

- Pesticides for Interior Plants – Karen L. Panter, Extension Horticulture Specialist, Department of Plant Sciences, University of Wyoming, 307-766-5117, kpanter@uwyo.edu

- Assumptions
- You already know insect identification
- You already know basic disease identification
- You already know cultural problem identification

- Problems on interior plants
 - Often not specific
 - Environmental issues typically primary
 - May be several stressing the plant at the same time

- For example, general chlorosis can be symptomatic of
 - Light levels too high
 - Insufficient fertilization
 - Temperatures too high
 - Insect infestation or root rotting disease

- Another example, wilting can be a symptom of
 - Overwatering

- Underwatering
- High soluble salts from overfertilizing
- Compacted growing medium
- Poor drainage
- High temperatures
- Low temperatures

- Make sure
 - Have diagnosed by reputable lab

- Fungal, bacterial, and viral problems
 - Not common in interior plantings

- Powdery mildew
- Host specific
- Copper sulfate pentahydrate (Phyton 27) – 24 hr REI
- Neem (Triact 70) – 4 hr REI
- Thiophanate methyl (Cleary's 3336) – 12 hr REI

- Fungal leaf spots, blights
- Many causal organisms
 - *Colletotrichum*

- *Cercospora*
- *Fusarium*
- *Helminthosporium*
- *Alternaria*
- *Botrytis*
- Others

- Thiophanate methyl (Cleary's 3336) – 12 hr REI
- Copper sulfate pentahydrate (Phyton 27) – 24 hr REI
- Triflumizole (Terraguard) – 12 hr REI
- Neem (Triact 70) – 4 hr REI

- Fungal water molds

- *Pythium*
- *Phytophthora*

- Fungal root and stem rots

- *Rhizoctonia*
- *Fusarium*
- *Thielaviopsis*

- Thiophanate methyl (Cleary's 3336) – 12 hr REI

- Copper sulfate pentahydrate (Phyton 27) – 24 hr REI
 - *Trichoderma* (PlantShield, SoilGard) – 0 REI
 - Mefenoxam (Subdue Maxx) – 0 REI
 - PCNB (Terraclor)(?) – 12 hr REI
 - Triflumizole (Terraguard) – 12 hr REI
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- Bacteria - systemic
 - *Erwinia*
 - Copper sulfate pentahydrate (Phyton 27) – 24 hr REI
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- Bacteria - localized
 - *Pseudomonas*
 - *Xanthomonas*
 - Copper sulfate pentahydrate (Phyton 27) – 24 hr REI
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- Viruses
 - Impatiens necrotic spot (INSV)
 - Tomato spotted wilt (TSWV)
 - Mosaics
 - No pesticides available for viruses

- Try to manage vector
- Remove and destroy plant

- Nematodes
- Small roundworms
- Four possible
 - Lesion – *Pratylenchus*
 - Spiral – *Helicotylenchus*
 - Root knot – *Meloidogyne*
 - Foliar or spring crimp - *Aphelenchoides*
- Not problems if no native soil used
- Steam pasteurize or fumigate

- Mites
- Two-spotted most common
- Also broad mite and cyclamen mite
- Some miticides available
 - Bifenazate (Floramite) – 12 hr REI
 - Insecticidal soaps – 12 hr REI
 - Oils – 4 hr REI
 - Bifenthrin (Talstar) – 12 hr REI
 - Fenpropathrin (Tame) – 24 hr REI RUP

- Mealy bugs
- Citrus most common
- Wipe off with rubbing alcohol
- *Beauveria bassiana* strain GHA (Botanigard, Naturalis-O)
 - Pathogenic fungus, spores must land on insect
 - 4 hr REI
- Imidacloprid (Marathon) – 12 hr REI
- Insecticidal soaps – 12 hr REI
- Oils – 4 hr REI
- Pyriproxyfen (Distance)
 - 12 hr REI
 - Suppression
- Cyfluthrin (Decathlon)
 - 12 hr REI
- Tau-fluvalinate (Mavrik)
 - 12 hr REI
- Bifenthrin (Talstar)
 - 12 hr REI
- Fenpropathrin (Tame)
 - 24 hr REI

- Scales
- Brown soft, hemispherical very common soft scales
- Gently scrape off
- Horticultural oils – 4 hr REI
- Pyriproxyfen (Distance)
 - 12 hr REI
- S-kinoprene (Enstar)
 - 4 hr REI
- Cyfluthrin (Decathlon)
 - 12 hr REI
- Tau-fluvalinate (Mavrik)
 - 12 hr REI
- Bifenthrin (Talstar)
 - 12 hr REI
- Fenpropathrin (Tame)
 - 24 hr REI

- Aphids
- Green peach most common
- Others include chrysanthemum, foxglove, potato, and melon
- Imidacloprid (Marathon)
 - 12 hr REI

- *Beauveria bassiana* strain GHA (Botanigard, Naturalis-O)
 - Pathogenic fungus, spores must land on insect, 4 hr REI
- Pymetrozine (Endeavor) – feeding disruptor – 12 hr REI
- Insecticidal soaps – 12 hr REI
- Oils – 4 hr REI
- Azadirachtin (Azatin, Ornazin)
 - 4 hr REI (Azatin), 12 hr (Ornazin)
- Pyriproxyfen (Distance)
 - 12 hr REI
 - suppression
- S-kinoprene (Enstar)
 - 4 hr REI
- Cyfluthrin (Decathlon)
 - 12 hr REI
- Tau-fluvalinate (Mavrik)
 - 12 hr REI
- Bifenthrin (Talstar)
 - 12 hr REI
- Fenpropathrin (Tame)
 - 24 hr REI

- Whiteflies
- Greenhouse most common
- Pyrethroids available
- Imidacloprid (Marathon) – 12 hr REI
- Pymetrozine (Endeavor) – feeding disruptor – 12 hr REI
- *Beauveria bassiana* strain GHA (Botanigard, Naturalis-O)
 - Pathogenic fungus, spores must land on insect
 - 4 hr REI
- Horticultural oils
- Diflubenzuron (Adept)
 - 12 hr REI
 - suppression
- Oils – 4 hr REI
- Azadirachtin (Azatin, Ornazin)
 - 12 hr REI
- Pyriproxyfen (Distance)
 - 12 hr REI
- S-kinoprene (Enstar)
 - 4 hr REI
- Cyfluthrin (Decathlon)
 - 12 hr REI

- Tau-fluvalinate (Mavrik)
 - 12 hr REI
- Bifenthrin (Talstar)
 - 12 hr REI
- Fenpropathrin (Tame)
 - 24 hr REI

- Thrips
- Western flower most common
- Few insecticides available unless move plants to greenhouse or outdoors
- *Beauvaria bassiana* strain GHA (Botanigard, Naturalis-O)
 - Pathogenic fungus, spores must land on insect
 - 4 hr REI
- Azadirachtin (Azatin, Ornazin)
 - 12 hr REI
- Cyfluthrin (Decathlon)
 - 12 hr REI
- Tau-fluvalinate (Mavrik)
 - 12 hr REI
- Bifenthrin (Talstar)
 - 12 hr REI

- Fungus gnats
- Eliminate decaying organic matter
- Biologicals like nematodes
- Few insecticides available
 - *Bacillus thuringiensis israelensis* (Gnatrol)
 - 4 hr REI
 - Larvae only
 - cyromazine (Citation)
 - 12 hr REI
 - Insecticidal soap – 12 hr REI
- Diflubenzuron (Adept)
 - 12 hr REI
- Azadirachtin (Azatin, Ornazin)
 - 12 hr REI
- Cyromazine (Citation)
 - 12 hr REI
- Pyriproxyfen (Distance)
 - 12 hr REI
- S-kinoprene (Enstar)
 - 4 hr REI

- Bifenthrin (Talstar) –
 - 12 hr REI

- Shore flies
- Eliminate algae, decaying organic matter
- Cyromazine (Citation)
 - 12 hr REI
- Diflubenzuron (Adept)
 - 12 hr REI
- Pyriproxyfen (Distance)
 - 12 hr REI

- Moth flies
- Uncommon problem
- Keep drains and pipes clean
- No insecticides available

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