

2017 WTFRC CHERRY PESTICIDE RESIDUE STUDY

For the seventh consecutive year, the WA Tree Fruit Research Commission conducted a study of residues of commonly used pesticides on cherry fruit at harvest. Digital versions of this report and similar studies on apple and cherry are available at www.treefruitresearch.com. For current information on maximum residues levels (MRLs) and other regulatory issues, please consult the Northwest Horticultural Council at <http://nwhort.org/export-manual>.



Airblast spray application

TRIAL DETAILS

- Mature 'Bing'/Mazzard multiple leader open vase trees on 10' x 20' spacing near Orondo, WA
- 14 insecticides/acaricides & 6 fungicides applied at or near maximum rates and minimum pre-harvest and re-treatment intervals; a foliar fertilizer containing potash and phosphite applied early in season at rates & timings consistent with industry use patterns
- Applications made by Rears PakBlast PTO-driven airblast sprayer with 16 oz Regulaid in 200 gal water/acre
- 0.61" cumulative total rainfall recorded on 8 separate days during study: heaviest rain events were approximately 0.2" which fell on May 11 & 13 (42 and 40 days before harvest)
- Samples submitted overnight to Pacific Agricultural Labs (Sherwood, OR) for chemical analysis

RESULTS & DISCUSSION

As before, this study simulates a *worst case scenario* for residues of legally applied pesticides using aggressive rates, timings, and spray intervals. Most materials were applied twice as allowed by product labels, whether or not commercial use patterns would do the same. With that approach, all residues complied with domestic tolerances but **most exceeded some key foreign tolerances**, whether from published MRLs or national default values:

Insecticides/acaricides: Centaur, Bexar, Agri-Mek 0.15SEC, Mustang MAX, Assail 70WP, Baythroid XL, Delegate WG, Danitol 2.4EC, Perm-Up 3.2EC, Carbaryl 4L, Onager

Fungicides: TopGuard, Orbit, Topsin 4.5FL

Fertilizer: 19% potash + 33% phosphite foliar fertilizer

MRLs change frequently and cherry producers should routinely monitor the most current information (<http://nwhort.org/export-manual>) to facilitate compliance with dynamic foreign standards. While fruit from this study were not rinsed prior to analysis, similar studies in 2011 and 2012 found no clear evidence of consistent residue reduction from commercial hydrocooler cycles.

For the second consecutive year, we included an early-mid season program of potash/phosphite fertilizer applied 3 times at 14 day intervals starting around shuck fall; these programs are used by some Northwest cherry growers for nutritional value and to promote overall tree health. While the US EPA does not regulate residues of foliar fertilizers, phosphite residues are regulated by the European Union (EU) as part of its residue definition for fosetyl-Al (Aliette), which is not registered for use on bearing cherry trees in the US. The EU has set a tolerance for fosetyl-Al residues which includes phosphonic acid and all of its salts at 2 ppm; as in 2016, our 2017 samples did not carry any measurable traces of actual fosetyl-Al, but did contain levels of phosphite well in excess of the EU standard. Growers hoping to ship cherries to Europe should avoid use of any phosphite products unless the fosetyl-Al MRL is redefined or significantly relaxed.



Cherries with residues at harvest

Results of this lone unreplicated trial are shared for informational purposes only and should not be construed as endorsements of any product, reflections of their efficacy against any arthropod or fungal pest, or a guarantee of similar results regarding residues for any user. Cherry growers should consult with extension team members, crop advisors, and warehouses to develop responsible pest control programs.

**Measured residue levels vs. MRLs for pesticides applied with 16 oz Regulaid in 200 gal water/acre.
'Bing'/Mazzard, Orondo, WA. WTFRC 2017.**

Common name	Trade name	Application rate	Application timing(s)	Measured residue	US tolerance ¹	Lowest export tolerance ²
		<i>per acre</i>	<i>days before harvest</i>	<i>ppm</i>	<i>ppm</i>	<i>ppm</i>
phosphite	33% phosphite fertilizer	64 oz	43, 28, 14	31	na	2 (EU)*
buprofezin	Centaur	34.5 oz	28, 14	1.2	1.9	1 (Kor)
tolfenpyrad	Bexar	27 oz	28, 14	0.97	2	0.01 (Tai)
abamectin	Agri-Mek 0.15SEC	20 oz	21	0.018	0.09	0.01 (EU)
zeta-cypermethrin	Mustang MAX	4 oz	21, 14	0.23	1	0.1 (Can)
acetamiprid	Assail 70WP	3.4 oz	21, 7	0.93	1.2	0.2 (Kor)
beta-cyfluthrin	Baythroid XL	2.8 oz	21, 7	0.083	0.3	0.01 (Tai)
spirotetramat	Ultor	14 oz	21, 7	0.041	4.5	3 (many)
spinosad	Entrust	2.5 oz	14, 7	0.15	0.2	0.2 (many)
spinetoram	Delegate WG	7 oz	14, 7	0.16	0.3	0.05 (EU)
flutriafol	TopGuard	14 oz	14, 7	0.50	1.5	0.01 (Jap)
metrafenone	Vivando	15.4 oz	14, 7	<0.01	2	0.01 (EU)
fenpropathrin	Danitol 2.4EC	21.3 oz	14, 3	2.8	5	0.01 (EU)
permethrin	Perm-Up 3.2EC	8 oz	14, 3	1.2	4	0.05 (EU)
carbaryl	Carbaryl 4L	96 oz	10, 3	10	10	0.01 (EU)
cyantraniliprole	Exirel	20.5 oz	10, 3	0.54	6	6 (many)
propiconazole	Orbit	4 oz	10, 1	0.53	4	0.01 (EU)
thiophanate-methyl	Topsin 4.5FL	30 oz	10, 1	0.684	20	0.3 (EU)
hexythiazox	Onager	24 oz	7	0.45	1	0.1 (Kor)
fluxapyroxad	Merivon	6.7 oz	7, 1	0.59	3	2 (Tai)
pyraclostrobin	Merivon	6.7 oz	7, 1	0.79	2.5	1 (HKG,Tai)

¹ 18 July 2017. <http://nwhort.org/export-manual/comparisonmrls/cherry-mrls> , <https://www.globalmrl.com>

² Major export markets for Pacific Northwest cherries; 18 July 2017; tolerances may be based on published MRLs or default values.

<http://nwhort.org/export-manual/comparisonmrls/cherry-mrls> , <https://www.globalmrl.com>

* EU tolerance for fosetyl-AI defined as the sum total of residue levels of fosetyl-AI, phosphonic acid and all of its salts (including phosphite)

** Reported thiophanate-methyl values reflect the sum total of thiophanate-methyl and carbendazim residue levels

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