

VINEYARD FUNGICIDE CHEMISTRIES AND CONSIDERATIONS FOR THEIR USE

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INTEGRATED CONTROL OF MAJOR FUNGAL DISEASES

■ GENERAL PRINCIPLES

◆ Understand fungicide characteristics

- ◆ Surface-active or penetrant?
- ◆ Protectant? Post-infection? Eradicant?
- ◆ Spectrum of activity/ relative efficacy
- ◆ Resistance concerns and management

Black Rot



BLACK ROT: FUNGICIDES

- Mancozeb, ziram, ferbam
 - ◆ Old standards, good control under most commercial conditions
 - ◆ Strictly protectant activity on surface of fruit leaves
 - ◆ Must be present when infection period begins
 - ◆ Subject to washoff

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■ DMI fungicides

- ◆ Nova (myclobutanil), Elite (tebuconazole) = Gold standards
- ◆ Rubigan (fenarimol) = fair, inadequate

BLACK ROT: FUNGICIDES

- Strobilurin (QoI) fungicides
 - ◆ All are very good, equivalent
 - ◆ More rainfast than mancozeb, etc.
 - ◆ Allows longer spray intervals

BLACK ROT CONTROL ,1995 (extreme pressure) (cv. 'Aurore'; Dresden, NY)

<u>Material (a.i.)</u>	<u>% Black rot</u>	
	<u>Clusters</u>	<u>Berries</u>
None	99	53
Penncozeb (mancozeb)	53	8
Abound (azoxystrobin)	17	1
Nova (myclobutanil)	0	0

6 sprays @ 2-wk intervals, 3 prebloom + 3 postbloom

BLACK ROT: FUNGICIDES

- Captan, copper, sulfur
 - ◆ Only fair to poor (sulfur)
 - ◆ Potential “Achilles heel” for organic producers
 - ✦ MUST emphasize importance of sanitation

BLACK ROT FUNGICIDES, PHYSICAL MOA: SI vs. STROBIL

- Two different types of activity, with practical implications

Strobilurin (QoI) Fungicides:

Physical MOA

- Excellent protective fungicides
 - ◆ Inhibit spore germination on the outside of the plant (start of infection)
 - ◆ Retained in waxy cuticle
 - ◆ Resist wash-off

Strobilurin (QoI) Fungicides: Physical MOA

- Excellent protective fungicides (retained in cuticle)
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- Strong inhibitors of spore formation
 - ◆ Limits secondary spread

STEROL INHIBITOR (DMI) FUNGICIDES: PHYSICAL MOA

- Do NOT inhibit spore germination
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 - ◆ Must be absorbed into leaf/fruit

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 - ◆ “Protective” (forward) activity depends on how long material remains in leaf/fruit

BLACK ROT CONTROL: PROTECTIVE vs. POST-INFECTION ACTIVITIES, ABOUND

vs. NOVA (“Concord”; Geneva, NY 2003)

<u>Protective (days)</u>	<u>% Disease control</u>	
	<u>Abound</u>	<u>Nova</u>
5	90	65

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8	93	39

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7	42	87

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7	42	87
10	15	39

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 - ◆ Increase forward activity by tank-mixing w/ mancozeb