Pesticide uses and impacts in urban areas.

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Where pesticides are often used in urban communities:

- ❑ Parks and playgrounds (green areas, around bases of trees, chipped and rubber surfaces under play equipment)
- ❑ sports fields
- ❑ court/field/path edges/fencing
- ❑ along walking path edges and curbs
- ❑ rockscapes
- ❑ on easements near electric meters, poles, transformers etc. Along bus stops.
- ❑ On shoulders along roads, along edges of rivers and acequias.
- ❑ Neighbors' yards including driveways, lawns and rockscaping.

Typical pesticides and uses in urban areas.

- **RoundUp** or off brand formulations (active ingredients include ***glyphosate***)
  - Kills all plants not engineered for it.
  - Common uses: rockscapes, wood/rubber chips covering playground areas below play equipment, along roads, edges of rivers/acequias, bike/walk paths, sidewalks, bases of fences, easements, meters, electric poles, etc.
  - Typically used year-round.
- **EndRun** (active ingredients include ***2,4-D***, ***Dicamba***)
  - Kills broadleaf plants like clover, dandelion and similar.
  - Common uses: sprayed on large areas (‘boom sprayed’) like public grassy areas, sport fields and lawns.
  - Typically applied in spring (April-June) and fall (Aug-October).

Concerns about glyphosate and Roundup.

- Glyphosate is a patented antibiotic (patent filed in 2003, granted in 2010).
- Glyphosate lowers vitamin D levels by suppressing CYP enzyme activity which activates vitamin D.
- Glyphosate is a sex specific endocrine disruptor with androgenic effects inhumans.
- Glyphosate has been shown to severely impair adrenal hormone synthesis.
- Glyphosate and glyphosate-free Roundup products kill bees.
- Glyphosate is a patented chemical chelator (1964). It binds and removes important minerals such as calcium, magnesium, manganese, copper, and zinc.
- Glyphosate is an analog (mimic) of glycine, one of the most prevalent of the 20 amino acids that form the building blocks of life.

Concerns about 2,4-D (1940s Dow Chemical)

- 2, 4-D works by attacking both the roots and leaves of weeds by making the unwanted plant's cells grow out of control—sort of like inducing cancer in the plant to kill it or drastically slow its spread.
- Declared a possible human carcinogen in 2015 by the International Agency for Research on Cancer based on evidence that it damages human cells and, in a number of studies, caused cancer in laboratory animals.
- 2,4-D is an endocrine-disrupting chemical as it mimics/inhibits the body's hormones. Laboratory studies suggest that 2,4-D can impede the normal action of estrogen, androgen, and most conclusively, thyroid hormones.
- By the EPA's own measure, 2,4-D has already been detected in groundwater and surface water, as well as in drinking water.
- Ubiquitous - in ‘weed and feed’ products in lawns, parks, agriculture.

Concerns about Dicamba.

- Like glyphosate and Roundup, is linked to non-Hodgkins lymphoma (blood cancer originating in lymphatic system)
- Implicated in canine malignant lymphoma raising the risk by as much as 70% in some dogs.
- Toxic, used to not be allowed to be used on growing crops or even DURING growing season.
- New seeds that withstand dicamba were released before approval causing heavy crop damage and sickening farm workers by drifting of spray.
- Created in 1940s.

A couple of the myths of safe pesticides:

- “Rigorously Tested”
  - In 2010, US President’s Cancer Panel (USPCP) said “Only a few hundred of the more than 80,000 chemicals in use in the US have been tested for safety.” **(that’s well below 1%)**
- “Safe exposure limits”
  - In 2010 USPCP said “Some scientists maintain that current toxicity testing and exposure limit-setting methods fail to accurately represent the nature of human exposure to potentially harmful chemicals.”
  - Studies show that ‘safe’ doses of multiple chemicals do in fact cause detectable negative impact when combined (‘synergistic effect’ - effect is greater) yet data from studies of combinations is not considered when setting safe limits by our regulatory agencies.
  - Some compounds such as those that mimic/impact hormones are MORE toxic at a LOWER dose, so current safety level settings are not able to address those safely.

More recently on the myth of “rigorously tested”

The EPA pesticide office granted 972 industry requests to waive toxicity tests between December 2011 and May 2018, 89% of all requests made.

Among the tests on pesticides that were never performed were 90 percent of tests looking for developmental neurotoxicity, 92 percent of chronic cancer studies, and 97 percent of studies looking at how pesticides harm the immune system.

Glyphosate has been under scrutiny for it’s cancer-causing potential at the EPA since at least 1983 and yet it’s use has been allowed to skyrocket every year becoming the most widely used herbicide in the US.

Glyphosate is persistent and accumulating in our bodies and environment rapidly.

- Glyphosate has been found in all foods tested including baby foods, popular breakfast cereals, honey, sugar, vegetable oils and particularly high in oats, beans, buckwheat.
- Glyphosate has been found in most ground and rain water tested.
- A study published in JAMA in 2017 tracked people over the age of 50 in southern California from 1993-1996 to 2014-2016, with researchers periodically collecting urine samples during that time. Researchers found
    - the percentage of people who tested positive for glyphosate shot **up by 500%** in that time period.
    - The levels of glyphosate found also **spiked by 1208%** during that time.

US regulatory approach is reactionary, NOT precautionary.

US President's Cancer Panel stated in 2010: "The prevailing regulatory approach in the United States is **reactionary** in that it:

- Requires incontrovertible evidence of harm before preventative action is taken.
- Places the burden on the public to show that a given chemical is harmful.
- Does not consider potential health and environmental impacts when designing new technologies.
- Discourages public participation in decision making about the control of hazards and the introduction of new technologies, chemicals, or other exposures."

What can we do as individuals?

- Regularly contact local officials in charge of recreational space, parks, schools and public roads and waterways to let them know your concerns and provide latest relevant information since both governments and regulatory agencies are often woefully behind the scientific community.
- Speak to those seeking office about your concerns. Keep in mind, we all want the best for our health and environment but due to years of heavy PR it will take a paradigm shift for many folks to really understand the dangers and change their habits.
- Encourage local governments and entities like school districts to pass requirements to disallow use of these chemicals.
- Vote for politicians who are more likely to hold industry and regulatory agencies responsible.
- Buy organic whenever possible. Support local farmers.

Questions?