INTEGRATED CONTROL OF MAJOR FUNGAL DISEASES

- Phomopsis
- Black rot
- Powdery mildew
- Downy mildew
- Botrytis bunch rot
- (Anthracnose?)
INTEGRATED CONTROL OF MAJOR Fungal Diseases

- GENERAL PRINCIPLES
  - Understand the pathogen biology
    - Environmental effects
    - When active
    - Cultural practices that favor/ disrupt
INTEGRATED CONTROL OF MAJOR FUNGAL DISEASES

- **GENERAL PRINCIPLES**
  - Understand host susceptibility
    - Relative degree (cultivar effect)
    - When not susceptible
    - **Critical**, peak period
INTEGRATED CONTROL OF MAJOR FUNGAL DISEASES

■ GENERAL PRINCIPLES
  ❖ Understand fungicide characteristics
    ✦ Surface-active or penetrant?
    ✦ Protectant? Post-infection? Eradicant?
    ✦ Spectrum of activity
    ✦ Resistance concerns and management
Phomopsis--rachis infection
Phomopsis on berries
Phomopsis Inoculum: Timing

- Mostly bud break through bloom/early postbloom
Phomopsis Inoculum: Timing
(Fredonia, NY 2002)

% Seasonal Release

Day of the Season (Day 1 = April 25)

Bloom
Pea size
Phomopsis Inoculum: Timing
(Westfield, NY 2002)
**Phomopsis Inoculum: Source**

- Infected wood retained within the vine
  - Especially dead wood
Phomopsis Inoculum: Source

- Total spores released
  - 1-yr canes
  - 2-yr canes
  - Dead canes
Phomopsis Inoculum: Source

- Infected wood retained within the vine
  - Pruning stubs
  - Dead canes
  - Fruiting spurs
    - Spur-pruned varieties affected more
Phomopsis Inoculum: Dispersal

- By raindrops
  - Short distances
    - Within vine
Phomopsis: Spray Timing to Control

- Internode infections
  - 1- to 3-in shoots through prebloom
    - Importance: Source of subsequent inoculum (spurs, fruiting canes, pruning stubs)
**Phomopsis: Spray Timing to Control**

- Rachis infections
  - When clusters first appear through fruit set (+/-)
    - EARLY sprays (3- to 5-in shoots) can be critical if disease pressure is high (inoculum + wet)
PHOMOPSIS: TIMING TO CONTROL RACHIS INFECTIONS, 2002 (Concord; Fredonia, NY)

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M = mancozeb (Dithane, 3 lb/A; 4 lb/A preblm)
Z = Ziram, 4 lb/A
### PHOMOPSIS: TIMING TO CONTROL RACHIS INFECTIONS, 2002 (Concord; Fredonia, NY)

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M = mancozeb (Dithane, 3 lb/A; 4 lb/A preblm)
Z = Ziram, 4 lb/A
Fruit Rot Phase
Phomopsis: Spray Timing to Control

- Fruit infections
  - Cluster emergence through pea-sized berries
    - Some infections appear to establish through pedicels (berry stems)
    - Latent infections establish in young berries, become active preharvest
**PHOMOPSIS: SPRAY TIMING TO CONTROL FRUIT INFECTIONS, 2003 (Niagara; Westfield, NY)**

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M = mancozeb (Dithane), 3 lb/A (4 lb/A prebloom)
A = Abound (12 fl oz/A)
Phomopsis: Fungicides

- Traditional protectants very good
  - Captan, mancozeb are standards
Phomopsis viticola: Fungicides

- Traditional protectants **very good**
  - Captan, mancozeb are standards
  - Ziram, ferbam are effective but more expensive

- Strobilurins appear **less effective**
  - May be adequate from prebloom on, esp. under low/moderate disease pressure
**Phomopsis viticola: Fungicides**

- Traditional protectants **very good**
  - Captan, mancozeb are standards
  - Ziram, ferbam are effective but more expensive

- **Strobilurins appear less effective**
  - May be adequate from prebloom on, esp. under low/moderate disease pressure

- **DMI fungicides, copper, sulfur are poor**