

# 2021 WTFRC CHERRY PESTICIDE RESIDUE STUDY

Since 2011, the WA Tree Fruit Research Commission has conducted annual studies 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.org](http://www.treefruitresearch.org). For current information on maximum residues levels (MRLs) and other regulatory issues, please consult the Northwest Horticultural Council website at <http://nwhort.org/export-manual>.



New Skeena trial block

## TRIAL DETAILS

- Mature 'Skeena'/Mazzard multiple leader open vase trees on 10' x 16' spacing near Orondo, WA
- 12 insecticides/acaricides & 7 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 at 200 gal water/acre
- No measurable precipitation fell on trial block over the course of the study except 0.14" of rain roughly 10 days before harvest (June 13-14)
- Grower applied RainGard 3 times during the study (5/25, 6/4, 6/11) to reduce cracking, which may have helped preserve residues of pesticides applied by WTFRC staff
- Samples submitted overnight to Pacific Agricultural Labs (Sherwood, OR) for chemical analysis

## RESULTS & DISCUSSION

These studies have historically been conducted in mature 'Bing' blocks in a commercial orchard near Orondo, but those older blocks have been removed, forcing the relocation of test plots to a mature 'Skeena' block in the same orchard. As in previous years, this study generally simulates a *worst case scenario* for residues of legally applied pesticides by 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 most **exceeded some foreign tolerances**, whether from published MRLs or national default values:

**Insecticides/acaricides: Centaur WDG, Bexar, Agri-Mek 0.15SEC, Perm-Up 3.2EC, Verdepryn 100SL, Danitol 2.4EC, Carbaryl 4L, Onager**

**Fungicides: Torino, Gatten, Orbit, Topsin 4.5FL, Miravis**

Some 2021 residue levels may be somewhat elevated due to grower applications of a rain protectant; previous WTFRC studies (2013-2015) demonstrated a tendency for rain protectants (RainGard, Parka) to preserve residues on cherry. 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 constantly shifting foreign standards.



Dried residues on fruit at harvest

**Measured residue levels vs. MRLs for pesticides applied to cherry fruit at 200 gal water/acre. ‘Skeena’/Mazzard, Orondo, WA. WTFRC 2021.**

Common name	Trade name	Application rate <sup>1</sup>	Application timing(s)	Measured residue	US tolerance <sup>2</sup>	Lowest export tolerance <sup>3</sup>
		<i>per acre</i>	<i>days before harvest</i>	<i>ppm</i>	<i>ppm</i>	<i>ppm</i>
buprofezin	Centaur WDG	34.5 oz	28, 14	<b>1.8</b>	2	0.01 (EU/UK)
tolfenpyrad	Bexar	27 oz	28, 14	<b>0.54</b>	2	0.01 (many)
abamectin	Agri-Mek 0.15SEC	20 oz	21	<b>0.043</b>	0.09	0.01 (EU/UK)
thiamethoxam	Actara	5.5 oz	21, 14	0.18	0.5	0.5 (many)
chlorantraniliprole	Altacor	4.5 oz	21, 10	0.098	2.5	0.5 (Korea)
acetamiprid	Assail 70WP	3.4 oz	21, 7	0.49	1.5	1 (Taiwan)
permethrin	Perm-Up 3.2EC	8 oz	14	<b>0.30</b>	4	0.05 (EU/UK)
flutriafol	TopGuard	14 oz	14, 7	0.34	1.5	0.8 (many)
cyclaniliprole	Verdepryn 100SL	11 oz	14, 7	<b>0.18</b>	1	0.01 (EU)
sulfoxaflor	Transform WG	2.75 oz	14, 7	0.73	3	1.5 (many)
cyflufenamid	Torino	8 oz	14, 7	<b>0.13</b>	0.6	0.02 (Australia)
fenpropathrin	Danitol 2.4EC	21.3 oz	14, 3	<b>0.74</b>	5	0.01 (EU/UK)
carbaryl	Carbaryl 4L	96 oz	10, 3	<b>2.5</b>	10	0.01 (EU/UK)
flutianil	Gatten	8 oz	10, 3	<b>0.051</b>	0.4	0.01 (EU/UK)
myclobutanil	Rally 40WSP	6 oz	10, 1	0.41	5	1 (Can, Taiwan)
propiconazole	Orbit	4 oz	10, 1	<b>0.24</b>	4	0.01 (EU/UK)
thiophanate-methyl*	Topsin 4.5FL	30 oz	10, 1	<b>0.42</b>	20	0.3 (EU/UK)
pydiflumetofen	Miravis	5.1 oz	10, 1	<b>0.093</b>	2	0.01 (EU, Japan)
hexythiazox	Onager	24 oz	7	<b>0.27</b>	1	0.1 (Korea)

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

<sup>2</sup> 13 Aug 2021. <http://nwhort.org/export-manual/comparisonmrls/cherry-mrls/>

<sup>3</sup> Major export markets for Pacific Northwest cherries; 13 Aug 2021; 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 carbendazim 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.**