CARE Committee

From: Jay Feldman <JFeldman@beyondpesticides.org>
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Aloha Councilmember King,

Thank you for the opportunity to present a statement to the committee tomorrow. I'm attaching a my presentation.

Mahalo,
Jay

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Climate Action, Resilience, and Environment (CARE) Committee

Maui County Council

Jay Feldman
Beyond Pesticides
July 21, 2021

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Protecting Health and the Environment with Science, Policy and Action

www.beyondpesticides.org

Intersection of health and land management

- Issues of Health
- Issues of Land Management Practices
- For instance, we know that the pesticide glyphosate (carcinogen/endocrine disruptor) is causing adverse effects –we also know that its in our waterways and adversely affecting the environment. As an antibiotic glyphosate has devasting impacts on soil biology, soil microbiota and our gut microbiome.

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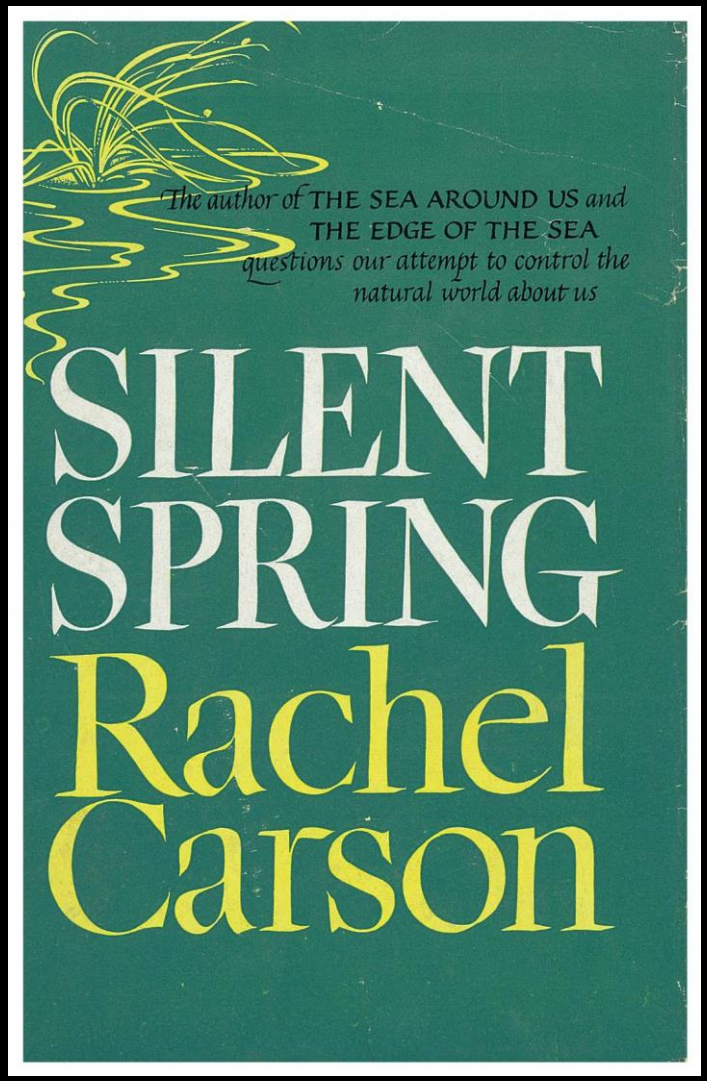
"By their very nature, chemical controls are self-defeating, for they have been devised and applied without taking into account the complex biological systems against which they have been blindly hurled. The chemicals may have been pretested against a few individual species, but not against living communities



We must make wider use of alternative methods **that are now known**, and we must devote our ingenuity and resources to developing others."

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Systemic Change

Systemic change means that **change** has to be fundamental and affects how the whole system functions.

Structural change to the way we treat our ecosystems we depend on for life.

Overview: Issues Requiring Policy Change re. Pesticide Use

What have we learned?

- Science Matters
- Regulations Can Be Politicized
- Disproportionate Risk Is Widespread
- Irreversible Harm Looming with Climate Crisis
- Biodiversity Decline/Insect Apocalypse Threatens Life
- Pesticides and Fertilizers Affect Water Quality
- **Importance of Local Decision-making**

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Climate Crisis & Pesticides

A 2019 UN Intergovernmental Panel on Climate Change (IPPC) report named agriculture and forestry as a significant net source of greenhouse gas emissions,

BUT IT ALSO pointed out that
Insecticides, herbicides, fungicides, and synthetic fertilizers disrupt microbial communities and prevent the kind of carbon-capturing root and symbiotic mycorrhizal fungi systems that are necessary to offset climate change.

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Accelerating Biodiversity Loss Threatens All Life

Decline in biodiversity threatens society's ability to meet people's basic needs. . .

— Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, United Nations Decade on Biodiversity (2019) (IPBES)

What's In A Pesticide?

Active Ingredients are by nature biologically and chemically active against the target pest, be it an flying insect, microbe, or fungus. By definition, these materials kill living things.

Inert Ingredients are often as toxic as the active ingredient, although the law defines these materials as "secret business information." Inerts, often petrochemicals, like benzene, toluene or xylene, generally make up the largest percentage of a pesticide formulation. Inerts are the solution, dust, or granule into which the active ingredient is mixed. Inerts generally make up the majority of the pesticide product formulation.

Contaminants and impurities are often a part of the pesticide product and are responsible for the product hazards. Dioxins are contaminants in pentachlorophenol, created as a function of the production process.

Metabolites, often more hazardous than the active ingredients, are breakdown products which form when the pesticide mixes with air, water, soil or living organisms.

30 Commonly Used Lawn Pesticides Health Effects

- 16 are likely, probable or possible carcinogens
- 17 are known or suspected endocrine disruptors
- 12 are linked to birth defects
- 21 are reproductive toxicants
- 25 cause kidney or liver damage
- 26 are sensitizers/irritants

30 Commonly Used Landscape Pesticides

- 17 are groundwater contaminants
- 18 are toxic to birds
- 26 are toxic to fish and other aquatic life
- 12 are toxic to bees

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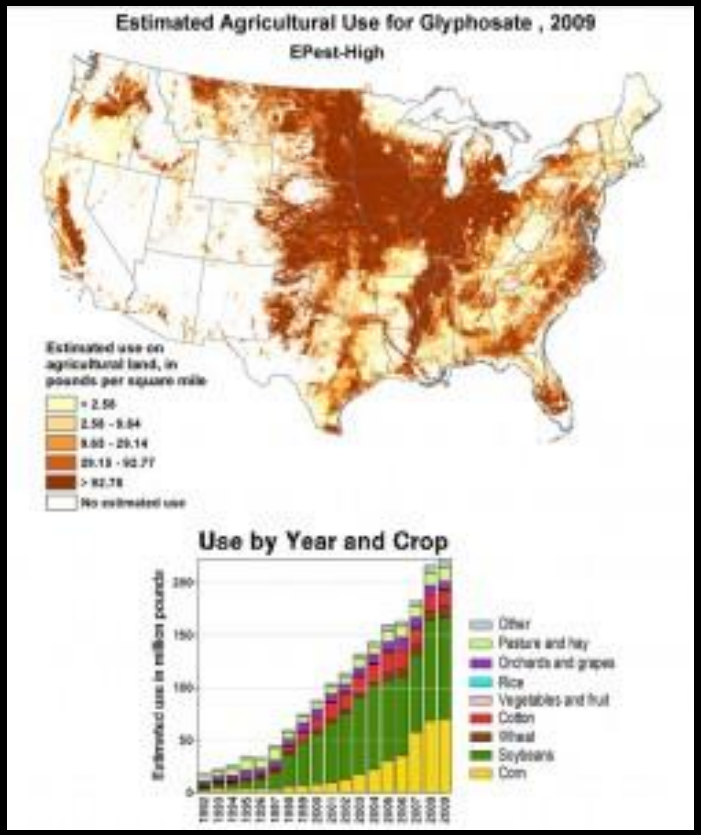
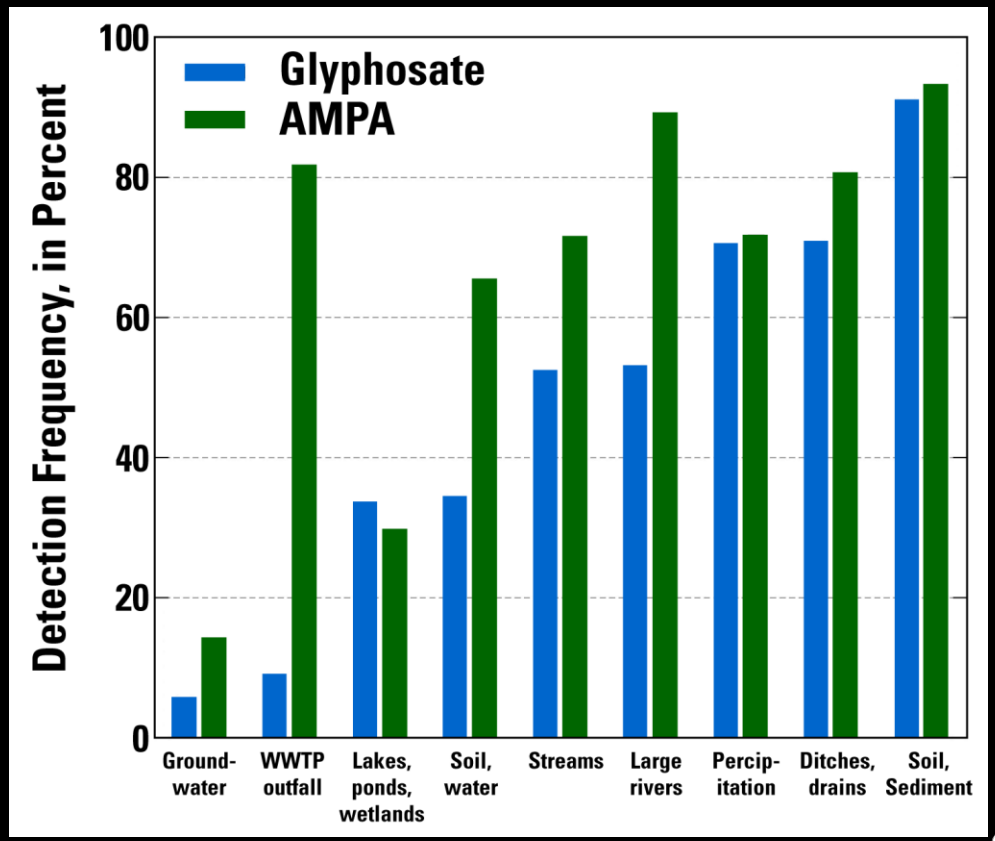
Water and Soil Impacts by Hydrologic Setting

Widespread Contamination of Glyphosate and AMPA





U.S. Geological Survey, 2014

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Pesticide-Induced Diseases Database

Total studies over 1,200 linking pesticide exposure to health outcomes:

cancer
sexual and reproductive dysfunction
Parkinson's disease
learning and developmental disorders
birth defects
asthma
diabetes
Alzheimer's disease

Related Databases

Pesticide-Induced Diseases Database
Gateway on Pesticide Hazards and Safe Pest Management
Eating with a Conscience
ManageSafe

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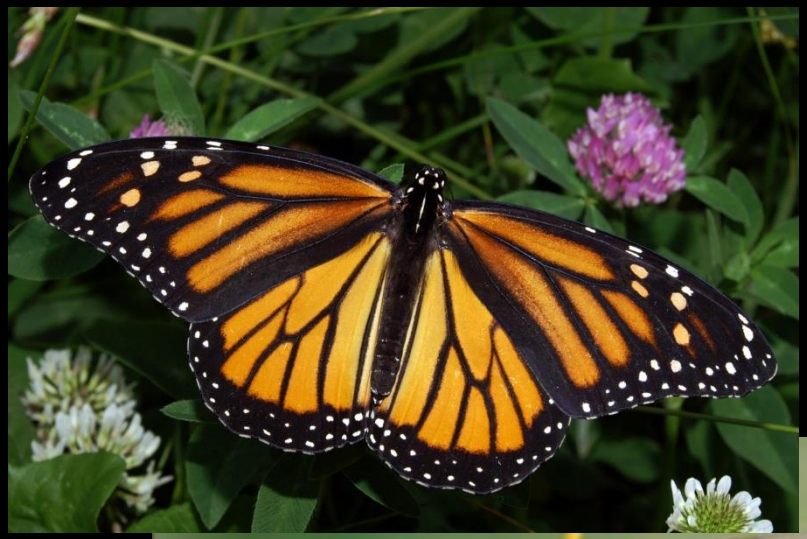
Chronic poisoning

- Frog deformities have been linked to a number of pesticides, including atrazine, glyphosate, and other herbicides.

Indirect effects of pesticides

- Herbicides can cause a reduction in habitat or food, such as milkweeds used by monarch butterflies.
- Systemic insecticides can harm pollinators, including honey bees and wild bees.



Historical Trends of Risk-Based Policies that Allow Harm

Unacceptable Hazards Banned/Legacy:

- Arsenicals, DDT, Chlordane, Dieldrin, Endrin, Heptachlor, 2,4,5-T, DBCP, Chlorpyrifos residential

To Acceptable Hazards as Alternatives:

- Chlorpyrifos in agriculture, Neonicotinoids (e.g. imidacloprid), Triazines (e.g. atrazine), 2,4-D, Glyphosate(N-(phosphonomethyl) glycine

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Risk Assessment Failure

Complexities Not Addressed under Federal & State Law

- Mixtures
- Synergistic effects
- Inerts, metabolites and contaminants
- Endocrine disruption
- Assumes 100% compliance
- Arbitrary exposure assumptions
- No monitoring of adverse effects
- Additional margin of safety sometimes arbitrary
- Uncertainties/limitation of risk assessment not disclosed on products

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Working with Nature, Not Against It—Ecosystem Services

The Soil Health Matters

"Smart gardeners know that soil is anything but an inert substance. Healthy soil is teeming with life –not just earthworms and insects, but a staggering multitude of bacteria, fungi, and other microorganisms. When we use chemical fertilizers, we injure the microbial life that sustains healthy plants, and thus become increasingly dependent on an arsenal of artificial substances. But there is an alternative to this vicious cycle. We can garden in a way that strengthens the soil food web—the complex world of soil-dwelling organisms whose interactions create a maturing environment for plants."

Review of *Teaming with Microbes, Seattle Times*

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A Systemic Solution to Build On

Organic practices eliminate petroleum-based pesticides and synthetic fertilizers that are disruptive of human and ecosystem health, manage soil health to maximize sequestration of atmospheric carbon to combat the climate crisis, and nurture biodiversity.

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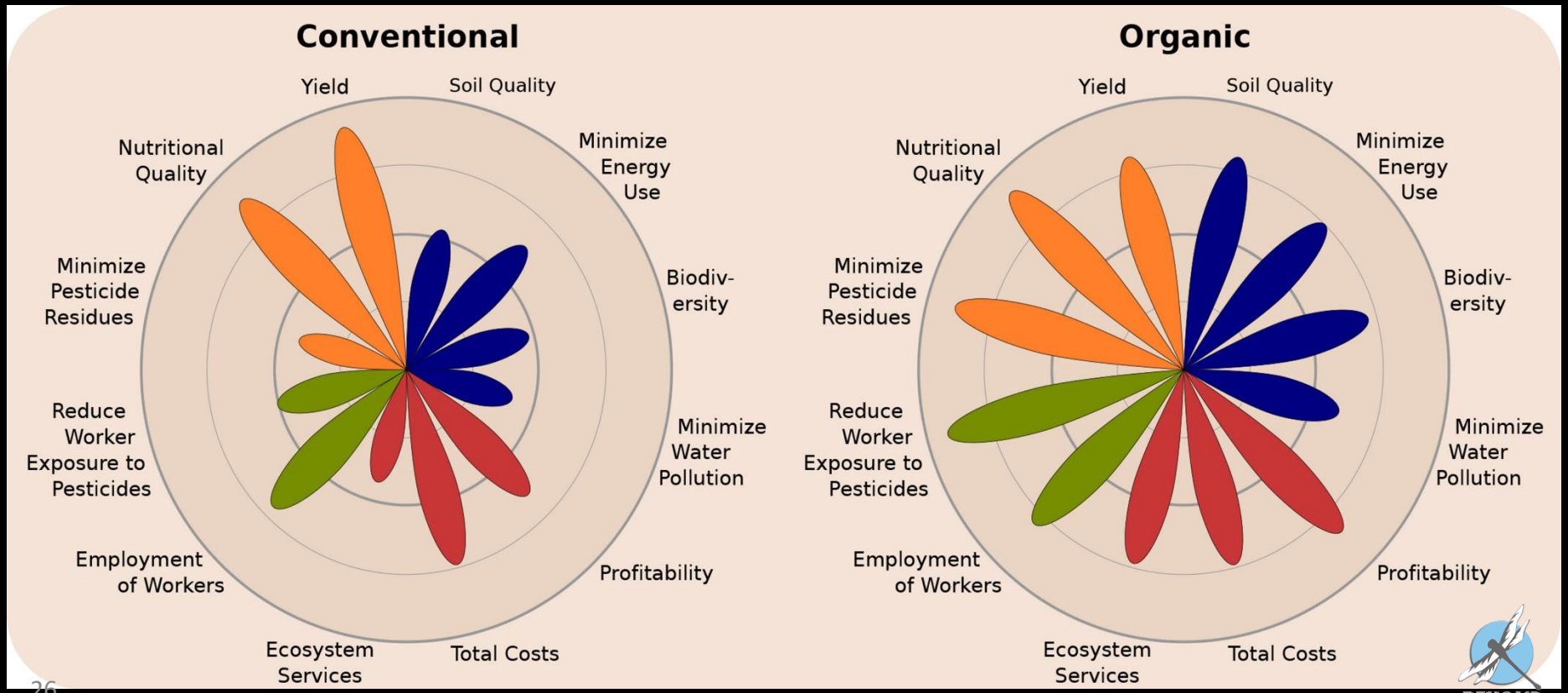
Washington State University 2016 Study: Systemic changes in organic systems

An organic system also:

■ Improves soil quality ■ Minimizes energy use ■ Increases biodiversity ■ Minimizes water pollution ■ Minimizes pesticide residues ■ Reduces worker/applicator exposure to pesticide residues ■ Improves ecosystem services ■ Equal or less cost in long term while landscape quality is maintained



http://www.nature.com/articles/nplants2015221

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Roadside Vegetation Management

Maui has begun a successful program of roadside management of vegetation utilizing weed mats, steam weeders, mowing, and weed whacking.

Roadside Vegetation Management
Weed Mats

Roadside Vegetation Management
Mechanical (Mowing)

Roadside Vegetation Management
Steam Weeder

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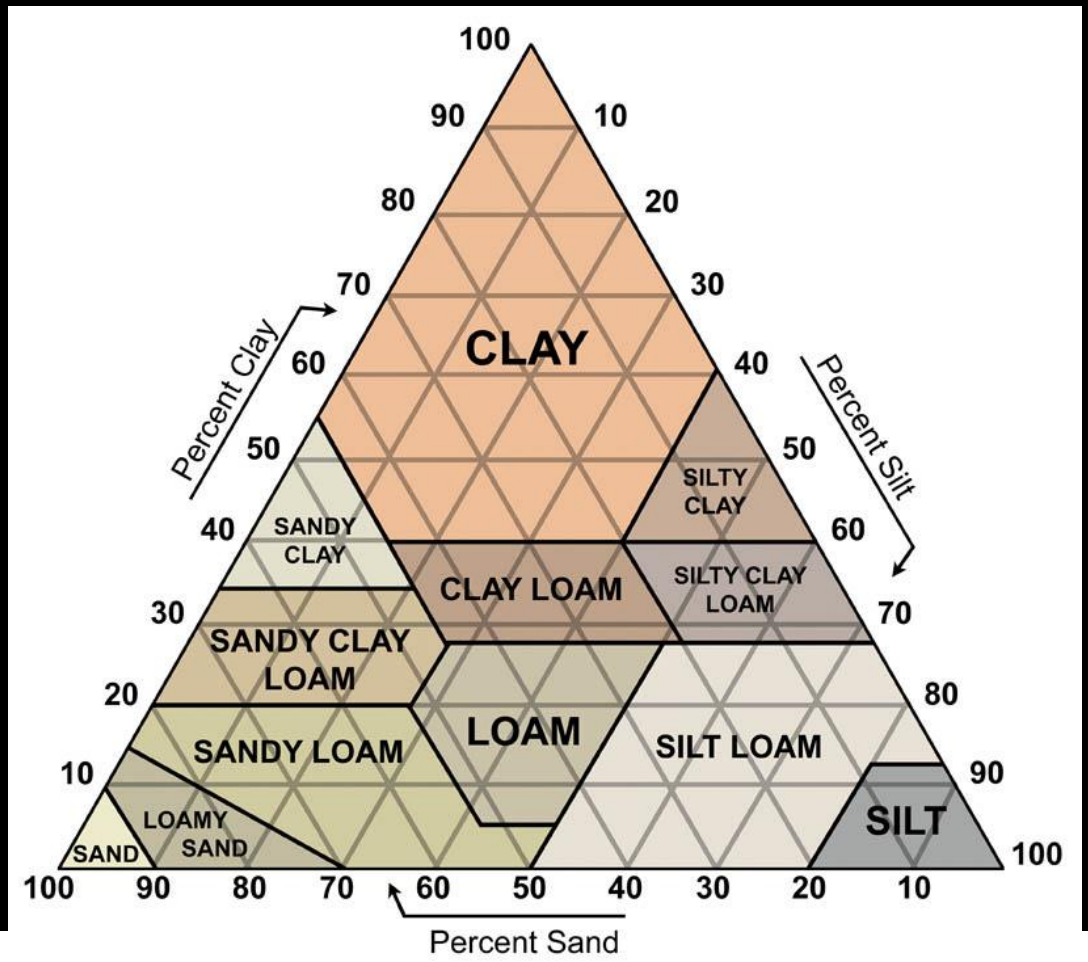
Managing Turf and Landscapes Organically

Soil Textural Triangle



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Soil Chemistry Basics

- pH (Acidity or Alkalinity)
- Nutrient Management
- Organic Matter (OM)
- Cation Exchange Capacity (CEC)

Soil Biomass and Microorganisms

- Soil biomass is the foundation upon which our nutrient program is based.
- In taking a "feed the soil" approach, soil microbes are at the heart of our management strategy.
- Natural, organic fertilizer is broken down by the microbial life to nutrients for the plant.

*Synthetic fertilizers by their nature, and with high salt content, compromise the activity and resiliency of the life in the soil.

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Cultural Practices

- **Aeration**
- **Irrigation**
  - Deep watering
- **Cultivation**
  - Need non-compacted, aerobic soils
- **Overseeding**
  - Maximum density of grass suppresses weeds
- **Mowing** (to aid photosynthesis)
  - 3 inches

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Proposed Maui Ordinance Standard

- **Restrictions of Pesticides and Fertilizers -**

2.50.040 - The following are allowed for use on County property:

1. Pesticides and fertilizers listed as "allowed" on the National List of Allowed and Prohibited Substances as listed *in* title 7 Code of Federal Regulations 205.601, 205.603, 205.605, and 205.606.

2. "Minimum risk pesticides" exempt from registration under the Federal Insecticide, Fungicide, and Rodenticide Act as provided in title 40 Code of Federal Regulations section 152.25(f).

A Precautionary Approach

Overall, 155 local ordinances that regulate the use of toxic chemicals in parks and playgrounds. 58 local ordinances ban the use of glyphosate.

"We have determined that prophylactic use, such as a seed treatment, of the neonicotinoid pesticides that can distribute systemically in a plant and can potentially affect a broad spectrum of non-target species is not consistent with Service policy. We make this decision based on a precautionary approach to our wildlife management practices ..." (U.S. Fish and Wildlife Service, 2016)

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