

# Blueberry 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

## Southern Region Small Fruit Consortium

Home   SRSFC Activities ▼   Crops ▼   News ▼   Regional Experts   **IPM/Production Guides**   Agent Training

### IPM/Production Guides

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

#### Blueberries

- [2022 Southeast Regional Blueberry Integrated Management Guide](#) **\*NEW\***
- [2021 Southeast Regional Organic Blueberry Pest Management Guide](#)
- [Southeast Regional Blueberry Horticulture and Growth Regulator Guide](#)

# 2022 Southeast Regional Blueberry Integrated Management Guide

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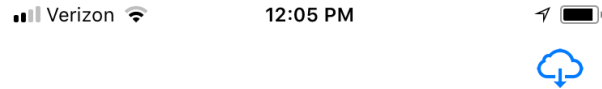
Bill Cline (North Carolina State University)

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 application methods are on the pesticide label, and these are subject to change at any time. 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



Apple (Disease)

Apple (Insect)

Blackberry (Disease)

Blueberry (Disease)

Blueberry (Insect)

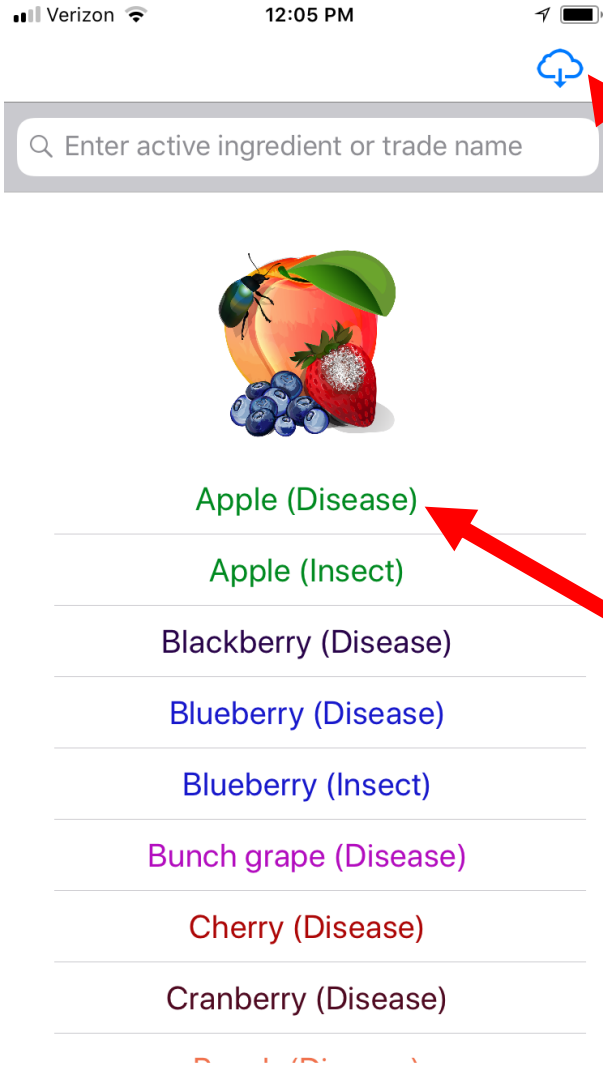
Bunch grape (Disease)

Cherry (Disease)

Cranberry (Disease)

- 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

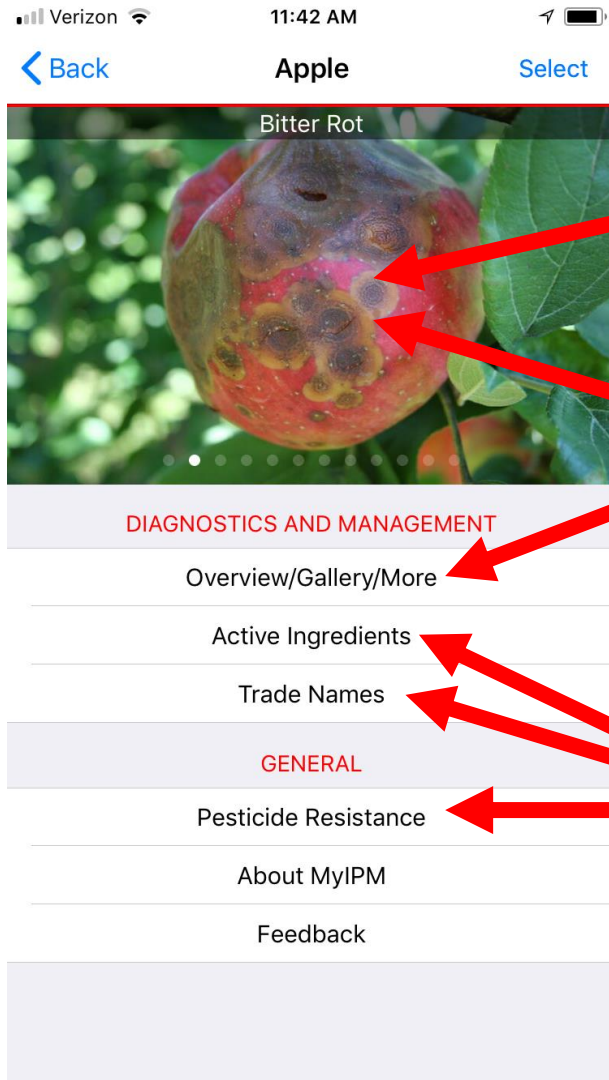


Select the Cloud icon to choose content to download

- you can download all content, or only topics you want

Once you've downloaded your topics, click one to see content

# “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



## OVERVIEW

**Bitter rot** of apple is caused by various *Colletotrichum* species, including *C. gloeosporioides*, *C. acutatum*, and by *C. fioriniae*.

**Infection** by *Colletotrichum* spp. occurs when spores overwintering in fruit mummies, dead wood, cankers, and buds are released during rainfall and directly infect fruit.

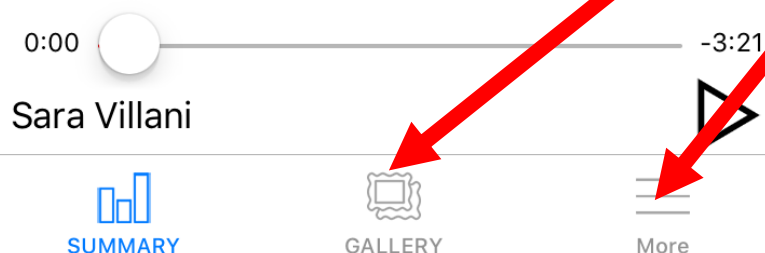
**Cultural Control** by removal of mummified fruit, cankers, dead wood, and current-season shoots killed by fire blight is effective for minimizing bitter rot infections. Flail mowing or leaf removal from the orchard floor may reduce primary inoculum for *Glomerella* leaf spot, an associated leaf-spot caused by *Glomerella cingulata*.

**Chemical control** is effective for managing bitter rot of apple. Fungicides should be initiated at petal fall and continue through harvest.

# MyIPM Mobile App

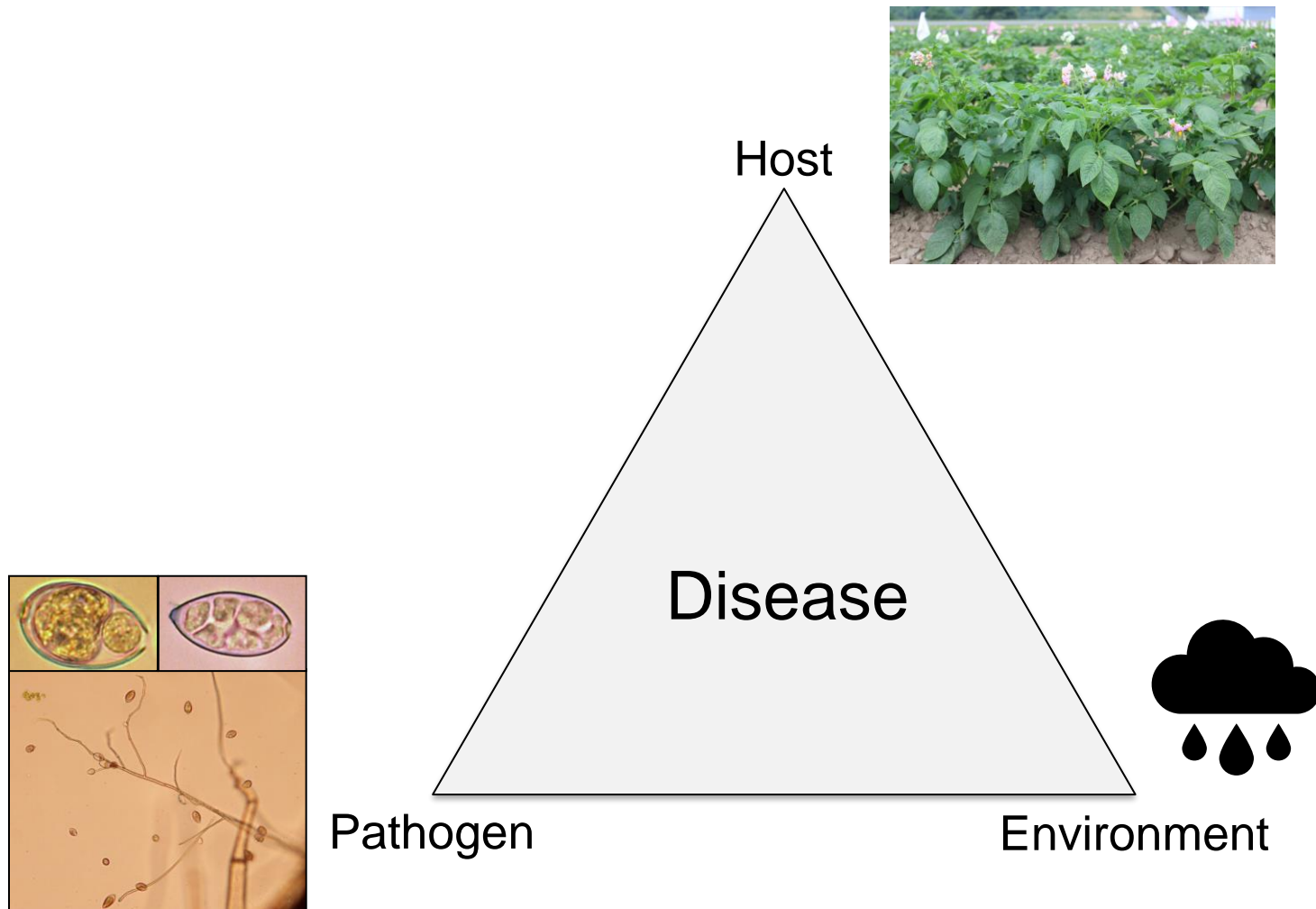
## Example of “Overview” screen including

- 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



# 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)

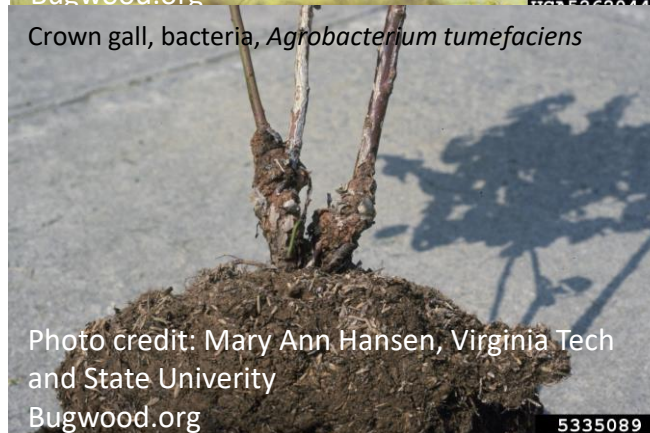
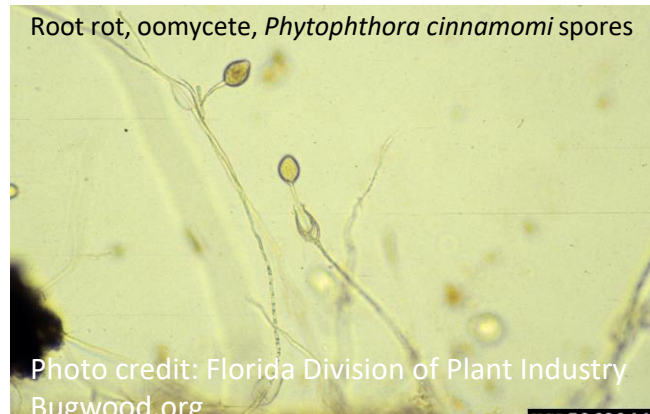
# Do I really need to spray all that?

- 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

# Blueberry disease management

## General considerations

- Site selection is important to avoid disease problems like *Phytophthora* root rot
  - Select sites with well drained soil and avoid low-lying areas
- Start with high-quality disease-free planting material
  - Do not plant material showing symptoms of root rot or crown gall
  - Planting material should be virus-free
    - Tissue-cultured plants are likely to be virus-free
- Maintain optimum plant health to avoid certain disease issues
  - *Botryosphaeria* stem blight is commonly found in the environment and can be hard to avoid
  - Limit crop injury, reduce crop stress (proper nutrition), avoid N application after late August to allow plants to harden off



# Blueberry disease management

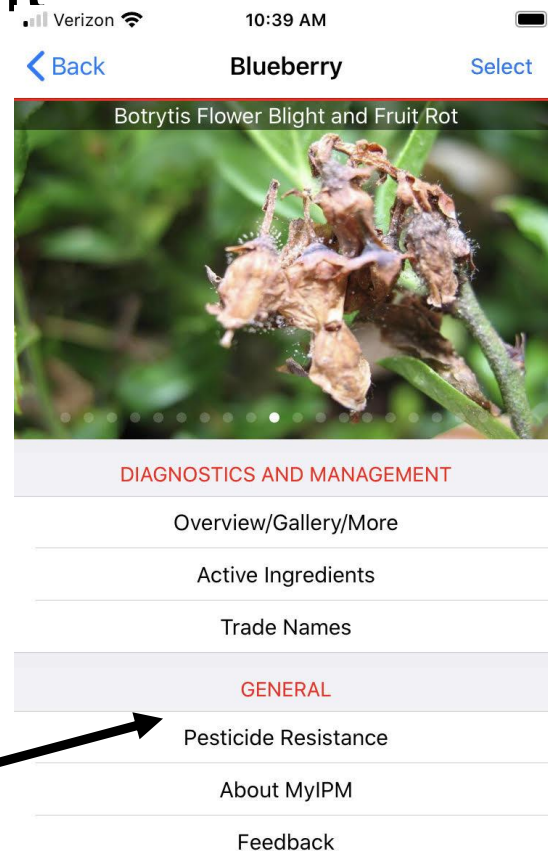
- Cultural practices
  - Remove mummy berries from plants and ground as much as possible
    - Mummy berry (*Monilinia vaccinii-corymbosi*) can be a serious problem (shoot blight and fruit rot)
    - Mummy berries act as overwintering inoculum & should be raked to row middles and buried or covered by mulch
      - Do not over-mulch, this can damage plants
  - Prune out cankers and dead wood to reduce incidence of canker diseases (*Phomopsis* & *Botryosphaeria*)
  - Prune plants to promote good air movement and spray penetration
    - Depending on disease pressure, 10 or more spray applications may be needed
    - Proper pruning helps maximize fungicide efficacy and reduce risk of resistance development



# Blueberry disease management

Become familiar with the information resources available to you

- Contact your local Extension office
- Visit the Southern Region Small Fruit Consortium website (smallfruits.org)
  - Free IPM & production guides available
    - 2022 Southeast Regional Blueberry Integrated Management Guide
    - Southeast Regional Blueberry Horticulture and Growth Regulator Guide
    - Southeast Regional Organic Blueberry Pest Management Guide
- Download the free “MyIPM” mobile app
  - Excellent field resource for diagnostics & quick management recommendations



# Blueberries in Tennessee

- Diseases may not be as significant as with some other fruit crops
- Still several diseases growers should be aware of
  - Mummy berry
  - Phomopsis
  - Botrytis
  - Alternaria
  - Exobasidium



# Blueberry – mummy berry

Fungus: *Monilinia vaccinii-corymbosi*



Photo: University of Georgia Plant Pathology  
bugwood.org

UGA1496533



Photo: Caleb Slemmons  
bugwood.org

5492656

# Blueberry – mummy berry

Fungus: *Monilinia vaccinii-corymbosi*

## Symptoms

- Shoot blight (early season)
- Flower cluster blight (early season)
- Mummified fruit (later in season)

## Management

- Sanitation – raking mummies to row middle and burying can reduce disease pressure
- Fungicides applied during green tip through bloom are effective
  - Pristine, DMI + captan
  - See production guide for latest fungicide recommendations

**Resistant varieties:** none





# Blueberry – Phomopsis twig blight

Fungus: *Phomopsis vaccinii*

## Symptoms

- Blossom blight
- Fruiting-twig blight
- Reddish brown leaf lesions, white center
- Fruit rot when fruit are ripe or post harvest



# Blueberry – Phomopsis twig blight

Fungus: *Phomopsis vaccinii*

## Management

- Sanitation – pruning infected twigs in spring (easier for smaller growers)
- Cultivar selection
  - ‘Murphy’ & ‘Bounty’ very susceptible
  - ‘Reveille’, ‘Bluechip’, & ‘Duke’ resistant
- Fungicides applied during budbreak through bloom are effective
  - Several products available
  - See production guide for latest fungicide recommendations



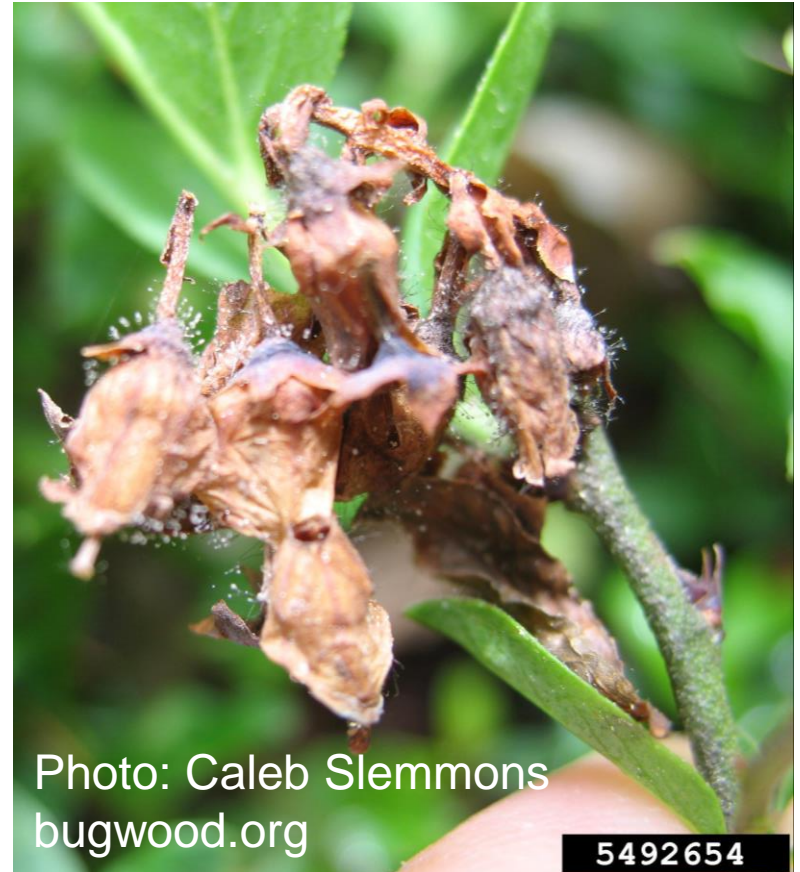
# Botrytis

## Symptoms

- Favored wet cool wet weather during bloom
- Blossom blight
- Twig blight
- Infected blossoms may be covered in “gray mold”

## Management

- Usually well managed with fungicides applied during bloom and fruit ripening
  - Pristine, DMI + captan
  - Fungicides: Switch, Elevate, Captevate, Pristine, Captan, Ziram
  - See production guide for latest fungicide recommendations





# Alternaria fruit rot

## Symptoms

- Leaf spots, circular/irregular, tan with brown/red border
- Fruit rot develops when fruit ripen
- Post-harvest rot

## Management

- Avoid overhead irrigation, prune to promote air flow
- Do not let fruit become overripe
- Harvest when berries are dry
- Cool fruit quickly post-harvest
- Fungicides from early bloom every 14 days until harvest
  - Fungicides: Abound, Switch, Pristine
  - See production guide for latest fungicide recommendations

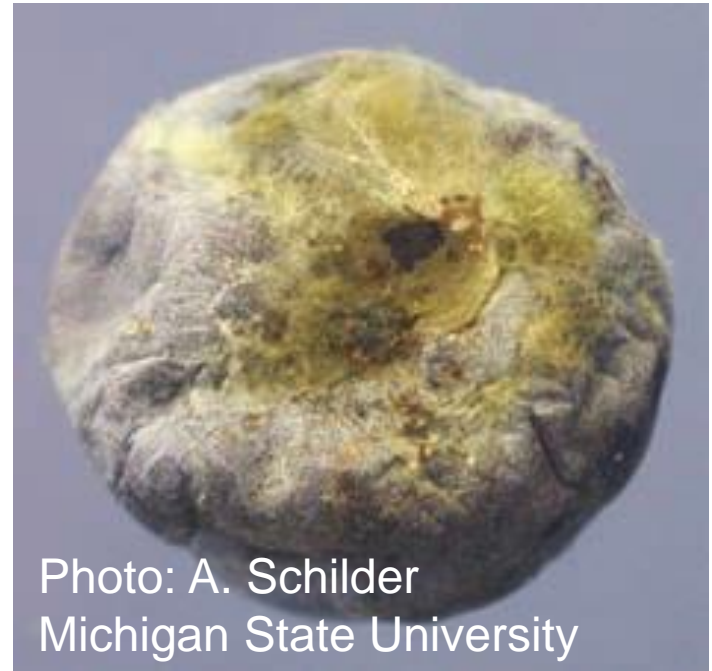


Photo: A. Schilder  
Michigan State University

# Exobasidium

Photos: Bill Cline  
NC State Extension

## Symptoms

- Pale green, well defined, circular leaf spots, eventually turning brown
- White fungal growth on leaf underside beneath lesions
- Infected fruit show circular lesions that remain green through ripening
- White fungal growth may be seen on fruit spots

## Management

- Avoid overhead irrigation, prune to promote air flow
- Early-season captan sprays
- DMI + captan during bloom
  - See production guide for latest fungicide recommendations





# Fungicide cancellation news

- EPA considering cancelling most uses of certain dithiocarbamates (thiram, **ziram** [several blueberry diseases], ferbam) and iprodione
  - 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

# Take-aways

- If possible, rake and remove or bury mummies to reduce inoculum (mummy berry)
- Prune out and destroy dead twigs and branches
- Most diseases can be well managed with timely fungicide applications
  - FRAC-group rotation and inclusion of multi-site fungicides critical for resistance management
- **Always read the product label**
  - Labels are subject to change, and the target use and method must appear on the label

# 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/](http://www.soillab.tennessee.edu/)

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## SOIL, PLANT AND PEST CENTER

### Soil, Plant and Pest Center

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Nashville, TN 37211-5112

P: [615-832-5850](tel:6158325850)

F: 615-832-4936

[SoilLab@Tennessee.edu](mailto:SoilLab@Tennessee.edu)

# Take-aways

- Organic fungicides
  - Make sure product is labeled for intended use
  - Organic products are often biological or plant
    - extract based and may have limited efficacy
      - Cultural control practices especially important for organic crops
      - Preventative sprays are especially important

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