

Pest Management Brambles & Blueberries











Neadow Bush & Hops Yard013 CMREC, Upper Marlboro



MARYLAND

Speay Program for EXTENSION Multi-Small Fruit Plantings

Many total farms are composed of multi-small fruit combinations producing for flesh market blackberries, raspberries, blueberries, strawberries and grapes. Aggressive trult spray programs are required to achieve high quality but. These multi-small buil 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 2018 for All Small Fruit - Strawberries, Bra Blackberries, Raspberries, Blueberries, and Grapes.

RATE	MOTES.
10.0 gals	Dormant Full Sanitiper
1.0 gal	Apply Temp 35-65° F
2.0 be	Other Fixed Coppers
2.0 fbs	General Protectant
5.0 bs	General Protectant
Thiram")	
3.0 bs	General Protectunt
4.0 ccs	Powdery Mildew & Black Rot
rule")	
14.5 ons	Fruit Rate, Fruit Spate, Powdery & Downy Mildew & Cure Slight
1.5 lbs	Botrytis & Powdery Mildew
11.0 one	Anthracnose, Hummy Berry, Phomopsis, Sour Rot & Botrytis
4.0 pts	Downy Mildew & Red Stelle
6.2 cas ely)	Sotrytis & Powdery Mildee
PRATE	MOTES
4.0 cm	SWD. Grubs. Aphids. Hoppers. Curculio & Whitefly
12.0 ons	8PISB, SWD, Clipper Beefle. Plunt Bug, Mites & Root Weev!
2.6pts	SWD, Scale, Fruit Moths & Whitefly
4.0 bs	SWD, Jupanese Beetles. Homets & Sup Beetles
al Apre Con	centrate Spray
	10.0 guh 1.0 guh 1.0 guh 2.0 ks 5.0 ks 5.0 ks Thirams") 3.0 bs 1.5 bs 11.0 oss 4.0 pts 4.0 pts 4.2 oss 0ty) "RATE 4.0 cs 12.6 cs 12.6 cs

** Be sure to follow all labels closely for PHI and REII

Madel Course Course Colonsland

MUIU-5	mail Fruit Spray Calendar*
March 5 -	Spring Dormant Spray 365° Stylet Oil 1.0 gal (Scales & Mites)
April 10 -	Early Strawberry Bloom Cuptur* 50W 2.0 Bs (0-3 Duy PHI 5.2-Duy REE) Thisum* 75WDS 5.0 Bs (Strawberry Only)
April 15 -	Stramberry Bloom/ Blooberry Early Bloom Captur's 50W 2.5 Bs (0-3 Our PMI B 3-Our REI)
April 25 -	Drum 760F 5.0 Bs (Except Strawberry) Brigade *WSB 12.0 ccs (Clipper Beetle, 0-3-day FHE) Strawberry Full blocks/Blaeberry Hild-Blocks/ Grape
	Bod Break Captur® 50W 2.0 lbs (0-3 Day PHI 8.2-Day RIE) Printine® 14.5 ccs
	Brigude*W18 12.0 ocs (Clipper Beetle, 0-3-day PHI)
May 5 -	Strawberry 1st Cover & Early Harvest Spray/
	Blueberry Full Bloom/Grape & Bramble Shoot Growth

Elevate *1.5 Rs (0-day 041) Provado* 4.5 ccs (Curculo & Aphide: 7-Day PHE) May 15 -Strawberry 2rd Cover & Harvest Spray/ Blueberry 3rd Cover/Grape Bloom Spray/Bramble Cane

Captur* 50W 2.0 lbs (0-3 Day PHI & 2-Day REI) Switch* 11.0 cos (0-day PHI)

Capture* 50W 2.0 Bis (0-3 Day FHC & 2-Day REI)

Malathion® 2.0 pts (Curculio, Scale & Fruit Mothe) 0-3-day PHD

Strawberry 3rd Cover & Harvest Spray/Blueberry 2rd cover/Grape 1rd Cover/Bramble Bloom Captan* 50W 2.0 lbs (0-3 Day FHI & 2-Day RIII)

Printine* 14.5 ozs (0-day PHI) Malathorn* 2.0 pts[Curculo, Scale & Fruit Hoths: 0-3-day PHI)

June 15	Strawberry 4th Cover & Harvest Spray/Blueberry 3rd Cover & Early Harvest/ Bramble 1th Cover/	
	Grane 2 rd Cover	

Captan* SOW 2.0 Rs (0-) Day PHI & 2-Day REI) Ph-O* 6.2 ozs (0-day PHE)

Sevin* 50th 4.0 lbs (sap beetle, 5-Day PHC) Stramberry Resovation/Blueberry 4th Cover & July 1-Harvest/ Bramble 2rd Cover & Early Harvest/ Grape 3rd Cover

Capture" 50W 2.0 Be (0-3 Day PHI & 2-Day REI) Printing* 14.5 cm (0-day PHI) Rafly 40 W 4.0 ccs (Except Blueberry, 0-day PHI))

Brigade*WSB 12.0 cos (0-3-day PHC) Stramberry Post Harvest/ Blueberry 5th Cover & Harvest/ Bramble 3rd Cover & Harvest/

e 3rd Cover & Veraison tun" 50W 2.0 Bs (0-) Duy PHE & 2-Duy REI) O ges (0-day PHI)

Sulfur 95W av (2-day PHI) or Kacide DF 2.0 to

Mulathion 2.0 pts (0:3-day Strawberry Post Harvest/ Bloeberry Harvest/ Bramble 4th Cover & Harvest/ Grape 4th Cover & Early Harvest

Capture 50W 2.0 fbs (0-3 Day PHI & 2-Day REI) Printing* 14.5 cas (0-day PHI)

Sevin* 50tt 4.0 fbs (Japanese Seetle, 5-Day FHE) August 15 - Strawberry, Blueberry & Bransble Post Harvest/ Grape 5th Cover & Harvest

Capton* 50W 2.0 fbs (0-3 Day PHE & 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 6HI for All Fruit)

September 1 - Strawberry Post Harvest/ Grape 6th Cover & October 30 Harvest

Captain* 50W 2.0 lbs (0-3 Day PHI & 3-Day REI) Phostroff 4.0 pts (0 day PHI)

Sevin® 50W 4.0 Rs (Hornets - 5-Day PHI for All Fruit) **Fall Domnaut**

Lime Sulfur 10.0 guis Kocide OF 2.0 lbs (0-day PHE)

HERBOCIDES: [HRAC]	TRATE	NOTES
Gramosone *[22]	1.0 qts	Burndown, Directed Spray
Roundup * [9]	1.0 gts	Burndown, Shielded & Directed Spray
Deurisol * 50 DF [15]	4.0 fm	Spring/Summer 15-day PHE
Princep * 4L [5]	1.0 ots	Spring Dormant, Avoid High pH Soils
Selicam* [12] (Except strusberry)	2.5 fbs	Spring/Full Dormant, 1-yr Estublished
Aim* [14] or Shark* [14]	2.0 ops	Directed Spray to Weeds, 3-day PHI
Versue [14] (Grupes only)	2.0 oes	Directed Spray, 0-day PHI
(Except brambles)	12.0 ocs	After Hurvest to Spring Bud Swell
Surflan* [3] (Except strusberry)	2.0 gts	Spring/ Summer, Provil 60-day PHI
Poast*[1]	1.5 pts	Summer Grusses, Variable PHC
Simbar * [5]	4.0 oos	Full Dormant, 5 yr Established
"Leanest Use Ha	de Recorni	sended toitially

Organic Approach Substitutions:

November 25

Conventional Product	Organic Certified Product (OMILI)		
Capturi	Surround [®] or Sulfur or Lime Sulfur		
Rally*	Kaligreen* (Powdery Mildew Bradicant)		
Listed Insecticides	Neem* or Pygenic* or Entrust* or Dipel*		
Gramosone* or Roundup*	Averger* or Burnout*or AXXE*/BioSufe* or (Scythe* no OHRI lubel)		

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 Southern 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".

R. David Mesor Poincipal Agent, Agriculture memoral Population



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 2018 for All Small Fruit - Strawberries, Brambles: Blackberries, Raspberries, Blueberries, and Grapes.

<u>Little Berries - Blackberry, Raspberry</u>

Recommended Rootstocks

◆ Propagated Cuttings - Certified Virus Free

Ripening Dates

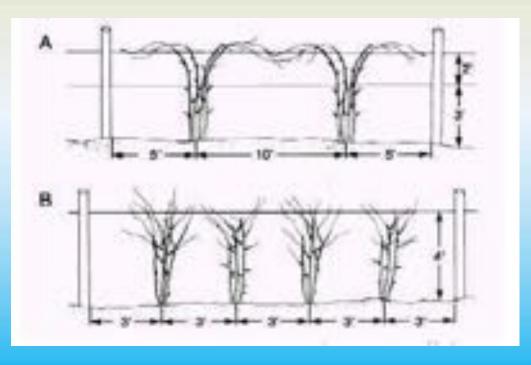
- ♦ June 15 July 15 (Spring)
- ♦ September October (Fall)

Training Systems

♦ Wire Trellis, Or Cross-Arm







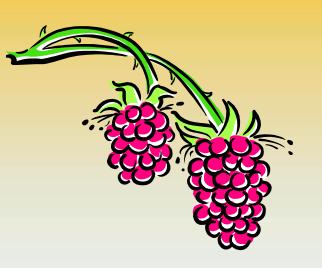
<u>Little Berries - Blackberry, Raspberry</u>

Pruning

- ♦ Remove All Fruited Canes To The Crown
 After Harvest
- ♦ Cut Renewal Canes to 3-4'

Planting Instructions & Densities

♦ Space Plants 4-6' In Row By 8-10' Between Row

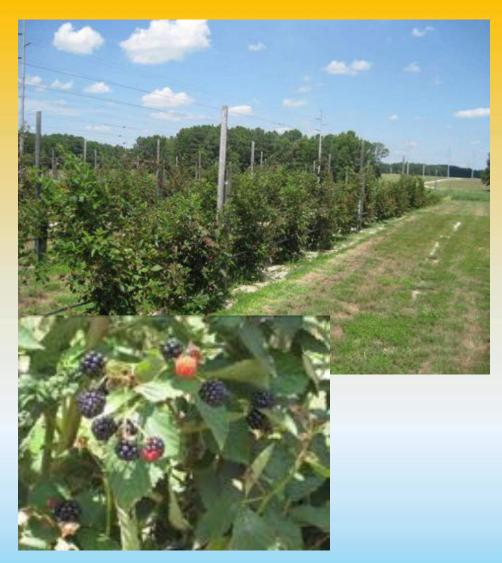




Bramble Pest Problems

Diseases: Anthracnose, Cane Blight, Spur Blight, Gray Mold, Orange Rust

Insects: Blackberry
Psyllids, Japanese
Beetle, Plant Bugs,
Cane Borers, Scale &
Spider Mites





MUNICYLAND SALES NEEDED

Speay Peognam for

Multi-Tree Fruit Orchards

Many local orchants are composed of multi-fruit combinations producing for fresh market oppies, peaches, peans, plums, nectatives, and chemies. Aggressive that they spray programs are required to achieve high quarty that These must that connects create many spray management analysiges for the achievement of good past control in accordance to later guidelines.

Therefore, the following must that probant apray program for the control of major tree that peols and diseases may offer some assistance: Cabeted as noted in 2016 for All Tree Fruit - Pomes: Applies & Pears Stones:

Pasches, Plume, Nectorines, and Cherries.

PUMPERCIDES: DPRIACE	TRATE	MOTES	
Captan' SOWOC [H4]	350%	General Protections	
(Not Labered for Pears)	Reduce Rates for	Cherries)	
Dormant Oil (NC)	4.0 gal	Apply Temp 35 657.	ļ
Kockle OF [M1]	6.0 be	Other Fixed Copper	1
(Circust: Displaced County	Children .		

4.0 cm Powdery Hides Rafty*40W [3] Sulfur 95W [M2] 3.0 fbc General Protectant Gem* 500 SC [11] Street Rot & Peach Solls 340 645 (Stones Coly) as Adamant' SOWE (3/11)

Brown Rds, Feech Scalo 6

Hilder, Sob, Furb &

Powdery Hildew & Rusti

Fowders Hilden

Brown Rot, Powdery

Frost Spots

6.0 68 (Stones Evoya Plum) Printine" [7/11] or 14.5 cm (Limited to 4 Sprays/Season) With Cirtly 3 Contecutivels) Inday 25 [1] 6.0 sps

Topon-M* TOW [1] 8.0 600 General Protection Dram 260F [HII] 5.0 BH Domark Peach Leaf Curl (Captan fodelitate for Pearl) General Protections Agrimucin' 17 W 24.0 obs Finishight Control (Applied & Peterle Circle)

6.2 cm. Fredery Milder & Scall Mr-0, MDE [11] (Not labered for stones):

INSECTICIOES: (IRAC). SMATE MOTES

Carcalio, SWEI, Scole B. Smidan* 70W (LA) Fruit Hoths Warrior* [3] 4.0 pps BOWN, CARDAN TIND, NOME or Tumbetone*(3) 2.0-606 & Hult Moths Actava* (4A) Aptrodo & Curcular 4.5 00 Loroban' Advanced (SR) 1.3-pts Domant & Trusk Bone Acramite' 50WS (25) Miles Circly as Required 1.0 fm Sevin' SIW [18] 4.0 Bu 1975, Ispanese Beetles,

(Apple thinning Agent) Panywells III Sinp Develops *Rate for 50-100gal Acre Concentrate Sprey ** Se sure to follow all labels closely for PNI and REIT

Multi-Fruit Spray Calendar*

March 15 - Dormant Spray

Domant GE 4.0 gel (Scales & Hites) footh? DF 6.0 for

Lorsharf 46 1.5 oto (Mites)

April 5 -Peach Bloom Apple Tight Chuster Captor" streets 3.0 bs.

April 15 -Peach Petal Full Apple Bloom Captavi" 50W 3.0 Be

Deby" 3F 5.0 cm Agrimycer* 17 W 14/3 rus (Fiveblight Control Add for Applies & Pears Onto)

April 25 -Peach Shuck Split. Applie Petal Full

> Problem 14.5 cus Warren' 4.0 ors (Cartulie)

Agrimycer® 17 W 34.0 ops (Fiveblight Control Add for Applied & Fedds (DNy.)

1" Cover Spray May 5 -Capton* 809/DG 4.0 Ibn (Cedar Apple Ruit - Higher Rates for Wetter Conditions): Inday" 3F 6.0 six (Powdery Midew & Rusts)

Arters* 4.5 cos (Curcule & Aylletic, PHI); 35-Clays. Pomes, 14-Days Stones) May 15 -2" Cover Spray

Captavi* SOMDG 3-4.0 Bx Rafly * 40W 4.0 cox (Feach Rusty Spot Only) Warrant 4.0 ces (Curculio, PHE 21-Days Pomes, 14-days Stones

June 1 -3" Cover Spray

CHEM* BONDS 3-4.0 By Topico Mº 70W 6.5 cosCApple Scali Resistance Likely) Implay? 20W 3.5 Bit (Clarish), Solie & Fruit Hoths; FHE: 7-Days Fornes, 34-Days Stones) Actorists? 50WS 1.0 Bit (For Mittel If Required PHI):

June 15 -4th Cover Spray

Caybar? RONDG 3-4.0 Bis. Suffer 95W 3.0 Bis 50-day PHC Stones ONLY Tombetone* 2.0 cut (Borers, Curculto B. Pruit Holto-T-day PHD

7-Dave Pones, 3-Dave Stones)

5th Cover Spray July 1-**Early Peach Harvest**

> Captan* 80WDG 3-4.0 fm (8-day PHE; 1-day PEE); or Pristrie* 14.5 cos (Karty Stones O-Gay PHC; Limited to 4 Sprays/Sesson With Only 2 Consecutively) Tombelone* 2.0 cos (Borers, Curculo & Pruit Matte --T-Oak/PHD

July 15-6th Cover Spray Peach Harvests

Captain* NOWING 3-4.0 Bis (0-day PHE: 1-day REE) Rally* 40W 4.0 cm(3-douPH), everet repoles 14-dount Sevor* SON 4.0 the Clapanese Seetle & Moths --5-Cay PHE for All Profit

yet Cover Spray August 1-

Peach Harvests Captar* NSWDG 4.0 fts (0-day PHE; 1-day REE; or Printing* (4.5 nm (Early Pomes (I-day Phil)) Sever 50W 4.0 lbs (Departure Beetle & Fromuts -5-Clay PHE TOY All PRIVE!

August 15 -Cover Spray Apple Harvests Late Per

Tarvest he III-day PHC 1-day RED; or Captorn* Billion Proteins* 14.5-ton (From

9th Cover Spray September 1 -

Applies and Pears Only Captain* 60WDG 4.0 Bit (0-day PHI; 1-day Re Printing* 14.5-sax (Pones 0-day PHC) Sevin" 50W 4.0 Ibs (Japanese Seetle & Harrets --

5-Day FHE for All Fruit: September 15 - Trunk Bore Spray London* 40 1.5 gts (Post Harvest for Bones)

HERBICIDES: [HRAC] PRATE MODES. Burndown, Directed Sprite Gramowone * [22] 1.0 00 Roundup * (9) Surricount, Sheeded & Directed Spray 1.0-086 Devriced * 50 0# [15] 4.0 fm Spring/Summer 35-day PHS. Princep * 46: [5] 1.0-16 Spring Domant, Avoid High yet Solls Solicam* (12) 2.5 fm Spring/fall Domant, [or Established Good " or Golligen" [14] 2.0 (80) After Harvelt to Spring Bud Swell Chateau (14) 12:0 000 After ingreed to figring duc fixed: Alm", Shark" or Venue (14) 2.0 cm. Directed Spiley, 0-3-day FRE. Habris * [2] 4,0 66 Late Soring, 3 or Established Spring) Summer, Provi 60-day Phill Promi * [3] or Surflan* [3] 2.0-05. Poant* [11] 1.5-00 Surviver Grandes, Variable PHE Karmer * (7) or Olumbe* (7) 1.6-03. Spring/fail Domark, 3-or Established

Creanic Appresach Substitutions:

Conventional Product	Greatic Certified Product (GMRI) Surround* or Sulfur or Line Sulfur		
Captan [®] & Topson H [®]			
Faily*	Kaligmen* (Prividery Midew Eradicant)		
Linked Ensecticides	Reserv [®] or Propersic [®] or Entrust [®] (Stone Private Only)		
Agrieycu*	Agrimucin' or Flued Copper (Applies & Pears Except During Boom)		
Grammone ² or Rounting ²	Average" or Burnout"or AXX2"/Bellete or (Souther no CHRS lates)		

*Lowest Use Rate Recommended Initially

* important Nobe: The calendar spray dates given are an average estimate for Jame Jayandal and Prince George's County Occhards, and may vary by toculius in Engiture Maryland. Its sure to select your spray schedute application dates accordingly. The above recommendations very closely reflect the current spray program officed at the University of Waryland Research and Education Center, Upper Wortboro Facility for its research. prohards. Remember to always "Read the Label

R. Devid Morro Principal Agent, Agreement alcoholdsons.



FUNGICIDES: [FRAC]	"RATE	NOTES
Lime Sulfur [H2]	20.0 gals	Dormant Fall Sanitizer
JMS* Stylet Oil [NC]	1.0 gal	Apply Temp 35-05" F
Kocide* DF [M1]	2.0 lbs	Other Fixed Coppers
Captan* 50W [M4]	2.0 lbs	General Protectant
Ziram ⁶ 76DF [M3]	S.D Bo	General Protectant
(Except for Strumberry use	Thiram*)	
Sulfur 95W [M2]	3.0 lbs	General Protectant
(Grupe variety sensitivity)		
Rally*40W [1]	4.0 are	Powdery Mildew & Black Rot
(Except for blueberry use T	We's	
Pristine* [7/11]	14.5 ozs	Fruit Rots, Fruit Spots, Powdery & Downy Mildew & Care Blight
Elevate* 50 WG [17]	1.5 bs	Botrytis & Powdery Mildew
Switch* 62.5 WG [9/12]		Anthruchose, Mummy Berry, Phomopsis, Sour Rot & Botrytis
Phostrof* [23]	4.0 pts	Downy Mildew & Red Stele
Ph-D* WDG [19]	6.2 ccs	Botrytis & Powdery Mildew

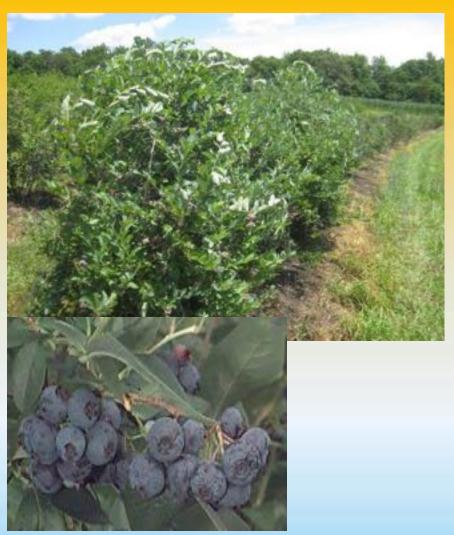
(Strawberries and grapes only)

FUNGICIDES: [FRAC]	*RATE	NOTES
Lime Sulfur [H2]	10.0 gals	Dormant Fall Sanitizer
JMS* Stylet Oil [NC]	1.0 gal	Apply Temp 15-05° F
Kocide* DF [M1]	2.0 lbs	Other Fixed Coppers
Captan* 50W [M4]	2.0 lbs	General Protectant
Ziram ⁶ 76DF [H3]	S.D Bo	General Protectant
(Except for Strawberry use	Thiram*)	
Sulfur 95W [M2]	3.0 lbs	General Protectant
(Grupe variety sensitivity)		
Rally*40W [3]	4.0 are	Powdery Mildew & Black Rot
(Except for blueberry use T	We's	
Pristine* [7/11]		Fruit Rots, Fruit Spots, Powdery
		& Downy Mildew & Care Blight.
Elevate* 50 WG [17]	1.5 bs	Botrytis & Powdery Mildew
Switch* 62.5 WG [9/12]		Anthruchose, Mummy Berry,
		Phomopsis, Sour Rot & Botrylis
Phostrol* [23]	4.0 pts	Downy Mildew & Red Stele
Ph-D* WDG [19]	6.2 ccs	Bobytis & Powdery Mildew
(Strawberries and grapes o	nly)	

Blueberry Pest Problems

Diseases: Botrytis Twig & Blossom Blight, Mummy Berry

Insects: Fruit Worms,
Blueberry Maggot, Plum
Curculio, Japanese
Beetle, Scale, Yellow
Necked Caterpillars





MAKENDAND

Speay Peograms for Multi-Tree Fruit Orchards

Many local orchards are composed of multi-fruit combinations producing for fresh market popies, peaches, peach, plums, rectaines, and chemiss. Aggressive that thee spray programs are required to achieve high quality that. These must that connects areale many spray management analogues for the achievement of good past control in accordance to later guidelines.

Therefore, the following must that probant apray program for the control of major tree that peols and diseases may offer some assistance: Catheted as noted in 1916 for All Tree Fruit - Pomes: Applies & Pears Stones: Pasches, Plume, Nectorines, and Charries.

PUNGICIDES: OFRACT	PRATE	NOTES
Captan' SOWDG [H4]	35036	General Protections
(Not Labered for Pears; Red.	uce flates fo	ir (Derries)
Dormant Oil [NC]	4.0 gal	Apply Temp 35 dS* F
Kockle' OF [M1]	6.0 be	Other Fixed Coppers
(Storet: Domant Spray Onli	Wi .	
Rally*40W [3]	4-0 cm	Previous Middle
Sultur 95W [M2]	3.0 fbs	General Protectant
Gem* 500 SC [11]	3-0 ors	Street Rot & Peach Scall.
(Stones Only) or		
Adament' 50WG (3/11)	6.0 sex	Brown Rds, Peach Scalo 6
(Stones Evoyo (Num.)		Fowders Mildes
Printine" [7/11] or	14.5 om	Brown Rot, Powdery
(Limited to 4 Sprays/Season		Hilden, Scot, Rusts &
With Girly 3 Consecutivels()		Fruit Spots
3ndar* 2F [3]	6.0 sps	Powdery Hildew & Rushi.
Topos or TOW [1]	8.0 105	General Protection
Dram 760F [H3]	5.0 th	Domait Peop Leaf Curl
(Captan Substitute for Pearl	0	General Protections
Agrimycin' 17 W	24.0 obs	FiveRight Control
(Applies & Pearls Only)		

6.2 cm Powdery Middle 8 Scalb Mr-0, MDE [18] their labeled for stones) INSECTICIOES: (IRAC). MOTES. Gercalio, SWES, Stoke S. Imidan' 70W (1A) Fruit Hoths Warrior* [3] BOWN, CAYOURS, EWD, BOME 2.0-600 Is thus Moths. or Tombetone*(3) Actava* (4A) Authorit & Cuerculai 45.00 Lorobar* Advanced [18] 1.3-ets Domant & Trusk Borer Acramite' 50WS (25) 1.0 fm Hitles Only as Required Servin' SOW [1A] 4.0 Bu 1970, Isophese Beetles (Apple thinning Agent) Promets & Sap Deetles

"Rate for 50-100gal Acre Concentrate Sprey ** Be sure to follow all labels closely for PVII and REII

Multi-Fruit Spray Calendar*

March 15 - Dormant Spray

Domare OE 4.0 gal (Scales & Hites) footh" DF 6.0 fm

Lorshart 40 1.5 gts (Mites)

April 5 -**Peach Stroom** Apple Tight Cluster

Captor" screeps 3.0 bs. Peach Petal Full April 15 -

Apple Bloom Captavi" 50W 3.0 fbs Deby* 3F 5.0 cm

Agrimycer® 17 W 34-0 cus (Fiveblight Control Add for Applies & Peters Critic)

April 25 - Peach Shuck Split Apple Petal Pull Protone* 14.5 cus

Warren' 4.0 cm (Cartulio)

Agrimycin® 17 W 34.0 cgs (Fineblight Control Add for Applied & Feet's Chity)

May 5 - 1" Cover Spray

Captors* 80900G 4.0 Ibo (Cividar Applie Ruit: - Highwi Sales for Wetter Conditions): Inda* 3F 6.5 six (Powdery Milden & Rusts) Afters* 4.5 cos (Curculo & Ayhati; PHI; 35-Days)

Pomes, 14-Days Stones): May 15 - 2" Cover Spray

Captan' 10MDG 3-4.0 by Raily * 40W 4.0 cax (Peach Rustly Spot Only) Warrant 4.5 cas (Curculo, PHE 21-Days Former, 14-days Stones

June 1 -3" Cover Spray

CARRY STREET 3-5.0 By Topico MF 70W 6.0 cosCApple Scali Resistance Likely) bridge? 70W 2.5 Bit (Carpulle, Sope & Fruit Hoths; FHE: 7-Days Fornes, 14-Days Stones) Action by 50 WS 1.0 Bit (For Pilite If Required PHE):

7-Days Potes, 3-Days Stones)

June 15 -4th Cover Seray

> CARRY RINDS 3-6.0 Br. Suffur 95W 3.0 Bis (0-day PHC Stones Only) Tombissone* 2.5 can chorers, Curculo & Prof. Molto-7-day PHD

July 1-5th Cover Spray

Early Peach Harvest

Captain* 80WDG 3-4.0 Bit (8-day PHE; 1-day PEE); or Pristine" 14.5 cus (Early Stones O-day PHC; Limited to # Sprays/Session With Crity 2 Commodition(s) Tombelone* 2.0 cos (Borers, Curculo & Pruit Maths --7-Day PHD

July 15 -6th Cover Spray

Peach Harvests Captar* NOVDG 3-4.0 by (5-day PHE 1-day RED) Rally * 40W 4.0 cm(3-dayFH), evcspt apples 14-days) Sever* SOM 4.0 the Classonese Seetle & Moths --5-Gey PHE for All Proof:

y^{ou} Cover Spray August 1-

Peach Harvests Captar* NIWDG 4.0 fbs (D-day PHE; 1-day REE; or Printing* 14.5 nm (Early Pomes (I-day Phl.)

Sevin" 50W 4.0 lbs (Dapanese Beetle & Homets -5-Day (HE for All Prof.)

E" Cover Spray August 15 -Early Apple Harvests Late Peach Harvest

> Capter* 80WDG 4.0 bis (0-day PHE; 1-day REE); or Proteins* 14.5-cos (Ponnes 0-day Pril)

eptember 1 - 9th Cover Spray

Applies and Pears Only Captain* 80WDG 4.0 Bis (0-day PHI; 1-day RED); ar

Prictive* 14.5 cas (Pones 0-day PHC) Sever" 50W 4.0 Rs. Clepanete Seetle 5: Harrett --5-Day 295 by All fruit:

September 15 - Trunk Bore Spray

Lorsban* 40 1.5 gts (Post Harvest for Bores)

HERRICISM "BATE RECORD. Burndown, Directed Spriler Roundup * (9) Surnatives, Sheeded & Directed Spray Devriced * 50 0# [15] Spring/Summer 35-day PHS Princep.* 46:[5] 1.0-10 or Doment, Avoid High yet Solls Solicam* (12) 2.5 fm Coment, I yr Ddoblolwd Good " or Goligen" [14] After Harvest 2.0 (80) ing Bud Swell Chateau [14] After Harvest to Survey 12:0 cps Alm", Shark" or Venue (14) 2.0 cm Directed Spiley, 0-3-day PTC Hatris * [7] 4.0 88 Late Spring, 3-yr Established Properl * [3] or Surflan* [3] Spring) Summer, Provi 60-day Phili 2.0-95 Poant* [11] 1.5-pts Survivor Granoes, Variable PHE Karmer " [7] or Olumon" [7] 1.6-03. Spring Fall Domark, 3-or Established *Lowest Use Rate Record school besidency

Cleannic Annesach Sphotitutions:

Conventional Product	Grganic Certified Product (GHRI)		
Captan [®] & Topson H [®]	Surround [®] or Sulfur or Lime Sulfur		
Fally*	Kaligreen* (Princiery Mildew Eradicant)		
Linked Ersectrodes	Resert" or Pygens;" or Entrust" (Stone Prute Only)		
Agrimycs/*	Agrimycinf or Flued Copper (Applies It. Pears Except Curing Boom)		
Grannove ^a or Rountop ^a	Averagen [®] or Burnouth'er ANX [®] /Berbate ^a or (Seatthe [®] no CHMS laber)		

* important hole: The calendar spray dates given are an average estimate for Anna Arundal and Prince George's County Orchards, and may vary by toculius in Equiture Maryland. Its sure to adjust your spray schedule application dates accordingly. The above recommendations very closely reflect the current spray program offices at the University of Maryland Research and Education Center, Upper Muritors Facility for its research prohards. Remember to always "Read the Label

W. Thorst Moore Principal Agent, Agreement



INSECTICIDES: [IRAC]	*RATE	NOTES
Provado® Admire ® [4A] or Actara® [4A]	4.0 ozs	SWD, Grubs, Aphids, Hoppers, Curculio & Whitefly
Brigade® WSB [3]	12.0 ozs	BMSB, SWD, Clipper Beetle, Plant Bug, Mites & Root Weevil
Malathion [1B]	2.0pts	SWD, Scale, Fruit Moths & Whitefly
Sevin® 50W [1A]	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!

INSECTICIDES: [IRAC]	*RATE	NOTES
Provado® Admire ® [4A] or Actara® [4A]	4.0 ozs	SWD, Grubs, Aphids, Hoppers, Curculio & Whitefly
Brigade® WSB [3]	12.0 ozs	BMSB, SWD, Clipper Beetle, Plant Bug, Mites & Root Weevil
Malathion [1B]	2.0pts	SWD, Scale, Fruit Moths & Whitefly
Sevin® 50W [1A]	4.0 lbs	SWD, Japanese Beetles, Hornets & Sap Beetles
# Paka 6- FO 100-	-1	the state of the s

*Rate for 50-100gal Acre Concentrate Spray

^{**}Be sure to follow all labels closely for PHI and REI!

MARKUNDA

Speay Peograms for Multi-Tree Fruit Orchards

Many local orchards are composed of multi-fruit combinations producing for heap market popies, pasitives, plants, plums, rectaines, and charries, Aggressive trult tree spray programs are required to achieve high quarty fruit. Ness multi-fruit onmarks create many spray management orsalenges for the achievement of good pest control in accordance to later guidelines.

Therefore, the following must that probant apray program for the control of major tree that peols and diseases may offer some assistance. Catheted as noted in 2016 for All Tree Fruit - Pomes: Applies & Pears Stones:

Peaches.	Pluma.	Nactari	MAK.	and I	CHAP	Sec.	
THE PARTY NAMED IN							-

FUNGICIOES: SPRACE	PRATE	MOTES
Captan' SOWDG [H4]	350%	General Protections
(Not Labered for Pears; Re-	duce flates h	ir (Derries)
Dormant Oil (NC)	4.0 gal	Apply Temp 35-657 F
Hockle' OF [M1]	6.0 be	Other Fixed Coppers
(Stores: Domant Spray O	nAci .	
Rafty*40W (3)	4-0 cm	Previous Midden
Sultur 95W [M2]	1.0 fbr	General Protectant
Gem* 500 SC [11]	3-0 ore	Street Rot & Peach Scall
(Stones Only) er		
Adamant' 50WG (3/11)	6.0 see	Brown Rút, Peach Scalo &
(Stones Evoyot Plums)		Fowders Mikley
Printine* [7/11] or	14.5 cm	Brown Rot, Prindlety
(Limited to 4 Sprays/Seaso With Grey 3 Consecutively		Milder, Scati, Rusta & Prof. Spots
Indo/ 2F [1]	6.0 sps	Powdery Hilder & Rushi
Topos or Yow [1]	8.0 (0)	General Protection
Ziram 760F [H3]	5.0 Bx	Domest People Leaf Curl
(Captan Substitute for Fee	HQ:	General Protections
Agrimycin* 17 W	24.0 ots	Finishight Control
(Applies & Pearls Cirily)		
(Not labeled for stones)	6.2 cm	Powdery Milder & Scott
INSECTICIOES: (IRAC)	SMITE	NOTES
Smidan' 70W [LA]	2.0 ftm	Carcalio, SWD, Sook & Fruit Hoths
Warrior* [3]	4.0 pm	BOWN, CARDING TIND, BOME
or Tombetone*(3)	2.0-906	& Pruit Moths
Actars* [4A]	45.00	Ayrinds & Curtolini

4.0 Bs "Rate for 50-100gal Acre Concentrate Spray ** Se sure to follow all labels closely for PVII and REI!

1.0 fm

Multi-Fruit Spray Calendar*

March 15 - Dormant Spray

Loroban' Advanced [18] 15-01

Acramite' 50WS (25)

(Apple thinning Agent)

Sevin' SOW [1A]

Domant OE 4.0 get (Scien. 8. HRes) footal? DY 6.0 Es. Lorsharf 40 1.5 dts (Miles)

April 5 -Peach Stroom

Apple Tight Chuster

Captary streets 3.0 bu.

April 15 -Peach Petal Full Apple Bloom

Captavi" 50W 3.0 Be Deby* 2F 5.0 cm

Agricoycler* 17 W 14-0 cus (Fiveblight Control Add for

Domant & Trusk Borer

Milles Cirily as Required

SWD, Japanese Beetles.

Promets & Sap Deetles

Applies & Pears Critic) April 25 - Peach Shuck Split

Apple Petal Full

Problem 14.5 cus Warner* 4.0 ors (Cartulle)

Agrimycin[®] 17 W 24.0 cas (Fineblight Control Add for Applied & Pears Only (

1" Cover Spray

Capton* 6090G 4.0 by 10wdar Apple Ruit - Higher Sales for Wellie Conditions) Inde" IF 6.0 six (Powdery Milden & Ruds)

Adams* 4.5 cos (Curculo & Ayhati; PHI: 35-Days. Pomes, 14-Days Stones)

May 15 - 2" Cover Spray Captor* 80900G 3-4.0 by

Rafty * 40W 4.0 cm (Peach Busty Spot Only) Warrant 4.0 ces (Curculio, PHE 21-Days Pomes, 14-days Stones

3" Cover Spray June 1 -

CHEEN MINIOR 3-4-0 By Topics MT 70W ILO-USCApple Scale Resistance Likely) bridge? 70W 2.5 Ex (Carpulle, Some & Fruit Moths; Fed: 7-Days Pomes, 34-Days Stones) Acremby* 50WS 1.0 Bit (For Miles If Required PHI):

7-Days Pones, 3-Days Stones)

4th Cover Spray June 15 -

Caybar? RONDG 3-4.0 Rel

Suffur 95W 3.0 Bis (0-day PHI), Stories ONL) Tambitione* 2.0 call (Borers, Curculto & Prof. Holts-T-day (NO)

July 1-5th Cover Spray

Early Peach Harvest.

Captain* 60WDG 3-4.0 fts (8-day PHE; 1-day PEE); or Printing* 14.5 cus (Early Stones O-day PHC; Limited to 4 Sprays/Season With Only 2 Correct/Delty) Tombstone* 2.0 cos (Borers, Carculo & Pruit Matte-7-Day PHD

July 15 -6th Cover Spray

Peach Harvests

Captar* NOWDG 3-4.0 Bts (5-day PHE; 1-day REE) Rafy* 40W 4.0 cm(3-dsuPH), everet reprint 14-dism) Sever* Scills 4.5 Bo (Sepanese Seetle & Hoths --5-Day FHE for All Fruit

J^{os} Cover Spray August 1-

Peach Harvests

Chotar* NIWDG 4.0 lbs (0-day PHE; 1-day REIE; or Printing* (A.5 nm (Early Porteo (I-day PHI)) Sever" 50W 4.0 lbs (Departed Seetle & Fortuits -5-Clay PHIL TOY All PROJET

go Cover Spray August 15 -

Early Apple Harvests Late Peach Harvest

Capter* 80WDG 4.0 bis (0-day PHC; 1-day RED; or Proteins* 14.5-cos (Ponses 0-day Pril)

September 1 · 9th Cover Spray

Apples and Pears Only

Capture" NOWING 4.0 Bit (0-day PHI) 1-day RED; are Printer® 14.5 cas (Pones 0-day PHC) Sever" 50W 4.0 ibs Clapanese Soutie & Harriets --

5-Day THE for All friult):

September 15 - Trunk Sore Spray London* 40 5.5 gs (Post Harvest for Bores)

HERBICIDES: [HRAC] PRATE MOTES Gramosone * (21) Roundup * (9) bundoes, brested force 1.0-00 Surridown, Sheeded & Directed Spray Devriced * 50 0# [15] Spring/Summer 35-day (NO. 4.0 fm Princep * 46: [5] LF-Wr Spring Doment, Avoid High pH Solls Solicam* (12) 2.5 fm Spring/fiel Corment, [or Established Good " or Golligan" [14] 2.0 ptc After Harvest to Spring Bud Swell Chateau (14) After Harvest to Spring dud Swell Alm", Shark" or Venue (14) 2.0 cm seeded Spray, 0-3-day FRE. Law Lotter, 3 or Established Spring/ Sunna - Provi 60-day PHS Matrix * [2] 4.0 66 Promi * (3) or Surflan* (3) 2.0-05

Surveyor Grosses, Vo. 10, PHI Poant* [11] 1.5-200 Sorrig/Fall Domain, 3-yr I Karmer * [7] or Diuron* [7] 1.6-05. "Lineart Use Rate Recommended Initially

Organic Approach Substitutions:

Conventional Product	Grganic Carrilled Product (GMRII)
Captan [®] & Topson H [®]	Survivate [®] or Sulfur or Lime Sulfur
Faily*	Kaligwen* (Powdery Midew Eradicant)
Linked Ersectrodes	Resert" or Pygenic" or Entrute" (Stone Prutis Only)
Agrimycor	Agrimycist or Yued Copper (Applies It. Pears Eucept During Boom)
Grannove ^a or Konsky ^a	Average" or Burnout"or AAAE / Berkele" or (Sayther no OHE) label)

* important feols: The calendar spray dates given are an average estimate for Jame Jaryhold and Prince George's County Orcharde, and may vary by toculium in Equiture Maryland. Its sure to seleet your spray schedule application dates accordingly. The above recommendations very closely reflect the current spray program offices at the University of Maryland Research and Colocation Center, Upper Marthors Facility for its research prohards. Remember to always "Read the Label"

R. David Morro Principal Agent, Agriculture more than been referred



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

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

MARKUNDA

Speay Peograms for Multi-Tree Fruit Orchards

Many local orchards are composed of multi-fruit combinations producing for heap market popies, pasitives, plants, plums, rectaines, and charries, Aggressive trult tree spray programs are required to achieve high quarty fruit. Ness multi-fruit onmarks create many spray management orsalenges for the achievement of good pest control in accordance to later guidelines.

Therefore, the following must-fluid probant agricy program for the control of major tree that peols and diseases may offer some positionoe: Labeled as noted in 2016 for All Tree Fruit - Pomes: Applies & Pears Stones:

	-							
Pasches, Plume, Nectorines, and Cherries.	WATERA	Plant	mar. H	Name of S	urins	ARM I	TAX TO BE	

PUNGECIOES: DPRACT	PRATE	NOTES
Captan' SOWDG [H4]	350%	General Protections
(Not Labered for Pears; Re-	duce flates h	or Cherries)
Dormant Oil [NC]	4.0 gal	Apply Temp 35 657 F
Kockle' OF [M1]	60 be	Other Fixed Coppers
(Stones: Domart Spray Or	NA)	
Rafty*40W [3]	4-0 cm	Previous Hilden
Sulfur 95W [M2]	3.0 fbs	General Protectant
Gen" 500 SC [11]	3.0 68	Brown Rot & Peach Scall.
(Stones Grey) er		
Adamant' 50WG (3/11)	6.0 see	Brown Rot, Peach Scall 6
(Stones Except Plum)		Fowders Mildes
Printine* [7/51] or (Limited to 4 Sprays/Seaso With Grey 2 Consecutively		Brown Rot, Prividery Mildew, Scott, Rueto & Fruit Spots
Indar* 2F [1]	6.0 sps	Powdery Hildew & Rushi.
Topos W 70W [1]	8.0 (0)	General Protection
Ziram 760F [H3]	5.0 th	Domark People Leaf Curl.
(Captan Substitute for Pear	HQ	General Protections
Agelenycies* 17 W (Applet & Peters Crity)	24.0 om	Private Right Control
Set preset to stored	6.2 cm	Powdery Milder & Scali
INSECTICIOES: (IRAC)	SMITE	MOTES.
Imidan' 70W (LA)	2.0 the	Curculio, SWD, Sole B. Fruit Hoths

"Rate for 50-100gal Acre Concentrate Spray ** Se sure to follow all labels closely for PNI and REI!

4.0 NH

2.0-600

45.00

1.3-qts

1.0 fm

4.0 Bs

BIRM'S, CARONIS, SIND, BOMB

& Hult Moths

Approach Countries

Domant & Trusk Bons

Milles Cirily as Required

SMS. Isonoece Sweden.

Paymets & Sap Deetles

Multi-Fruit Spray Calendar*

March 15 - Dormant Spray

Warrior* [3]

Actions' 14A1

or Tombetone"(3)

Loroban' Advanced [18]

(Apple thinning Agent)

Acramite' 50WS (25)

Sevin' SOW [1A]

Domant OE 4.0 get (Scien. 8. HRes) footal? DY 6.0 Es. Lorsharf 40 1.5 dts (Miles)

April 5 -Peach Stroom

Apple Tight Chuster Captary streets 3.0 bu.

April 15 -Peach Petal Full

Apple Bloom Captavi" 50W 3.0 Be Deby* 2F 5.0 cm

Agricoycler* 17 W 14-0 cus (Fiveblight Control Add for Applies & Pears Critic)

April 25 - Peach Shuck Split

Apple Petal Full

Problem 14.5 cus Warner* 4.0 ors (Cartulle)

Agrimycer® 17 W 24.0 cas (Fineblight Control Add for Applied & Pears Only (

1" Cover Spray

Capton* 6090G 4.0 by 10wdar Apple Ruit - Higher Sales for Wellie Conditions)

> Inde" IF 6.0 six (Powdery Milden & Ruds) Adams* 4.5 cos (Curculo & Ayhati; PHI: 35-Days. Pomes, 14-Days Stones)

May 15 - 2" Cover Spray

Captor* 80900G 3-4.0 by Rafty F 4DW 4.0 cm (Peach Rusty Spot Only) Warrant 4.0 ces (Curculio, PHE 21-Days Pomes, 14-days Stones

3" Cover Spray June 1 -

CHEEN MINIOR 3-4-0 By Topics MT 70W ILO-USCApple Scale Resistance Likely) bridge? 70W 2.5 Ex (Carpulle, Some & Fruit Moths; FHE: 7-Days Fornes, 14-Days Stones)

Acremby* 50WS 1.0 Bit (For Miles If Required PHI): 7-Days Pones, 3-Days Stones)

4th Cover Spray June 15 -

Caybar? RONDG 3-4.0 Rel

Suffur 95W 3.0 Bis (0-day PHI), Stories ONL) Tambitione* 2.0 call (Borers, Curculto & Prof. Holts-

July 1-5th Cover Spray

T-day (RED) Early Peach Harvest.

Captar® 60WDG 3-4.0 fts (8-day PH); 1-day PED; or Printing* 14.5 cus (Early Stones O-day PHC; Limited to 4 Sprays/Season With Only 2 Correct/Delty) Tombstone* 2.0 cos (Borers, Carculo & Pruit Matte-7-Oak-1900

July 15 -6th Cover Spray

Peach Harvests

Captain NOWING 3-4.0 Bis (5-day PHE 1-day REE) Rafy* 40W 4.0 cm(3-dsuPH), everet reprint 14-dism) Sever* Scills 4.5 Bo (Sepanese Seetle & Hoths --N-Clay FME for All Frout!

7th Cover Spray August 1-

Peach Harvests Chotar* NIWDG 4.0 lbs (0-day PHE; 1-day REIE; or

Printing* (A.5 nm (Early Porteo (I-day PHI)) Sevir" 50W 4.3 lbs (Departure Beetle & Fortuits -5-Clay PHIL TOY All PROJET

go Cover Spray August 15 -

Early Apple Harvests Late Peach Harvest

Capter* 80WDG 4.0 bis (0-day PHI; 1-day REII); or

Proteins* 14.5-cos (Ponses 0-day Pril)

September 1 · 9th Cover Spray

Apples and Pears Only

Capture" NOWING 4.0 Bit (0-day PHI) 1-day RED; are Printer® 14.5-sax (Pones 0-day PHC) Sever* 50W 4.0 Bs Clapanese Seetle & Harnets -

5-Day THE for All friult):

September 15 - Trunk Sore Spray

London* 40 5.5 gs (Post Harvest for Bores)

HERBICIDES: [HRAC] PRATE MOTES Eramosone * (22) Roundup * (9) bundoes, brested force 1.0 00 1.0-00 Surridown, Sheeded & Directed Spray Devriced * 50 0# [15] Sering/Summer 35-day (NO. 4.0 fm. Princep * 46: [5] LF-Wr Spring Doment, Avoid High pH Solls Solicam* (12) 2.5 fm Spring/fiel Corment, [or Established Good " or Goligan" [14] 2.0 (80) After Harvelt to Spring Bud Swell Chateau (14) 1.2:0 cox After manuest to figring that fivest Alm", Shark" or Venue (14) 2.0 cm Directed Spray, 0-3-day FHE. 40.65 Late Spring, 3 or Established Matrix * [2] Promi * (3) or Surflan* (3) 2.0-05 Spring) Summer, Provi 60-day PHD Poset* [11] 1.5-200 Surviver Grances, Variable PHE Karmer * [7] or Olumps* [7] 1.6-03. Spring Fall Domark, 3-or Established

*Lineart Use Rate Recommended Initially Organic Approach Substitutions:

Conventional Product	Grganic Certified Product (GHRI)
Captan [®] & Topson H [®]	Surround [®] or Sulfur or Lime S
Fally*	Kaligreen* (Princiery MV - redicant)
Linked Ersectrodes	Reserv [®] or Pyspenic [®] or Entratic [®] (Stone Prutts Only)
Agrinycur	Agrimucin' or Plued Copper (Applies II). Pears Except Curing Boom)
Grannove ² or Kornlog ²	Averger* or Burnout*or AXXE*/Bellate* or (Souther no CHRE label)

* important hole: The calendar apray dates given are an average estimate for June Jayandal and Prince George's County Onchards, and may vary by toculium in Equiture Maryland. Its sure to seleet your spray schedule application dates accordingly. The above recommendations very closely reflect the current spray program offices at the University of Maryland Research and Colocation Center, Upper Marthors Facility for its research prohards. Remember to always "Read the Label

R. David Morro Principal Agent, Agriculture more than been referred



Organic Approach Substitutions:

Conventional Product	Organic Certified Product (OMRI)
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)

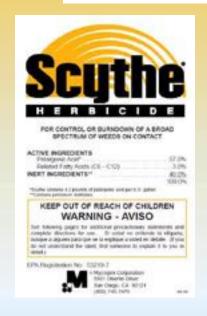
Organic Approach Substitutions:

Conventional Product	Organic Certified Product (OMRI)		
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)		











Cell Membrane Disrupters
 Nonaonic acid

Pelargonic Acid: AXXE® [27]

Directed spray (Organic Label)

- ✓ Post-emergence with no soil activity or uptake.
- ✓ Non-selective. Apply to point of drip.
- ✓ Contact herbicide: rapid foliar absorption, non-systemic.
- ✓ 30-120 gals/acre spray solution of 6%-15% AXXE[®].

10-gallon spray mixtures:

6% Solution – 2.5 qts. AXXE[®] + water.

8% Solution – 3.25 qts. AXXE® + water.

10% Solution – 4.0 qts. AXXE® + water.

15% solution – 6.0 qts. AXXE[®] + water.





Cell Membrane Disrupters
 Bipyridiliums [22]

Paraquat: Gramoxone Inteon®

Directed Spray, Restricted Use - Danger

- ✓ Post-emergence with no soil activity or uptake
- ✓ Non-selective
- ✓ Contact herbicide: rapid foliar absorption with some translocation
- ✓ Use with a non-ionic surfactant (NIS)
- ✓ New Label Restrictions 2018!







PULL HERE TO OPEN -

RESTRICTED USE PESTICIDE

DUE TO ACUTE TOXICITY

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.





syngenta.

Herbicide

A Weed, Grass, and Harvest Aid Desiccant/Defoliant Herbicide

Active Ingredient:

Paraquat dichloride (1,1'-dimethyl-4,4'bipyridinium dichloride) 30.1%

 Other Ingredients:
 69.9%

 Total:
 100.0%

Gramosone St. 2.0 contains 2.0 pounds paraquat cation per gallon as 2.762 pounds sait per gallon. Gramosone St. 2.0 contains alerting agent jodor), emetic, and dye.

KEEP OUT OF REACH OF CHILDREN.



Si usted no emtiende la efiqueta, busque a algulen para que se la explique a usted en detalle. (if you do not understand the label, find someone to explain it to you in detail.)

- NEVER PUT INTO FOOD, DRINK OR OTHER CONTAINERS
- IF SWALLOWED, TAKE IMMEDIATE ACTION AS PRESCRIBED IN FIRST AID STATEMENT. SYMPTOMS ARE PROLONGED AND PAINFUL.
- DO NOT USE OR STORE IN OR AROUND THE HOME.
- DO NOT REMOVE CONTENTS EXCEPT FOR MANIFOLATE LIES.
- THE ODOR OF THIS PRODUCT IS FROM THE ALERTING AGENT WHICH HAS BEEN AGOED, NOT FROM PARAGUAT.

EPA Reg. No. 100-1431 EPA Est. 100-LA-001 Product of the United Kingdom Formulated in the USA SCP 1431A-L1F 1115 4074780

2.5 gallons



PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS



DANGER / POISON PELIGRO / VENENO

May be fatal if seaflowed. Ratal if inhaled. Do not breathe spray mich. Wear a dust mist NOSH approved respirator with any N, R, P, or HE fifter. Causei substantial but temporary eye injury. Wear protective eyenear (face shield required when mixing/loading). Harmful if alsorbed through skin. Do not get in eyes, on skin, or on dotking. Avoid contact with skin, eyes or clothing. Wesh thoroughly with soap and water after handling and before eating, drinking, cheving guor, using tobacco or using the toiler. Remove and wash contaminated clothing before reuse.

IMPORTANT Inhalation is an unlikely route of exposure due to low vapor pressure and large spray droplet size, but mustoal initiation or note bleeds may occur. Prolonged contact with this concentrated product can initiate your skin.

Personal Protective Equipment (PPE)

Applicators and other handlers (other than Mixers and Loaden) must wear

- . Long-sleeve shirt and long pants
- . Shoes plue socks.
- · Protective spewear
- Chemical-resistant gloves Category A (e.g. barrier laminute, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride (PVC) or Vitaniel.
- · A dust mist NIGSH-approved respirator with any N. R. P. or HE filter

Mixers and Loaders must wear:

- . Long-cleave shirt and long sants
- · Shoes plus socks
- . A dust mist NIOSH approved respirator with any N. E. P. or HE filter
- Chemical resistant gloves Category A (e.g. barrier laminute, butyl rubber, nitrile rubber, recomme rubber, natural rubber, polyethylene, poly
- . Chemical-resistant apron-
- . Face shield

Discard clothing and other absorbert materials that have been directed or heavily contaminated with this poolsuch concentrate. Do not reue them: Follow manufacturers immunities for clearing perministring PPE. If no such instructions for washables exist, use detergent and hot water. Resp. and wesh PE separately from other learning.

Engineering Controls

When handlers use closed systems, enclosed cabs, or sincraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides 360 CFR 170.3606.04-62, the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should

- . Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing#PE immediately if perticide gets inside. Then mush thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloses before removing. As soon as possible, wash thoroughly and change into clean clothing.

SPOT SPRAYING

When only small areas are to be sprayed with labeled applications, it is advantageous to mix small quantities of Gramoxone SL 2.0. To aid in mixing small quantities, the following table should be consulted.

If The Broadcast Rate Per Acre for	Add The Following Amount of
Gramoxone SL 2.0 is:	Gramoxone St. 2.0 To 1 Gallon of Water
1 ¹ /2 pt	1/3 fl oz
2 pt	3/8 fl oz
2 ¹ /2 pt	1/2 fl oz
3 pt	2/3 fl oz

Always add ¹/3-¹/2 fl oz of a nonionic surfactant for each gallon of spray. When spot spraying in this manner, spray to thoroughly wet the foliage, but not to the point of runoff.



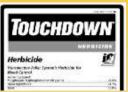
 Aromatic Amino-Acid 5 Enolpyruvyl-Shikimate-3-Phosphate Synthase (EPSP) Inhibitors

Organophosphorus [9]

Glyphosate: Roundup Weather Max[®] 7⁺ Roundup

formulations or Touchdown or Credit or Rattler[®]

- [9] Shielded Spray Only!
 - ✓ Post-emergence with no soil activity or uptake.
 - ✓ Non-selective.
 - ✓ Contact systemic herbicide: foliar absorption with translocation.
 - ✓ Do not use with a surfactant see label.
 - ✓ Avoid trunk, fruit, branch & bud contact.









Glutamine Synthesis Inhibitor
 Organophosphorus

Glufosinate: Rely® [10]

Lower dermal LD₅₀ then oral LD₅₀.

- ✓ Post-emergence with no soil activity or uptake.
- ✓ Non-selective.
- ✓ Contact herbicide: foliar absorption with limited translocation.
- ✓ Use with a surfactant see label.
- ✓ Avoid fruit, branch & bud contact.
- ✓ Degrades rapidly in the soil, 7-days by soil microbes.





 Meristematic Root Inhibitors: Inhibition of Cell Division and Elongation of Roots

Dinitroanalines [3]

Pendimethalin: Pendimax® or Prowl® New H2O formulation

60 day PHI

Oryzalin: Surflan® A.S.

0 day PHI







Trifluralin: Treflan® or Trilin®

- ✓ Pre-emergence with 1-3 months of soil activity
- ✓ Does not leach forms a herbicide barrier in clay soils
- ✓ Apply before rainfall or shallowly incorporate
- ✓ Controls grasses & small seeded broadleaves
- ✓ Not translocated in plants



 Cellulose Biosynthesis Inhibitor: Acts Primarily at Actively Dividing Meristems – Roots Tips & Growing Points

Benzonitrile [20]

Dichlobenil: Casoron®4G



- ✓ Pre-emergence with 2-6 months of soil activity
- √ Controls broadleaves & grasses equally
- √ Very little leaching high vapor potential
- ✓ Absorbed primarily through the roots translocated readily via the xylem – rapid growth inhibition
- ✓ Apply before rainfall or shallowly incorporate



Mobile Photosynthetic Inhibitors
 <u>Ureas</u>

Diuron: Karmex® or Diuron® [7]

<u>Uracils</u>

Terbacil: Sinbar[®] [5]







- ✓ Pre and Post-emergence with 4-12 months of soil activity
- √ Controls broadleaves & grasses
- ✓ Absorbed primarily through the roots translocated readily via the xylem
- ✓ Some foliar uptake
- √ 1-3 year established vineyards & Orchards
 - Consult label



Meristematic Shoot Inhibitors: Strong Inhibiter of

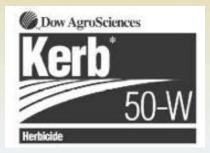
Mitosis - Cell Division

Chloracetamides or Amides [15]

Napropamide: Devrinol®

Safe for all fruit!

Der	vrinol [®]	50-DF
For use Pome f	on certain C ruits, Small fr /egetables an	itrus, Nuts, uits, Stone
Active Ingred Napropertide Inert Ingredie		50% 50%



Pronamide: Kerb®

Apply post harvest to 1-year old vineyards & orchards

- ✓ Pre & Post-emergence with 1-3 months of soil activity
- ✓ Very little leaching forms a herbicide barrier in clay soils
- ✓ Apply before rainfall or shallowly incorporate
- ✓ Controls primarily grasses & small seeded broadleaves
- ✓ Absorbed primarily by the roots and readily translocated via the xylem



PPG or Protox Inhibitor

Triazalone [14]

Carfentrazone-ethyl: Aim® or Shark®

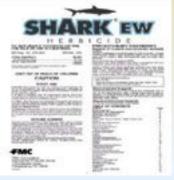
Vineyard & Orchards 3-day PHI

Pyraflufen-ethyl: Venue®

Vineyard & Orchards 0-day PHI

- ✓ Post-emergence with no soil activity or uptake, rapid microbial breakdown.
- ✓ Selective broadleaf control
- ✓ Contact herbicide: Rapid foliar absorption with leaf translocation (15-minutes).
- ✓ Use with a non-ionic surfactant NIS or COC.
- ✓ Apply with a hooded sprayer









Venue Herbicide Observations University of Maryland CMREC Upper Marlboro Facility R. David Myers



Late Season Venue Application - August 26, 2013 Visual Rating 2WAT – September 9, 2013

Visual Evaluation Venue 4.0 ozs/acre 20gpa with NIS 8.0 ozs/100 gal verses a no-spray control.

Poor 60%

Fair 70%

Good 80%

Very Good 90%

Excellent 100%

Notes: 70-80% (Suppression) 90-100% (Season Control)

Perennial Weeds

 Horsenettle
 80%

 Plantain, Buckhorn
 60%

 Dock
 70%

 Greenbriar
 80%

 Bindweed, Field
 80%

 Smartweed
 80%

 Mulberry
 70%

Annual Weeds

 Morningglory
 100%

 Lambsquarter
 100%

 Pigweed
 100%

 Bed Straw
 60%

 Spurge
 100%

 Henbit
 60%

Notes: No injury to grapes or fruit trees

Moderate bramble injury with directed spray, but quick recovery.



GROUP 14 HERBICIDE

A Nonselective Contact Herbicide for Broadleaf Weed Control ACTIVE INGREDIENT:

Contains 0.17 lb pyraflufen-ethyl per gallon EPA Reg. No. 71711- 25

EPA Est. No. 70815-GA-002

KEEP OUT OF REACH OF CHILDREN
CAUTION

See inside booklet for First Aid, Precautionary Statements, and Directions for Use

NET CONTENTS: 1 quart

550509 04/16

NICHINO

Nichino America, Inc. 4550 New Linden Hill Road Wilmington, DE 19808

Bearing and Nonbearing - Grape, Olive, Pome Fruits (Crop Group 11-10), Pomegranate, Stone Fruits (Crop Group 12), Tree Nuts (Crop Group 14 Plus Pistachio)

Application	Pest	Rate/Acre	Maximum Applications Per Year
Postharvest Dormant Prebloom	Sucker Management	3.0 to 4.0 fl oz/acre	Do not exceed 2 applications per season for this use.
In-Season	Listed Broadleaf Weeds	2.0 to 4.0 fl oz/acre	Do not exceed a combined total of 2
	Sucker Management	3.0 to 4.0 fl oz/acre	applications per season for these uses.

PPG or Protox Inhibitor

Triazalone [14]

Saflufenacil: Treevix®

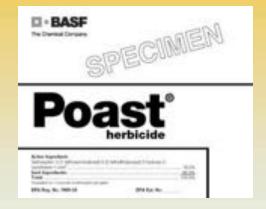
Apples & pears only, 0-day PHI

- ✓ Post-emergence weed control with root activity and seasonal persistence.
- ✓ Burndown broadleaf control.
- ✓ Contact herbicide: Rapid foliar absorption with leaf translocation (15-minutes).
- ✓ Use with MSO, AMS or UAN.
- ✓ Avoid contact with fruit & foliage & follow label drift management guidelines





Lipid Synthesis Inhibitor:
 Inhibits Acetyl-CoA Carboxylase



Cyclohexandiones [1]

Sethoxydim: Poast®

Bearing Orchards & vineyards . 14-50 day PHI.

- ✓ Post-emergence with no soil activity or uptake
- ✓ Controls grasses only
- ✓ Primarily leaf uptake rapidly translocates to growing points
- √ Use with crop oil concentrate (COC)



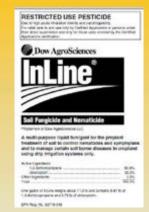
















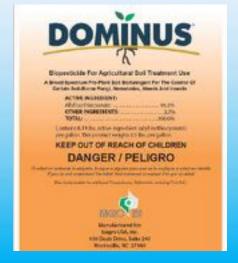








K-PAM® HL









Fumigant Product Update

Fumigant	Disease	Nematodes	Weeds	Soil Injected	Chemigation
TELONE II (DP-Dichloropropose 97.5%)	yes	yes	maybe	yes	no
TELONE C-17 (DP 81% + CP-Chloropicris 16.5%)	yes	yes	maybe	yes	по
TELONE C-35/PicChlor (0P 63,4% + CP 34.7%)	yes	yes	yes	yes	no
TELONE EC (DP 93.6%)	yes	yes	maybe	yes	yes
IN-LINE (TELONE OP 60.8% + CP 33.3 %)	yes	yes	maybe	yes	yes
VAPAM HL (Metam Sodium 42%)	yes	yes	yes	yes	yes
K-PAM HL (Metam Potassium 54%)	yes	yes	yes	yes	yes
PALADIN (Dimethyl Disolfide 98.8%)	yes	yes	yes	yes	no
DAZITOL (Capcaicio .42% + Alyll Esothiocanate 3.7%)	maybe	maybe	no .	yes	yes













Final Worker Protection Standard Changes

- Annual training for workers and handlers
 - No longer a grace period for training
- Trainers of workers may be:
 - Certified Applicators
 - State/Federal approved trainers
 - Those who have completed an EPA approved course
 - No longer handlers
- New content training not required for 2 years





Final Worker Protection Standard Changes

- Handlers and early-entry workers must be at least 18 years old
 - Members of owner's <u>immediate family</u> are exempt
- Employer must provide respirator and fit testing, training, and medical evaluation that conforms to OSHA standards
 - For any handler required to wear any respirator by the labeling





Final Worker Protection Standard Changes

- Specific water amounts (for routine washing/ exposure):
 - 1 gallon for each worker
 - 3 gallons for each handler and early entry worker
- Always follow label several changes are addressed on pesticide label



http://www.epa.gov/pesticide-worker-safety/revisions-worker-protectionstandard



Recordkeeping Form for the Worker Protection Standard and the USDA Restricted-Use Pesticides Regulation

Maintain records of all agricultural-use (WPS) and restricted-use pesticide applications for a minimum of 2 years.

/ USDA (1) Field ID/Location of Treated Area

USDA (2)	(3)	(4)	USDA (5)	USDA (6)	USDA (7)	(8)	USDA (9)	USDA (10)	USDA (11)
Date (mo/day/yr)	Time Planned Time Completed	Restricted Entry Interval (REI)		Brand Name(s)	EPA Registration Number(s)	Active Ingredient(s)	Size of Area Treated	Total Amount Applied*	Applicator's Name & Certification Number
	AM PM			40.000.000		410.010.000.000.000	9		
	AM PM		-				4 4		
	AM PM		-				100	_	
	AM PM								
	AM PM		-						
	AM PM		-						
	AM PM	į	-				-		
	AM PM						4		

This hand/head symbol indicates Worker Protection Standard (WPS) information (items 1-4 and 6-8). This information (except time completed) must be posted before the pesticide application and remain posted for 30 days after the end of the Restricted Entry Interval (REI). After this time, the records must be maintained for 2 years. All other information (items 9-11) must be recorded within 14 days of application. If you apply a tank mix of pesticides with different REIs, write down the longest REI. Note: WPS agricultural-use pesticides may be general-use or restricted-use.

Note: For applications made to less than 1/10-acre, indicate "spot treatment" within Crop or Commodity Treated (item 5) and record the Location of Treated Area (item 1). Record the Date, Brand Name, EPA Reg. No., and Total Amount Applied (items 2, 6, 7, and 10).

Developed by Wayne G. Buhler, Ph.D., NC State University, in collaboration with the Structural Pest Control and Pesticides Division, NCDA&CS.

^{*}Multiply the rate of application that you used by Size of Area Treated (item 9) to get Total Amount Applied (item 10). The Total Amount Applied is not the quantity after water or a carrier is added.



Respirator Fit Testing!

Effective 12/1/2010, EPA will require that at least two individuals per farm using fumigants have medical clearance and respirator fit testing.











Respirator Fit Test Procedure

- Ask about any breathing difficulties prior to fit testing.
- Perform a sensitivity test.
- Fit respirator and perform a User Seal Check.
- Ask individual to close eyes while the irritant smoke is delivered to inhalation and seal points on the respirator.
- Ask the individual to breath normal and move head during the test.
- No irritation or detection indicates a successful respirator fit.







Respirator Fit Testing!

UNIVERSITY OF MARYLAND EXTENSION

- ✓ Medical Clearance Form
- ✓ Physicians Release



o the employers Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a adical examination.		
a the employees		
et you read (circle ane): Yes/No		
our employer must allow you to answer this questionnaire during sormal working hours, or at a time and place but is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or ensies our answers, and your employer must tell you have to deliver or send this questionnaire to the health care offessional with still review it.		
art A. Section I. (Mandatory) The following information must be provided by every employee who has been elected to vate any type of respirator (please print).		
Today's dute:		
Your turner		
Your age (to nearest year):		here
Sei (picle one): Male, Fenule	100	
Your heights At in	V0241087677777701011111111111111111111111111	
Your weights but	ht hill or incline: Yes/No s level ground: Yes/No es/No	
Your Job 954s	100	907
A phone number where you can be reached by the health care professional who reviews this questionnaire robote the Area Code):		e et
The best time to phone you at this number:		e be
 Not your employer taid you how to contact the health care professional who will review this questionnaire incle one). Yes/No 	w);	
Check the type of respirator you will use (you can check more than one category): N. R. or P disposable respirator (lifer mask, non-cartridge type only). Other type (for example, half- or full-floopiece type, powered air purifying, supplied-air, pelf-comuned metring apparatus).		
2. Have you worn a respriator (circle sma): Yes/No		
"yes." what type(s):		
of A. Section 2. (Mandatory) Questions I through 9 below must be unswered by every employee who has been fected to use any type of respirator (please circle "yet" or "no").		
Do you correctly make tolucts, or have you smaked tolucts in the last month; Tex?No		
Have you ever had any of the following conditions?	sats Yes/No	
Sections (Rej.) Yeafile Disbettes (sugar disease): Yeafile Allegic rescribed that interfere with your breathings Yeafile Clearing-holding fleer of bosed-in places(in Yeafile Trouble smelling oders; Yeafile	roblems: Yes/No	

Appendix C to Sec. 1910.134: OSRA Respirator Medical Evaluation Questionnaire (Mandatory)

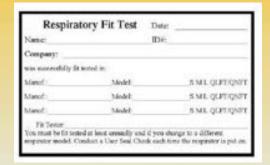
Respirator Fit Testing!



The OSHA respiratory protection standard (29 CFR 1910.134) prohibits fit testing of employees if there is any hair growth between the skin and facepiece sealing surface, such as stubble beard growth, beard, moustache, or sideburns which cross the respirator sealing surface (Appendix A.I.A.9.).







Wallet Card



Did You Get? Vegetable & Fruit Headline News!







