

# Biopesticides for Managing Diseases in US Vegetable Crops

*Margaret Tuttle McGrath*

*Dept. of Plant Pathology & Plant-Microbe Biology*

*LIHREC, Cornell University, Riverhead, NY*

*mtm3@cornell.edu*

Cornell University is an equal opportunity, affirmative action educator and employer.

# Vegetable Diseases - Biopesticides - Current Usage

## Products in Greatest Use:

Phosphorous acid fungicides

Oxidate (new - Rendition)

Contans

Regalia

Trilogy + other botanical oils

Actinovate

SoilGard

DoubleNickel

Serenade Optimum

Serenade Soil

# Vegetable Diseases - Biopesticides - Current Usage

## Products in Greatest Use:

Phosphorous acid fungicides

Oxidate (new - Rendition)

Contans

Regalia

Trilogy + other botanical oils

Actinovate

SoilGard

DoubleNickel

Serenade Optimum

Serenade Soil

## Other Products:

BacStop

EF400

Bio-Tam (aka Tenet)

Companion

MilStop and Kaligreen

Mildew Cure

MeloCon

Mycostop

Organocide

Oso

Procidic

RootShield

Sonata

Zonix

# Marketing – Challenges + Successes

Efficacy data: adequate to convince growers?

Breadth of potential use: Sales potential

Product shelf-life

Company: large and established?

Sales pitch and incentives

Ingredient costs increase to prohibitive level



# Biopesticide Labeling Issues

Insufficient instructions for proper use

Breadth of diseases listed unrealistic

Marketing focus on garden use (no ag label)

# Vegetable Diseases – Biopesticides Needs + Opportunities

Diseases not effectively managed with conventional fungicides

Bacteria (black rot of crucifers, tomato bacterial speck + spot)

Soil-borne pathogens (*Phytophthora capsici*, *Verticillium*)

Nematodes

Products broadly labeled

Organic production, especially diseases that cannot be ignored and occur commonly:

Late blight, black rot of crucifers, tomato bacterial speck + spot, cucurbit mildews,

Basil downy mildew

High tunnel tomatoes: Botrytis, leaf mold, powdery mildew