Combating Pests and Pathogens at Home and on the Farm

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Wilson County Peach Class

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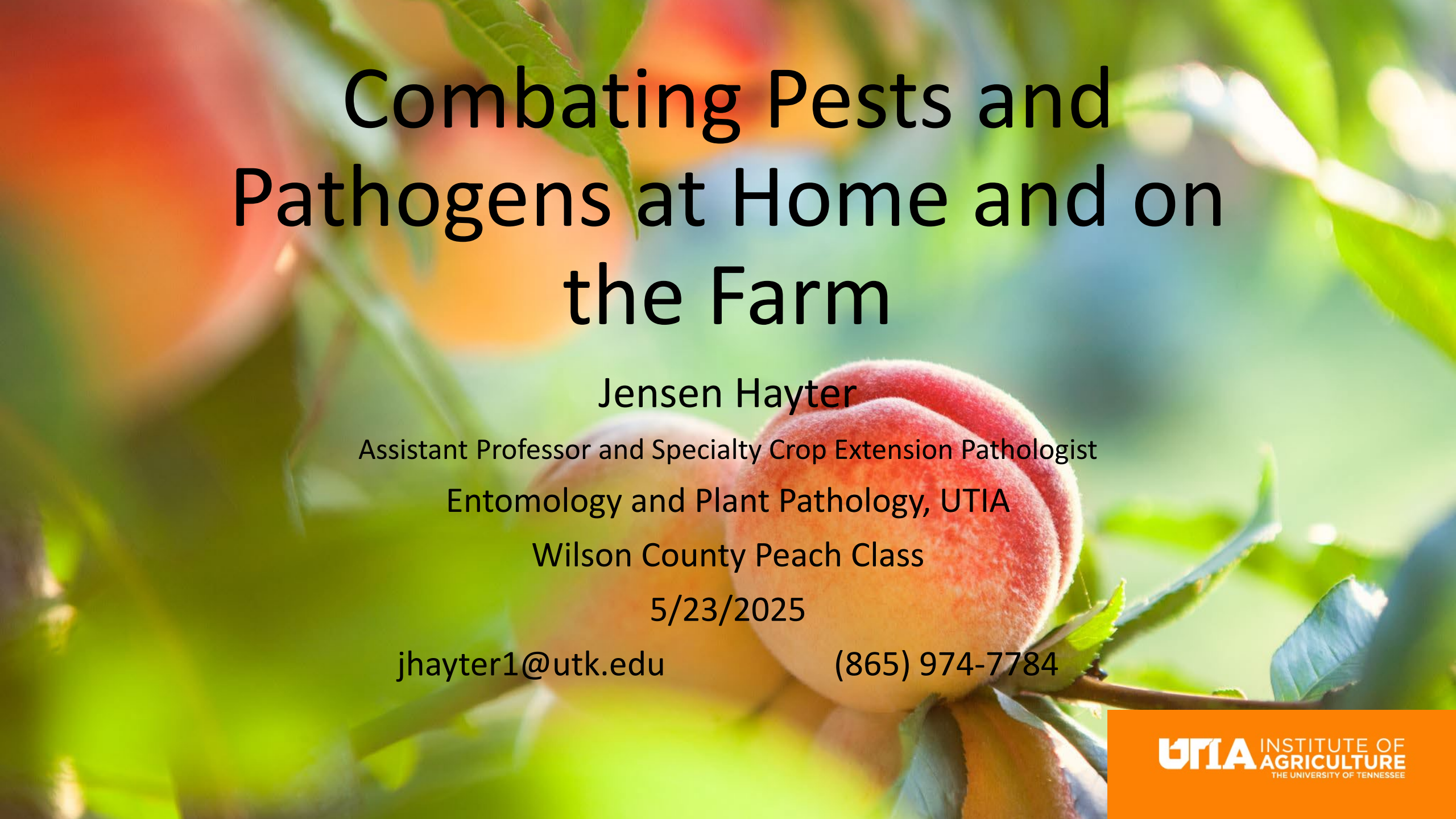

What is a pest and what is a pathogen?

- Pests
  - Insects
  - Mites
  - Birds
  - Deer
  - Squirrels
- Pathogens
  - Fungi
  - Bacteria
  - Viruses

What is a pest and what is a pathogen?

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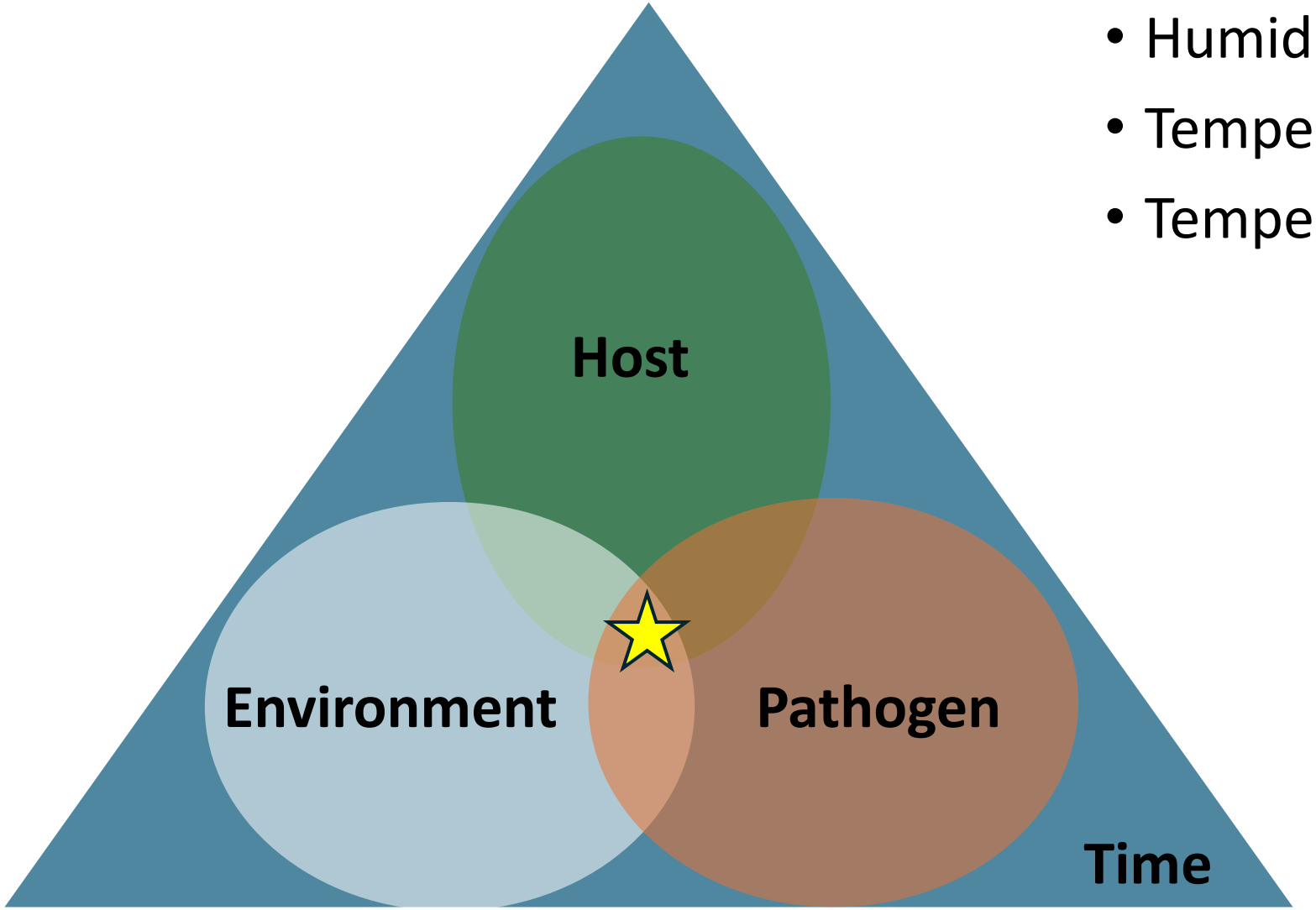
  - ~~Birds~~
  - ~~Deer~~
  - ~~Squirrels~~
- Pathogens
  - Fungi
  - Bacteria
  - Viruses

Overview

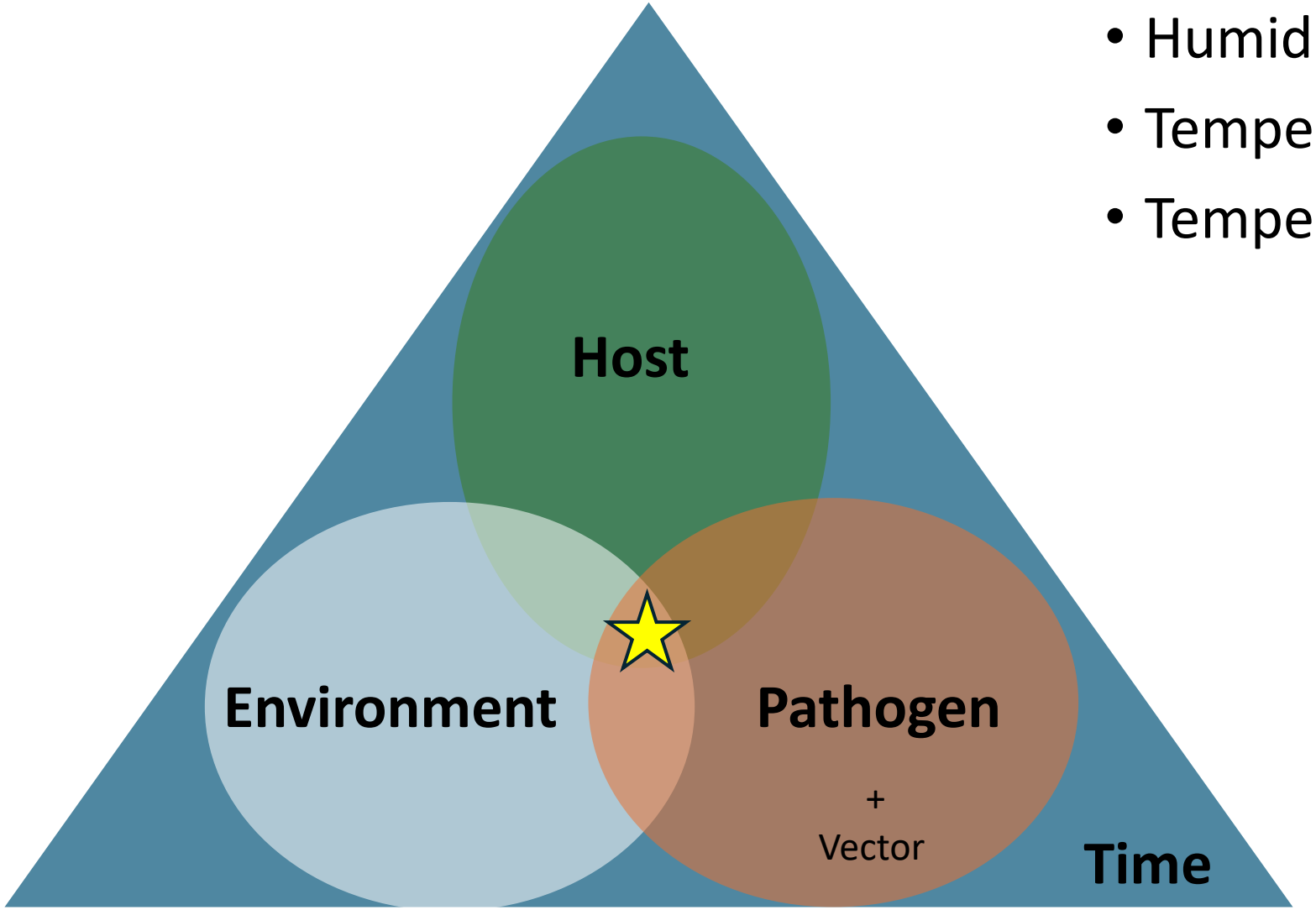
- Tennessee: A pathogen's paradise
- Generally good advice
- Major pathogens and how to control them
- Major pests and how to control them
- Summary

Tennessee: A pathogen's paradise



- Humid
- Temperate winters
- Temperate to hot summers

Tennessee: A pathogen's paradise



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Generally good advice

- Break the disease triangle
- Use resistant varieties
- Weed management
- Proper fertilization and tree maintenance
- Clean up the mummies (and other detritus)

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Major pathogens

- Brown rot (aka the mummy maker; aka *Monilinia fructicola)*
- Peach scab (*Venturia carpophila)*
- Bacterial spot (*Xanthomonas arboricola* pv. *pruni)*
- Gummosis (*Botryosphaeria dothidea)*
- Peach Leaf Curl (*Taphrina deformans)*

Major pathogens

- Brown rot (aka the mummy maker; aka *Monilinia fructicola)*

Major pathogens

- Brown rot control
  - Dispose of infected fruit, mummies, and infected twigs
  - Properly timed fungicide applications (rotation with Captan)
  - Fruit bags
  - Resistant varieties (no nectarines)

Major pathogens

- Peach scab (*Venturia carpophila)*
  - Proper pruning aids in air circulation
  - Appropriate fungicides (Captan, myclobutanil, wettable sulfur)
  - Usually worse in young trees, improves as regular fungicide program is implemented

Major pathogens

- Bacterial spot (*Xanthomonas arboricola* pv. *pruni,* aka XAP*)*
  - Resistant cultivars (Goldprince, Harvest, Augustprince)
  - Avoid sandy soil
  - Copper?

Major pathogens

- Gummosis (*Botryosphaeria* spp.*)*
  - Prune infected trees last
  - Avoid injury
  - Proper water and fertilizer application
  - Suppressed (not controlled) by fungicide applications for other diseases

Major pathogens

- Peach Leaf Curl (*Taphrina deforma*
  - Preemptive fungicide (Chlorothalonil copper)
  - Maintain tree vigor (fertilize, water, thin fruit)

Major pathogens

Online resources for home production

https://www.aces.edu/blog/topics/crop-production/home-orchards-disease-and-insect-control-recommendations/

Table 1. Fungicides Labeled for Peach Disease Control.

Pesticide Active Ingredient	Examples of Brand Names & Products
Captan	Arysta Captan 50% Wettable Powder Bonide Captan 50% WP Drexel Captan 50W Hi Yield Captan 50W Fungicide Southern Ag Captan Fungicide
Chlorothalonil[1]	Bonide Fung-onil Concentrate Ferti-lome Broad Spectrum Landscape & Garden Fungicide Concentrate Hi-Yield Vegetable, Flower, Fruit & Ornamental Fungicide Concentrate Monterey Fruit Tree, Vegetable & Ornamental Fungicide Ortho MAX Garden Disease Control Concentrate Southern Ag Liquid Ornamental & Vegetable Fungicide Concentrate Tiger Brand Daconil Concentrate
Copper Fungicides	Bonide Copper Fungicide (copper sulfate) Monterey Liqui-Cop Fungicidal Garden Spray Conc. (a copper ammonium complex) Southern Ag Liquid Copper Fungicide (a copper ammonium complex)
Myclobutanil	Ferti-lome F Stop Lawn & Garden Fungicide Monterey Fungi-Max Spectracide Immunox Multi-Purpose Fungicide Concentrate
Propiconazole[2]	Bonide Infuse Systemic Disease Control
Sulfur[4]	Bonide Sulfur Plant Fungicide Ferti-lome Dusting Sulfur (also w Hi-Yield Wettable Dusting Sulfur Southern Ag Wettable or Dusting
Boscalid & Pyraclostrobin[5]	Bonide Fruit Tree & Plant Guard (also contains Lambda Cyhaloth

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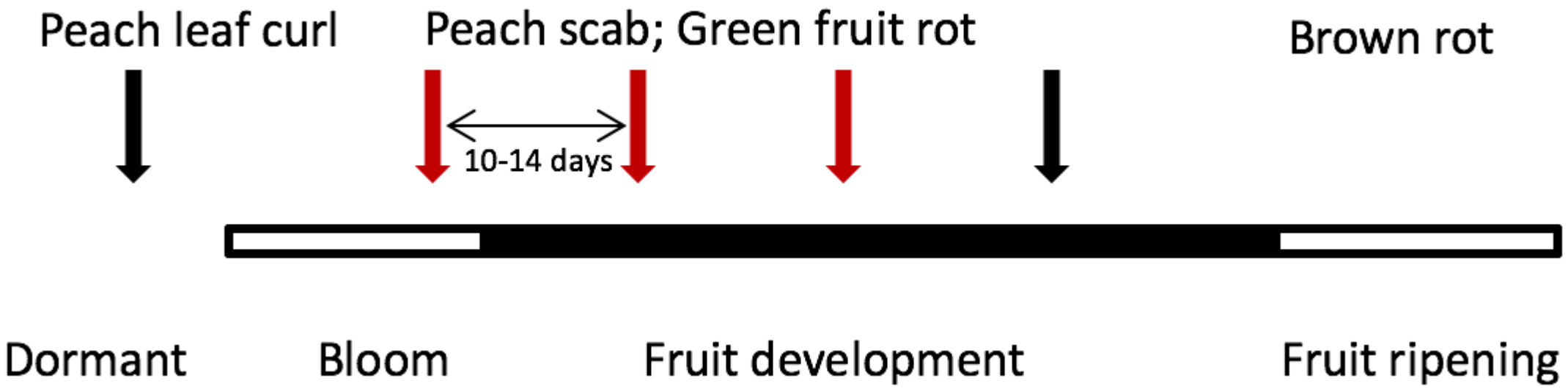
Major pathogens



Major pests

- San Jose scale
- Peach tree borer
- Plum curculio
- Stink bug

Major pests

- San Jose scale
  - Female resides under waxy cap
  - Many enemies
  - Horticultural oil with good coverage
  - Insecticide application interferes with natural enemies

Major pests

- Peach tree borer (lesser and greater)
  - Dig (or prune) them out

Major pests

- Plum curculio
  - Keep orchard floor clear
  - Monitor for damage
  - Remove damaged fruit
  - Malathion (avoid secondary pests) or Belay 2.13SC
  - Organic sprays include
    - Kaolin clay (e.g. Surround), pyrethrins (e.g. Pyganic), and Spinosad (e.g. Bonide Captain Jack's,
  - Season-long pest, early fruit-drop

Major pests

- Stink bug
  - Brown marmorated stink bug
  - Remove Tree of Heaven
  - Season-long pest
  - Pyrethroids (though secondary pests become a problem
  - Spinosad to a limited degree

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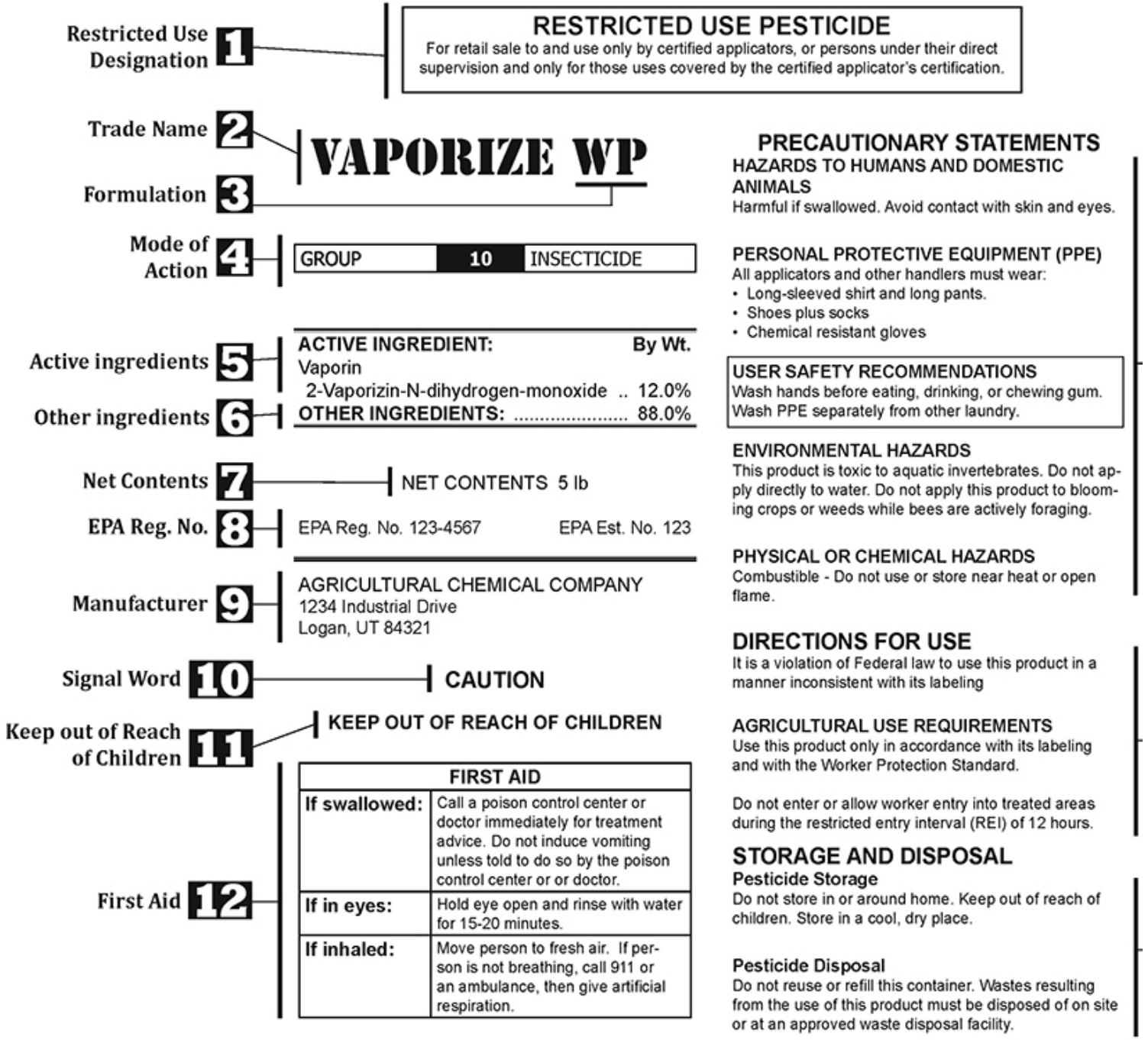

Pesticide Labels

- Signal words
- Post-harvest interval
- Restricted entry interval
- Mode of action

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Summary & Resources

- Clean up after your tree
- Prune, fertilize, and irrigate appropriately to keep your trees robust
- Be proactive
- Be vigilant
- Break the triangle
- Apply pesticides properly (it's the law!)

See the 2025 Southeastern Peach, Nectarine, and Plum Pest Management and Culture Guide

https://secure.caes.uga.edu/extension/publications/files/pdf/B%201171_19.PDF

Questions

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- For those interested in cedar-apple rust, here is a table listing juniper species that are resistant to the disease and won't cause as many problems for you and your neighbors who grow apples.

Table 1: Known resistant species and varieties (single quotation mark) of crabapple and juniper to the pathogen G. juniperi-virginianae. Note: Resistant does not necessarily mean immune, i.e. resistant plants may still get infected but normally to a much less significant extent than susceptible species/varieties. Adapted from Wallis and Lewandowski, 2008

Resistant Malus spp. (crabapple)	
'Beverly', 'Candied Apple', 'Dolgo', 'Eleyi', 'Inglis', 'Liset', 'Mt. Arbor', 'Narragansett', 'Persicifolia', 'Red Jewel', 'Robusta', 'Royalty', 'Snowdrift', 'Special Radiant', 'Zumi'	
Resistant Juniperus spp. (juniper)	
Species	**Cultivars**
J. ashei	N/A
J. chinensis	'Fermina', 'Fortunei', 'Hetzii', 'Japonica', 'Keteleeri', 'Leeana', 'Mas', 'Oblonga', 'Pendula', 'Pfitzeriana', 'Pfitzeriana compacta', 'Pfitzeriana glauca', 'Plumosa aurea', 'Pyramidalis', 'Sargentii', 'Sargentii variegata', 'Sargentii watereri'
J. communis	'Aurea', 'Aureo-spica', 'Cracovia', 'Depressa', 'Hibernica', 'Oblonga pendula', 'Pyramidalis', 'Saxatilis', 'saxatilis Pallas', 'Suecia', 'Suecia nana'
J. conferta	N/A
J. formosana	'Hyata'
J. horizontalis	'Admirabilis', 'Adpressa', 'Argenteus', 'Douglasii', 'Eximius', 'Filicinus', 'Glomerata', 'Lividus', 'Petraea', 'Plumosa'
J. procumbens	(= J. chinensis var. procumbens)
J. rigida	N/A
J. sabina	'Broadmoor', 'Fastigiata', 'Knap Hill var. Tamariscifolia', 'Skandia'
J. squamata	'Albo-variegata', 'Fargesii', 'Mereri', 'Wilsonii'
J. virginiana	'Aurea', 'Berg's Rust Resistant', 'Burkii', 'Globosa', 'Kosteri', 'Pseudocupressus', 'Pyramidalis', 'Skyrocket', 'Tripartita', 'Venusta'