

# BOTRYTIS, SLIP SKIN, AND WATER

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# **BOTRYTIS, SLIP SKIN, AND WATER**

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## **OVERVIEW**

### **Botrytis Symptoms**

- Bunch rot
- Slip skin
- Noble rot

### **Botrytis Infection**

- How & When
- Latent infection

### **Weather & Water uptake**

### **Wrap-up**

# Botrytis symptoms

## Bunch rot

- Berries rot and shrivel
- Fungal sporulation

## Slip skin

- Skin slides from pulp
- Rapid onset

## Noble rot

- Berries shrivel
- Sugars concentrate
- The good rot



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# Botrytis infection - How?

## Three general means of infection:

- 1) Infection of flowers from *Botrytis* spores within the vineyard
- 2) Infection of berries from infected floral parts, aborted berries or other grape tissues trapped in grape bunches
- 3) Infection of berries through contact from neighbouring infected bunches or *Botrytis* spores within the vineyard

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# Botrytis infection - When?

Infection can occur at any phenological stage between flowering and harvest

Infections remain latent until berry and weather conditions favour disease

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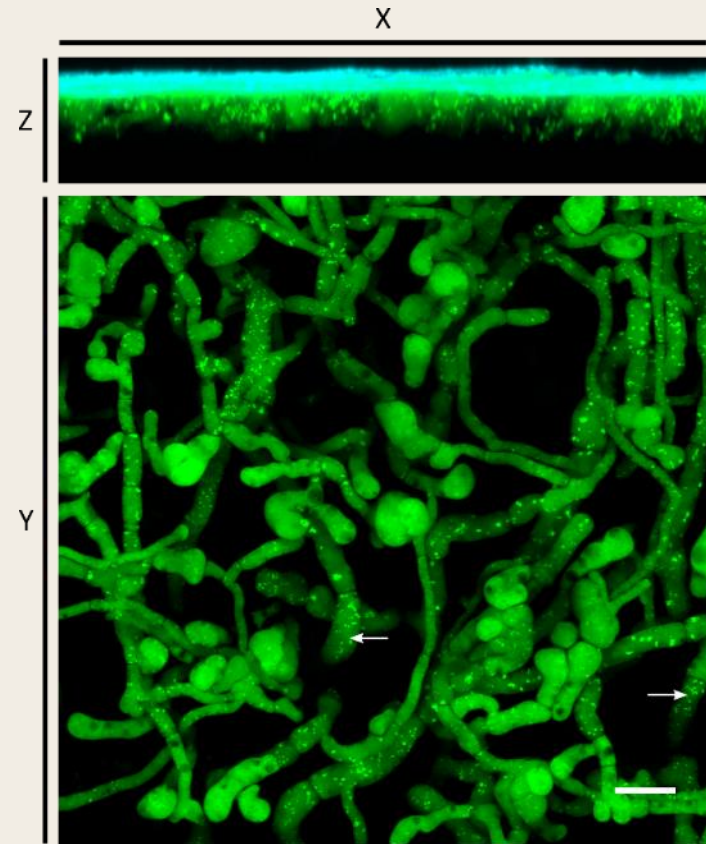
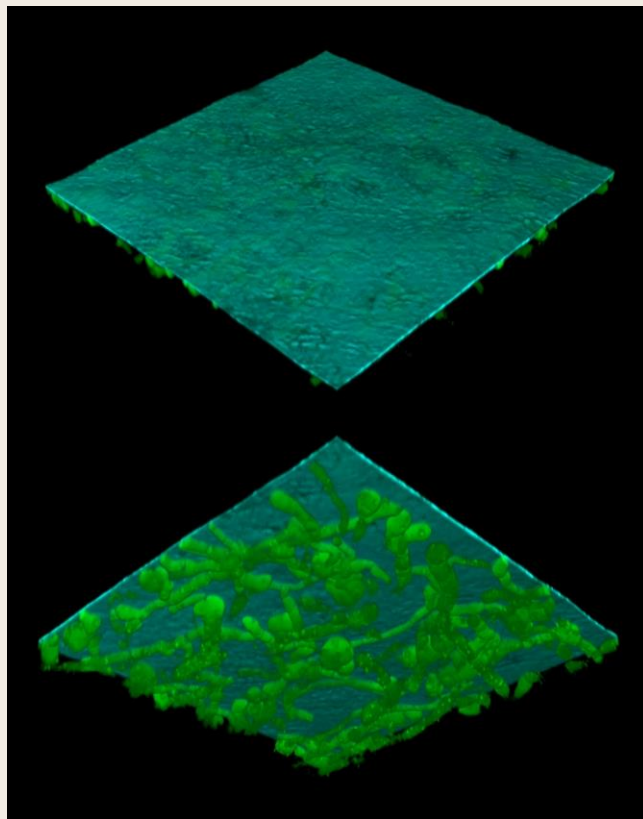
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# Latent infection

Dormant *Botrytis* infections with no visible symptoms



Green-fluorescent protein (GFP)-expressing *Botrytis cinerea* (green) growing directly under the cuticle (cyan) of a table grape berry visualized using confocal microscopy 72 h after inoculation.

# How long can latent infections last?

Inoculated with three traceable strains of *Botrytis*

Isolated from sporulating bunches



Flowering

PBC

Veraison

Harvest

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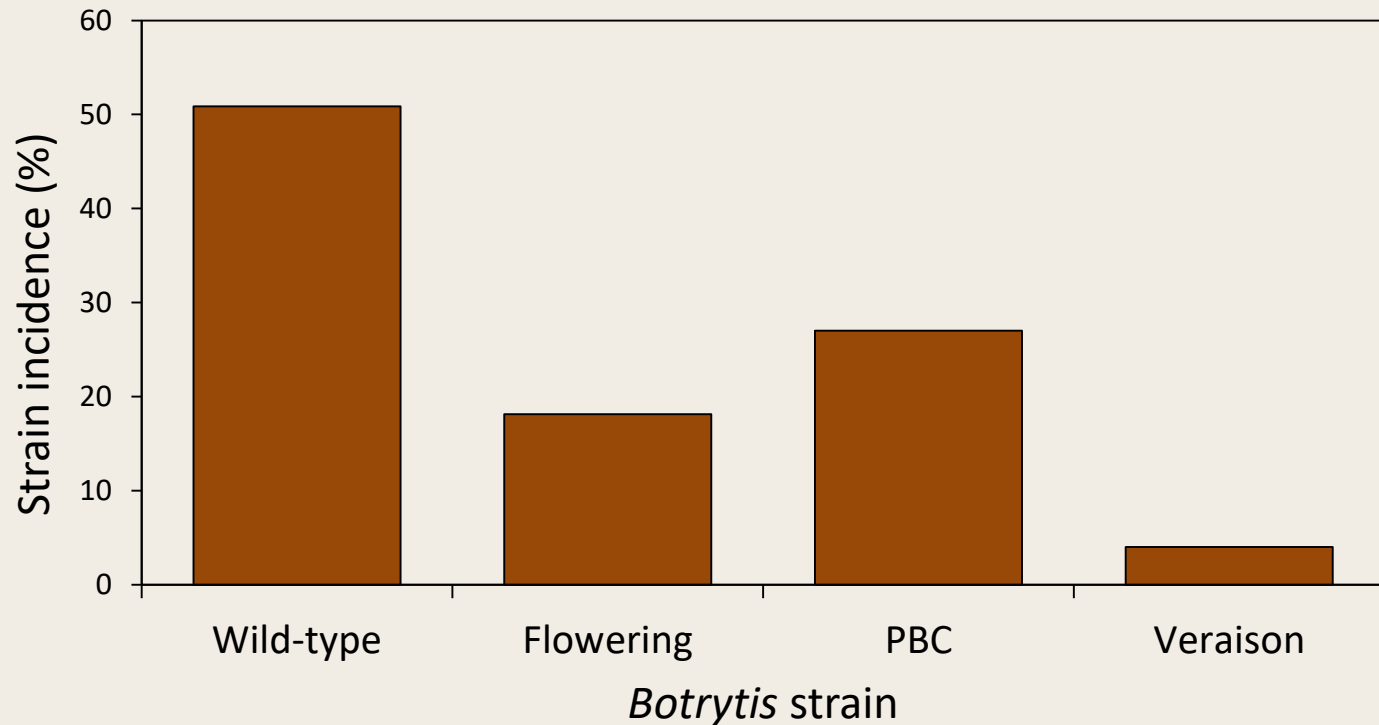
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# How long can latent infections last?

*Botrytis* strains present at harvest



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# Weather & Water and *Botrytis* growth

## Question:

What causes different *Botrytis* symptoms to develop at different times and in different seasons?

## Hypothesis:

A combination of pre-veraison rainfall, post-veraison rainfall, increasing berry sugar and general berry degradation defines which symptoms will express.

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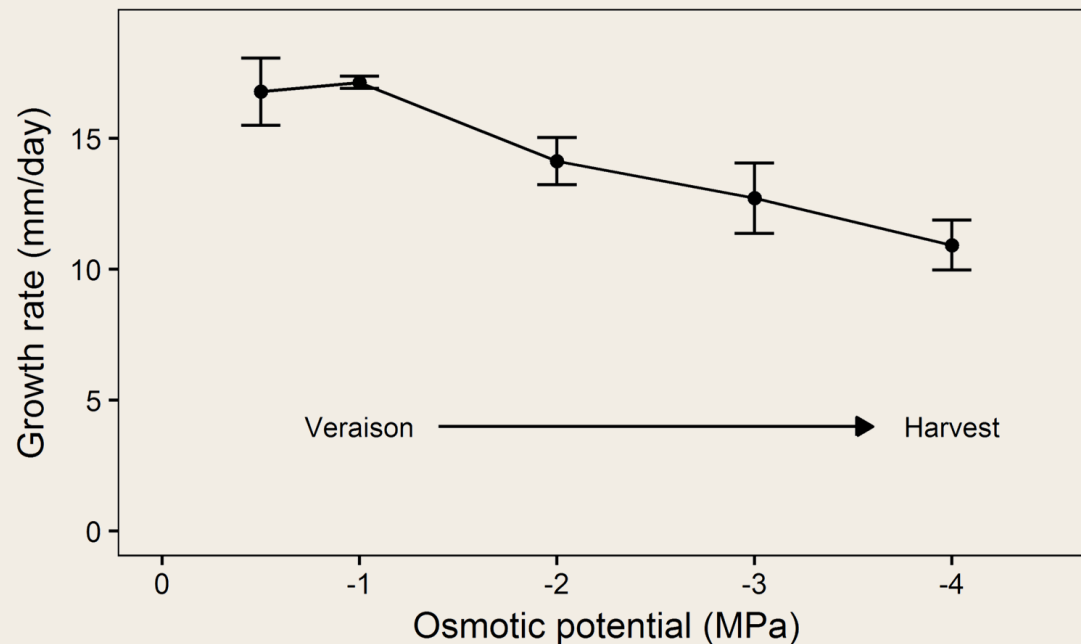
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# Sugar and *Botrytis* growth rates

Berry sugar concentration increases during ripening and inhibits *Botrytis* growth



# Simulating rainfall to affect symptom expression

Over-vine soak hoses to simulate late-season rainfall



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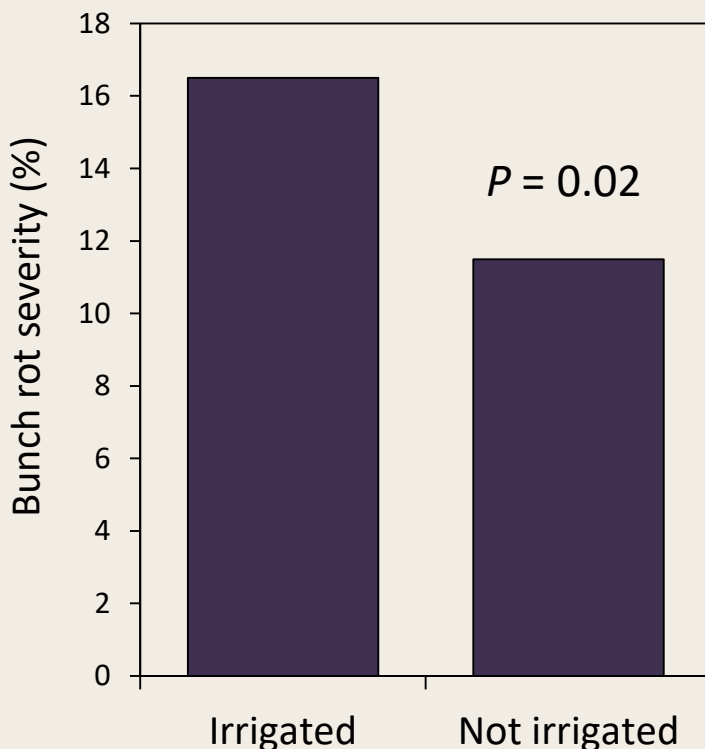
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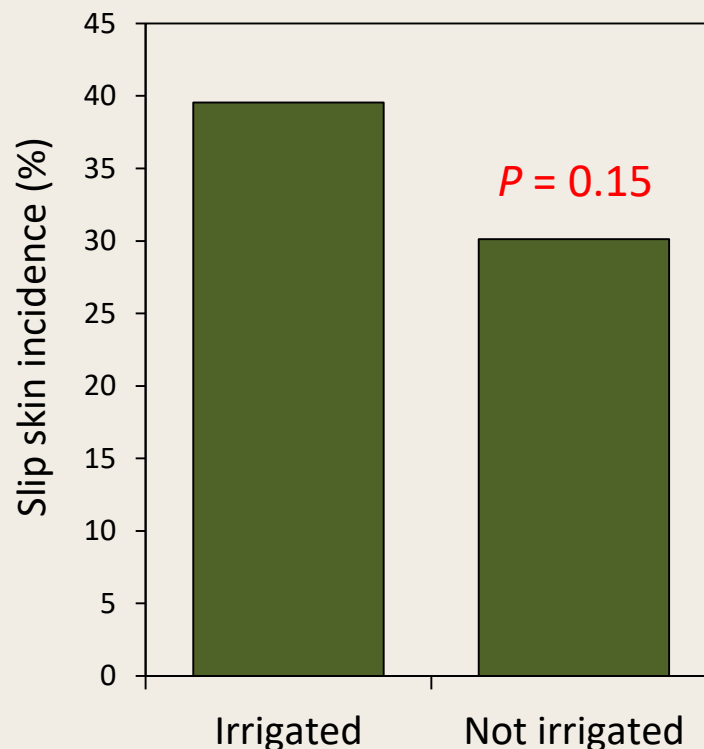
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# Effect of simulated rainfall on symptom expression

*Bunch rot at harvest*



*Slip skin at harvest*



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# Manipulating rainfall to affect symptom expression

Shelters over vines to alter rainfall



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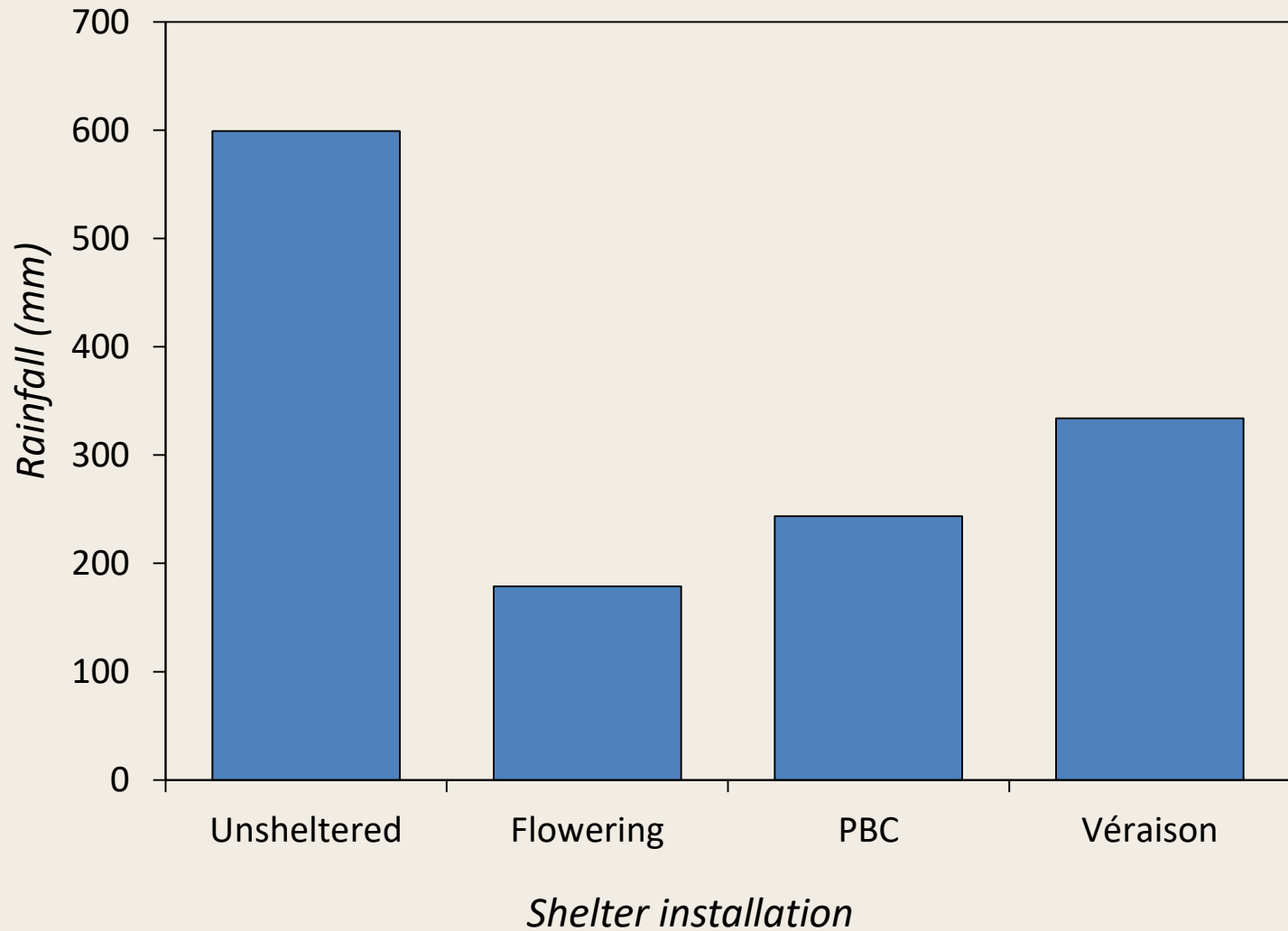


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# One stormy summer...

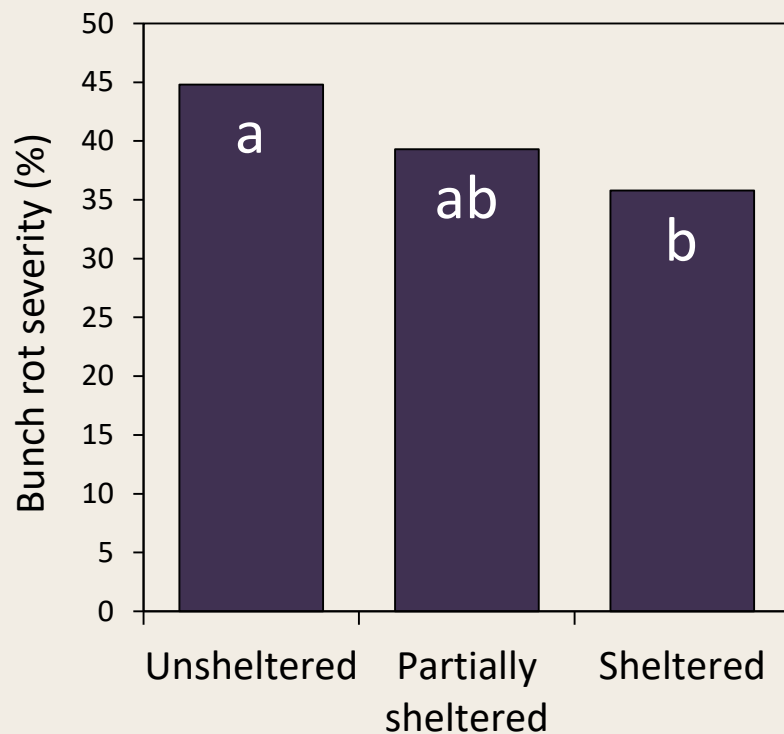


# One stormy summer...

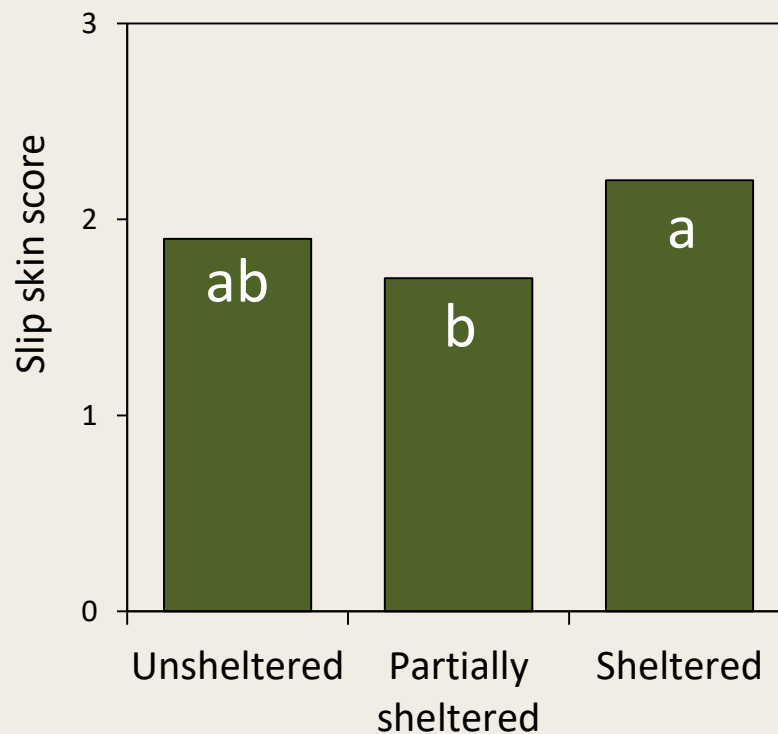


# Effect of sheltering on symptom expression

*Bunch rot at harvest*



*Slip skin at harvest*



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## **Wrap-up**

Different *Botrytis* symptoms  
caused by a combination of:

- Latent infection
- Berry sugars
- Weather



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# Simplified symptom hypothesis

Early-/mid-  
season

Late-season

Harvest symptoms



+



=

Bunch rot



+



=

Slip skin



+



=

Noble rot



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