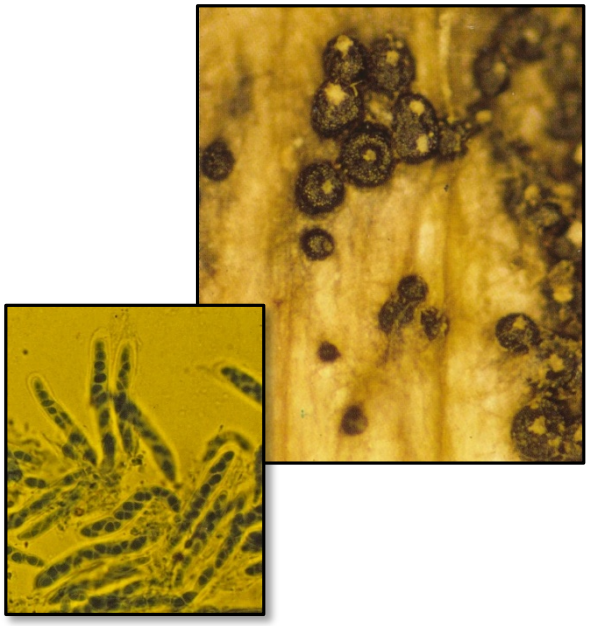


Illustration and images: Kaiser 1997 Can. J. Plant Pathology 19(2):214-224

# Long-distance movement of Ascochyta

## The experience from Washington and Idaho

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

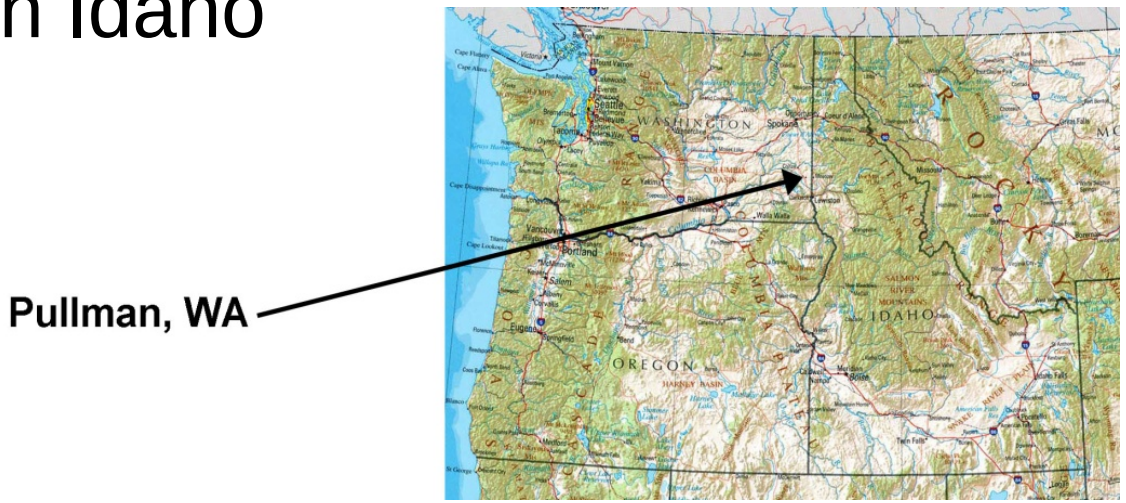
**1983:** Ascochyta blight observed in chickpea variety trials in Pullman, WA

SOURCE:
Walter J. Kaiser
Plant pathologist (retired), USDA-ARS in Prosser, WA
Kaiser 1997. **Can. J. Plant Pathology** 19(2):214-224

# Long-distance movement of Ascochyta

## The experience from Washington and Idaho

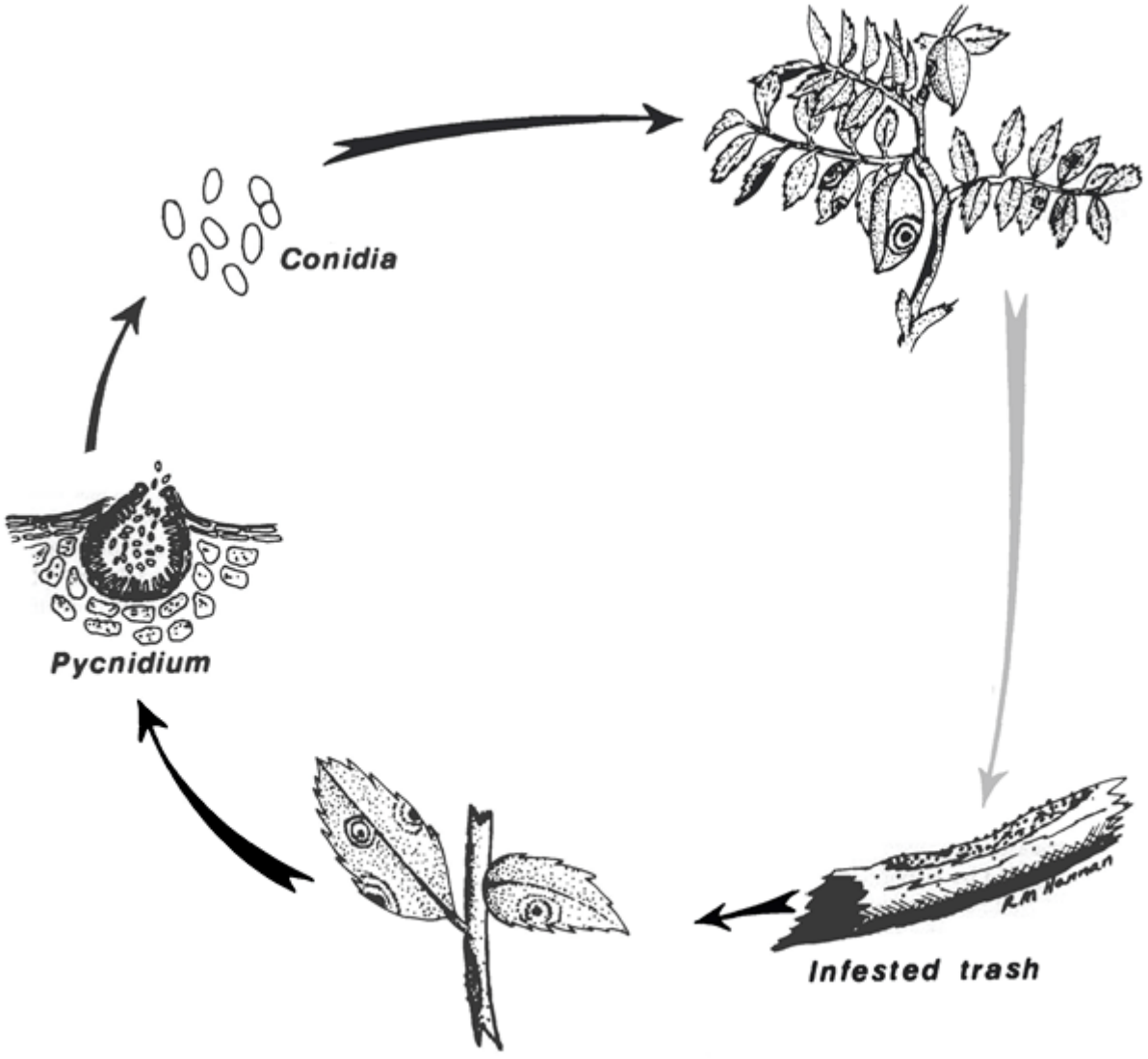
**1984:** Ascochyta blight observed in 23 of 30 commercial chickpea production fields in northern Idaho




**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

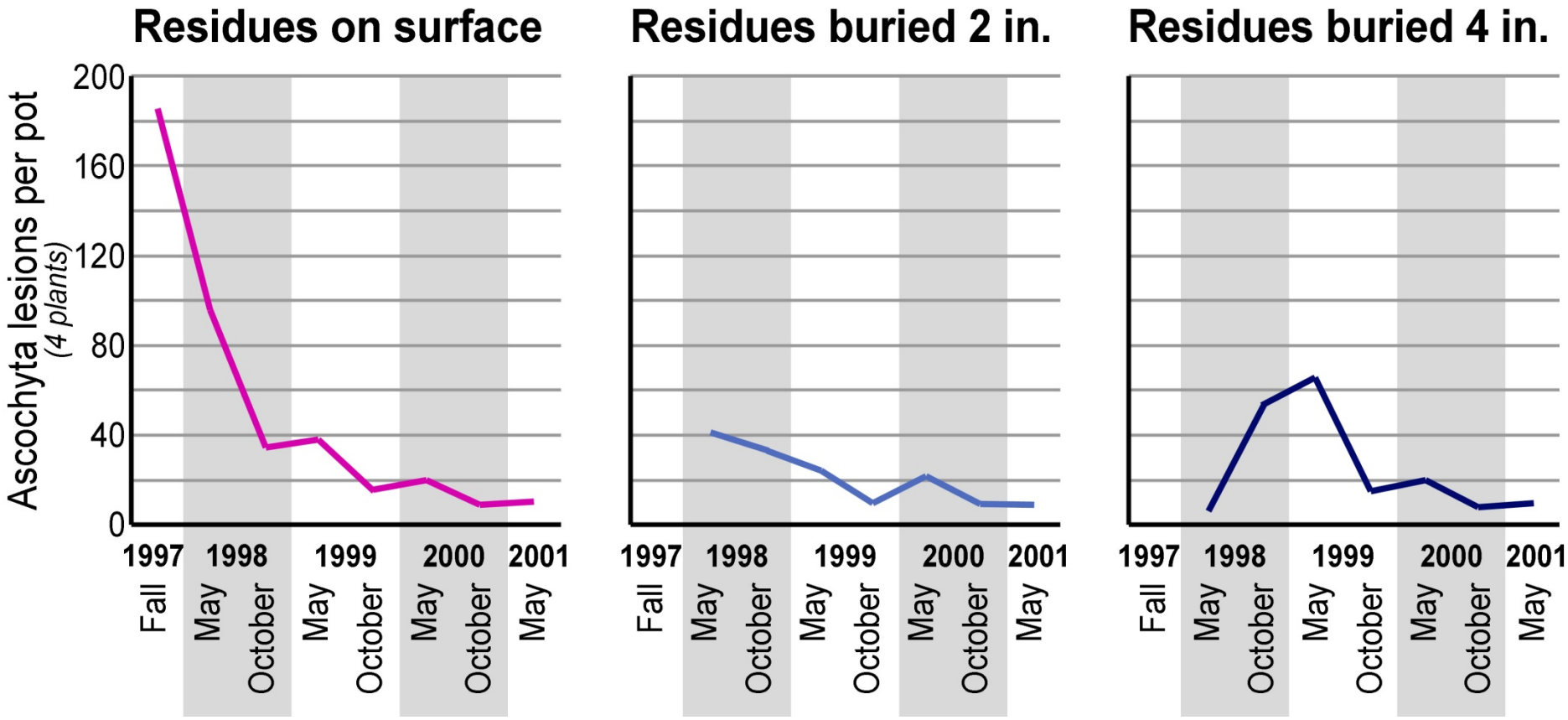
Illustration adapted from Kaiser 1997 Can. J. Plant Pathology 19(2):214-224

# 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*



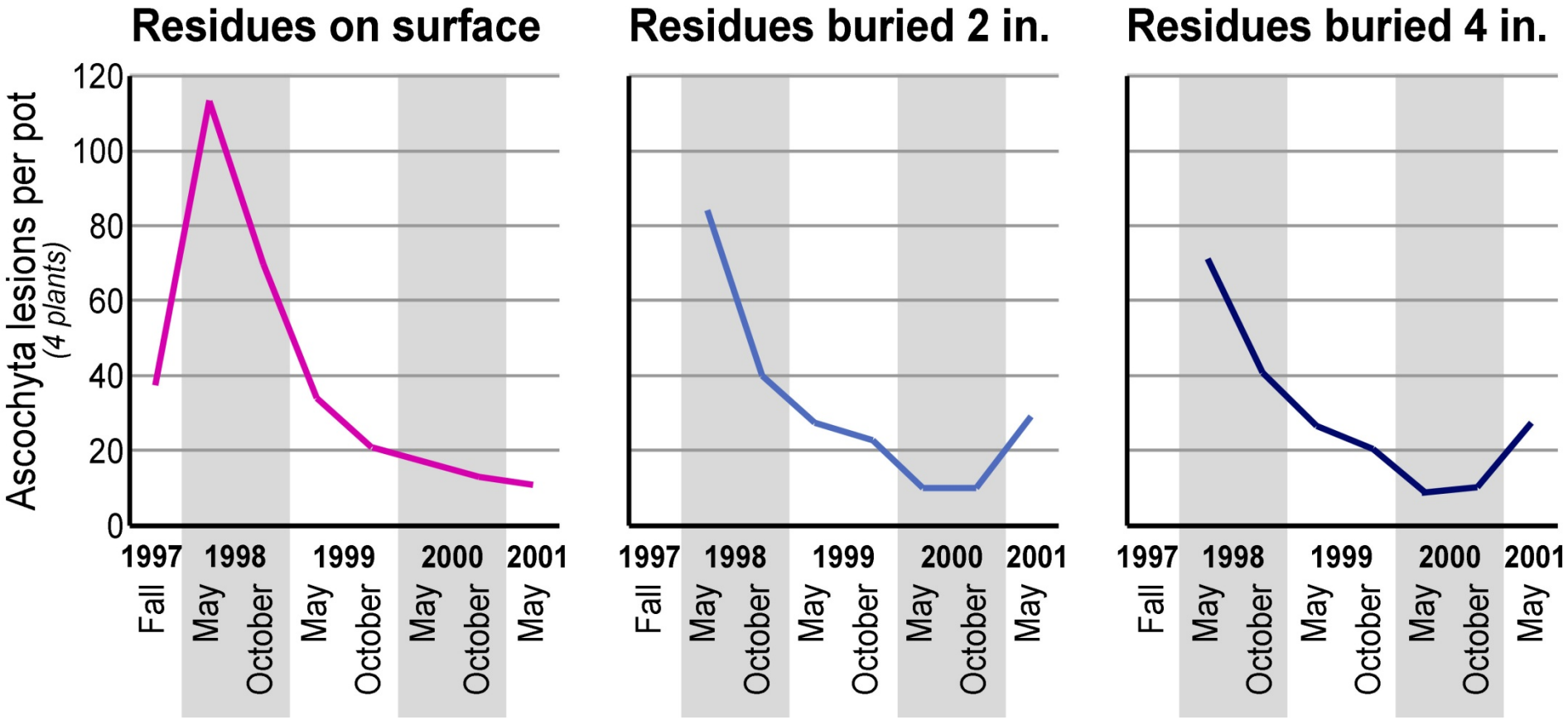

Gossen & Miller 2004. **Canadian Journal of Plant Pathology** 26:142-147.

# 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*




Gossen & Miller 2004. **Canadian Journal of Plant Pathology** 26:142-147.

# 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