



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

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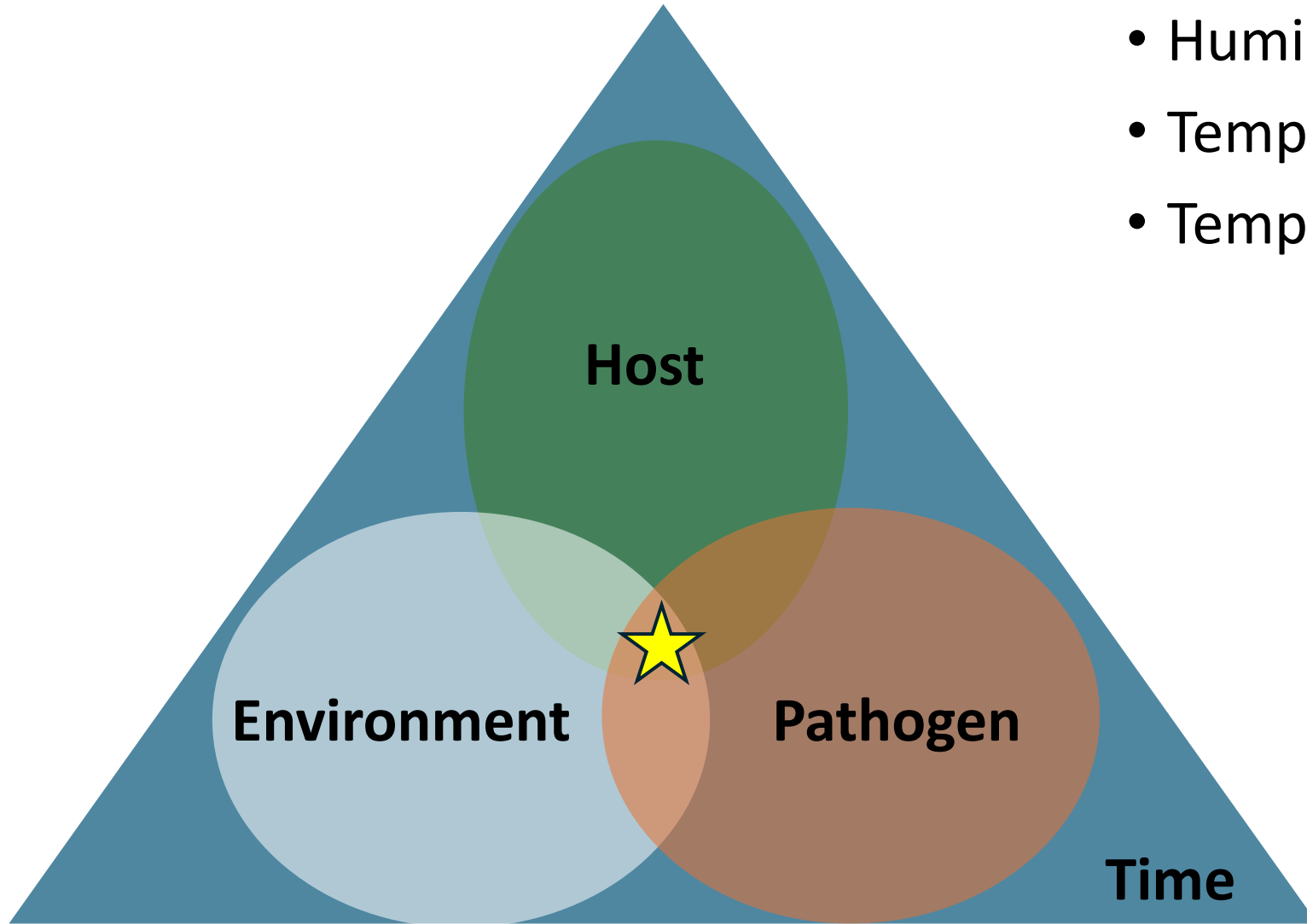
- Pathogens

- Fungi
- Bacteria
- Viruses

Overview

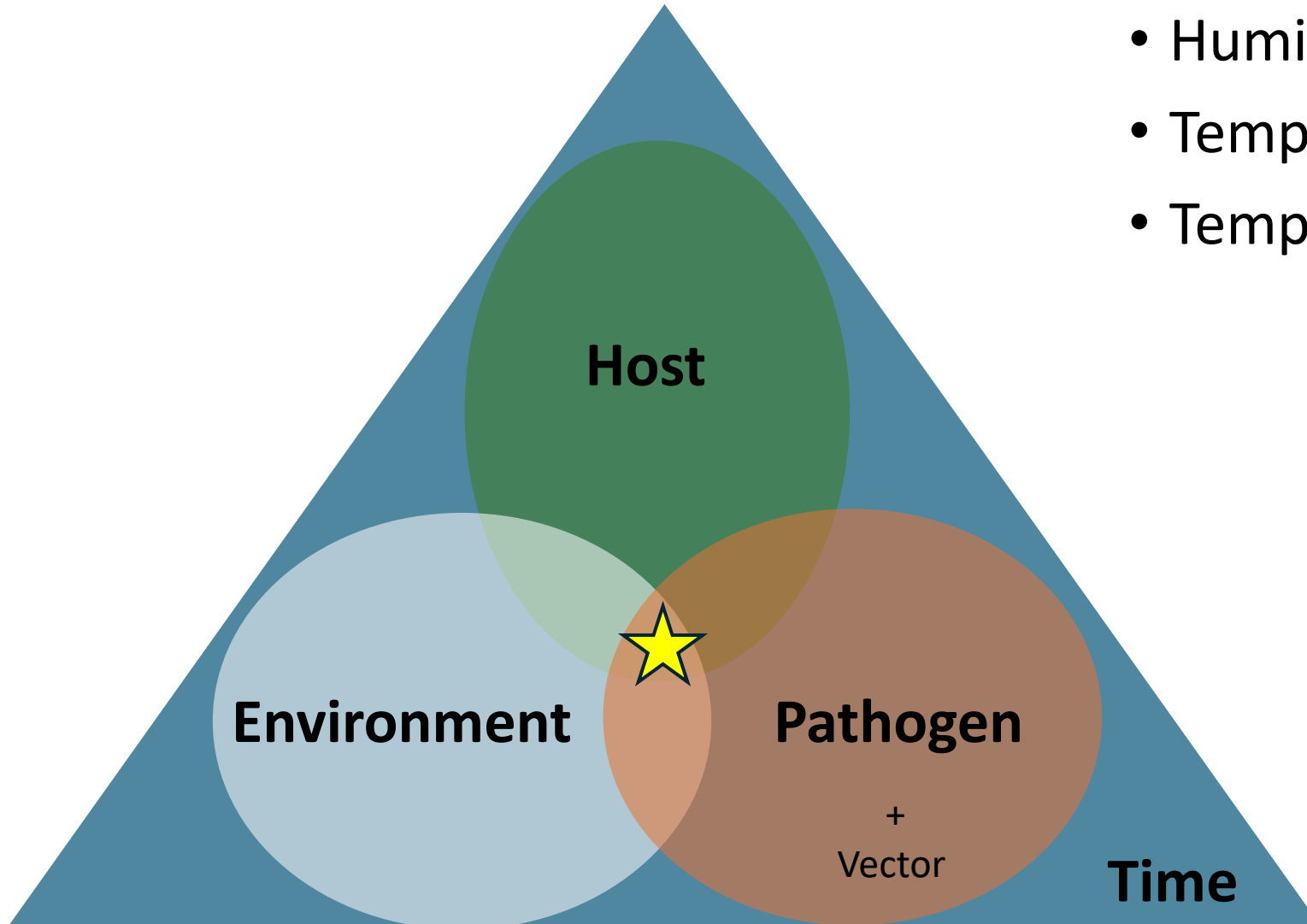
- Tennessee: A pathogen's paradise
- Generally good advice
- Major pathogens and how to control them
- Major pests and how to control them
- Summary

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



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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 deformans*)
 - Preemptive fungicide (Chlorothalonil or copper)
 - Maintain tree vigor (fertilize, water, thin fruit)



Major pathogens

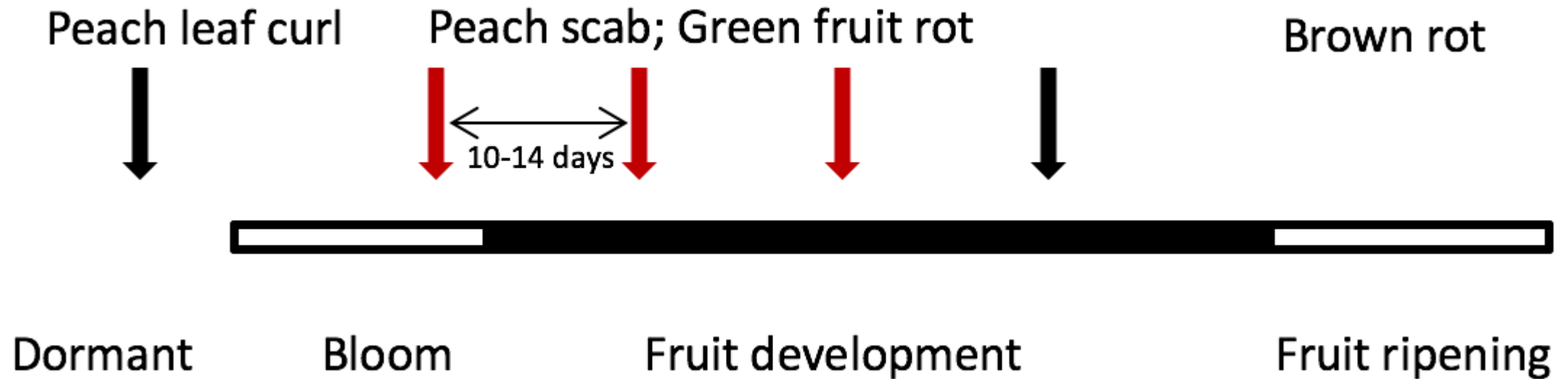
Online resources for home production

<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 wettable for spray) Hi-Yield Wettable Dusting Sulfur Southern Ag Wettable or Dusting
Boscalid & Pyraclostrobin ⁵	Bonide Fruit Tree & Plant Guard (also contains Lambda Cyhaloth

Major pathogens



Major pests

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

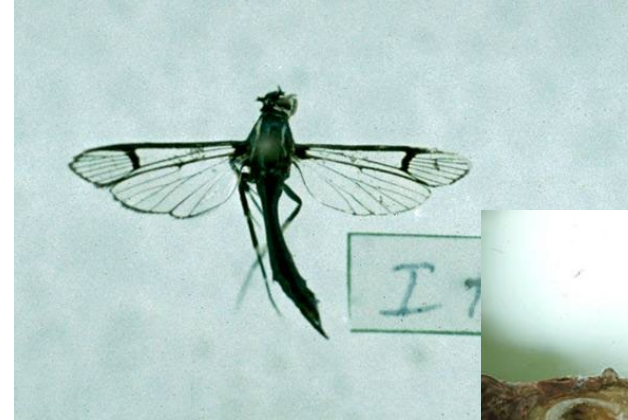
Major pests

- 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



RESTRICTED USE PESTICIDE

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

Restricted Use Designation **1**

Trade Name **2**

VAPORIZE WP

Formulation **3**

Mode of Action **4**

GROUP **10** INSECTICIDE

Active ingredients **5**

ACTIVE INGREDIENT: By Wt.

Vaporin
2-Vaporizin-N-dihydrogen-monoxide .. 12.0%

Other ingredients **6**

OTHER INGREDIENTS: 88.0%

Net Contents **7**

NET CONTENTS 5 lb

EPA Reg. No. **8**

EPA Reg. No. 123-4567 EPA Est. No. 123

Manufacturer **9**

AGRICULTURAL CHEMICAL COMPANY
1234 Industrial Drive
Logan, UT 84321

Signal Word **10**

CAUTION

Keep out of Reach of Children **11**

KEEP OUT OF REACH OF CHILDREN

First Aid **12**

FIRST AID

If swallowed:	Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by the poison control center or doctor.
If in eyes:	Hold eye open and rinse with water for 15-20 minutes.
If inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed. Avoid contact with skin and eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks
- Chemical resistant gloves

USER SAFETY RECOMMENDATIONS

Wash hands before eating, drinking, or chewing gum.
Wash PPE separately from other laundry.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Do not apply directly to water. Do not apply this product to blooming crops or weeds while bees are actively foraging.

PHYSICAL OR CHEMICAL HAZARDS

Combustible - Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

STORAGE AND DISPOSAL

Pesticide Storage

Do not store in or around home. Keep out of reach of children. Store in a cool, dry place.

Pesticide Disposal

Do not reuse or refill this container. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Pesticide Labels

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

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