

## Spray Program for Multi-Tree Fruit Orchards



Many local orchards are composed of multi-fruit combinations producing for fresh market apples, peaches, pears, plums, nectarines, and cherries. Aggressive fruit tree spray programs are required to achieve high quality fruit. These multi-fruit orchards create many spray management challenges for the achievement of good pest control in accordance to label guidelines.

Therefore, the following multi-fruit orchard spray program for the control of major tree fruit pests and diseases may offer some assistance: **Labeled as noted in 2022 for All Tree Fruit – Pomes: Apples & Pears Stones: Peaches, Plums, Nectarines, and Cherries.**

<b>FUNGICIDES: [FRAC]</b>	<b>*RATE</b>	<b>NOTES</b>
<b>Captan® 80WDG [M4]</b>	3-5.0 lbs	General Protectant (Not Labeled for Pears; Reduce Rates for Cherries)
<b>Dormant Oil [NC]</b>	4.0 gal	Apply Temp 35-85° F
<b>Kocide® DF [M1]</b>	6.0 lbs	Other Fixed Coppers (Stones: Dormant Spray Only)
<b>Rally® 40W [3]</b>	4.0 ozs	Powdery Mildew
<b>Sulfur 95W [M2]</b>	3.0 lbs	General Protectant
<b>Gem® 500 SC [11]</b>	3.0 ozs	Brown Rot & Peach Scab (Stones Only) <b>or</b>
<b>Adamant® 50WG [3/11]</b>	6.0 ozs	Brown Rot, Peach Scab & Powdery Mildew (Stones Except Plums)
<b>Pristine® [7/11] <b>or</b></b>	14.5 ozs	Brown Rot, Powdery Mildew, Scab, Rusts & Fruit Spots (Limited to 4 Sprays/Season With Only 2 Consecutively)
<b>Indar® 2F [3]</b>	6.0 ozs	Powdery Mildew & Rusts
<b>Topsin-M® 70W [1]</b>	8.0 ozs	General Protectant
<b>Ziram 76DF [M3]</b>	5.0 lbs	Dormant Peach Leaf Curl (Captan Substitute for Pears)
<b>Agrimycin® 17 W</b>	24.0 ozs	Fireblight Control (Apples & Pears Only)
<b>Ph-D® WDG [19]</b>	6.2 ozs	Powdery Mildew & Scab (Not labeled for stones)

<b>INSECTICIDES: [IRAC]</b>	<b>*RATE</b>	<b>NOTES</b>
<b>Imidan® 70W [1A]</b>	2.0 lbs	Curculio, SWD, Scale & Fruit Moths
<b>Warrior® [3] <b>or</b> Tombstone® [3]</b>	4.0 ozs 2.0 ozs	Borers, Curculio, SWD, BSMB & Fruit Moths
<b>Besiege [3/28]</b>	6.0 ozs	Peachtree Borer, SWD, Aphids, Curculio, Fruit Moths & Thrips
<b>Actara® [4A]</b>	4.5 ozs	Aphids & Curculio
<b>Acramite® 50WS [25]</b>	1.0 lbs	Mites Only as Required
<b>Sevin® 50W [1A]</b>	4.0 lbs	SWD, Japanese Beetles (Apple Thinning Agent) Hornets & Sap Beetles

**\*Rate for 50-100gal Acre Concentrate Spray**

**\*\*Be sure to follow all labels closely for PHI and REI!**

### **Multi-Fruit Spray Calendar\***

<b>March 15 - Dormant Spray</b>	Dormant Oil 4.0 gal (Scales & Mites) Kocide® DF 6.0 lbs
<b>April 5 - Peach Bloom</b>	<b>Apple Tight Cluster</b> Captan® 80WDG 3.0 lbs
<b>April 15 - Peach Petal Fall</b>	<b>Apple Bloom</b> Captan® 50W 3.0 lbs Indar® 2F 6.0 ozs Agrimycin® 17 W 24.0 ozs (Fireblight Control Add for Apples & Pears Only)
<b>April 25 - Peach Shuck Split</b>	<b>Apple Petal Fall</b> Pristine® 14.5 ozs Warrior® 4.0 ozs (Curculio) Agrimycin® 17 W 24.0 ozs (Fireblight Control Add for Apples & Pears Only)
<b>May 5 - 1<sup>st</sup> Cover Spray</b>	Captan® 80WDG 4.0 lbs (Cedar Apple Rust - Higher Rates for Wetter Conditions) Indar® 2F 6.0 ozs (Powdery Mildew & Rusts) Actara® 4.5 ozs (Curculio & Aphids; PHI: 35-Days Pomes, 14-Days Stones)
<b>May 15 - 2<sup>nd</sup> Cover Spray</b>	Captan® 80WDG 3-4.0 lbs Rally® 40W 4.0 ozs (Peach Rusty Spot Only) Warrior® 4.0 ozs (Curculio; PHI 21-Days Pomes, 14-days Stones)

**June 1 -**

**3<sup>rd</sup> Cover Spray**

Captan® 80WDG 3-4.0 lbs  
Topsin-M® 70W 8.0 ozs (Apple Scab Resistance Likely)  
Imidan® 70W 2.0 lbs (Curculio, Scale & Fruit Moths; PHI: 7-Days Pomes, 14-Days Stones)  
Acramite® 50WS 1.0 lbs (For Mites if Required PHI: 7-Days Pomes, 3-Days Stones)

**June 15 -**

**4<sup>th</sup> Cover Spray**

Captan® 80WDG 3-4.0 lbs  
Sulfur 95W 3.0 lbs (0-day PHI; Stones Only)  
Tombstone® 2.0 ozs (Borers, Curculio & Fruit Moths – 7-day PHI)

**July 1-**

**5<sup>th</sup> Cover Spray**

**Early Peach Harvest**  
Captan® 80WDG 3-4.0 lbs (0-day PHI; 1-day REI); or  
Pristine® 14.5 ozs (Early Stones 0-day PHI; Limited to 4 Sprays/Season With Only 2 Consecutively)  
Tombstone® 2.0 ozs (Borers, Curculio & Fruit Moths – 7-Day PHI)

**July 15 -**

**6<sup>th</sup> Cover Spray**

**Peach Harvests**  
Captan® 80WDG 3-4.0 lbs (0-day PHI; 1-day REI)  
Rally® 40W 4.0 ozs (0-day PHI, except apples 14-days)  
Sevin® 50W 4.0 lbs (Japanese Beetle & Moths – 5-Day PHI for All Fruit)

**August 1-**

**7<sup>th</sup> Cover Spray**

**Peach Harvests**  
Captan® 80WDG 4.0 lbs (0-day PHI; 1-day REI); **or**  
Pristine® 14.5 ozs (Early Pomes 0-day PHI)  
Sevin® 50W 4.0 lbs (Japanese Beetle & Hornets – 5-Day PHI for All Fruit)

**August 15 -**

**8<sup>th</sup> Cover Spray**

**Early Apple Harvests**  
**Late Peach Harvest**  
Captan® 80WDG 4.0 lbs (0-day PHI; 1-day REI); **or**  
Pristine® 14.5 ozs (Pomes 0-day PHI)

**September 1 -**

**9<sup>th</sup> Cover Spray**

**Apples and Pears Only**  
Captan® 80WDG 4.0 lbs (0-day PHI; 1-day REI); **or**  
Pristine® 14.5 ozs (Pomes 0-day PHI)  
Sevin® 50W 4.0 lbs (Japanese Beetle & Hornets – 5-Day PHI for All Fruit)

**September 15 -**

**Directed Trunk Bore Spray**

Besiege® 12.0 ozs (Post Harvest for Borers)

### **HERBICIDES: [HRAC]**

<b>*RATE</b>	<b>NOTES</b>
<b>Gramoxone® [22]</b>	1.0 qts Burndown, Directed Spray
<b>Roundup® [9]</b>	1.0 qts Burndown, Shielded & Directed Spray
<b>Devrinol® 50 DF [15]</b>	4.0 lbs Spring/Summer 35-day PHI
<b>Princep® 4L [5]</b>	1.0 qts Spring Dormant, Avoid High pH Soils
<b>Solicam® [12]</b>	2.5 lbs Spring/Fall Dormant, 1-yr Established
<b>Goal® or Galigan® [14]</b>	2.0 pts After Harvest to Spring Bud Swell
<b>Chateau [14]</b>	12.0 ozs After Harvest to Spring Bud Swell
<b>Aim®, Shark® or Venue [14]</b>	2.0 ozs Directed Spray, 0-3-day PHI
<b>Matrix® [2]</b>	4.0 ozs Late Spring, 1-yr Established
<b>Prowl® [3] or Surflan® [3]</b>	2.0 qts Spring/ Summer, Prowl 60-day PHI
<b>Poast® [1]</b>	1.5 pts Summer Grasses, Variable PHI
<b>Karmex® [7] or Diuron® [7]</b>	1.6 qts Spring/Fall Dormant, 3-yr Established

**\*Lowest Use Rate Recommended Initially**

### **Organic Approach Substitutions:**

<b>Conventional Product</b>	<b>Organic Certified Product (OMRI)</b>
Captan® & Topsin-M®	Surround® or Sulfur or Lime Sulfur
Rally®	Kaligreen® (Powdery Mildew Eradicant)
Listed Insecticides	Neem® or Pyganic® or Entrust® (Stone Fruits Only)
Agrimycin®	Agrimycin® or Fixed Copper (Apples & Pears Except During Bloom)
Gramoxone® or Roundup®	Avenger® or Burnout® or AXXE®/BioSafe® or (Scythe® no OMRI label)

**\* Important Note: The calendar spray dates given are an average estimate for Anne Arundel and Prince George's County Orchards, and may vary by location in Maryland. Be sure to adjust your spray schedule application dates accordingly. The above recommendations very closely reflect the current spray program utilized at the University of Maryland Research and Education Center, Upper Marlboro Facility for its research orchards. Remember to always "Read the Label"**

## Spray Program for Multi-Small Fruit Plantings



Many local farms are composed of multi-small fruit combinations producing for fresh market blackberries, raspberries, blueberries, strawberries and grapes. Aggressive fruit spray programs are required to achieve high quality fruit. These multi-small fruit plantings create many spray management challenges for the achievement of good pest control in accordance to label guidelines.

Therefore, the following multi-small fruit spray program for the control of major small fruit pests and diseases may offer some assistance:

**Labeled as noted in 2022 for All Small Fruit – Strawberries, Brambles: Blackberries, Raspberries, Blueberries, and Grapes.**

<b>FUNGICIDES: [IRAC]</b>	<b>*RATE</b>	<b>NOTES</b>
<b>Lime Sulfur [M2]</b>	10.0 gals	Dormant Fall Sanitizer
<b>JMS® Stylet Oil [NC]</b>	1.0 gal	Apply Temp 35-85° F
<b>Kocide® DF [M1]</b>	2.0 lbs	Other Fixed Coppers
<b>Captan® 50W [M4]</b>	2.0 lbs	General Protectant
<b>Ziram® 76DF [M3]</b>	5.0 lbs	General Protectant
(Except for Strawberry use <b>Thiram®</b> )		
<b>Sulfur 95W [M2]</b>	3.0 lbs	General Protectant
(Grape variety sensitivity)		
<b>Rally®40W [3]</b>	4.0 ozs	Powdery Mildew & Black Rot
(Except for blueberry use <b>Tilt®</b> )		
<b>Pristine® [7/11]</b>	14.5 ozs	Fruit Rots, Fruit Spots, Powdery & Downy Mildew & Cane Blight
<b>Elevate® 50 WG [17]</b>	1.5 lbs	Botrytis & Powdery Mildew
<b>Switch® 62.5 WG [9/12]</b>	11.0 ozs	Anthraco-nose, Mummy Berry, Phomopsis, Sour Rot & Botrytis
<b>Phostrol® [33]</b>	4.0 pts	Downy Mildew & Red Stele
<b>Ph-D® WDG [19]</b>	6.2 ozs	Botrytis & Powdery Mildew
(Strawberries and grapes only)		
<b>INSECTICIDES: [IRAC]</b>	<b>*RATE</b>	<b>NOTES</b>
<b>Provado® Admire® [4A]</b>	4.0 ozs	SWD, Grubs, Aphids, Hoppers, Curculio & Whitefly
<b>or Actara® [4A]</b>		
<b>Brigade® WSB [3]</b>	12.0 ozs	BMSB, SWD, Clipper Beetle, Plant Bug, Mites & Root Weevil
<b>Malathion [1B]</b>	2.0pts	SWD, Scale, Fruit Moths & Whitefly
<b>Sevin® 50W [1A]</b>	4.0 lbs	SWD, Japanese Beetles, Hornets & Sap Beetles

\*Rate for 50-100gal Acre Concentrate Spray

\*\*Be sure to follow all labels closely for PHI and REI

### Multi-Small Fruit Spray Calendar\*

<b>March 5 - Spring Dormant Spray</b>	JMS® Stylet Oil 1.0 gal (Scales & Mites)
<b>April 10 - Early Strawberry Bloom</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Thiram® 75WDG 5.0 lbs (Strawberry Only)
<b>April 15 - Strawberry Bloom/ Blueberry Early Bloom</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Ziram 76DF 5.0 lbs (Except Strawberry) Brigade®WSB 12.0 ozs (Clipper Beetle, 0-3-day PHI)
<b>April 25 - Strawberry Full bloom/Blueberry Mid-Bloom/ Grape Bud Break</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Pristine® 14.5 ozs Brigade®WSB 12.0 ozs (Clipper Beetle, 0-3-day PHI)
<b>May 5 - Strawberry 1<sup>st</sup> Cover &amp; Early Harvest Spray/ Blueberry Full Bloom/Grape &amp; Bramble Shoot Growth</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Elevate® 1.5 lbs (0-day PHI) Provado® 4.5 ozs (Curculio & Aphids; 7-Day PHI)
<b>May 15 - Strawberry 2<sup>nd</sup> Cover &amp; Harvest Spray/ Blueberry 1<sup>st</sup> Cover/Grape Bloom Spray/Bramble Cane Development</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Switch® 11.0 ozs (0-day PHI) Malathion® 2.0 pts (Curculio, Scale & Fruit Moths; 0-3-day PHI)
<b>June 1 - Strawberry 3<sup>rd</sup> Cover &amp; Harvest Spray/Blueberry 2<sup>nd</sup> cover/Grape 1<sup>st</sup> Cover/Bramble Bloom</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Pristine® 14.5 ozs (0-day PHI) Malathion® 2.0 pts(Curculio, Scale & Fruit Moths; 0-3-day PHI)

<b>June 15 - Strawberry 4<sup>th</sup> Cover &amp; Harvest Spray/Blueberry 3<sup>rd</sup> Cover &amp; Early Harvest/ Bramble 1<sup>st</sup> Cover/ Grape 2<sup>nd</sup> Cover</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Ph-D® 6.2 ozs (0-day PHI) Sevin® 50W 4.0 lbs (sap beetle, 5-Day PHI)
<b>July 1- Strawberry Renovation/Blueberry 4<sup>th</sup> Cover &amp; Harvest/ Bramble 2<sup>nd</sup> Cover &amp; Early Harvest/ Grape 3<sup>rd</sup> Cover</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Pristine® 14.5 ozs (0-day PHI) Rally 40 W 4.0 ozs (Except Blueberry, 0-day PHI) Brigade®WSB 12.0 ozs (0-3-day PHI)
<b>July 15 - Strawberry Post Harvest/ Blueberry 5<sup>th</sup> Cover &amp; Harvest/ Bramble 3<sup>rd</sup> Cover &amp; Harvest/ Grape 3<sup>rd</sup> Cover &amp; Veraison</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Switch® 11.0 ozs (0-day PHI) Sulfur 95W 3.0 lbs (0-day PHI) or Kocide DF 2.0 lbs (0-day PHI) Malathion 2.0 pts (0-3-day PHI)
<b>August 1- Strawberry Post Harvest/ Blueberry 6<sup>th</sup> Cover &amp; Harvest/ Bramble 4<sup>th</sup> Cover &amp; Harvest/ Grape 4<sup>th</sup> Cover &amp; Early Harvest</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Pristine® 14.5 ozs (0-day PHI) Sevin® 50W 4.0 lbs (Japanese Beetle, 5-Day PHI)
<b>August 15 - Strawberry, Blueberry &amp; Bramble Post Harvest/ Grape 5<sup>th</sup> Cover &amp; Harvest</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Elevate® 1.5 lbs (0-day PHI) Phostrol® 4.0 pts (0-day PHI) Sevin® 50W 4.0 lbs (Hornets – 5-Day PHI for All Fruit)
<b>September 1 - Strawberry Post Harvest/ Grape 6<sup>th</sup> Cover &amp; Harvest</b>	Captan® 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Phostrol® 4.0 pts (0-day PHI) Sevin® 50W 4.0 lbs (Hornets – 5-Day PHI for All Fruit)
<b>October 30</b>	
<b>November 25 Fall Dormant</b>	Lime Sulfur 10.0 gals Kocide DF 2.0 lbs (0-day PHI)

<b>HERBICIDES: [HRAC]</b>	<b>*RATE</b>	<b>NOTES</b>
<b>Gramoxone® [22]</b>	1.0 qts	Burndown, Directed Spray
<b>Roundup® [9]</b>	1.0 qts	Burndown, Shielded & Directed Spray
<b>Devrinol® 50 DF [15]</b>	4.0 lbs	Spring/Summer 35-day PHI
<b>Princep® 4L [5]</b>	1.0 qts	Spring Dormant, Avoid High pH Soils
<b>Solimax® [12]</b>	2.5 lbs	Spring/Fall Dormant, 1-yr Established
(Except strawberry)		
<b>Aim® [14] or Shark® [14]</b>	2.0 ozs	Directed Spray to Weeds, 3-day PHI
<b>Venue [14] (Grapes only)</b>	2.0 ozs	Directed Spray, 0-day PHI
<b>Chateau [14]</b>	12.0 ozs	After Harvest to Spring Bud Swell
(Except brambles)		
<b>Zeus Prime XC [14]</b>	7.5 ozs	Shielded Spray, 3-14 day PHI, Avoid >7 pH soil, 2-yr Established
(Except strawberry)		
<b>Surflan® [3]</b>	2.0 qts	Spring/ Summer, Prowl 60-day PHI
(Except strawberry)		
<b>Poast® [1]</b>	1.5 pts	Summer Grasses, Variable PHI
<b>Sinbar® [5]</b>	4.0 ozs	Fall Dormant, 1-yr Established

\*Lowest use herbicide rate recommended initially

Consult label for specific fruit applications

#### Organic Approach Substitutions:

Conventional Product	Organic Certified Product (OMRI)
Captan®	Surround® or Sulfur or Lime Sulfur
Rally®	Kaligreen® (Powdery Mildew Eradicant)
Listed Insecticides	Neem® or Pyganic® or Entrust® or Dipel®
Gramoxone® or Roundup®	Avenger® or Burnout® or AXXE®/BioSafe® or (Scythe® no OMRI label)

\* Important Note: The calendar spray dates given are an average estimate for Anne Arundel and Prince George's County small fruit production, and may vary by location in Maryland. Be sure to adjust your spray schedule application dates accordingly. The above recommendations very closely reflect the current spray program utilized at the University of Maryland Research and Education Center, Upper Marlboro Facility for its research fruit plots. Remember to always "Read the Label".

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