

UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

IPM Calendar for Deciduous Tree Production



Managing Pests for Quality Trees & Environmental Stewardship



2008 Calendar for Deciduous Tree Production

Before Planting

Site Selection - Put the “Right Plant in the Right Place.” Do not plant trees requiring excellent drainage (dogwood, cherry, zelkova) in a slowly draining field. Likewise, make sure a plant that needs full sun to thrive, is not shaded by trees in the field margins. Do not plant verticillium wilt-susceptible species (maple, tuliptree, smoketree, elm) in a field after strawberries, vegetables or after ornamentals that have been diagnosed with verticillium wilt.





Liner Quality/Pest Inspection - Inspect all plants for healthy, fibrous root systems; straight, undamaged trunks; strong, intact grafts and branches; diseases; insect damage or presence; and weeds. Moisten roots immediately. Also check for plants that have broken dormancy and plan to plant them as soon as possible. Confirm the shipment includes the quantity and correct species and cultivar ordered. Photograph damage and send images to the nursery supplying the liners immediately. See the Appendix.










Liner Storage and Handling - Keep storage conditions at 34-38°F and 85-100% humidity. Do not allow bareroot liners to freeze. Clean storage area with a bleach solution prior to arrival of plants. Do not allow liners to sit in puddled water while in storage. Spray with a fungicide to prevent damage while in storage. Have a foot bath at each entrance to eliminate contamination of the storage area. Soak roots before planting. Keep roots moist while planting. Sweating may be required for optimal budbreak on some species.

User is responsible for following pesticide label instructions.

Dormant Season





LEGEND






- R** Try resistant varieties
-  Pruning and sanitation help control this pest
-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Before Growth Starts		
Host Plant	Insect	Disease
Ash, Ornamental Fruit Trees, Hawthorn, Linden, Maple, Oak, Sweet Gum, Tuliptree, Others	Mites, Scales Spray dormant oil.	
Plum, Cherry		 Black Knot Prune out (or rogue) infected plants 3-4" below visible swelling.
Cherries, Crabapples	 R Eastern Tent Caterpillar Prune out egg masses.	
Many Species	 Bagworms Remove bags; they contain eggs.	  R Crown Gall Scout for symptoms. Remove infected plants.
Rosaceae		 R Fireblight Prune out any cankered or diseased branches 4" below sign of infection and destroy. Remove infected plants in field margins.
Honeylocust	 Honeylocust Spider Mite Scout for adults in bud scales.	
Hemlock	 Hemlock Woolly Adelgid Scout for white, wooly masses at the base of hemlock needles.	
Crabapple, Hawthorn, Serviceberry		 R Rust Remove infected Junipers within a few hundred feet of the field.

March

LEGEND





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March		
Host Plant	Insect	Disease
All Species		  Canker Diseases Scout for symptoms. Remove infected plants or prune out canker.
Various Species	 Granulate Ambrosia Beetle Trap, spray Perm-UP 3.2 EC or OnyxPro™ at first sign of flight.	
Early April		
Host Plant	Insect	Disease
Plum, Cherry		 Black Knot Spray Daconil Weather Stik® after bud break once rainy periods with temperatures above 55 °F are expected. Applications continue while shoots are elongating until 2-3 weeks after bloom.
Crabapple		 R Scab Spray at pink bud and petal fall plus 2 more times at 10 day intervals to reduce primary inoculum. Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Fore 80 WP. <i>Do not grow scab susceptible crabapples in the nursery.</i>

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April

LEGEND





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Early April		
Host Plant	Insect	Disease
Rosaceae		 R Fireblight Spray when 25% and again when 75% of blooms are open with streptomycin sulfate. Use the MARYBLYT or Cougarblight to predict the need to spray. Check label for species permitted.
Flowering Fruit Trees	 R Eastern Tent Caterpillar Spray Carbaryl 4L, Conserve® SC, DeltaGard® GC when < 0.5 inch.	
Maple	 R Maple Tip Borer Spray bifenthrin when 2 nd pair of leaves are dime-sized.	
Crabapple Hawthorn, Serviceberry		 R Rust Spray Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Strike® 50WDG as new growth appears and flower buds open. Repeat 3-4 times at 7-14 day intervals.
Many Species	  Oystershell Scale Spray at crawler hatch and again in 2-3 weeks with Talus® 40SC or drench with Safari™ 20SC when crawlers settle.	

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April

LEGEND





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-  Monitor weather to predict the need to spray




Mid April		
Host Plant	Insect	Disease
Ornamental Fruit Trees	 Aphids Scout/spray Endeavor™, Triact® 70 (neem oil), TriStar® 30 SG when 50 aphids present on 7/10 shoots.	
Magnolia, Tuliptree	 Yellow Poplar Weevil Apply Carbaryl 4L, Orthene® Turf, Tree, and Ornamental Spray 97, Talstar® Nursery Flowable, when 10% of branches damaged.	
Plum, Cherry		 Black Knot Spray Daconil Weather Stik® after bud break once rainy periods with temperatures above 55 °F are expected. Applications continue while shoots are elongating until 2-3 weeks after bloom.
Crabapple		 R Scab Spray at pink bud and petal fall plus 2 more times at 10 day intervals to reduce primary inoculum. Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Fore 80 WP. <i>Do not grow scab susceptible crabapples in the nursery.</i>

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April






LEGEND

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-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Mid April		
Host Plant	Insect	Disease
Rosaceae (if still in bloom)		 R Fireblight Spray when 25% and again when 75% of blooms are open with streptomycin sulfate. Use the MARYBLYT or Cougarblight to predict the need to spray. Check label for species permitted.
Crabapple, Hawthorn, Serviceberry		 R Rust Spray Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Strike® 50WDG as new growth appears and flower buds open. Repeat 3-4 times at 7-14 day intervals.
Crabapple, Elm, Dogwood, Maple, Honeylocust, Zelkova, others	 R Calico Scale <i>Recommendation in development:</i> Apply bifenthrin to adult females as they swell, prior to crawler hatch. Consider use of spreader-sticker.	

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April






Late April		
Host Plant	Insect	Disease
Ash	 Lilac Borer Spray Perm-UP 3.2 EC or OnyxPro™ 1 week after dogwood full bloom.	
Plum, Cherry		 Black Knot Spray Daconil Weather Stik® after bud break once rainy periods with temperatures above 55 °F are expected. Applications continue while shoots are elongating until 2-3 weeks after bloom.
Crabapple		 R Scab Spray at pink bud and petal fall plus 2 more times at 10 day intervals to reduce primary inoculum. Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Fore 80 WP. <i>Do not grow scab susceptible crabapples in the nursery.</i>
Rosaceae (if still in bloom)		 R Fireblight Spray when 25% and again when 75% of blooms are open with streptomycin sulfate. Use the MARYBLYT or Cougarblight to predict the need to spray. Check label for species permitted.
Crabapple, Hawthorn, Serviceberry		 R Rust Spray Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Strike® 50WDG as new growth appears and flower buds open. Repeat 3-4 times at 7-14 day intervals.

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May





LEGEND







-  Try resistant varieties
-  Pruning and sanitation help control this pest
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-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Early May		
Host Plant	Insect	Disease
Ornamental Fruit Trees	 Lesser Peachtree Borer Spray Perm-UP 3.2 EC or OnyxPro™ 2 weeks after kousa dogwood is at 1 st bloom.	
Birch	 Bronze Birch Borer Spray Perm-UP 3.2 EC or OnyxPro™ when Washington hawthorn is at 1 st bloom.	
Crabapple		 R Scab Spray at pink bud and petal fall plus 2 more times at 10 day intervals to reduce primary inoculum. Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Fore 80 WP. <i>Do not grow scab susceptible crabapples in the nursery.</i>
Crabapple, Hawthorn, Serviceberry		 R Rust Spray Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Strike® 50WDG as new growth appears and flower buds open. Repeat 3-4 times at 7-14 day intervals.
Crabapple, Dogwood, Hawthorn, Red Maple, Oak, and others	 Flatheaded Appletree Borer Spray Perm-UP 3.2 EC or OnyxPro™ when Washington hawthorn is in full bloom.	

May






LEGEND






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Mid May		
Host Plant	Insect	Disease
Ornamental Fruit Trees	 Aphids Scout/spray Endeavor™, Triact® 70 (neem oil), TriStar® 30 SG when 50 aphids present on 7/10 shoots.	
Dogwood	 Dogwood Borer Spray Perm-UP 3.2 EC or OnyxPro™, when Washington hawthorn is 1 week after 1 st bloom.	
Crabapple		 R Scab Spray at pink bud and petal fall plus 2 more times at 10 day intervals to reduce primary inoculum. Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Fore 80 WP. <i>Do not grow scab susceptible crabapples in the nursery.</i>
Crabapple, Hawthorn, Serviceberry		 R Rust Spray Banner MAXX®, Daconil Weather Stik®, Eagle® 20EW, Strike® 50WDG as new growth appears and flower buds open. Repeat 3-4 times at 7-14 day intervals.
Crabapple, Elm, Dogwood, Maple, Honeylocust, Zelkova, others	  Calico Scale Use tape, degree days, and/or presence of dark, dying females to schedule a bifenthrin application with crawler emergence, if missed earlier application to swelling females.	

May

LEGEND





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Late May		
Host Plant	Insect	Disease
Magnolia, Tuliptree	 Yellow Poplar Weevil Apply Carbaryl 4L or Orthene® Turf, Tree and Ornamental Spray 97, Talstar® Nursery Flowable when 10% of branches damaged.	
Maple, Redbud	 Leafhoppers Scout/spray Carbaryl 4L, TriStar® 30 SG, Decathlon® 20 WP, Scimitar® GC when 1 hopper/branch, sample 4 branches/tree on ten trees.	
Dogwood, Maple, Oak	  Thrips Scout/spray Avid® 0.15EC, Conserve® SC, Carbaryl 4L. Use blue sticky cards to monitor.	
Crabapple, Dogwood, Hawthorn		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.

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June





LEGEND






- R** Try resistant varieties
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-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Early June		
Host Plant	Insect	Disease
Birch	R Bronze Birch Borer Spray Perm-UP 3.2 EC or OnyxPro™.	
Crabapple, Dogwood, Hawthorn		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Ornamental Fruit trees, Hawthorn, Maple, Oak	 Flatheaded Appletree Borer Spray Perm-UP 3.2 EC or OnyxPro™.	
Ornamental Fruit trees	 Peachtree Borer Spray Perm-UP 3.2 EC or OnyxPro™ two weeks after Southern magnolia 1 st bloom.	
Various Species	 R Japanese Beetle Spray June-July-August with DeltaGard® GC, Carbaryl 4L, Safari™ 20SC.	
Baldcypress Flowering fruit trees Maple Evergreens, others	 Bagworms Hand pick or spray Carbaryl 4L, Decathlon® 20 WP, Scimitar® GC, Talstar® Nursery Flowable.	

June






LEGEND





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Mid June		
Host Plant	Insect	Disease
Ornamental Fruit trees, Hawthorn, Maple, Oak	 Flatheaded Appletree Borer Spray Perm-UP 3.2 EC or OnyxPro™.	
Crabapple, Dogwood Hawthorn		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Late June		
Honeylocust	 Mimosa Webworm Scout/spray Carbaryl 4L, Decathlon® 20 WP, DeltaGard® GC.	
Maple, Redbud	 Leafhoppers Scout/spray Carbaryl 4L, TriStar® 30 SG, Decathlon® 20 WP, Scimitar® GC when 1 hopper/branch, sample 4 branches/tree on ten trees.	
Maple, Honeylocust	 Spider Mites Scout/spray Avid® 0.15EC, Floramite® SC, Judo™, Triact® 70 (neem oil) when 24 mites per 4 branches, sample 10 trees. Look for predatory mites. Avoid use of carbaryl.	

June





LEGEND




-  Try resistant varieties
-  Pruning and sanitation help control this pest
-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Late June		
Host Plant	Insect	Disease
Crabapple, Hawthorn, Dogwood		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Ornamental Fruit Trees	 Lesser Peachtree Borer Spray Perm-UP 3.2 EC or OnyxPro™.	
Early July		
Host Plant	Insect	Disease
Various Species	 Japanese Beetle Spray June-July-August with DeltaGard® GC, Carbaryl 4L, Safari™ 20SC.	
Crabapple, Hawthorn, Dogwood		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Catalpa, Cherry, Elm, Goldenraintree, Ky Coffeetree, Magnolia, Maple, Redbud, Smoke tree, Tuliptree, Yellowwood, others		R Verticillium Wilt Scout trees for sudden wilting and dead leaves, first occurring during drought stress. Practice strict nursery hygiene. Rogue infected trees. Use resistant varieties.

July

LEGEND






- R** Try resistant varieties
-  Pruning and sanitation help control this pest
-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray






Mid July		
Host Plant	Insect	Disease
Crabapple, Hawthorn, Dogwood		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Maple, Honeylocust	 Spider Mites Scout/spray Avid® 0.15EC, Floramite® SC, Judo™, Triact® 70 (neem oil) when 24 mites per 4 branches, sample 10 trees. Look for predatory mites. Avoid use of carbaryl.	
Ornamental Fruit Trees	 Peachtree Borer Spray Perm-UP 3.2 EC or OnyxPro™.	

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August






LEGEND

-  Try resistant varieties
-  Pruning and sanitation help control this pest
-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Early August		
Host Plant	Insect	Disease
Ash	 Banded Ash Borer Spray Perm-UP 3.2 EC or OnyxPro™.	
Crabapple, Hawthorn, Dogwood		 R Powdery Mildew Spray at first sign of disease and repeat at 14 day intervals with Banner MAXX®, Heritage® (do not use on <i>Malus</i> , test on Hawthorn), Strike® 50WDG. Diligently spray susceptible dogwood cultivars.
Various Species	 R Japanese Beetle Spray June-July-August with DeltaGard® GC, Carbaryl 4L, Safari™ 20SC.	
Mid August		
Tuliptree	 Tuliptree Scale Spray Carbaryl 4L, Orthene® Turf, Tree and Ornamental Spray 97, Triact® 70 (neem oil) to control crawler stage.	
Maple, Honeylocust	 Spider Mites Scout/spray Avid® 0.15EC, Floramite® SC, Judo™, Triact® 70 (neem oil) when 24 mites per 4 branches, sample 10 trees. Look for predatory mites. Avoid use of carbaryl.	

September

LEGEND

-  **R** Try resistant varieties
-  Pruning and sanitation help control this pest
-  Scout before spraying; pest occurrence varies
-  Use traps or phenology to monitor when to spray
-  Monitor weather to predict the need to spray

Early September		
Oak, Maple, Sycamore, and Sweet Gum		R Bacterial Scorch Remove infected trees following diagnosis.

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Appendix: Inspect New Liners for Pests

Diseases*

- **Verticillium Wilt** - *Acer, Catalpa, Cercis, Cladrastis, Cotinus, Gymnocladus, Koelreutaria, Liriodendron, Magnolia, Prunus, Ulmus*
- **Black Root Rot** - *Ilex*
- **Black Knot** - *Prunus*
- **Cedar Quince Rust** – *Crataegus*
- **Fusicoccum** – *Fraxinus*
- **Aerial Phytophthora** - *Fraxinus*
- **Crown Gall** - All

Insects*

- **Eastern Tent Caterpillar** – *Prunus*
- **Scale**

Weeds*

- **Nutsedge** - All
- **Johnson grass** – All
- **Garlic** - All

* These are only partial lists of pests and associated host plants.

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Contributors:

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