

Organic Management of Plant Diseases



Alex Stone, Dept. of Horticulture

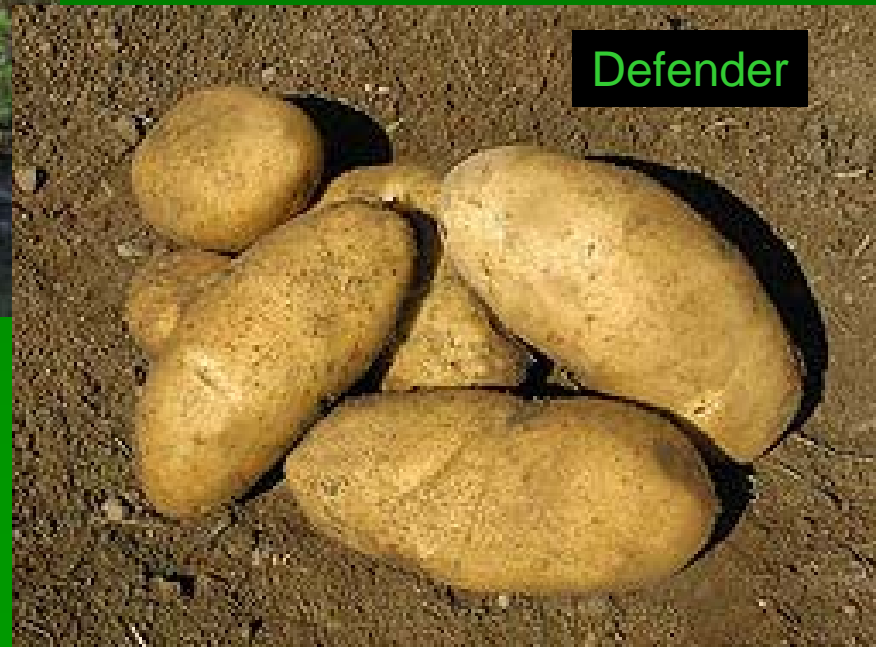
OREGON STATE
U n i v e r s i t y

Organic IPM? Organic Plant Health Management?

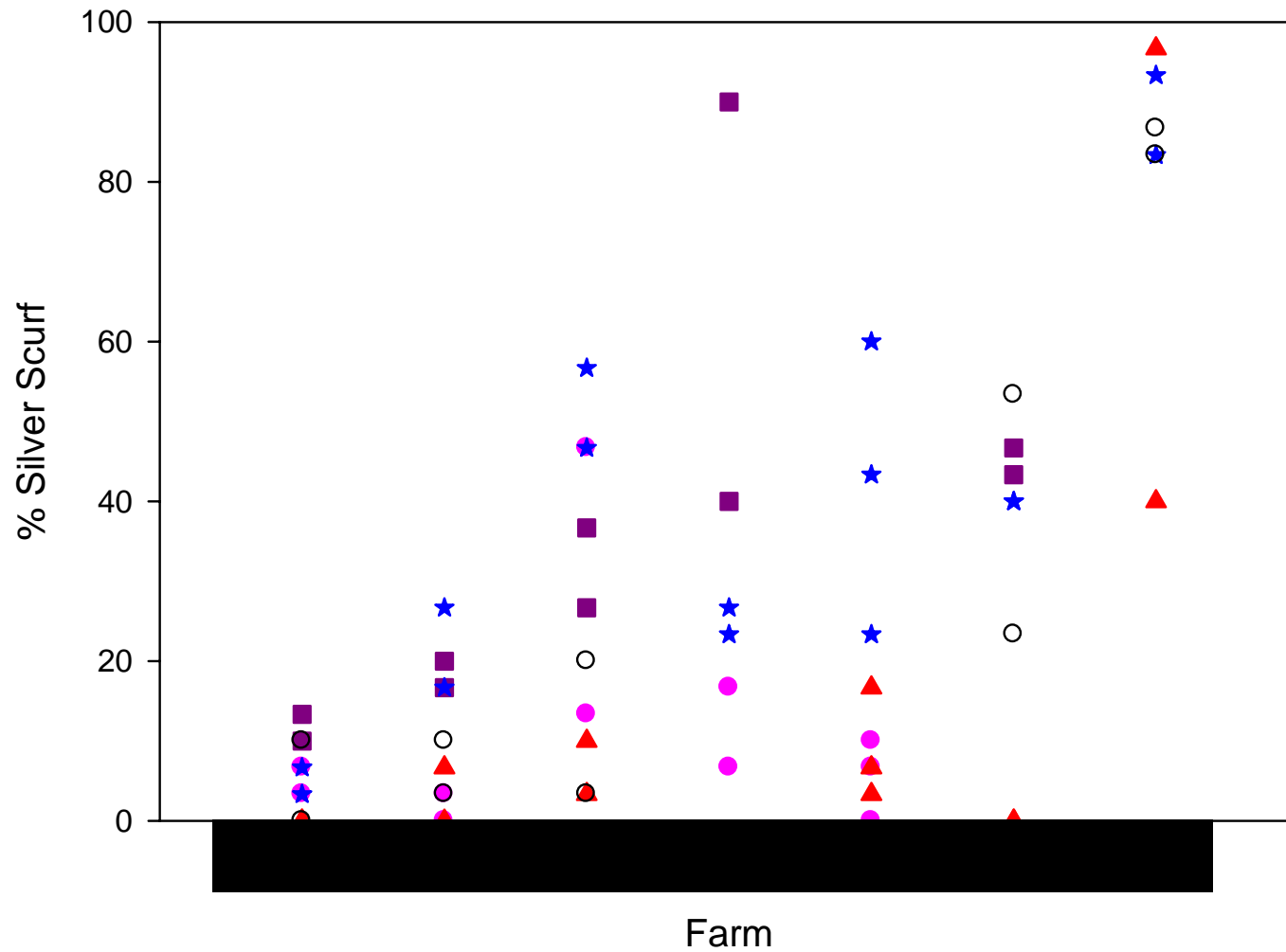
- Many organic IPM tools are the same as conventional IPM tools
- However, in organic systems, focus HAS to be on prevention
 - To comply with certification requirements
 - To effectively manage diseases
- Organic management can improve plant health

Resistant Germplasm

- crop species and variety selection



REDS: % Silver Scurf Across Farms



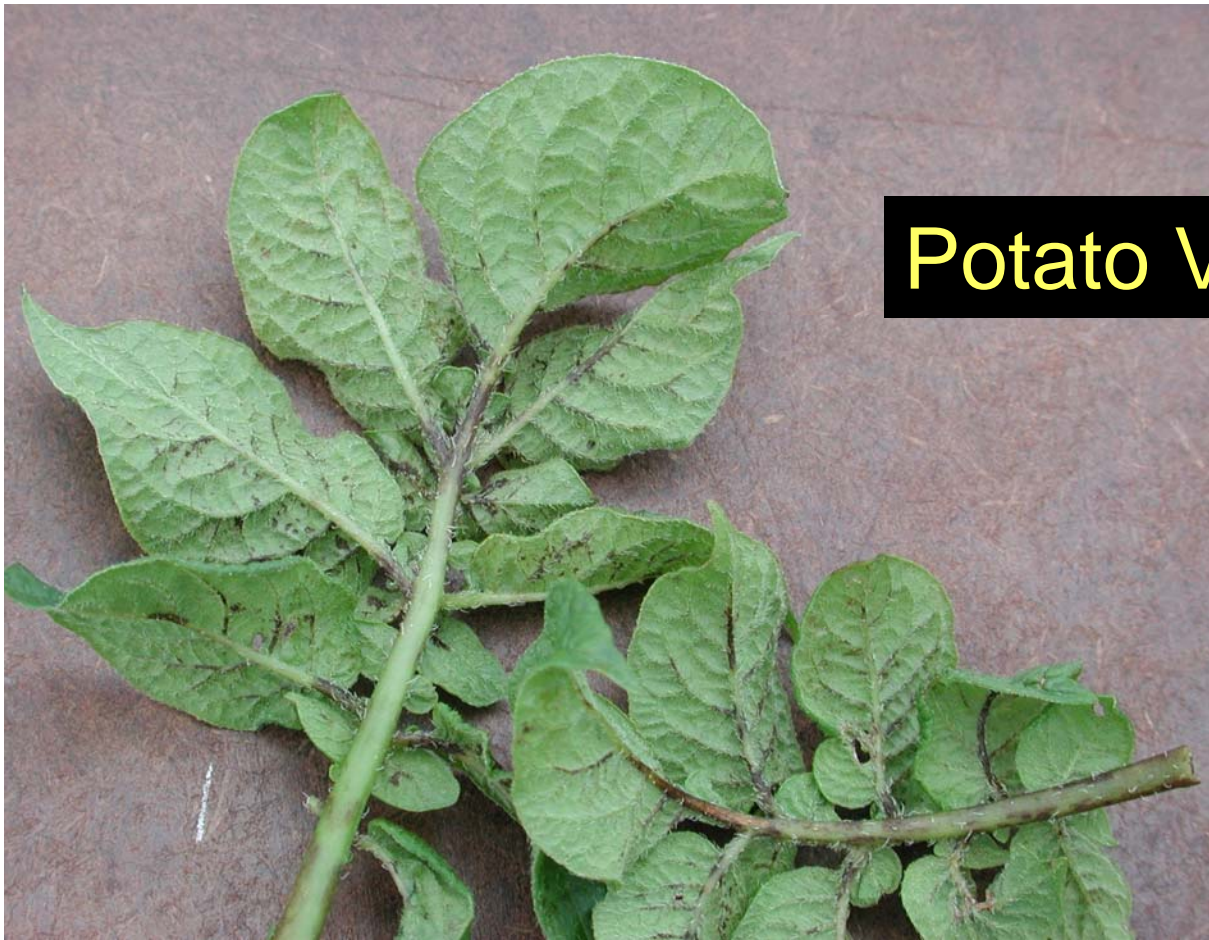
- Colorado Rose
- Huckleberry
- ★ Mountain Rose
- ▲ Red LaSoda
- Sangre

www.Ospud.org

Disease-free seed/planting material

- Know your source!
- Know if/which of your crops are susceptible to seed- or stock-transmitted diseases.
- Plant certified seed if applicable (e.g. seed potatoes)

Potato Virus Y (PVY)



Oregon Seed Certification Service

HOME

E-Certification

E-Certification

Register

Crop Information

Cereals

Grass & Legumes

Potatoes

Mint

Source Identified

Crop Standards

Publications

Handbooks

Guidelines

Fees & Deadlines

Forms

Varieties

Oregon Certified Seed Potato Information

Just a Reminder:

1. The 'cut off dates' for seed being entered into the Oregon WGO are:
 - A. **November 20th** to avoid a 'Late Fee' of \$60 per lot + \$15/acre;
 - B. **December 15th** for notification that delivery of a late lot is still imminent;
 - C. **January 2nd** for the delivery on *any* seed lot. **No winter test samples will be accepted after January 2nd.**
2. Potato Certification & Foundation Seed & Plant Materials Advisory Committee will be meeting January 31st in Portland, Oregon.

Crop Standards

[Oregon Certified Seed Potato Crop Standards Handbook](#)(pdf)

Grower Directory

[Directory of Oregon Certified Seed Potato Growers](#) (pdf)

Field Readings

[Oregon Certified Seed Potato Field Readings and Statistics](#)(pdf)

Applications and Forms

Field Inspection Application Form ([writable pdf](#)) ([MS Word](#))

[Grower Tag Order Form](#) (writable pdf)

Late blight of potato

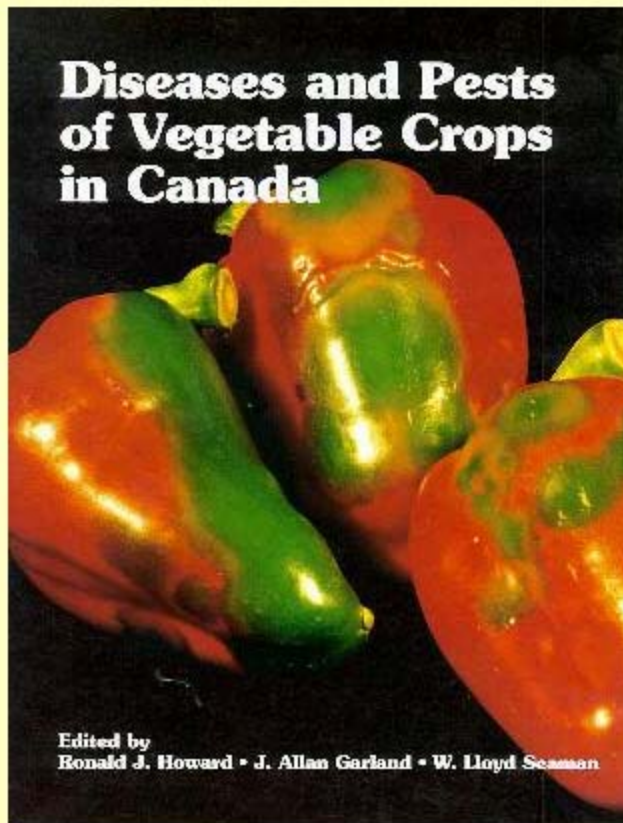


Diagnostics and scouting

- ✓ know how to ID important diseases of the crops you grow
- ✓ scout your fields regularly for early detection and intervention

Tools Help

http://esc-sec.org/disease.htm



Diseases and Pests of Vegetable Crops in Canada

Published by The Canadian Phytopathological Society and the Entomological Society of Canada

Send samples to the diagnostic clinic!

[Home](#)

[Plant Disease Sample Form](#)

[Insect Identification Sample Form](#)

[OSU Insect ID Clinic](#)

[OSU Nematode Testing Service](#)

[Directions to Clinic](#)

[Sample Fees](#)

[How to submit a sample](#)

[Diagnoses by County](#)

[Plant/Weed Identification](#)

[Rhodococcus and Agrobacterium](#)

[Problems of stored garlic](#)



Contact Information

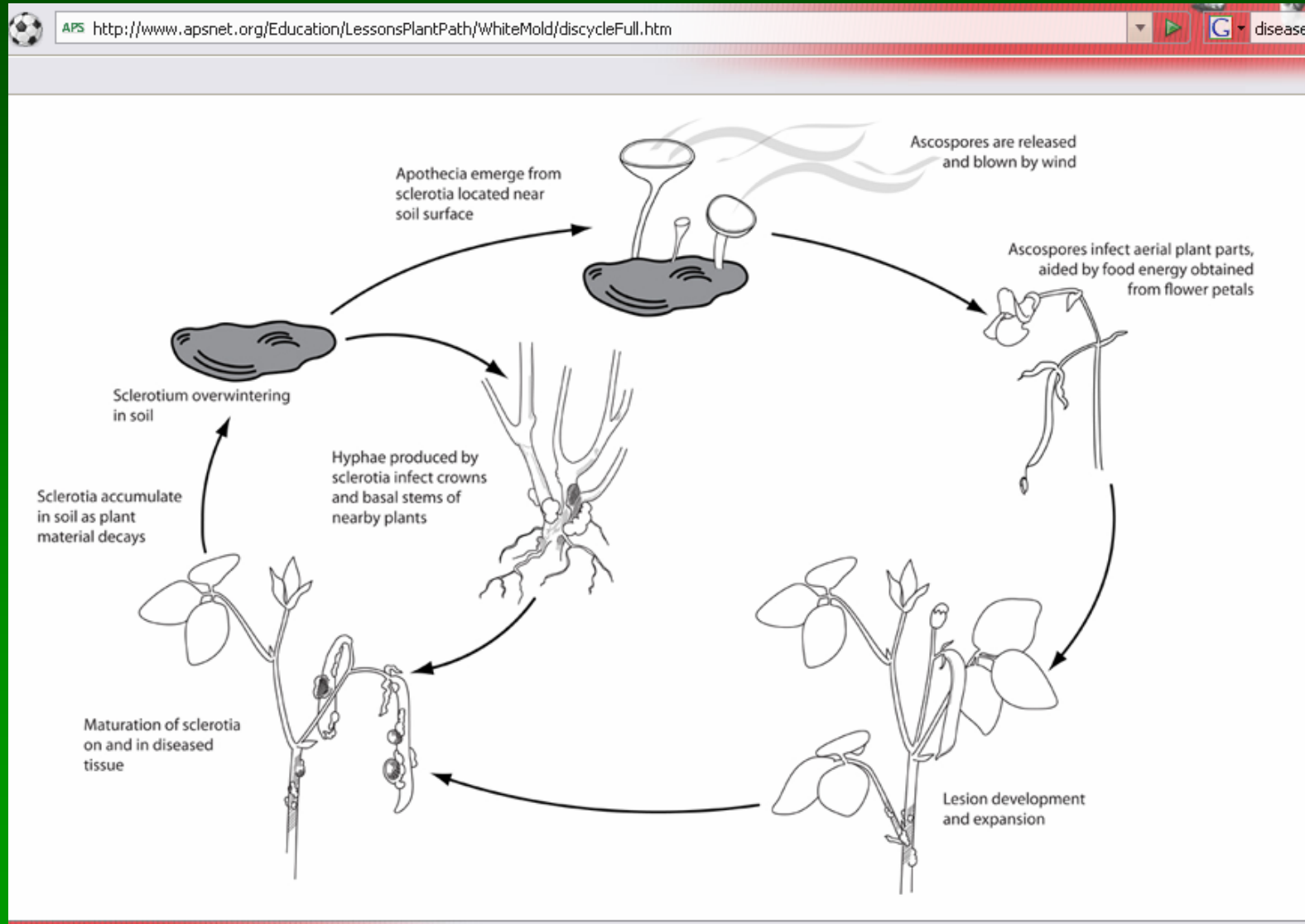
For information about Disease Diagnosis, contact:

[Melodie Putnam](#), Plant Disease Diagnostician
OSU Plant Clinic,
1089 Cordley Hall,
Corvallis, OR 97331-2903

Phone: 541-737-3472
Fax: 541-737-2412

[James Young](#), Insect Diagnostician
1067A Cordley Hall
Corvallis, OR 97331-2902

Learn the disease cycle/life “habit” of the pathogen



Cultural Strategies

- site selection
- plant arrangement/orientation
- irrigation management

Minimize leaf wetness!

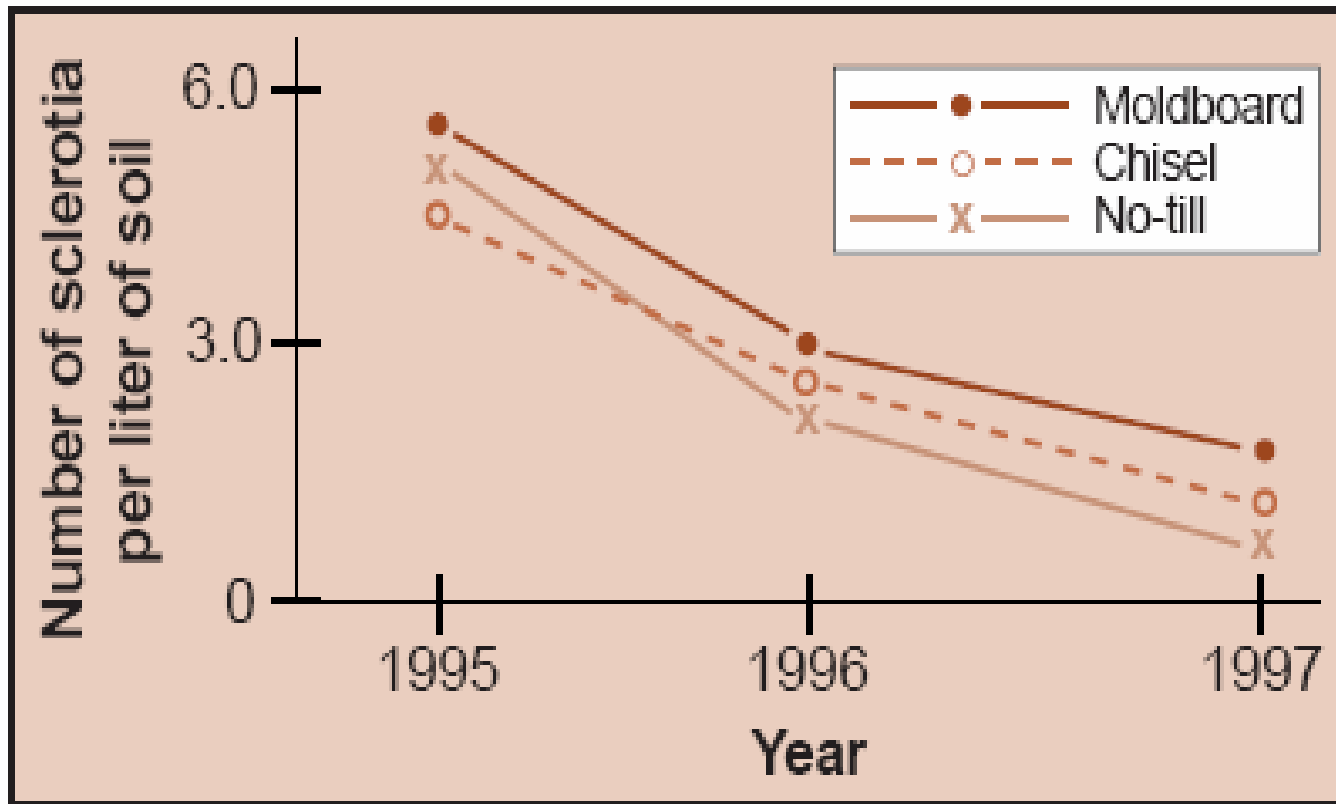
- sanitation

Destroy inoculum sources!



Reduced Tillage

Destroy inoculum sources!



Grau and Kurle, 1998

Cultural Strategies

- crop isolation/rotation

Avoid inoculum or disease development!

- timing of planting/harvest

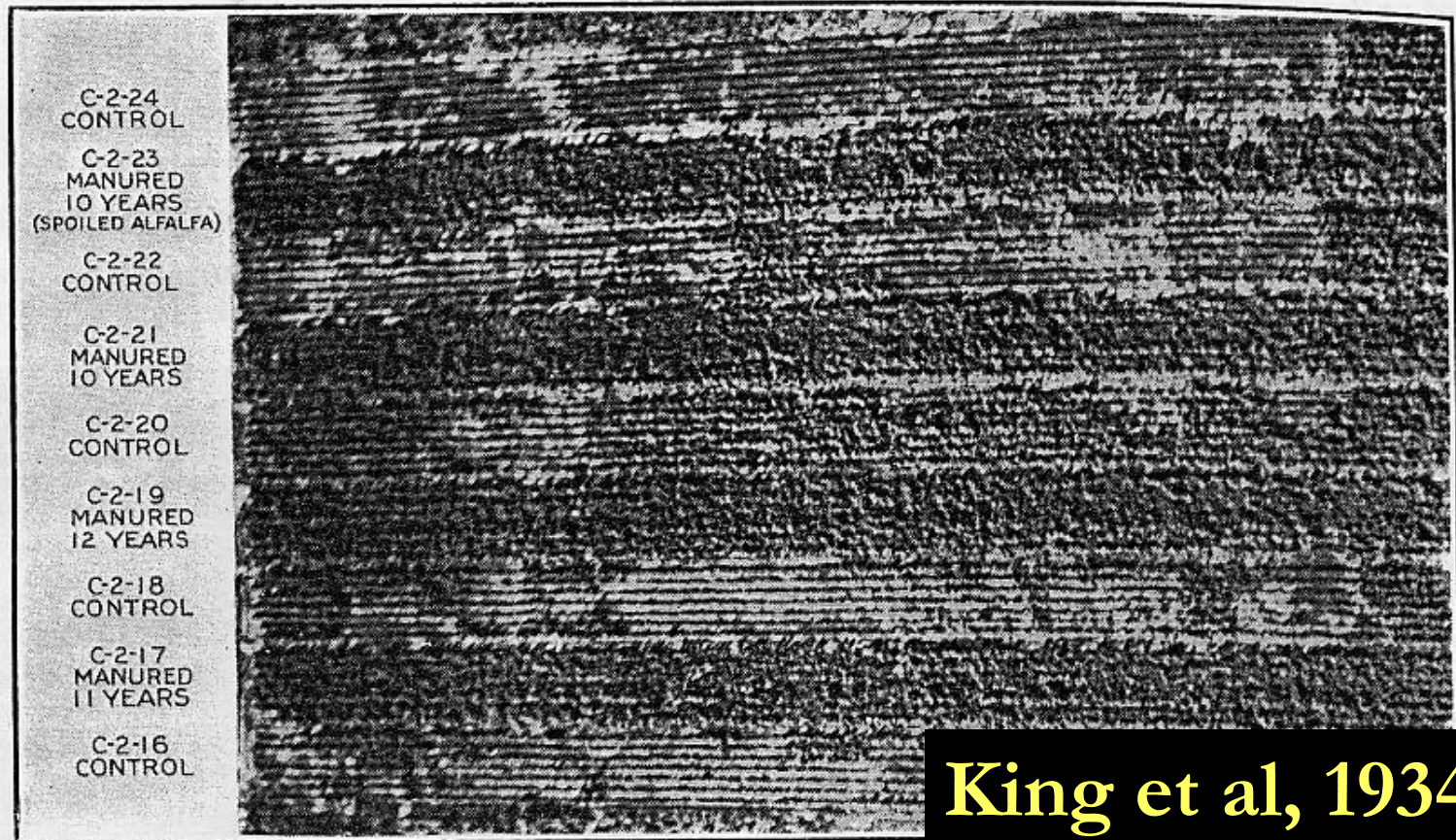
Cultural Strategies

- soil quality and fertility management

Reduce inoculum potential

Manage canopy size

Reduce susceptibility of foliage



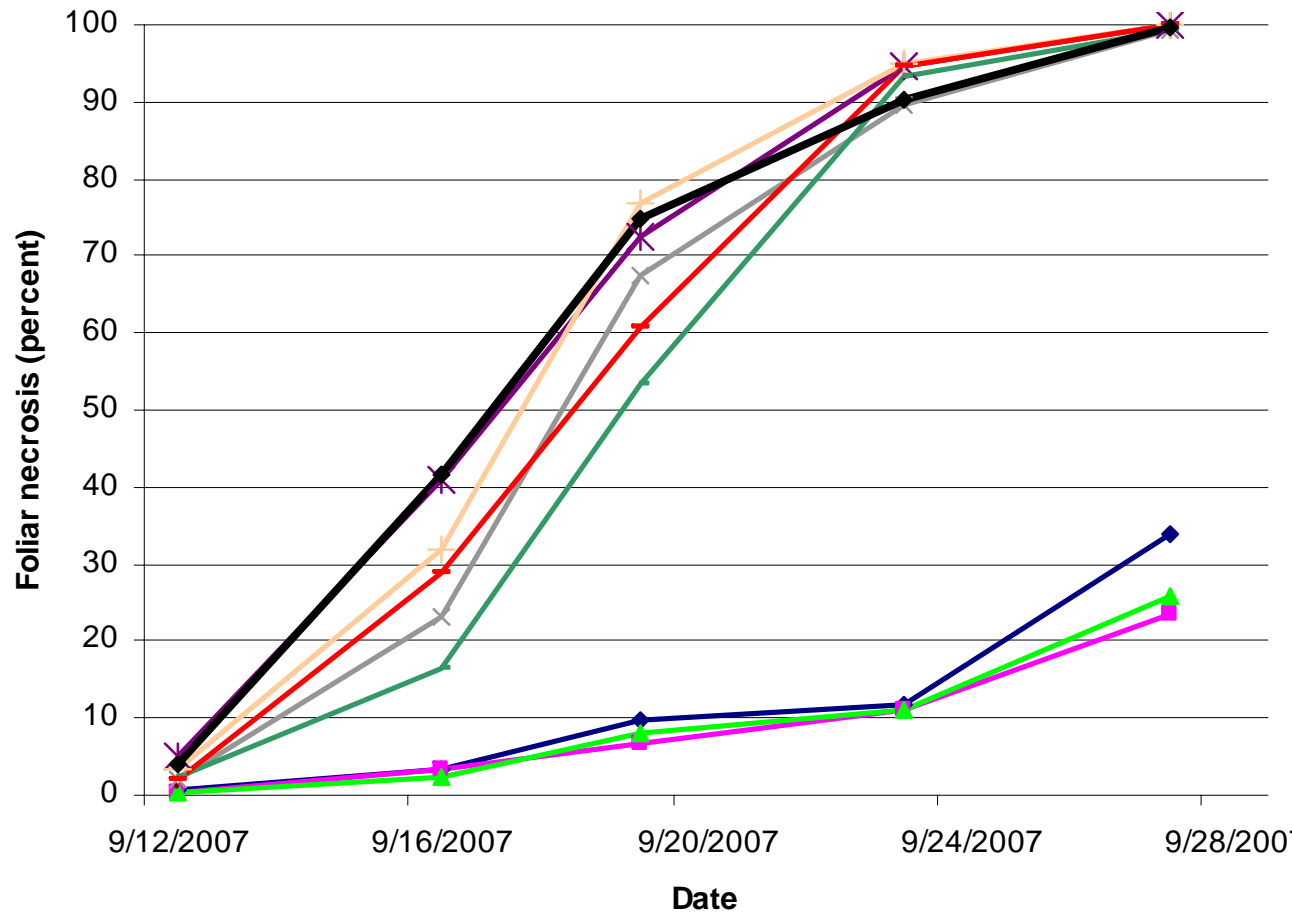
King et al, 1934

Materials

Copper fungicides

- Copper fungicides are protectants, so they must be applied to the foliage before infection. The copper ion is absorbed by the germinating spore, and the copper denatures spore proteins.
- Coppers must be applied regularly throughout the potato production season – this can be 8 or more sprays per season!
- Coppers are considered synthetics by the NOP and are permitted with restrictions.
- Champion WP (copper hydroxide) appears to be the material most used by organic growers and its efficacy against several foliar diseases in organic tomato production systems has been documented.
- In the BlightMOP project they controlled LB with 6 sprays of 0.9 lbs/A each as oxychloride, and this total application rate fell within the more restrictive EU guidelines and did not result in increased soil Cu contents.

Late blight spray trial 2007



1	Cuprofix
2	Kocide
3	Nordox
4	Oxidate
5	Sonata
6	Horsetail tea
7	Maria Thun tea
8	Water control
9	Wilt Farm tea

Conclusion

- Learn from good information resources
- Become familiar with important diseases
- Scout your fields
- Diagnose crop problems
- Devise and follow an integrated systems management plan, with specific tools used for specific crop problems!