

Dry Creek

APRIL 2023

Summary of 2021 Surface Water Monitoring Program Results



To expand sampling across Eastern Washington, WSDA partnered with the Palouse Conservation District to monitor Dry Creek, near Colfax, in the 2021 sampling season. Dry Creek flows roughly 18 miles before entering the Palouse River. The watershed was chosen as a study region due to its dryland farming practices and its location within the state.

In 2021, Washington State Department of Agriculture (WSDA) monitored 18 sites in Washington. Dry Creek was one of three monitoring sites located in Whitman County.

Samples were analyzed at the Manchester Environmental Lab, Port Orchard, Wash.

WSDA compares detected pesticide concentrations to WSDA assessment criteria, which are half of state and federal water quality criteria. Each pesticide has its own assessment criteria, based on its toxicity to aquatic animals, insects, and plants.

Site information:

Years sampled: 2020 – present

Sampling dates:

13 weeks, March 22 – August 23, September 27, and October 25

Water testing:

Samples were tested for 173 current and legacy chemicals (59 insecticides, 60 herbicides, 23 fungicides, 20 pesticide degradates, 6 legacy chemicals, 2 synergists, 1 antimicrobial, 1 insect repellent, and 1 wood preservative).

Results:

- There were 38 unique chemicals detected with a total of 223 detections in Dry Creek. Of these, 10 detections were above WSDA assessment criteria.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Dry Creek was sampled. Between 9 and 26 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 Dry Creek:

ICONS FOR ENVIRONMENTAL HAZARDS LISTED ON PESTICIDE LABELS



Chlorpyrifos — Insecticide

- **Common trade names:** Lorsban, Pilot, Vesper
- **Example uses within watershed:** legumes, wheat
- As of early 2022, chlorpyrifos has been banned for use on food and feed commodities. It can still be applied to registered non-food commodities.
- A streamside no-spray buffer zone is required in Washington for chlorpyrifos to protect threatened and endangered Pacific salmon and steelhead.
- This chemical was also detected in 11 other monitored watersheds and a POC in all but one of them.

Imidacloprid — Insecticide

- **Common trade names:** Admire Pro, Gaucho, Merit
- **Example uses within watershed:** barley, legumes, wheat
- This chemical was also detected in 13 other monitored watersheds and a POC in 10 of them.

Metsulfuron-methyl — herbicide

- **Common trade names:** Cimarron, Plotter, MSM
- **Example uses within watershed:** barley, fallow, wheat
- This chemical was also detected in three other monitored watersheds.

Pyroxasulfone — herbicide

- **Common trade name:** Zidua
- **Example uses within watershed:** fallow, legumes, wheat
- This was the only site where this chemical was a POC.



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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. The “-” identifies data that could not be collected or analyzed. Detected concentrations that exceed WSDA’s assessment criteria have a higher potential to cause harm to aquatic ecosystems.

[* H: Herbicide; I: Insecticide]

exceeds assessment criteria

below assessment criteria

The graph at right shows the total number of detections per sampling visit in each pesticide category. The category ‘other’ includes legacy, degradates, 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.

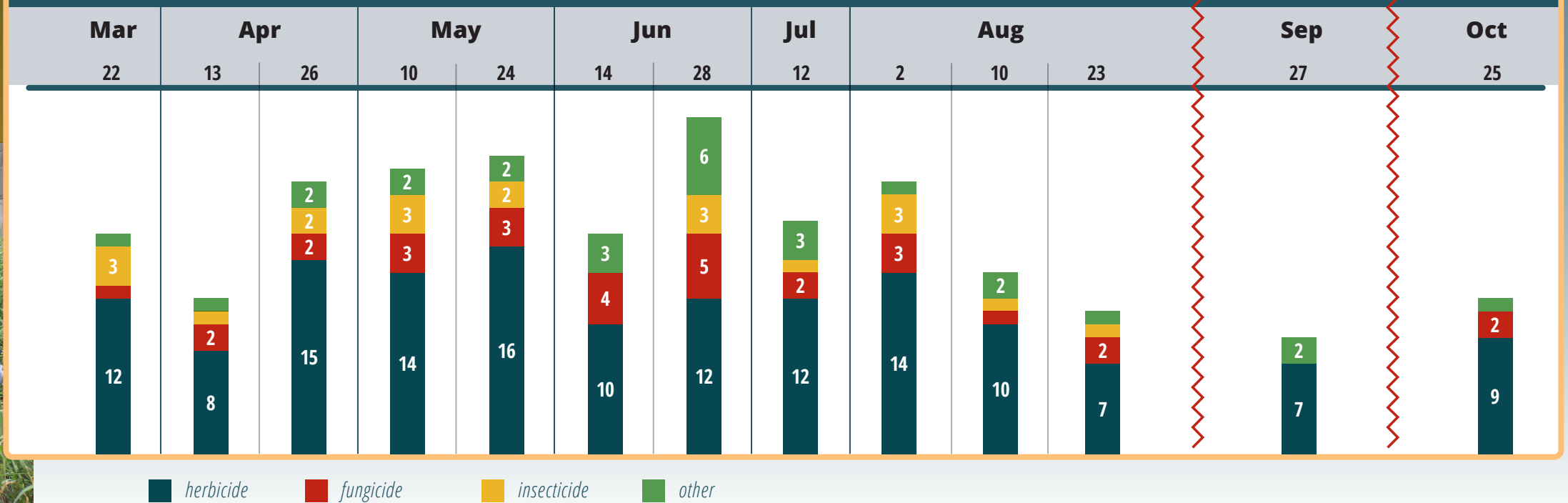
Care for your equipment and products

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

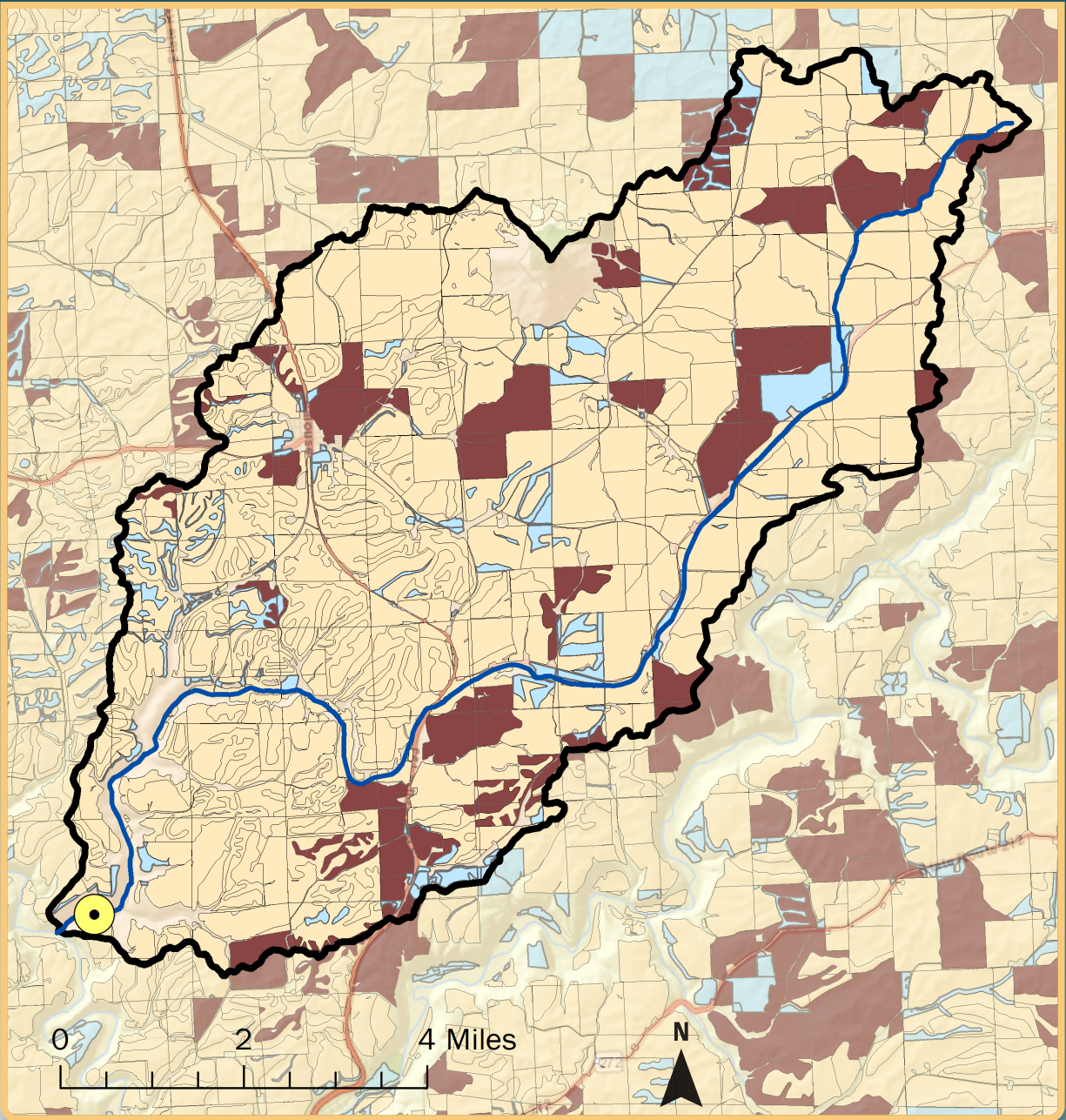
Watershed Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations

Month		Mar	Apr		May		Jun		Jul	Aug			Sep	Oct
Day of the Month	Use*	22	13	26	10	24	14	28	12	2	10	23	27	25
Imidacloprid	I	0.005		0.006	0.004			0.010		0.006	0.005			
Metsulfuron-methyl	H					0.026	0.022	0.283	0.226	0.111	0.097	0.060	0.015	
Pyroxasulfone	H			0.312										
Suspended sediment conc. (mg/L)		-	-	6	7	9	9	34	8	9	54	12	12	4
Streamflow (cubic ft/sec)		9.6	6.1	4.8	2.9	2.8	0.8	0.3	0.2	0.1	0.3	0.4	0.5	0.7
Precipitation (total in/week)		0.28	0.02	0.06	0	0.54	0.11	0	0	0.22	0.01	0.01	0	0.51

Total Number of Detections per Sampling Event by Pesticide Category



Please see agr.wa.gov/AgScience for more information.



Dry Creek crop groupings		acres	<div> <div>●</div> Sampling Location </div> <div> <div></div> Dry Creek </div> <div> <div></div> Dry Watershed </div>	
<div></div>	Other	1,865	Total Agriculture	
<div></div>	Cereal Grain	25,901	32,349 acres	
<div></div>	Vegetable	4,583	Watershed Total	
			35,847 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>