Mission Creek has dense riparian vegetation on its banks for most of the reach, which helps prevent pesticide contamination. Juvenile fish of an unknown species were frequently observed at the site.

Results:
- There were 12 unique chemicals detected with a total of 57 detections in Mission Creek. Of these, nine detections were above WSDA assessment criteria.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Mission Creek was sampled. Between three and nine pesticides were detected at each sampling visit.
- WSDA identifies some pesticides as Pesticides of Concern (POC) when they have been detected above WSDA's assessment criteria and above established detection frequencies.

Watershed-specific POCs in Mission Creek:

**Chlorpyrifos**
- **Common trade names:** Lorsban, Pilot, Vesper
- **Example uses within watershed:** orchard
- A streamside no-spray buffer zone is required in Washington for chlorpyrifos to protect threatened and endangered Pacific salmon and steelhead.
- Detected at 14 sites in 2020. A watershed POC at six of them.

**Malathion**
- **Common trade names:** Malathion, Fyfanon
- **Example uses within watershed:** orchard, pasture
- A streamside no-spray buffer zone is required in Washington for malathion to protect threatened and endangered Pacific salmon and steelhead.
- Detected at 10 sites in 2020. A watershed POC at eight of them.

**Pyridaben**
- **Common trade names:** Nexter, GWN-1715, Sanmite
- **Example uses within watershed:** orchard
- Detected at two sites in 2020.

**Pyriproxyfen**
- **Common trade names:** Seize, Terva, Esteem
- **Example uses within watershed:** orchard, residential
- Detected at seven sites in 2020. A watershed POC only at Mission Creek.

Products listed are for descriptive purposes only and do not imply endorsement by the author or the Department of Agriculture.
The calendar at right shows the concentration in µg/L and date sampled of each watershed POC detected. This calendar does not include all the pesticides WSDA found during the growing season. Detected concentrations that exceed WSDA’s assessment criteria have a higher potential to cause harm to aquatic ecosystems.

Watershed Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations

<table>
<thead>
<tr>
<th>Month</th>
<th>Mar</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
</tr>
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<tbody>
<tr>
<td>Day of the Month</td>
<td>Use*</td>
<td>Use*</td>
<td>Use*</td>
<td>Use*</td>
<td>Use*</td>
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<tr>
<td>17</td>
<td>0.023</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
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<tr>
<td>16</td>
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<tr>
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<td>22</td>
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</tr>
</tbody>
</table>

Chlorpyrifos: 0.023, 0.001, 0.001, 0.001, 0.002, 0.002
Malathion: 0.040

The graph at right shows the total number of detections per sampling visit in each pesticide category. The category ‘other’ includes degradation and additional pesticide-related chemicals. Note that the number of detections between categories cannot be directly compared due to the different number of chemicals in each category and variability in analysis methods used.

Recommendations:

Make use of natural protections
- Use buffers, filter strips, sediment basins, ground cover, and setbacks.
- Maintain vegetation along creeks and take care during spring time applications before vegetation along streams leaves out.

Be informed
- Read and follow pesticide label directions.
- Check the weather forecast to reduce the chances of drift or runoff.
- Review WSDA’s Pesticides of Concern and choose less-toxic pesticides when possible.

Care for your equipment and products
- Calibrate, maintain, and inspect application equipment.
- Properly dispose of all unneeded pesticides. Visit agr.wa.gov/wastepesticide to learn about waste pesticide collection events.

Please see agr.wa.gov/AgScience for more information.
Mission Creek crop groupings | acres

<table>
<thead>
<tr>
<th>Category</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
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<tr>
<td>Orchard</td>
<td>578</td>
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<tr>
<td>Fallow</td>
<td>55</td>
</tr>
<tr>
<td>Pasture</td>
<td>22</td>
</tr>
</tbody>
</table>

Total Agriculture: 661 acres

Watershed Total: 52,387 acres

To view mapped crop groups at the field scale, download the WSDA Agricultural Land Use data or view the interactive web map here: https://agr.wa.gov/departments/land-and-water/natural-resources/agricultural-land-use