



Peerbolt Crop Management, Inc.

Started in 1992. Based in Portland.

People: 4.5 fulltime, 4 seasonal scouts

**Number of Fields Monitored for
SWD funded by grants**

	Blueberry	Caneberry	Strawberry	Other	Total
2010	189	173	96	100	558
2011	107	93	60	74	334
2012	90	85	53	71	299

2013—about the same as 2012



Micah Shepard, BS from Oregon State University



Glen McHargue, BS from Humboldt State



Laurel Visher, BS from Sonoma State



Hannah Curry, BS from Oregon State

We participate in numerous onfarm research projects with USDA, OSU, WSU, etc

....and do the regional industry weekly newsletter, The Small Fruit Update

Main PCM on-farm activities

We also helped develop, and contract to do, the third party pest management field protocols for South Korean fresh blueberry exports.



Export Concerns

Northwest Washington—

Growers and processors on both sides of border/sometimes the same grower has fields on both sides/a lot of fruit for processing is grown in US and processed in Canada.

Also export of processed fruit (raspberries & blueberries) to Japan/Korea/Taiwan

Oregon—

Processed blueberries mainly to Japan/Korea/Taiwan

but also fresh to

Japan/Korea/ Taiwan

Northeast?—

Fresh blues to Canada—

Europe?---









Eventually Japan/Taiwan +?

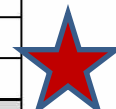


Maximum Residue Levels (MRLs) for USA, Codex, EU/UK, Canada, Japan, Korea, and Taiwan Oregon Blueberries – March 11, 2013

(MRLs for other countries can be found at: www.mridatabase.com)

----- MRLs (ppm) -----

Chemical Name (a.i.)	Product Name	USA	Codex	EU, UK	Canada	Japan	Korea	Taiwan	
Insecticides & Miticides									
Acetamiprid	Assail	1.6	2.0	1.5	1.6	2.0	1.0	0.01	
	Bifenthrin	1.8	NT	0.05	NT	NT	0.5	1.0	
	Bt (<i>Bacillus thuringiensis</i>)	DiPel, Javelin, MVP	Ex	--	--	--	--	--	
	Carbaryl	Sevin	3.0	NT	0.05	7.0	7.0	0.5	0.5
	Chlorantraniliprole	Altacor	2.5	1.0	1.5	NT	NT	1.0	2.0
	Diazinon	Diazinon	0.5	NT	0.01	NT	0.1	0.1	0.5
	Endosulfan	Thionex	0.3	NT	0.05	NT	0.5	0.2	0.01
	Esfenvalerate	Asana XL	1.0	NT	0.02	NT	1.0	NT	1.0
	Fenpropathrin	Danitol	3.0	NT	0.01	3.0	5.0	0.5	3.0
	Imidacloprid	Admire, Provado	3.5	5.0	5.0	1.0	4.0	0.3	1.0
	Indoxacarb	Avaunt	1.5	NT	1.0	NT	NT	0.5	0.01
	Malathion	Malathion	8.0	10.0	0.02	8.0	0.5	10.0	0.01
	Methomyl	Lannate	6.0	NT	0.02	6.0	1.0	1.0	2.0
	Methoxyfenozide	Intrepid	3.0	4.0	4.0	NT	4.0	4.0	NT
	Neem	Neemix, Aza-Direct	Ex	--	--	--	--	--	--
	Novaluron	Rimon	7.0	7.0	7.0	NT	NT	7.0	NT
	Oils	Biocover, 6E, JMS, etc	Ex	--	--	--	--	--	NT
	Phosmet	Imidan	10.0	10.0	10.0	5.0	10.0	10.0	0.02
	Pyrethrin	Pyganic	1.0	NT	1.0	1.0	1.0	1.0	NT
	Pyriproxyfen	Esteem/Knack	1.0	NT	0.05	NT	1.0	0.2	0.5
	Soaps (K-salts of fatty acids)	Safer, M-Pede	Ex	--	--	--	--	--	--
	Sodium aluminofluoride	Cryolite Bait	7.0	NT	NT	NT	NT	NT	NT
	Spinetoram	Delegate	0.25	NT	0.2	0.5	NT	0.1	NT
	Spinosad	Success, Entrust	0.25	0.4	0.3	0.5	0.3	0.4	NT
	Tebufenozide	Confirm	3.0	3.0	3.0	NT	3.0	3.0	NT
	Thiamethoxam	Actara, Platinum	0.2	0.5	0.05	0.2	0.2	1.0	0.01
	Zeta-cypermethrin	Mustang	0.8	NT	0.05	NT	0.5	2.0	2.0



From Mark Sweeney, Ag Canada—BC Berry Specialist (10/28/13)

“Our favourite topic....mrl's.

*With regards to **cypermethrin/zeta-cypermethrin**, we have been using the reference/ruling below from EPA and interpreting it to mean that the isomers are indistinguishable in a lab analysis and therefore mrl's for zeta or cypermethrin in US and Canada are interchangeable. So far this understanding has been accepted in the trade.”*

(I can send the EPA ruling Mark refers to to anyone who would like it—TP)

*It would be nice if FMC would bring **Mustang (zeta-cypermethrin)** to Canada, but to date they have no plans.*

*In Canada, we would dearly love to have access to other pyrethroids. We have been working on **bifenthrin** for years and, after a bit of a deadlock, it seems to be making some progress through our regulatory process, not sure when we'll see a label. With **Danitol**, the company will not support a Canadian registration, but we continue to lobby them.*

*For both of our benefits, I think that a product like **Matador (Lambda-Cyhalothrin)** would be a good option to pursue a joint Canada/US minor use registration as its already registered in both countries, but not on berries.”*

Considerations for Oregon blueberries scheduled for export markets

Japanese market

Malathion: Do not use Malathion too close to harvest. In 2011 some shipments of blueberries to Japan were sited with a violation for having a Malathion residue level over tolerance. *Use all precautions to make sure the fruit doesn't have a high Malathion residue level.* The U.S. level is 8.0 ppm; the Japanese level is 0.5 ppm. Malathion does degrade quickly but shouldn't be used too close to harvest.

Brigade: Do not to use Brigade on Japanese fruit. Japan has no tolerance.

Delegate: Do not to use Delegate on Japanese fruit. Japan has no tolerance.

Lannate: Do not use Lannate close to harvest. The U.S. tolerance for Lannate is 6.0 ppm; the Japanese tolerance is 1.0.

Insecticides with Japanese MRL's equal or greater than U.S.: Asana, Mustang Max, Imidan.

Korean market

Asana: Do not use Asana. There is no Korean tolerance for Asana plus it takes a long time to degrade and can be detected for a long time past the application date.

Delegate: Do not use Delegate close to harvest. The U.S. tolerance level for Delegate is 0.25 ppm, Korea's is 0.1.

Spinosad based insecticides (Success, Entrust) Do not use Success/Entrust close to harvest. The U.S. tolerance is 0.25 ppm; Korean tolerance is 0.05; The Korean tolerance is only one fifth of what the U.S. would allow.

Lannate: Do not use Lannate close to harvest. The U.S. tolerance for Lannate is 6.0 ppm; the Korean tolerance is 1.0.
Insecticides with Korean MRL's equal or greater than U.S.:
Mustang Max, Malathion, Imidan.



An Oregon processor's specific recommendations (Korea & Japan markets)

Brigade or Delegate cannot be used on any berries going to xxxx. If either of these insecticides are used, xxxx will not be able to take the fruit.

Clean-up insecticide choices (approx. 3 weeks before harvest)

Asana	4.8-9.6 oz	14 day PHI/12 hour REI
Lannate	1.5-3 pts	3 day PHI/48 hour REI
Diazinon	1 pt/100 gal water	7 day PHI / 5 day REI

Tank mix any one of these with:

Actara	4 oz	7 day PHI
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**Actara is highly toxic to bees.*

Pre- Harvest (10 day minimum before harvest)

Malathion AQ	2 pt	1 day PHI/12 hour REI
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Immediately after first pick

Mustang Max	4 oz	1 day PHI/12 hour REI
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Immediately after second pick

Tankmix:

Malathion AQ	2 pt	1 day PHI/12 hour REI
Mustang Max	4 oz	1 day PHI/12 hour REI

Repeat this pattern for each subsequent pick.

(Malathion followed by Mustang followed by the two tankmixed)

Comments

Lannate can be used in the rotation during harvest.

Lannate	1.5-3 pts	3 day PHI/48 hour REI
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It's extremely important to have a minimum of 8 days between an application and harvest so we do not have a residue show up.

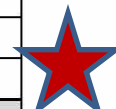
Some fields take several days to get through and if that is the case it is highly recommended that the section of the field to be harvested is treated within 48 hrs of picking.

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	Carbaryl	Sevin	3.0	NT	0.05	7.0	7.0	0.5	0.5
	Chlorantraniliprole	Altacor	2.5	1.0	1.5	NT	NT	1.0	2.0
	Diazinon	Diazinon	0.5	NT	0.01	NT	0.1	0.1	0.5
	Endosulfan	Thionex	0.3	NT	0.05	NT	0.5	0.2	0.01
	Esfenvalerate	Asana XL	1.0	NT	0.02	NT	1.0	NT	1.0
	Fenpropathrin	Danitol	3.0	NT	0.01	3.0	5.0	0.5	3.0
	Imidacloprid	Admire, Provado	3.5	5.0	5.0	1.0	4.0	0.3	1.0
	Indoxacarb	Avaunt	1.5	NT	1.0	NT	NT	0.5	0.01
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	Methomyl	Lannate	6.0	NT	0.02	6.0	1.0	1.0	2.0
	Methoxyfenozide	Intrepid	3.0	4.0	4.0	NT	4.0	4.0	NT
	Neem	Neemix, Aza-Direct	Ex	--	--	--	--	--	--
	Novaluron	Rimon	7.0	7.0	7.0	NT	NT	7.0	NT
	Oils	Biocover, 6E, JMS, etc	Ex	--	--	--	--	--	NT
	Phosmet	Imidan	10.0	10.0	10.0	5.0	10.0	10.0	0.02
	Pyrethrin	Pyganic	1.0	NT	1.0	1.0	1.0	1.0	NT
	Pyriproxyfen	Esteem/Knack	1.0	NT	0.05	NT	1.0	0.2	0.5
	Soaps (K-salts of fatty acids)	Safer, M-Pede	Ex	--	--	--	--	--	--
	Sodium aluminofluoride	Cryolite Bait	7.0	NT	NT	NT	NT	NT	NT
	Spinetoram	Delegate	0.25	NT	0.2	0.5	NT	0.1	NT
	Spinosad	Success, Entrust	0.25	0.4	0.3	0.5	0.3	0.4	NT
	Tebufozide	Confirm	3.0	3.0	3.0	NT	3.0	3.0	NT
	Thiamethoxam	Actara, Platinum	0.2	0.5	0.05	0.2	0.2	1.0	0.01
	Zeta-cypermethrin	Mustang	0.8	NT	0.05	NT	0.5	2.0	2.0



Some other factors complicating all this

- Uneven residue levels in a field
 - Cannon Sprayers
 - Drift issues
- Electrostatic sprayers & other high efficiency types could leave higher residue levels at lower rates
- Adjuvants
- Regional weather variations greatly affect breakdown
- Degradation curves—ways to determine how spray timing affects residue
- Testing for residues before shipping



A photograph of Tom Peerbolt, a senior consultant, standing in a raspberry field. He is wearing a light-colored cap, a plaid shirt, and jeans. He is surrounded by several blue plastic crates filled with raspberries. Some crates have clear plastic bags of raspberries inside. The background shows a raspberry bush with a small yellow tag with the number '19' on it. The scene is outdoors on a paved area next to the field.

**Tom Peerbolt, Senior Consultant
Peerbolt Crop Management**

Questions?



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