

2019 WTFRC CHERRY PESTICIDE RESIDUE STUDY

For the ninth 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 including comprehensive summaries of multiple years' results 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 application @ 400 gal/acre

TRIAL DETAILS

- Mature 'Bing'/Mazzard multiple leader open vase trees on 10' x 20' spacing near Orondo, WA
- 12 insecticides/acaricides & 5 fungicides applied at or near maximum rates and minimum pre-harvest and re-treatment intervals
- Ground applications made by Rears PakBlast PTO-driven airblast sprayer of the same rate of product per acre with 8 oz Regulaid surfactant/100 gal water in either 200 or 400 gal water/acre
- Approx. 1" of rain fell on trial block over several days in late May; residues of materials applied 35 days before harvest (buprofezin and tolfenpyrad) may be slightly diminished, but subsequent applications of those or other materials were not significantly affected by rain events
- Samples submitted overnight to Pacific Agricultural Labs (Sherwood, OR) for chemical analysis

RESULTS & DISCUSSION

This study generally 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 typical commercial use patterns would do the same. With that approach, all residues complied with domestic tolerances but some **exceeded some foreign tolerances**, whether from published MRLs or national default values:

Insecticides/acaricides: Bexar, Agri-Mek 0.15SEC, Mustang MAX, Closer, Danitol 2.4EC, Perm-Up 3.2EC, Carbaryl 4L, Onager

Fungicides: TopGuard, Gatten, Orbit, Topsin 4.5FL

MRLs are known to change frequently and cherry producers should routinely monitor the most current information (<http://nwhort.org/export-manual>) to facilitate compliance with shifting foreign standards. As with previous years' results, differences in residues between dilute (400 gal/acre) and concentrate (200 gal/acre) sprays were inconsistent and preclude any firm conclusions regarding the effects of sprayer carrier volume on pesticide residue levels. 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.



Cherries dripping after 200 gal/acre application

Measured residue levels vs. MRLs for pesticides applied at uniform rates/acre on cherry fruit in either 200 gal or 400 gal water/acre. 'Bing'/Mazzard, Orondo, WA. WTFRC 2019.

Common name	Trade name	Application rate ¹	Application timing(s)	200 gal water/acre	400 gal water/acre	US tolerance ²	Lowest export tolerance ³
		per acre	days before harvest	ppm	ppm	ppm	ppm
buprofezin	Centaur	34.5 oz	28, 21	0.58	0.86	1.9	1 (Kor)
tolfenpyrad	Bexar	27 oz	28, 14	0.50	1.20	2	0.01 (Tai)
abamectin	Agri-Mek 0.15SEC	20 oz	21	0.019	0.011	0.09	0.01 (EU)
zeta-cypermethrin	Mustang MAX	4 oz	21, 14	0.14	0.14	1	0.1 (Can)
thiamethoxam	Actara	5.5 oz	21, 14	0.26	0.22	0.5	0.5 (many)
acetamiprid	Assail 70WP	3.4 oz	21, 7	0.47	0.45	1.2	1 (Tai)
beta-cyfluthrin	Baythroid XL	2.8 oz	21, 7	<0.05	<0.05	0.3	0.01 (Tai)
flutriafol	TopGuard	14 oz	14, 7	0.23	0.31	1.5	0.01 (Jap)
myclobutanil	Rally 40WSP	6 oz	14, 7	0.41	0.38	5	1 (Can, Tai)
sulfoxaflor	Closer	5.75 oz	14, 7	0.31	0.35	3	0.01 (Tai)
fenpropathrin	Danitol 2.4EC	21.3 oz	14, 3	1.00	0.74	5	0.01 (EU)
permethrin	Perm-Up 3.2EC	8 oz	14, 3	0.33	0.34	4	0.05 (EU)
carbaryl	Carbaryl 4L	96 oz	10, 3	2.8	2.1	10	0.01 (EU)
flutianil	Gatten	8 oz	10, 3	0.044	0.042	0.4	0.01 (EU, Jap)
propiconazole	Orbit	4 oz	10, 1	0.31	0.15	4	0.01 (EU)
thiophanate-methyl*	Topsin 4.5FL	30 oz	10, 1	1.05	0.89	20	0.3 (EU)
hexythiazox	Onager	24 oz	7	0.23	0.21	1	0.1 (Kor)

¹ All materials were applied by Rears PakBlast sprayer with 8 oz Regulaid/100 gal water

² 13 Aug 2019. <http://nwhort.org/export-manual/comparisonmrls/cherry-mrls/>

³ Major export markets for Pacific Northwest cherries; 13 Aug 2019; tolerances may be based on published MRLs or default values. <http://nwhort.org/export-manual/comparisonmrls/cherry-mrls/>

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

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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.