# Blackberry Diseases
# Pick TN

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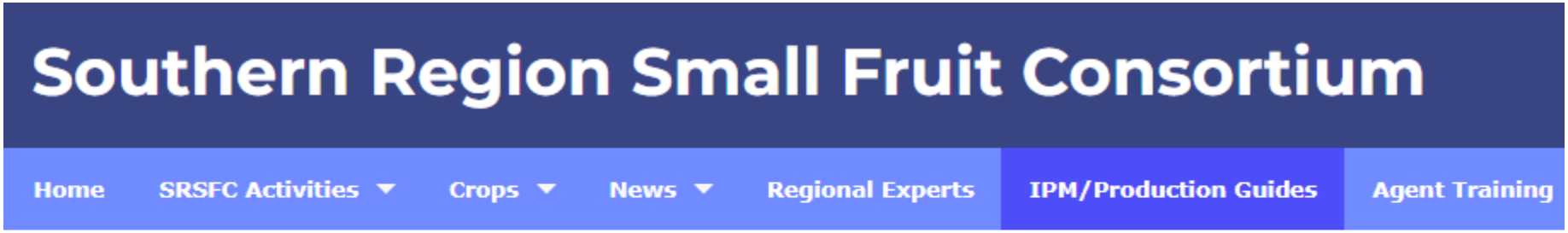
Since 1963, the IR-4 Project (IR-4) has been the primary entity in the United States to **facilitate registrations of conventional pesticides and biopesticides on Specialty Food crops (fruits, vegetables, nuts, herbs, spices) and non-food Environmental Horticulture crops**.

# Resources

www.smallfruits.org




## IPM/Production Guides

*Content on this page is available in PDF format unless otherwise indicated.*

### Caneberries

- 2022 Southeast Regional Caneberry Integrated Management Guide ***NEW***
- Southeast Regional Caneberry Production Guide [HTML]
- Blackberry IPM Presentations [Videos]

# 2022 Southeast Regional Caneberry Integrated Management Guide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Recommendations are based on information from the manufacturer's label and performance data from research and extension field tests.

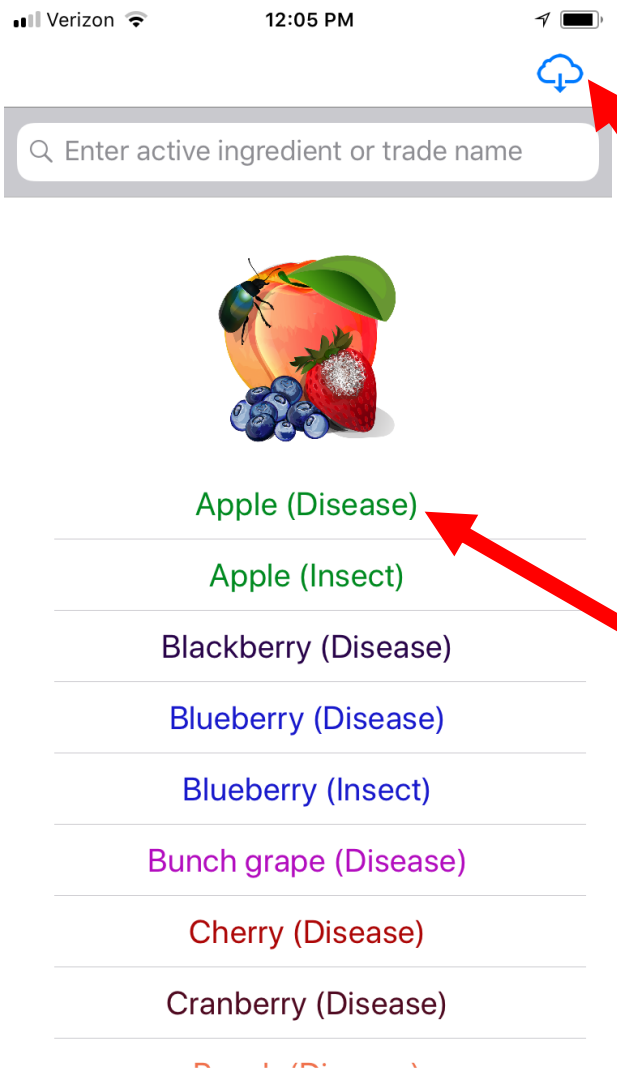
Because environmental conditions and grower application methods vary widely, suggested use does not imply that performance of the pesticide will always conform to the safety and pest control standards indicated by experimental data.

This publication is intended for use only as a guide. Specific rates and applications methods are on the pesticide label, and these are subject to change at any time. Registrations also vary between states and are subject to change at any time, please check with your state department of agriculture or regulatory agency concerning current registration status within your state. Always refer to and read the pesticide label before making any application! The pesticide label supersedes any information contained in this guide, and it is the legal document referenced for application standards.

# “MyIPM” – free mobile app


- MyIPM – an app designed to help commercial growers make disease management decisions
- useful to help identify pests & diseases, especially on-the-go

# “MyIPM” – free mobile app

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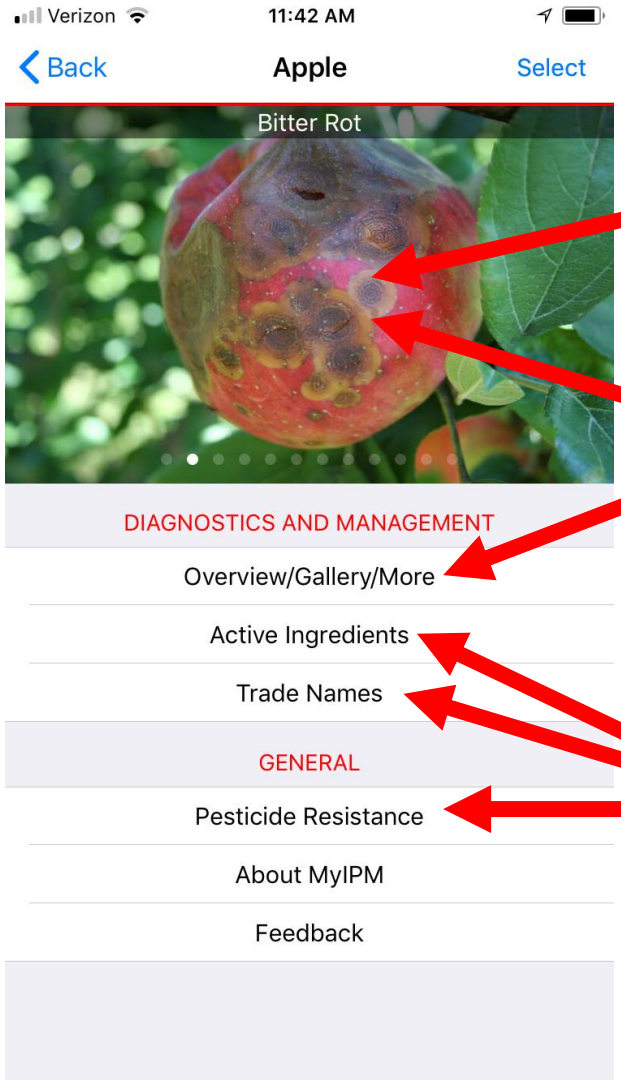
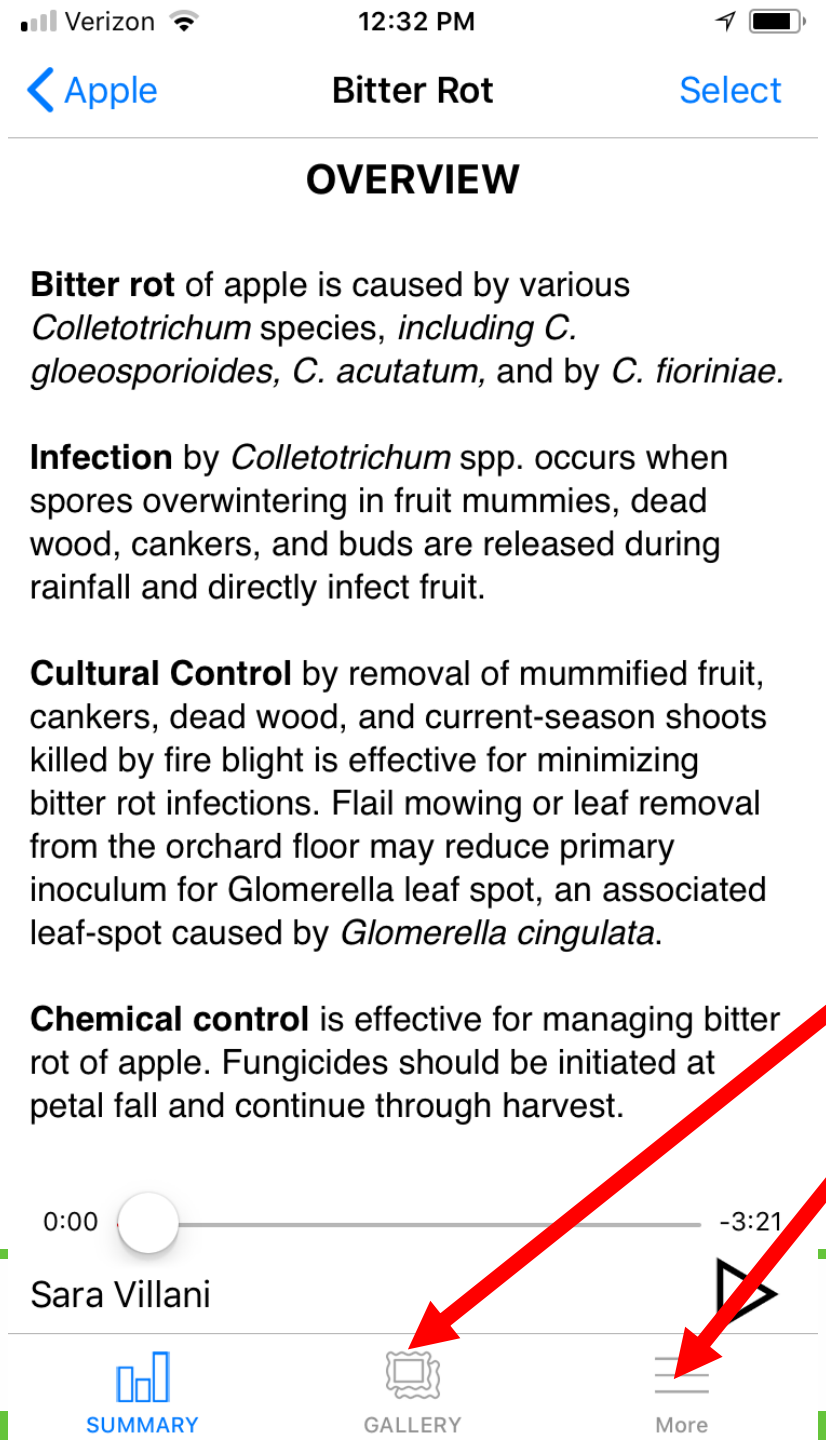
# “MyIPM” – free mobile app




- Swipe photos left/right to see different diseases or pests
- Click on picture or Overview/Gallery/More for photos and management info
- Active Ingredients, Trade Names, & Pesticide Resistance geared towards commercial growers




# MyIPM Mobile App

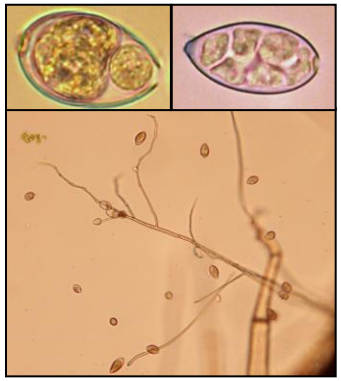
Example of "Overview" screen including

- Pathogen name
- Disease cycle
- Cultural control strategies
- Chemical control strategies
  - Chemicals geared towards commercial growers
- Click "GALLERY" to see more photos
- Click "More" for additional info

# The Disease Triangle

Host

Disease



Pathogen

Environment

# General considerations – cultural practices

- Cultural practices are **very important** for fruit growers
  - Variety selection (disease resistance when available)
  - Site selection (good sunlight and drainage)
  - Pruning and crop maintenance (promote air flow – remove diseased material)

# Do I really need to spray all that?

- Cultural practices minimize the need for pesticide applications, but they may still be needed
  - In humid climates like TN, cultural practices are often not enough to completely manage diseases

# Blackberry – orange rust

## Fungus - *Arthuriomyces peckianus*

# Blackberry – orange rust

## Fungus - *Arthuriomyces peckianus* & *Gymnoconia nitens*


Photo: Alan Windham, EPP, UTIA

**Symptoms**

- Spindly/clustered new shoots
- Stunted, misshapen, pale green leaves
- Orange fungal growth on leaf undersides (source of spores)
- Orange rust is systemic, survives in plant crowns

**Management**

- Cultural controls are very important
  - Start with disease-free material
  - Remove wild raspberries and blackberries
  - Remove infected plants
  - Pruning and/or trellising to encourage rapid drying
  - Variety selection

# Blackberry – orange rust

## Fungus - *Arthuriomyces peckianus* & *Gymnoconia nitens*


Photo: Alan Windham, EPP, UTIA

**Chemical management**

- Fungicides help prevent infection
- Fungicides cannot cure existing infections
- Cultural practices should be used to minimize new infections
- Several strobilurin and DMI fungicides are labeled for orange rust control

# Blackberry – cane & leaf rust


# Blackberry – cane & leaf rust

## Fungus – *Kuehneola uredinis*

**Symptoms**

- First seen in late spring on floricanes
- Yellow fungal structures split bark
- In early summer, yellow fungal structures appear on leaf undersides
- Premature defoliation

**Management**

- Cultural controls are very important
  - Remove diseased canes after fruiting
  - Remove wild raspberries and blackberries
  - Pruning and/or trellising to encourage rapid drying
  - Several strobilurin and DMI fungicides are labeled for cane & leaf rust control


# Raspberry – late leaf rust

# Raspberry – late leaf rust

## Fungus – *Pucciniastrum americanum*

**Symptoms**

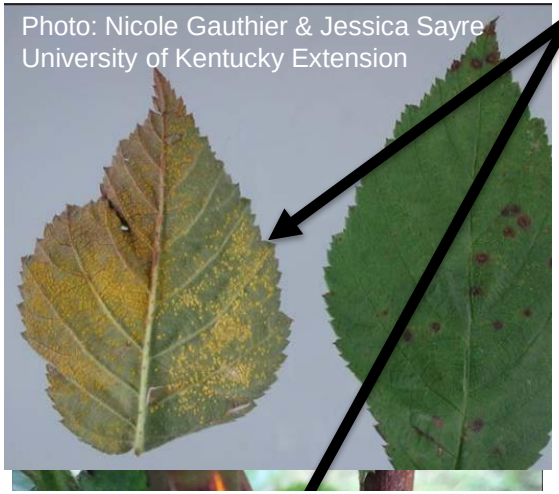
- Affects raspberry, not blackberry
- Symptoms appear later in season (July)
- Yellow fungal structures appear on leaf undersides
- Yellow spores can appear on fall raspberry fruit
- Premature defoliation

**Management**

- Cultural controls are very important
  - Remove diseased canes after fruiting
  - Remove wild raspberries
  - Pruning and/or trellising to encourage rapid drying
  - Several strobilurin and DMI fungicides are labeled for cane & leaf rust control

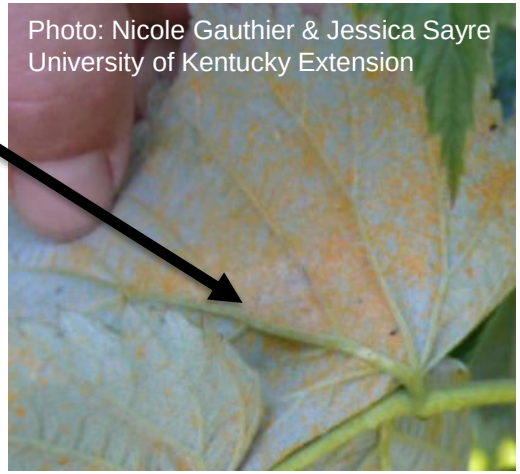
# Learn to identify rusts


Orange rust
- Blackberry, black raspberry, purple raspberry
- Systemic
- Waxy orange spore structures on leaves
- Remove infected plants




Cane and leaf rust
- Blackberry
- Not systemic
- Powdery orange spore structures on leaves
- Orange spores split bark on canes
- Fungicides can work well

Late leaf rust
- Raspberry
- Not systemic
- Powdery orange spore structures on leaves
- Appears late (July)
- Fungicides can work well



## Seasonal 'at a glance' fungicide spray schedule options for caneberries

| Developmental Stage | Delayed Dormant | Shoots 6" long till Pre-Bloom | Early bloom (5-10%) | Full Bloom[a] | Petal Fall | Cover Sprays | Pre-Harvest | Harvest | After Harvest |
|---|---|---|---|---|---|---|---|---|---|
| **Disease** (Registered fungicide) | **Anthracnose, Cane Blight, Spur Blight** (Lime Sulfur or Copper) | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, | **Anthracnose, Cane Blight, Spur Blight** (Cabrio, Abound, Captan) | **Cane Blight** (see notes) |
| | | | Xcel) | Xcel) | Xcel) | Xcel) | **Orange Cane Blotch** (ProPhyt) | **Orange Cane Blotch** (ProPhyt) | **Orange Cane Blotch** (ProPhyt) |

[a]Caneberry bloom periods are protracted, so bloom and cover spray can be difficult to define clearly. Do not exceed label rates or spray intervals, but make sure that the pathogens indicated above are addressed with a thorough fungicide program as defined by the cultivar.

## Diseases 'at a glance'

- Anthracnose, cane blight, spur blight
- Powdery mildew
- Rusts
- Leaf spots
- Phytophthora root rot
- Botrytis (gray mold)
- Rosette
- Orange cane blotch

# Blackberry - anthracnose

## Fungus - *Elsinoe veneta*

# Blackberry – leaf spot

Fungi (various), including *Mycosphaerella rubi*

# Blackberry – Rosette

## Fungus – *Cercosporella rubi*

Photo: Barbara Smith
USDA ARS via LSU Extension

Photo: Barbara Smith
USDA ARS via LSU Extension

# Blackberry – orange cane blotch

## Alga – *Cephaleuros virescens*


**Photos and more information at www.smallfruits.org**

# Blackberry Disease Management

- Remove nearby wild brambles
- Manage weeds
- Harvest in a timely manner to avoid overripening fruit
- Remove diseased canes as disease occurs (rust)
- Preventative fungicides may not be needed in TN for satisfactory disease control, depends on local conditions and practices
- Resources: 2022 Southeast Regional Caneberry Integrated Management Guide
  - Available at smallfruits.org

# Fungicide cancellation news

- EPA considering cancelling most uses of certain dithiocarbamates (thiram, ziram, ferbam) and **iprodione (blackberry gray mold)**
  - These products important in some specialty crop disease management programs
  - As multi-site fungicides, also important for disease management

# Take-aways

- Select disease-resistant varieties when possible
- Select planting sites with good drainage and sunlight
- Keep plants pruned to encourage airflow, rapid drying, fungicide penetration, remove inoculum

# Take-aways

- Learn to identify common diseases and be prepared to make preventative fungicide applications (MyIPM app helpful for this)

# Step #1 in plant problem management = proper diagnosis

## www.soillab.tennessee.edu/

# Take-aways

- Organic fungicides
  - Some are available, but make sure the product is labeled for intended use
  - Often, organic products are biological or plant –extract based and may have limited efficacy
    - Cultural control practices especially important for organic crops
    - Preventative sprays are especially important

# Contact Information

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