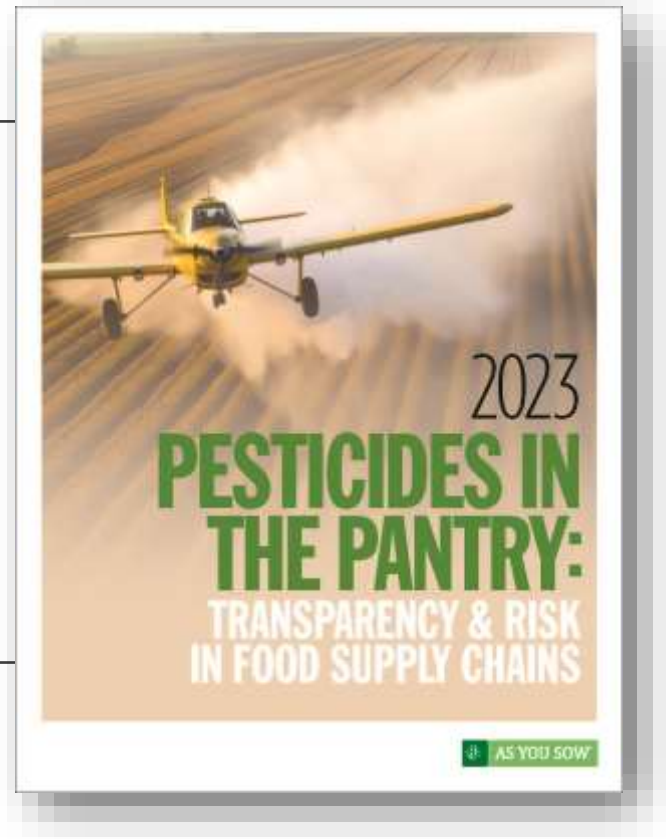
PESTICIDES IN THE PANTRY:

Transparency & Risk in Food Supply Chains



WEBINAR AND REPORT
WEDNESDAY, NOVEMBER 8, 2023

AS YOU SOW

Featured Speakers

Cailin Dendas
Environmental Health Program Coordinator
As You Sow

Caroline Boden
Director of Shareholder Advocacy
Mercy Investment Services

Margaret Reeves, Ph.D.
Senior Scientist (Environmental Health and Workers' Rights)
Pesticide Action Network North America

Graham Christensen
5th Generation Family Farmer and
Co-Founder of RegeNErate Nebraska

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Agenda

- ❑ Introduction
- ❑ Webinar Logistics
- ❑ Pesticides, Climate Change & Sustainability
- ❑ Material Risks and Investment Trends
- ❑ Report Results
- ❑ Regenerative Agriculture in Practice
- ❑ Audience Q&A
- ❑ Meet the Speakers in Gather (15 minutes)

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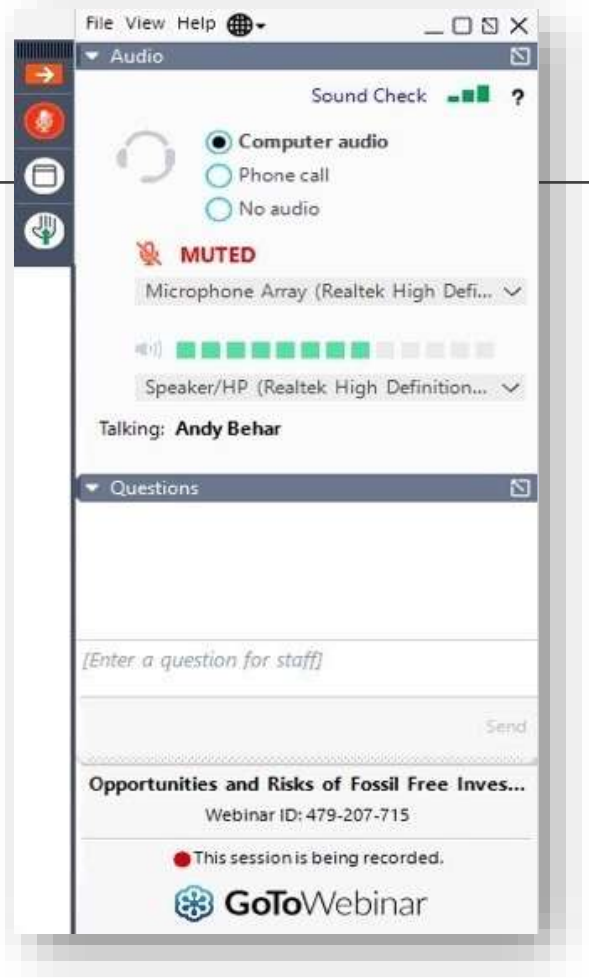
Audience Q&A

Download the report at:

https://www.asyousow.org/reports/2023-pesticides-in-the-pantry-transparency-risk-in-food-supply-chains

Use the Q&A window to send us your questions

Q&A Window



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PESTICIDES, CLIMATE CHANGE & SUSTAINABILITY

Margaret Reeves, Ph.D.

Senior Scientist (Environmental Health and Workers' Rights)

Pesticide Action Network North America

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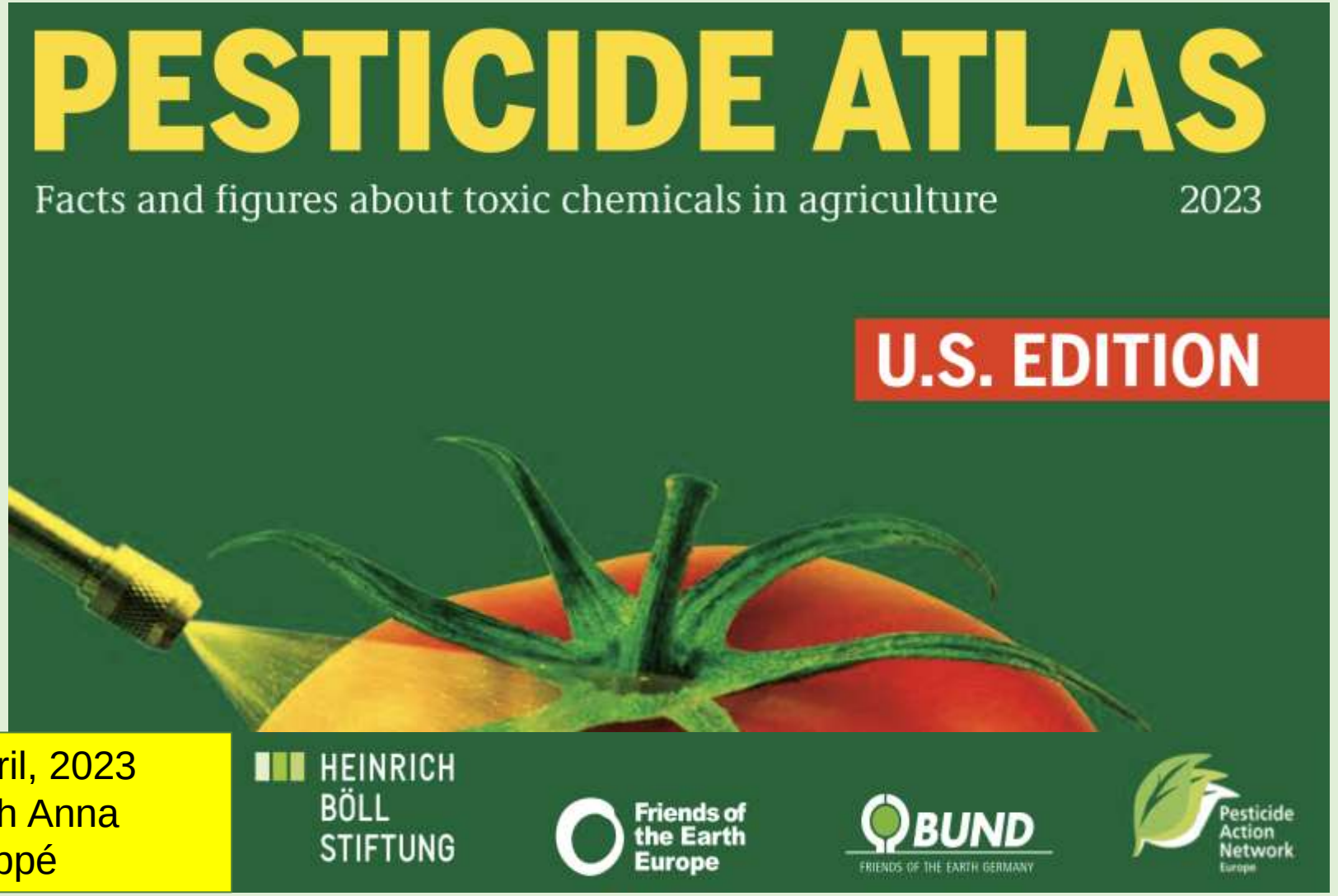
Overview

- Pesticides 101
- Pesticides and climate change
- Agroecology - the climate-friendly and socially just solution
- IPM option for Big Ag (produce) – important step towards reduction

Pesticides 101

- Chemicals designed to kill - insects, weeds, fungi and bacteria, etc.
- Acute poisoning & chronic effects: e.g. cancer, reproductive and developmental disorders, learning disabilities
- Widely recognized to be among the top drivers of global biodiversity losses:

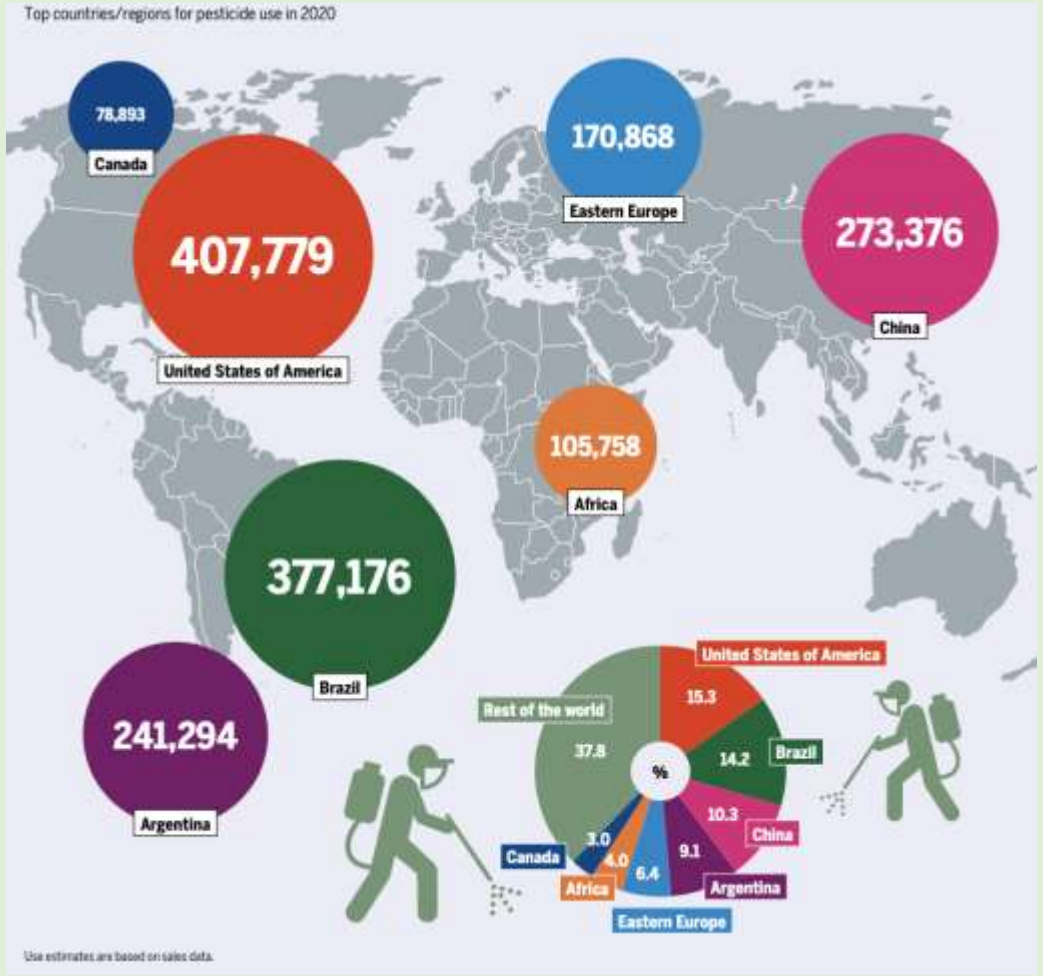


REAL FOOD MEDIA

April, 2023 with Anna Lappé

Pesticide Use in the US

- The United States uses more pesticides than any other country or region
- Top uses: corn, soybean, cotton
- The largest US use is herbicides; the US accounts for about 20% of all glyphosate use
- CA uses more than 200 million pounds primarily on specialty crops – at 4.5 times the average US rate



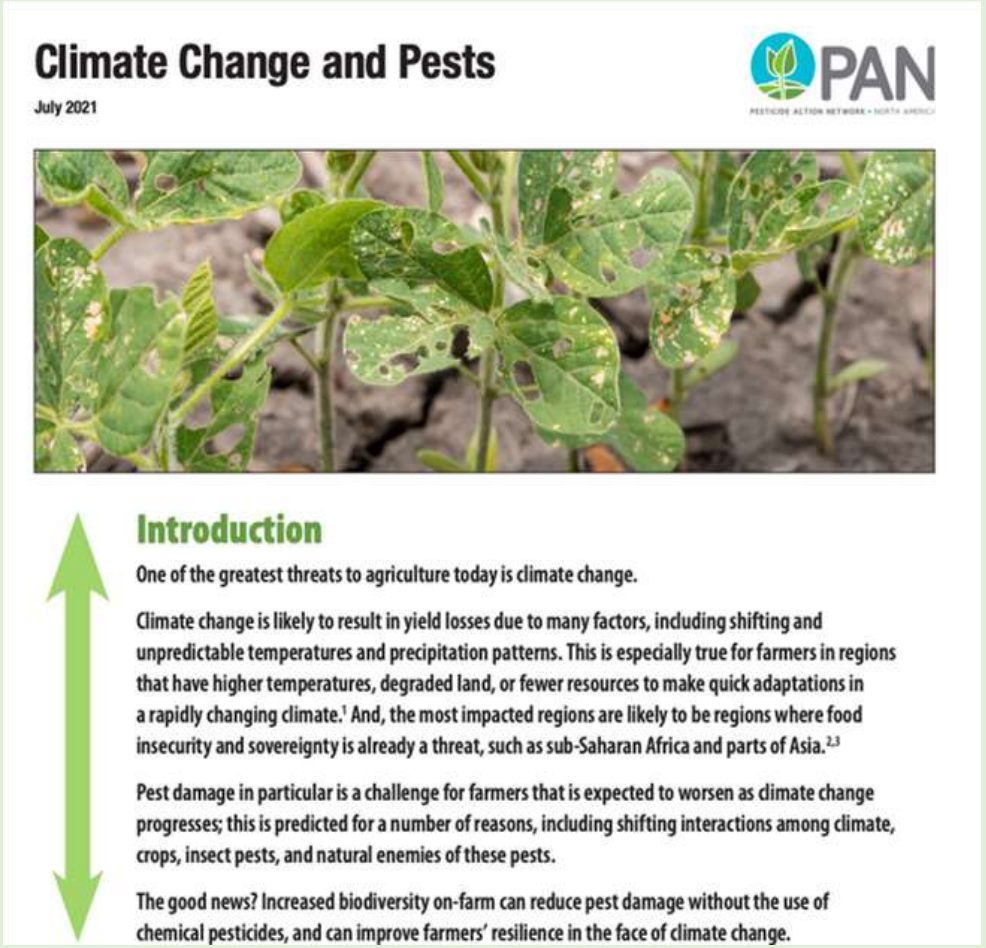
Farmworkers Face the Brunt

The country's 2.4 million farmworkers experience a pesticide poisoning incidence rate 39 times higher than that of all other industries combined.

- The US EPA is responsible for both registering and regulating pesticides (primarily based on industry-generated data); and oversees farmworker protections from pesticide exposure.

Climate change, pests and pesticide use trends

- Pest ranges increase with temperature
- Climate-stressed plants are more susceptible to pests
- Natural controls decrease as climate change disrupts the synchronicity of pests and their natural enemies
- Pesticides degrade more rapidly at higher temperatures, decreasing efficacy
- … further driving up pesticide use
- … and GHG emissions (*vicious cycle)*



Climate Change and Pests

July 2021

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Introduction

One of the greatest threats to agriculture today is climate change.

Climate change is likely to result in yield losses due to many factors, including shifting and unpredictable temperatures and precipitation patterns. This is especially true for farmers in regions that have higher temperatures, degraded land, or fewer resources to make quick adaptations in a rapidly changing climate.[1] And, the most impacted regions are likely to be regions where food insecurity and sovereignty is already a threat, such as sub-Saharan Africa and parts of Asia.[2,3]

Pest damage in particular is a challenge for farmers that is expected to worsen as climate change progresses; this is predicted for a number of reasons, including shifting interactions among climate, crops, insect pests, and natural enemies of these pests.

The good news? Increased biodiversity on-farm can reduce pest damage without the use of chemical pesticides, and can improve farmers' resilience in the face of climate change.

Pesticides Contribute to GHG Emissions Throughout Their Life Cycle

Source:

Synthetic pesticides are derived from fossil fuels

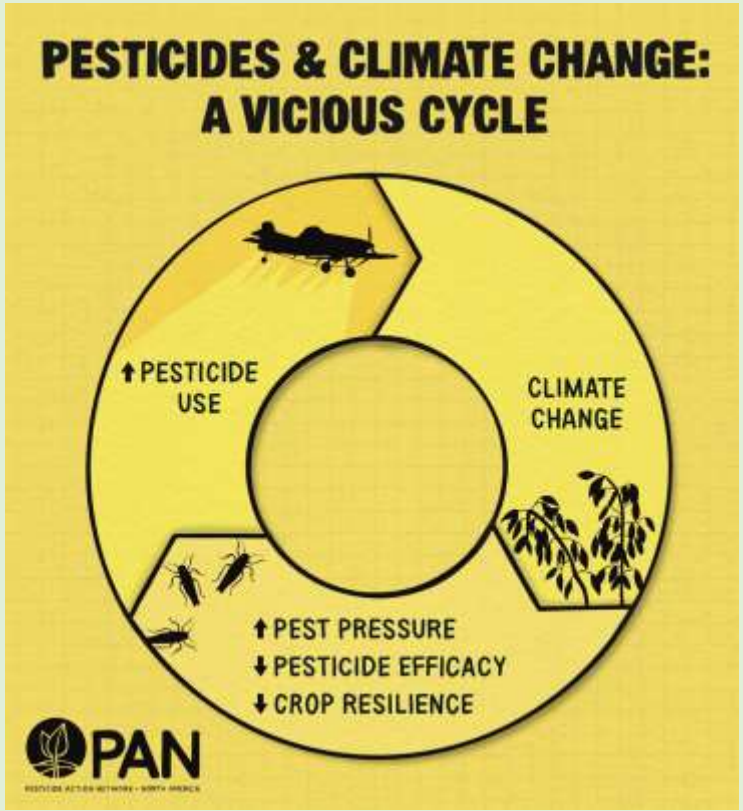
Manufacturing:

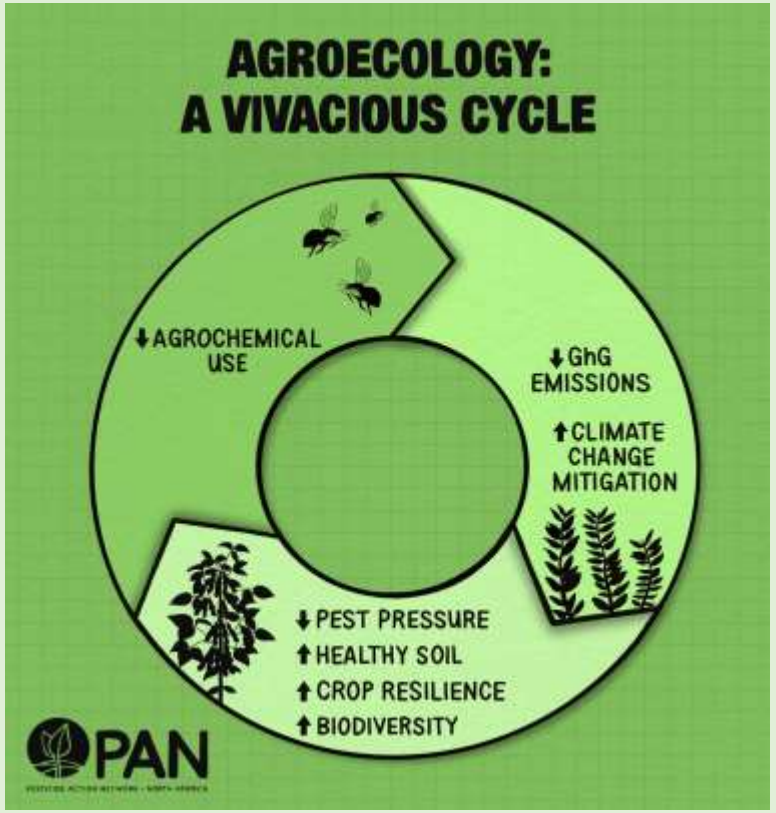
Pesticide manufacturing is energy-intensive: 1 kg of pesticides requires 10x more energy than 1 kg of N fertilizers

Application:

- Fumigant pesticides e.g. chloropicrin increase NO_2 7-8 times (300x potency of CO_2)
- Sulfuryl fluoride has nearly 5,000 times the potency of CO_2
- Many volatile pesticides react with N oxides to form ground-level ozone, an important GHG

Pesticides and Climate Change: A Vicious Cycle





Español

Walmart
Responsible Sourcing
Compliance

Getting Started with an Approved Audit Program: *EQUITABLE FOOD INITIATIVE*

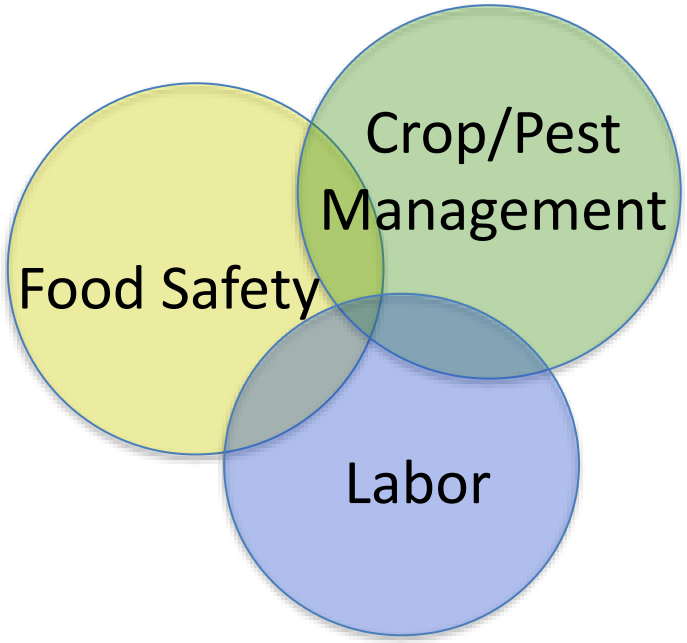
efi

QUICK FACTS

- Applicable for farming operations, including pack & processing facilities
- Audits conducted in the Americas
- Three-year certification with annual verification audits
- Drives business performance and compliance simultaneously
- Training is required
- Not a membership organization

Equitable Food Initiative (EFI) certification includes labor practices and two additional standards in one audit while implementing a unique labor management collaboration model. More than certification, EFI offers workforce development on farming operations which engages workers, drives collaboration and a commitment to continuous improvement. Management systems and communication improve, driving business performance as well as compliance. Farming operations have been certified in Canada, Guatemala, United States and Mexico. Learn more about EFI certification.

EFI Standards & Certification



- Pesticide use reporting
- IPM – based pest management
- Worker risk quantification

EFI Reach & Impact

- 54 farms certified (Mexico, US, Canada +)
- 60,000 workers on farms with EFI-trained Leadership Teams = workforce development
- $17+ million distributed to workers as EFI bonuses

Conclusions

- Pesticide use – highest in the US with farmworkers at greatest risk
- Pesticides contribute to climate change
- Agroecology is the solution – ecologically, economically, socially
- Even Big Ag can move in the right direction, starting with IPM for pesticide reduction, and workers' rights

MATERIAL RISKS & INVESTMENT TRENDS

Caroline Boden

Director of Shareholder Advocacy

Mercy Investment Services, Inc.

Mercy Investment Services, Inc.

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Introductions & Organization

- *Mercy Investment Services, as a ministry of the Sisters of Mercy of the Americas, recognizes the moral imperative of work for a just and sustainable world, and embraces socially responsible investing as a means of promoting systemic change to respond to the critical needs of the time.*

- Rooted in the Gospel and guided by the mission and Critical Concerns of the Sisters of Mercy.

- Raise our voice to effect systemic change through Corporate Policies and activities.

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Material Risks

- *Ensure the long-term health of communities, consumers, and the environment by using sustainable chemicals in agricultural supply chains.*

- Material risks to business and investors:
  - Financial risks from nature and biodiversity loss
  - Link between pesticides and climate change
  - Market and consumer changes and pressure
  - Public health costs

- Material risks to nature and communities:
  - Impact on pollinators and biodiversity
  - Health impact on farmworkers
  - Disproportionate pollution burden on BIPOC communities

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Trends

- Increased attention from investors, governments, and reporting standard bodies on the systemic risks created by nature and biodiversity loss:
  - Kunming-Montreal Global Biodiversity Framework
  - Taskforce on Nature-Related Financial Disclosures
  - Science-Based Targets Network launches nature targets
  - Nature Action 100
- Positive practices:
  - Companies setting sustainable/regenerative agriculture commitments and targets
  - Reducing synthetic inputs
  - Transition to least-toxic solutions

Mercy Investment Services, Inc.

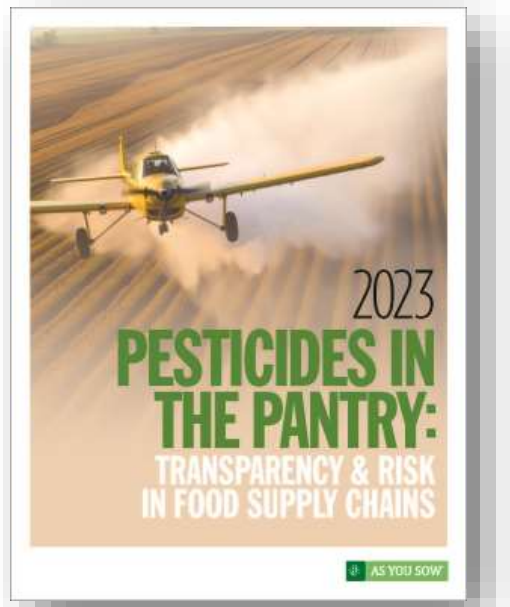
PESTICIDES IN THE PANTRY:
Transparency & Risk in Food Supply Chains

Cailin Dendas
Environmental Health
Program Coordinator,
As You Sow

AS YOU SOW

Background

- *Roundup Revealed* (2017)
- *Pesticides in the Pantry* (2019)
- Pesticide engagements



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Methods

- 17 food manufacturers scored on 27 key performance indicators (KPI)
- Information collected from publicly content
- We gave each company roughly a month to review our preliminary data and provide feedback prior to publishing our findings

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Methods

Scorecard Pillars:

- Pesticide Risk Reduction Strategies
- Pesticide Data Transparency
- Tracking and Monitoring Pesticide Use
- Company Policy on Pesticides of High Concern
- Integrated Pest Management
- Regenerative Agriculture
- Farmworker Health and Safety

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Scoring

- Each KPI is worth one point
- The report relies on a grading curve to determine companies' letter grades – no company received more than 10 out of 27 possible points
- We utilize a conventional grading scale

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Results Summary

Company	Score	Letter Grade
General Mills Inc.	10	C
ADM	9	C-
PepsiCo Inc.	9	C-
Conagra Brands Inc.	8	D
Campbell Soup Company	7	D
Lamb Weston Holdings Inc.	6	D-
Nestlé	6	D-
Mondelēz International Inc.	5	F
Del Monte Foods Inc.	4	F
Cargill	3	F
Danone S. A.	3	F
The Kraft Heinz Company	2	F
Post Holdings Inc.	2	F
B&G Foods	1	F
Kellanova	1	F
Mars Incorporated	1	F
The J. M. Smucker Company	0	F

- Average grade decreased from a D to an F
- General Mills remains the highest scorer, but its grade dropped from a B to a C
- ADM jumped up the grading scale from an F to a C-
- Kellanova, formally Kellogg, only received one point

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Key Finding

Pesticide Data Transparency

5 companies earned points in the Pesticide Data Transparency section: Campbell's, Conagra, Del Monte, General Mills, and Lamb Weston

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Key Finding

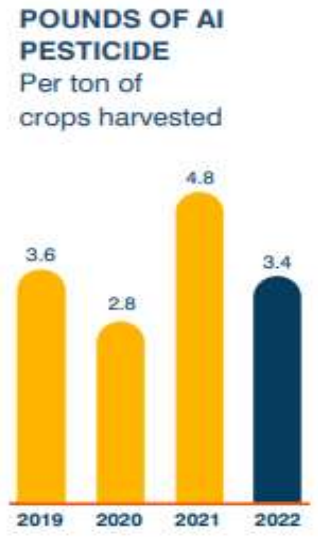
Pesticide Data Transparency

Leading Examples: General Mills and Lamb Weston

General Mills states, on its Environmental Impact webpage, the amount of pesticides its suppliers use while growing key crops

Crop	Pesticide Active Ingredients Used Per Acre (Total North America Average)*
Oats	3 lbs per acre
Wheat	4 lbs per acre
Corn	21 lbs per acre
Soybeans	23 lbs per acre

Lamb Weston lists the pounds of active ingredient (AI) pesticides used per annual crop harvest in its ESG report



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Key Finding

Regenerative Agriculture

4 companies received the highest scores in the Regenerative Agriculture section: Nestle, General Mills, Cargill, and Conagra

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Key Finding

Regenerative Agriculture

Leading Examples: Nestle and Conagra

Nestle has a robust regenerative agriculture program and it lists the continuous reduction of synthetic herbicides and pesticides as a priory action of that program. The pillars of its program are:

- Biodiversity, collective & landscape actions
- Water security & quality
- Soil health
- Diverse cropping systems & livestock integration
- Collective & landscape actions

Conagra also engages in best practices by disclosing which crops and how many acres use regenerative agriculture practices and the company's progress in improved:

- Water quality
- Soil health
- biodiversity
- Yield abundance
- Pesticide reduction across all material suppliers using regenerative agriculture

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Key Finding

Tracking and Monitoring Pesticide Use

Lamb Weston and **PepsiCo** receive the highest scores for tracking and monitoring pesticide use in their supply chains

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Key Finding

Tracking and Monitoring Pesticide Use

Leading Examples: Lamb Weston and PepsiCo

Lamb Weston and **PepsiCo** utilize the USDA's Good Agricultural Practices (GAP) program to audit pesticide use in their supply chains

Lamb Weston also publicly reports its pesticide use findings

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Key Finding

Farmworker Health and Safety

None of the 17 companies in the Scorecard have publicly stated policies or standards that protect farmworkers or fenceline communities from the adverse health effects of pesticide use and drift

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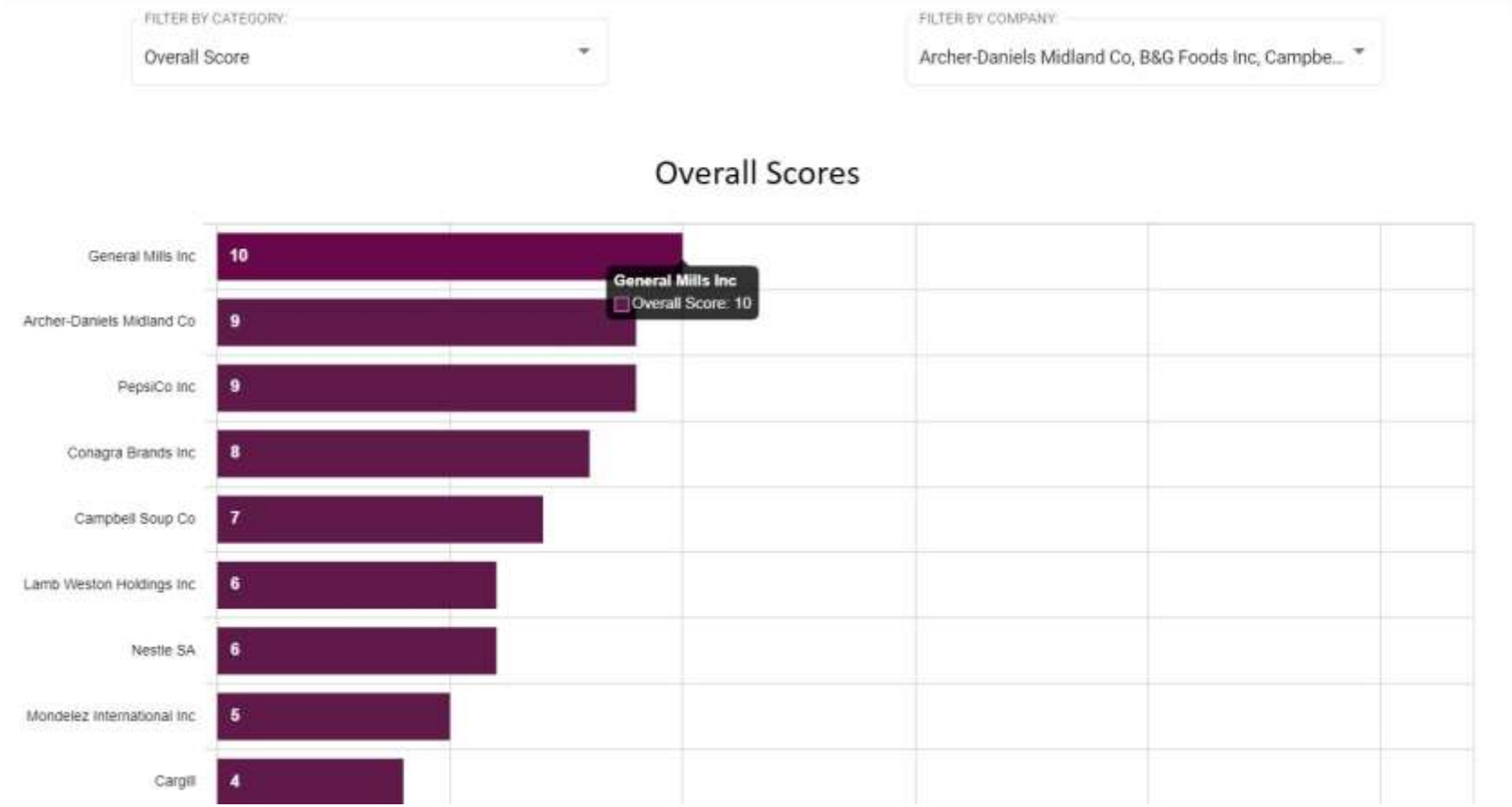
Exploring Results

Using Data Visualization



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REGENERATIVE AGRICULTURE IN PRACTICE

Graham Christensen

5th Generation Family Farmer and
Co-Founder of RegeNErate Nebraska

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Background

- **156 Year Family Farm Tradition**
  - **Transitioning farm in Northeast Nebraska**
  - **Umo’ho’ waa i te: Where the Omaha grow**
- **Founder & President of 2 Businesses**
  - **GC Resolve – Environmental Consulting & Communications**
  - **GC ReVOLT – Solar & Alternative Energy Contracting**
- **Co-founder RegeNErate Nebraska**

Chris Christensen Homestead. Contributed by Don Christensen, Oakland, Nebr.

 Grandma Grandpa Waldo Frank Lute Lillie Fred

Summary of Citizen Science Water Monitoring Campaign, Summer 2019

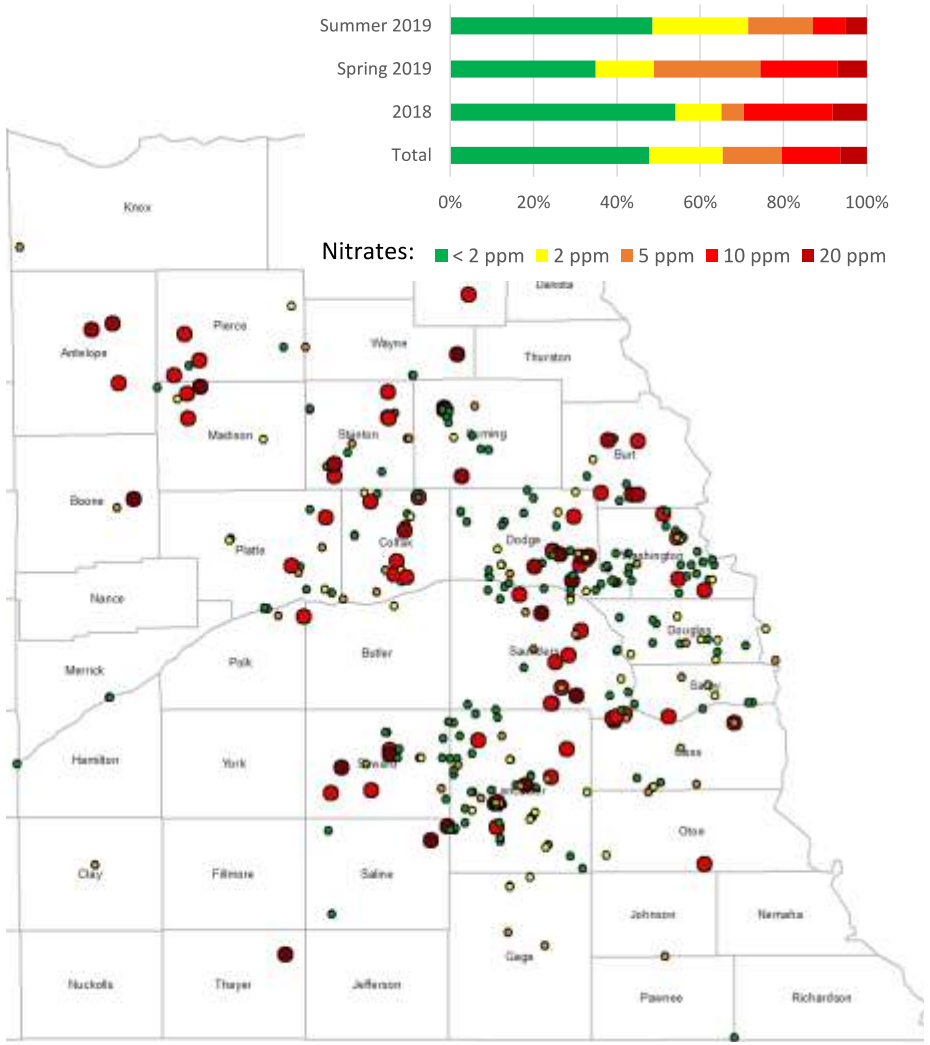


Figure 1. Measured nitrate concentrations in well water with the frequency of detection of measured concentrations for the current year (2019), last year (2018), and the running total for the project.

227 Citizen Scientists collected **225** surface water and **241** well water samples during the Summer 2019 session.

Thank you for your participation. The scale of this project would not be possible without citizen scientists like you.

How was water quality measured?
Test results were gathered using rapid test strips, described in the following link: https://go.unl.edu/wqcs. These tools detect nutrients at the level of parts-per-million (ppm), which is a unit of measure for dissolved chemicals. To put this in perspective, detecting *1 ppm of nitrate in 1 liter of water* is like detecting *1 grain of table salt within 1/3 cup of granulated sugar.* While this scale of measure is small, changes in nitrates and phosphates at this scale can have serious impacts on water quality.

Groundwater Quality in Eastern Nebraska

Groundwater quality is of great concern in rural communities as many residents rely on private wells as a source of drinking water. To date, volunteers have collected 524 well water samples across 45 counties in Nebraska.

Nitrate (NO3) Results
The presence of nitrate in well water is indicative of surrounding groundwater contamination and is a potential public health hazard in the absence of proper filtration equipment for drinking water. Well water samples as high as 20 ppm nitrate were reported in 15 counties; Thayer, Boone, Wayne, Madison, Dodge, Lancaster, Seward, Saline, Antelope, Stanton, Colfax, Cuming, Burt, Cass, and Saunders. To date, 20.5% of wells tested above the U.S. EPA safe drinking water limit of 10 ppm.

Nitrite (NO2) Results
Nitrite is produced from nitrate and has similar health and environmental impacts as nitrate. However, nitrite is less persistent than nitrate and therefore occurs at lower concentrations. Only 1 sample exceeded the U.S. EPA safe drinking water limit of 1 ppm nitrite during this study.

Phosphate (PO4) Results
Excess phosphate in well or surface water does not directly impair drinking water quality. During the summer 2019 testing session, phosphate was measured as high as 50 ppm in well water samples.

Eutrophication: Blue Green Algae Caused From Excess Nutrients

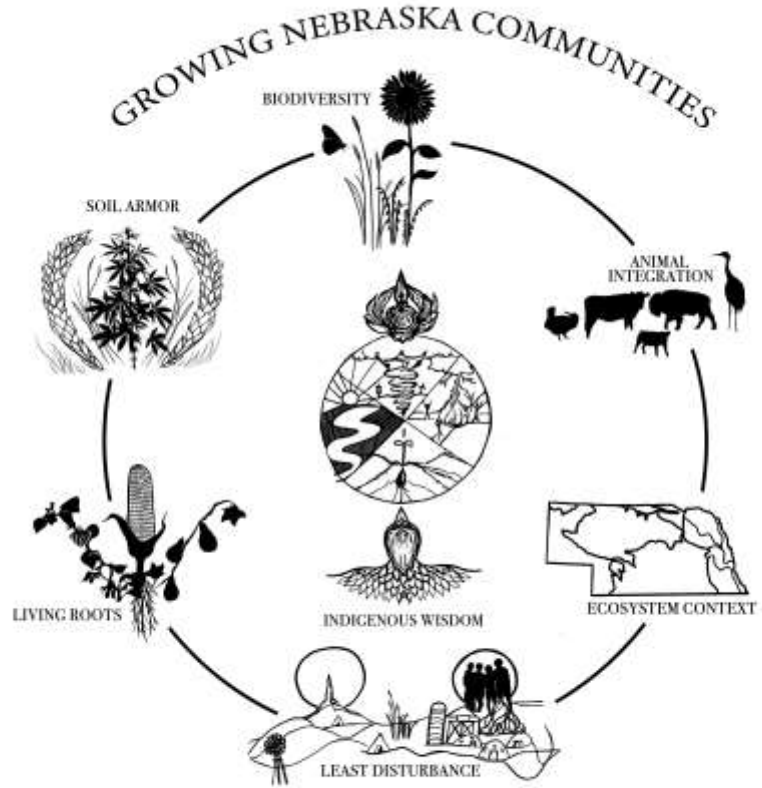
Logan Creek (Tributary of the Elkhorn River)

Oakland-Craig Knights

The Solution Lies In The Soil

- Reducing harmful GHG emissions
  - Carbon Dioxide, Nitrous Oxide, Methane
- Better water holding capacity for drought resiliency
- Better water filtration for clean water
- Healthy soil yields nutritionally dense food
- Reduced input expenses
  - Less synthetic fertilizer reliance
  - Iowa state university analysis at Marsden farm plot made the case

Principles of Regenerative Ag



Regenerative Farming Practices for the Plains

Regenerative farming practices include:

- No to very minimal tillage
- Addition of diverse cover crops
- Multiple crop rotations (Polyculture)
- Intercropping and Relay Cropping
- Managed grazing
- Degraded rangeland management
- Agroforestry, silvopasture, buffer strips

Goals:

- On-Farm Fertility
    - Increased soil microbial and fungal life

It Takes A Community

- Expanded opportunities in regenerative communities include:
  - Cover Crop Seed Production
  - Increased grazing lands for livestock (cows, sheep, goats, pigs, chickens, bison)
  - Agroforestry
  - Processing (Meat, Fruit, Small Grains, Nuts, Legumes)
  - Milling
  - Composting
  - Compost teas and biologicals
  - Bees and pollinators
  - Food coop coordination & marketing
  - Regional food distribution systems
  - Precision technologies
  - Alternative energies
  - Environmental engineers and landscape architecture
  - Increased skills jobs

Christensen Farms – Oakland, NE

- 800 acres under multi-species cover crop program
- Synthetic nutrient reduction goal
- Non-gmo corn/soybean varieties
- Cargill/PepsiCola, Stoneyfield, Danone, Frito Lays, Central Valley Ag, Green America,
- NRCS Prairie Buffer Strips to stop soil erosion and nutrient contaminants from leaching into Bell Creek
- Elimination of seed coats, insecticides & fungicides
- 100 plant hazelnut orchard
- 100 plant cherry windbreak buffer
- Expanded wildlife habitat
- Cover crop grazing pilot
- Solar Powered Farm + Electric Vehicles
- Precision + Regenerative
    - Enhanced soil & water testing & monitoring
    - Aerial Intercropping w/ Drones, Planes
    - Mobile Fencing for beneficial grazing
    - Crimping


REGENERATE AMERICA™
An unprecedented grassroots campaign to ensure robust support for regenerative agriculture in the 2023 Farm Bill and beyond.
SOIL IS OUR COMMON GROUND

Farmer Rally for Resilience


“A NATION THAT DESTROYS ITS SOILS, DESTROYS ITSELF.”
–FDR
“A NATION THAT REBUILDS ITS SOILS, REBUILDS ITSELF.”
– REGENERATE AMERICA™
REGENERATE AMERICA

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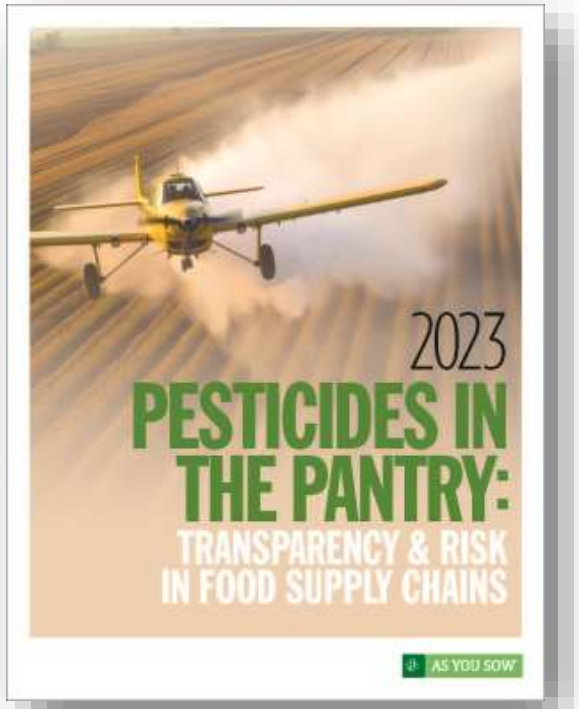
GC Resolve LLC

Grassroots Community Development, Mobilization & Education

Contact Us



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Download report

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