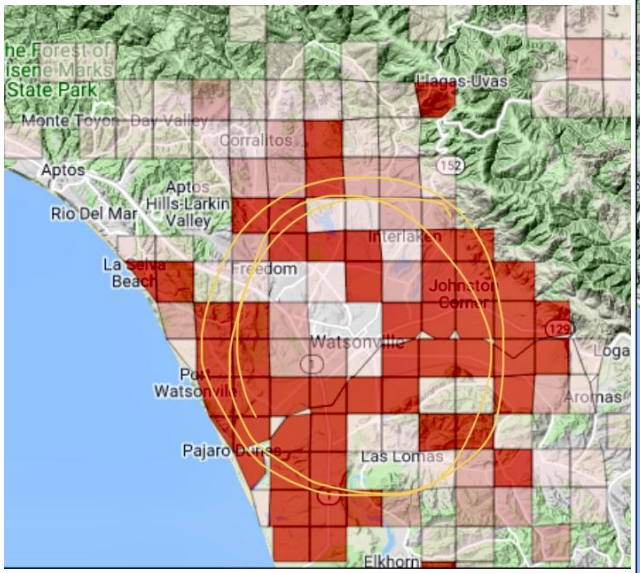
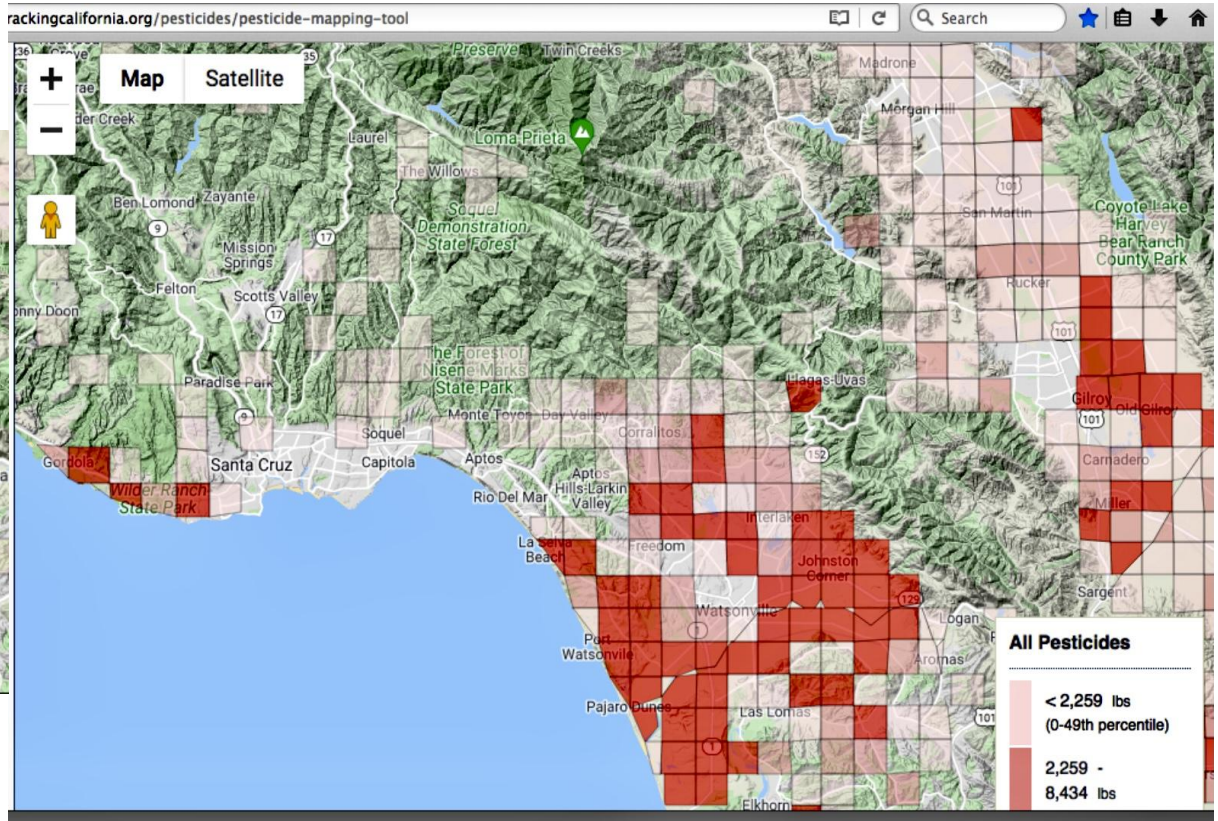
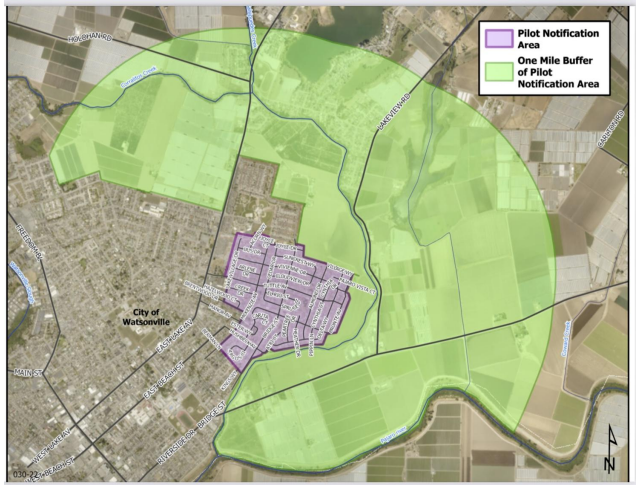
The Valley and the City:
How Do Pesticides Impact Watsonville?





Getting the "Drift" -> Pathways of Pesticide Exposure

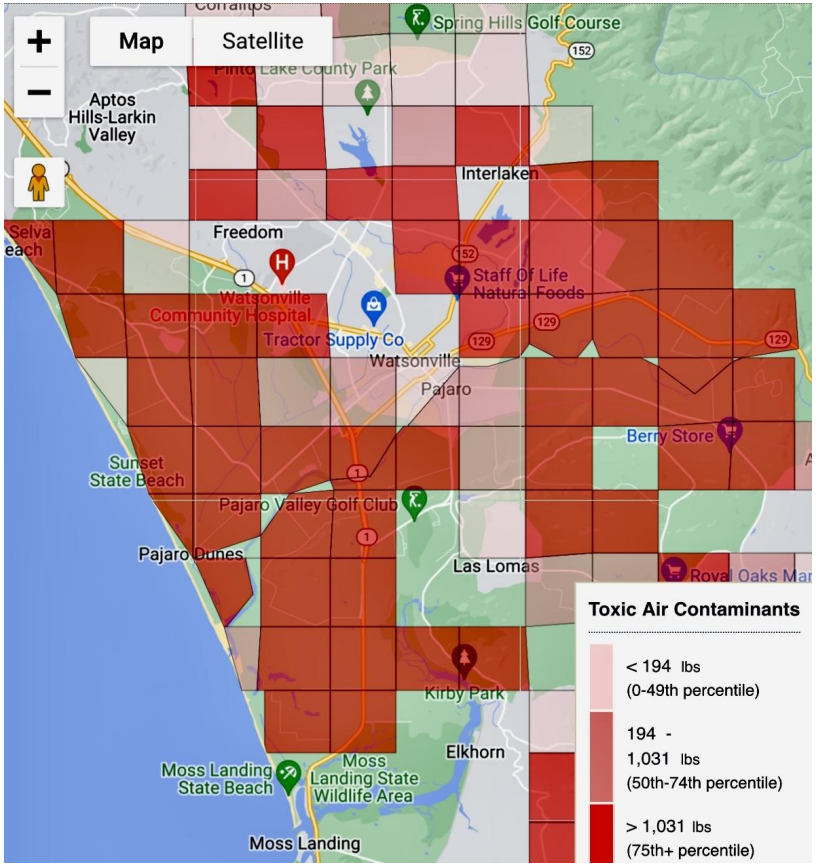
Pesticides drift from multiple sources, by
multi mechanism,
through multi entry points.



Air: What we think of when we picture drift, not just what we're breathing

Some useful acronyms:

- VOCs = Volatile Organic Compound.
- TAC = Toxic Air Contaminants
- GHGs = Greenhouse Gases

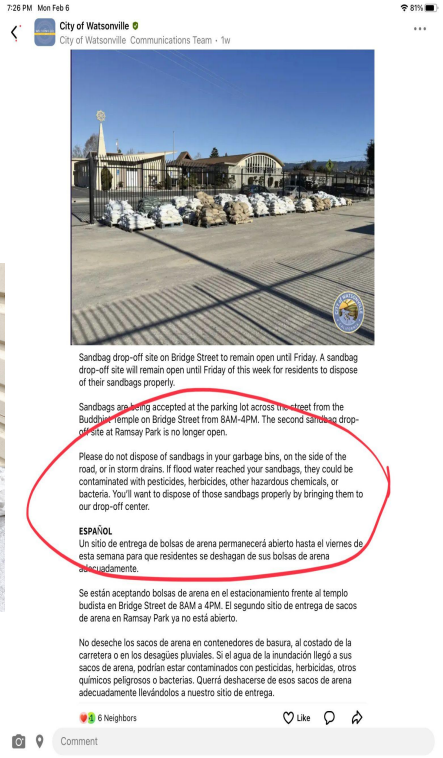


Water: Another way pesticides spread widely and get into our environment, and into us

- Flood runoff from fields and overflowing creeks, levees, rivers
- Surface water: Corralitos, Salsipuedes, and Aromas Creeks are local.
- Pajaro River has a 1300 mile long watershed.
- Groundwater recharges from all these sources, plus our water recycling plant.

Soil: Our fields, yards, roadsides, the earth beneath our feet

- Soil can both store and mobilize pesticides, sometimes over years.
- Mud, sediments, and dust move them around.
- Dirt is blown in, tracked in, breathed in.
- Many different pesticides have been shown to impact soil health.



7:26 PM Mon Feb 6

City of Watsonville

City of Watsonville Communications Team · 1w

Sandbag drop-off site on Bridge Street to remain open until Friday. A sandbag drop-off site will remain open until Friday of this week for residents to dispose of their sandbags properly.

Sandbags are being accepted at the parking lot across the street from the Buddhist Temple on Bridge Street from 8AM-4PM. The second sandbag drop-off site at Ramsay Park is no longer open.

Please do not dispose of sandbags in your garbage bins, on the side of the road, or in storm drains. If flood water reached your sandbags, they could be contaminated with pesticides, herbicides, other hazardous chemicals, or bacteria. You'll want to dispose of those sandbags properly by bringing them to our drop-off center.

ESPAÑOL

Un sitio de entrega de bolsas de arena permanecerá abierto hasta el viernes de esta semana para que residentes se deshagan de sus bolsas de arena adecuadamente.

Se están aceptando bolsas de arena en el estacionamiento frente al templo budista en Bridge Street de 8AM a 4PM. El segundo sitio de entrega de sacos de arena en Ramsay Park ya no está abierto.

No deseche los sacos de arena en contenedores de basura, al costado de la carretera o en los desagües pluviales. Si el agua de la inundación llegó a sus sacos de arena, podrían estar contaminados con pesticidas, herbicidas, otros químicos peligrosos o bacterias. Querrá deshacerse de esos sacos de arena adecuadamente llevándolos a nuestro sitio de entrega.

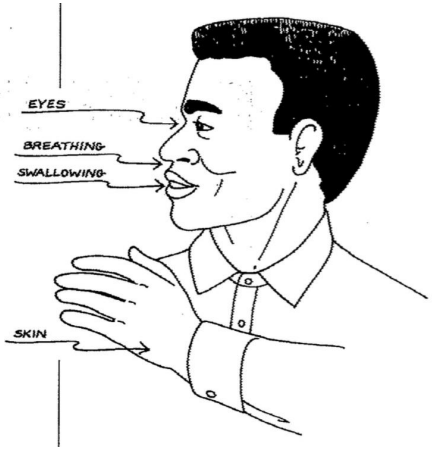
6 Neighbors

Like

Comment

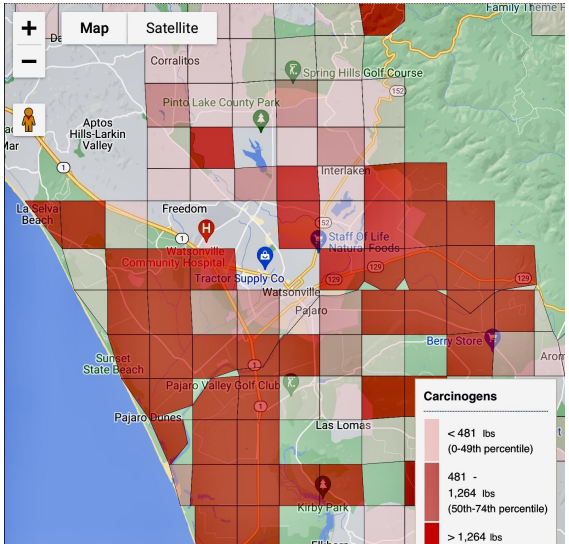
Bodies: Skin is the main entry point, but pesticides can enter our bodies via food, water, breathing.

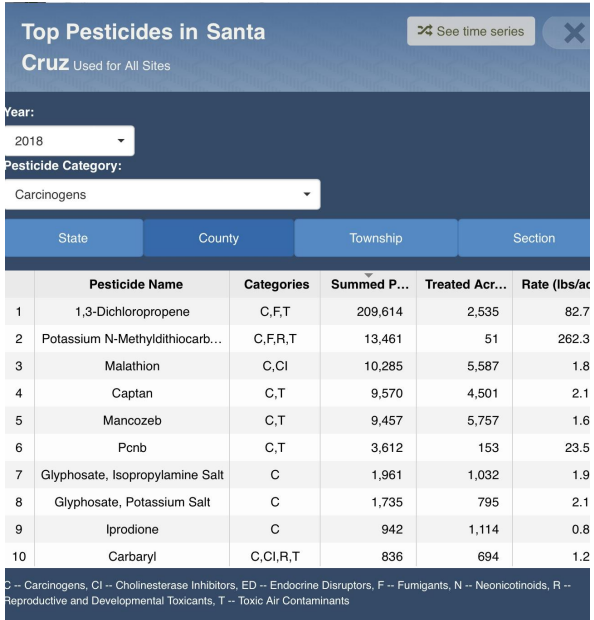
- Pesticides can be found in our blood, fat, body wastes, in women's placentas and fetuses.
- Some people, because of age, genetics, or other health issues, are more susceptible to effects. Children and pregnant women are particularly vulnerable.
- Farmworkers may be exposed over lifetimes, even generations.
- Applicators are the most exposed, but also more likely to wear protective gear.



Which Pesticides? Let's look at three basic categories.

- Some spread more easily in air, others adhere to soil or dissolve in water. Breakdown products may be more toxic than the original.
- Approval for use is by single active ingredients (AIs), not combinations, and not with oils, and stickers used for application.
- Very little research addresses combinations, but some lab and epidemiological studies indicate combined effects may increase carcinogenicity.





Top Pesticides in Santa Cruz Used for All Sites

See time series

Year: 2018

Pesticide Category: Carcinogens

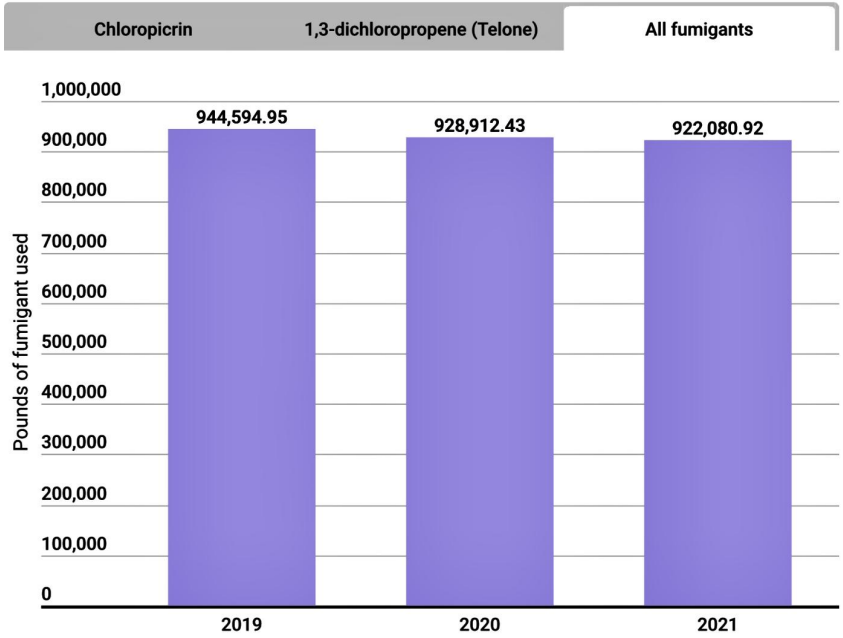
State | County | Township | Section

	Pesticide Name	Categories	Summed P...	Treated Acr...	Rate (lbs/ac
1	1,3-Dichloropropene	C,F,T	209,614	2,535	82.7
2	Potassium N-Methyldithiocarb...	C,F,R,T	13,461	51	262.3
3	Malathion	C,CI	10,285	5,587	1.8
4	Captan	C,T	9,570	4,501	2.1
5	Mancozeb	C,T	9,457	5,757	1.6
6	Pcnb	C,T	3,612	153	23.5
7	Glyphosate, Isopropylamine Salt	C	1,961	1,032	1.9
8	Glyphosate, Potassium Salt	C	1,735	795	2.1
9	Iprodione	C	942	1,114	0.8
10	Carbaryl	C,CI,R,T	836	694	1.2

C -- Carcinogens, CI -- Cholinesterase Inhibitors, ED -- Endocrine Disruptors, F -- Fumigants, N -- Neonicotinoids, R -- Reproductive and Developmental Toxicants, T -- Toxic Air Contaminants

Fumigants (fungicides, miticides, nemicides):

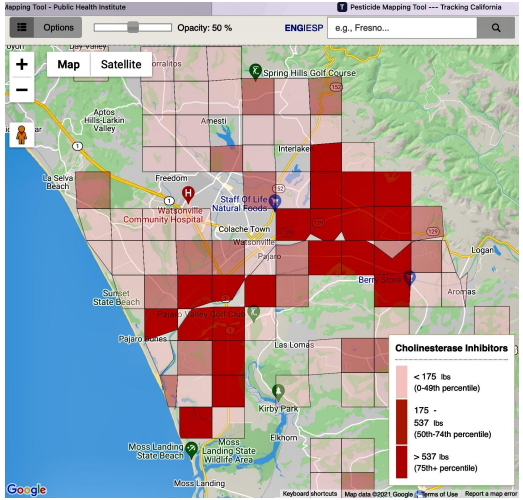
- Many are TACs, carcinogens, reproductive and developmental toxins.
- Not only dangerous to humans, pets, wildlife, but also harm the soil micro-biome.

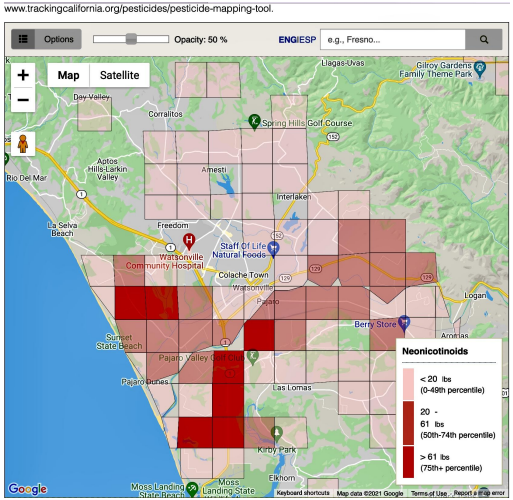


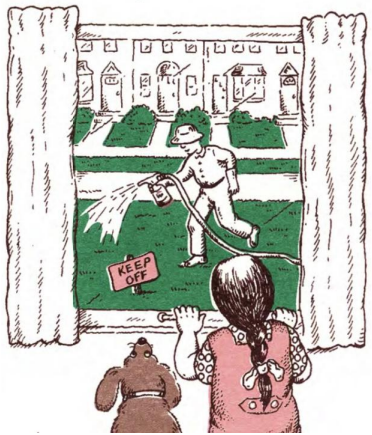
Source: California Department of Pesticide Regulation

Broad-spectrum insecticides: Cholinesterase Inhibitors (CIs), pyrethroids, neonicotinoids are the most widely used.

- All 3 are neurotoxins, although they vary by mechanism of action and species most impacted.
- CIs have demonstrated harmful impacts on brain development, were first emphasis of the CHAMACOS study.
- Others are less well-researched on humans, with some concerning studies recently.
- All can harm pets, aquatic life, and beneficial insects.

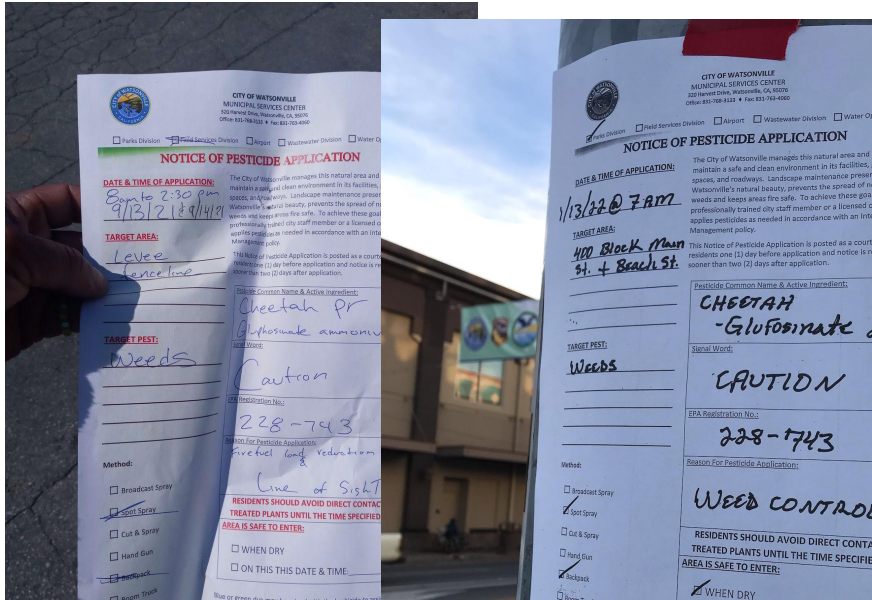






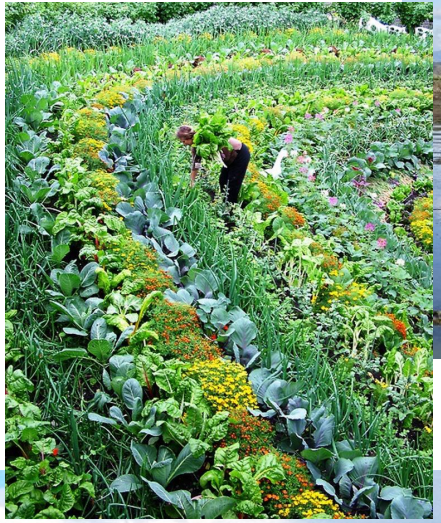
Herbicides: Glyphosate (Roundup) is best known, but many others, old and new are used.

- Glyphosate is now classed as a carcinogen in CA; home use is being phased out.
- Some replacement herbicides (e.g. parathion, atrazine) are more acutely toxic.
- Weeds are smart, can build resistance to herbicides.
- Like the previous 2 categories, weed killers may have adverse effects on human health, biodiversity, and soil health.



Recap:

- Multiple agricultural chemical in use, long-term exposure via multiple pathways
- Low level for some, but we have vulnerable members of our community: ag workers, pregnant women, children, and elders, and those more sensitive by genetics and/or health status.

Remedy:

- Reduced use -> reduced exposure
- Replace with methods that protect human health,
- Restore soil health,
- Build resistance to climate change.