

Herbicides and Public Health in Iowa – Elections Have Consequences



NFU ANNUAL MEETING PESTICIDE DRIFT WORKSHOP

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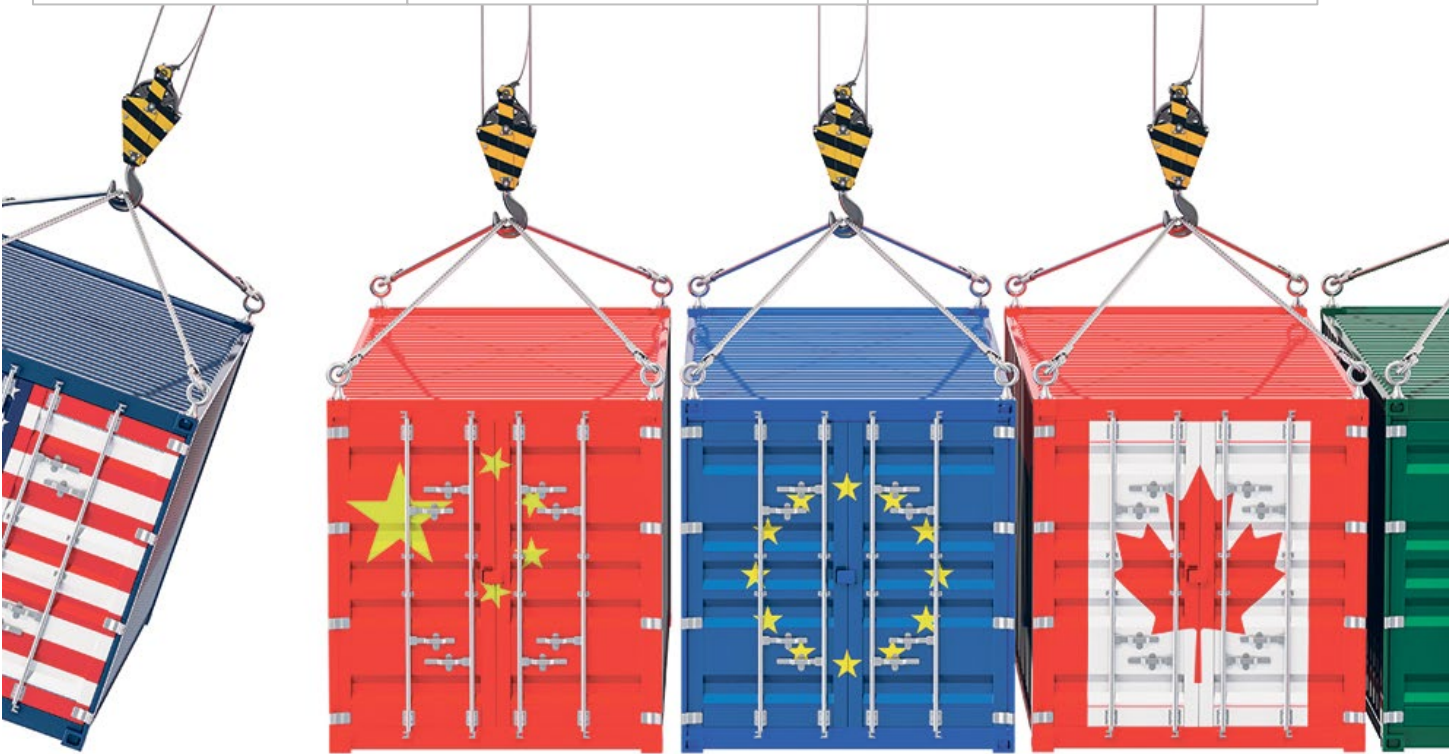


What Ails the Corn/Soybean Sector?

Big policy changes??

Reliance on gov't \$\$

Declining soil health



Bad weather, erratic yields – and no silver bullets



The larger the farm, the simpler the system



But Perhaps the *Most* Serious Problem...

**...is failing, unsustainable weed
management systems.**

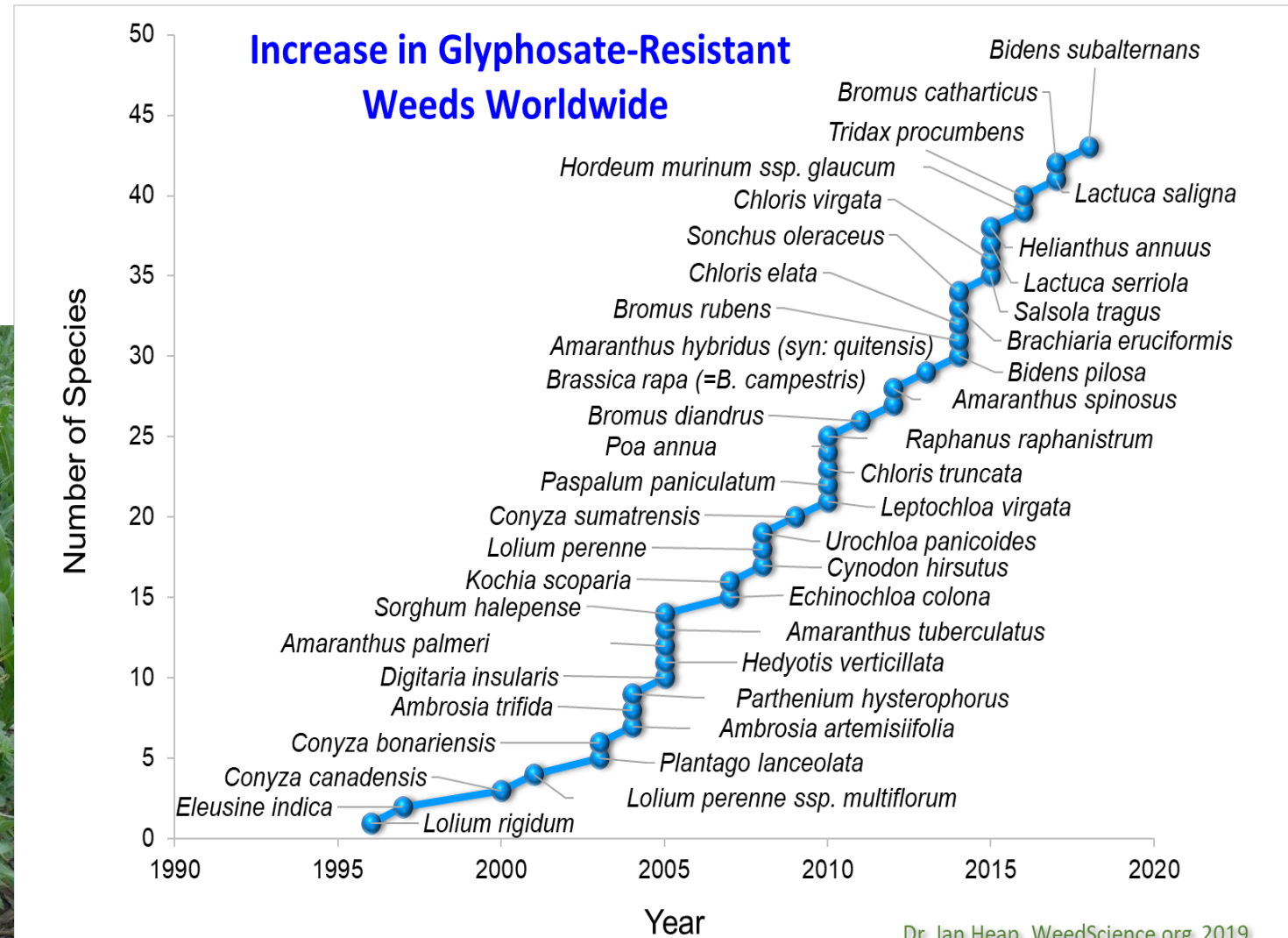


What are the Pest Problems Facing Rowcrop Farmers Nationwide?

1. Emergence and spread of resistant weeds, and no end in sight.



Glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*) in corn



2. High-cost GE seeds tolerant of multiple herbicides are the only big game in town. Farmers are locked into high-price technology that is failing fast.

- Resistance management is a day late, many dollars short, despite the good work of Hartzler, Hager, Steckle, Legleiter, Baldwin and other land-grant weed scientists.
- When will the Ambien wear off among Midwestern corn-soybean farmers?

ROUNDUP READY 2
X TEND
SOYBEANS

 **Enlist Duo**[®]

COLEX•D[®] technology

HERBICIDE





- 3.** Dicamba and 2,4-D volatilization, drift, and crop damage growing worse every year, leading to more “trouble coming everyday”.
- Industry says problem is manageable if farmers follow the label, farmers cannot follow the label and cover their ground.
 - Political pressure has largely neutered regulators, so rural communities are on their own to “sort it out.”

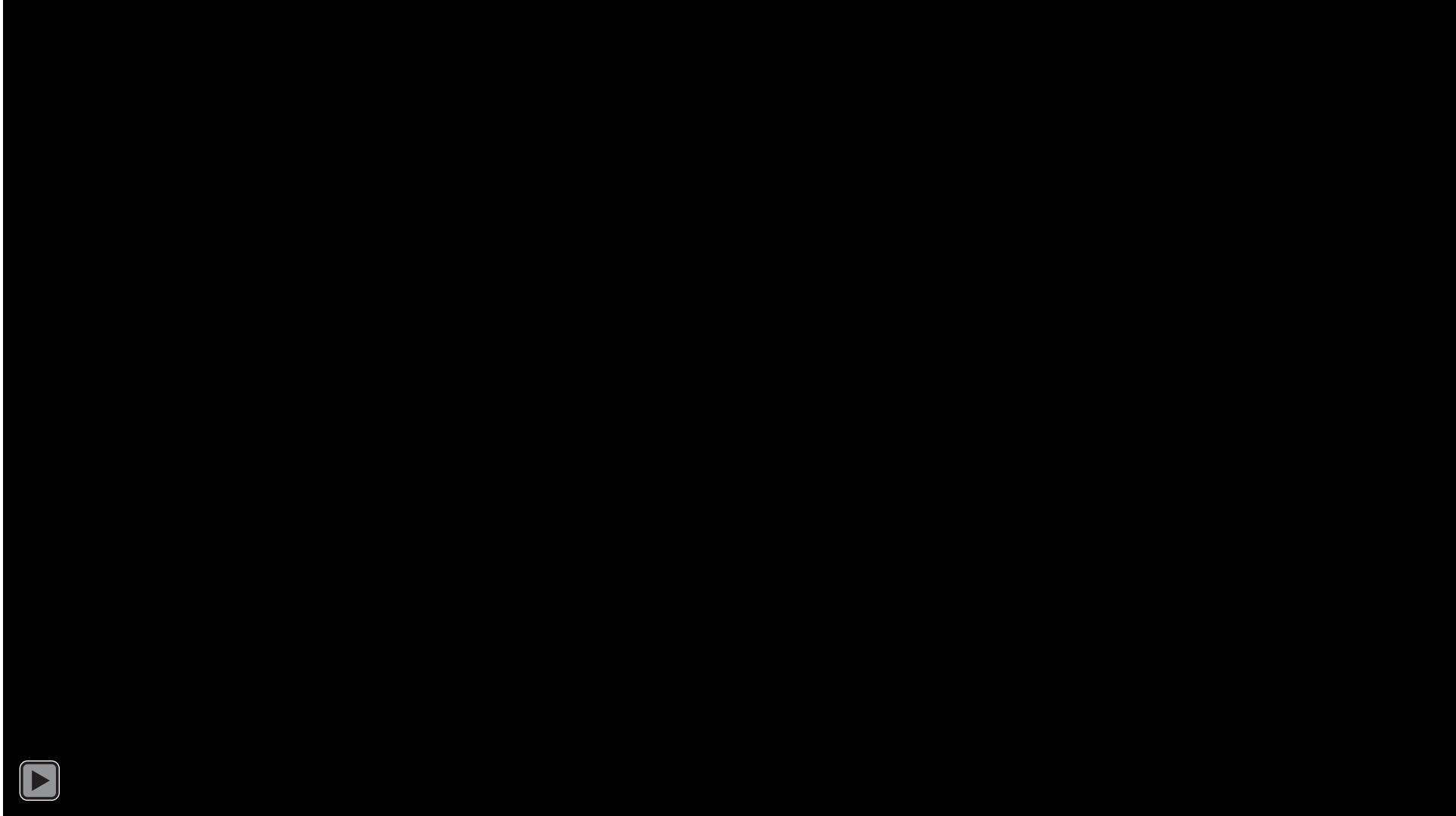
The Root Cause?



Roundup Ready Zone is not like other places.



How has Soybean Herbicide Use Evolved Since Roundup Ready Came to Town?



**Direct Link
to DDVs:**

<https://heartlandstudy.org/herbicides-101/herbicide-use/data-sings-trends-in-soybean-herbicide-use-in-the-midwest/>

Dig Deep into the Data at heartlandstudy.org

Click on the image below to open.



Select Data Parameters

Select a Results Based on:

Parent Pesticides

- ☒ Parent Pesticides (recommended)
- ☐ Active Ingredients as Reported by USDA (includes multiple forms of several herbicides)

Select a Commodity:

Corn

Search

Corn

Cotton, upland

Soybeans

Select a Region:

National

Search

National

Midwest Region

Colorado

Delaware

Georgia

Select a Year:

2018

Search

2018

2017

2016

2015

2014

Select a Source of Acres:

Total Acres Planted

Search

Total Acres Planted

Surveyed Acres

Metrics 1-7

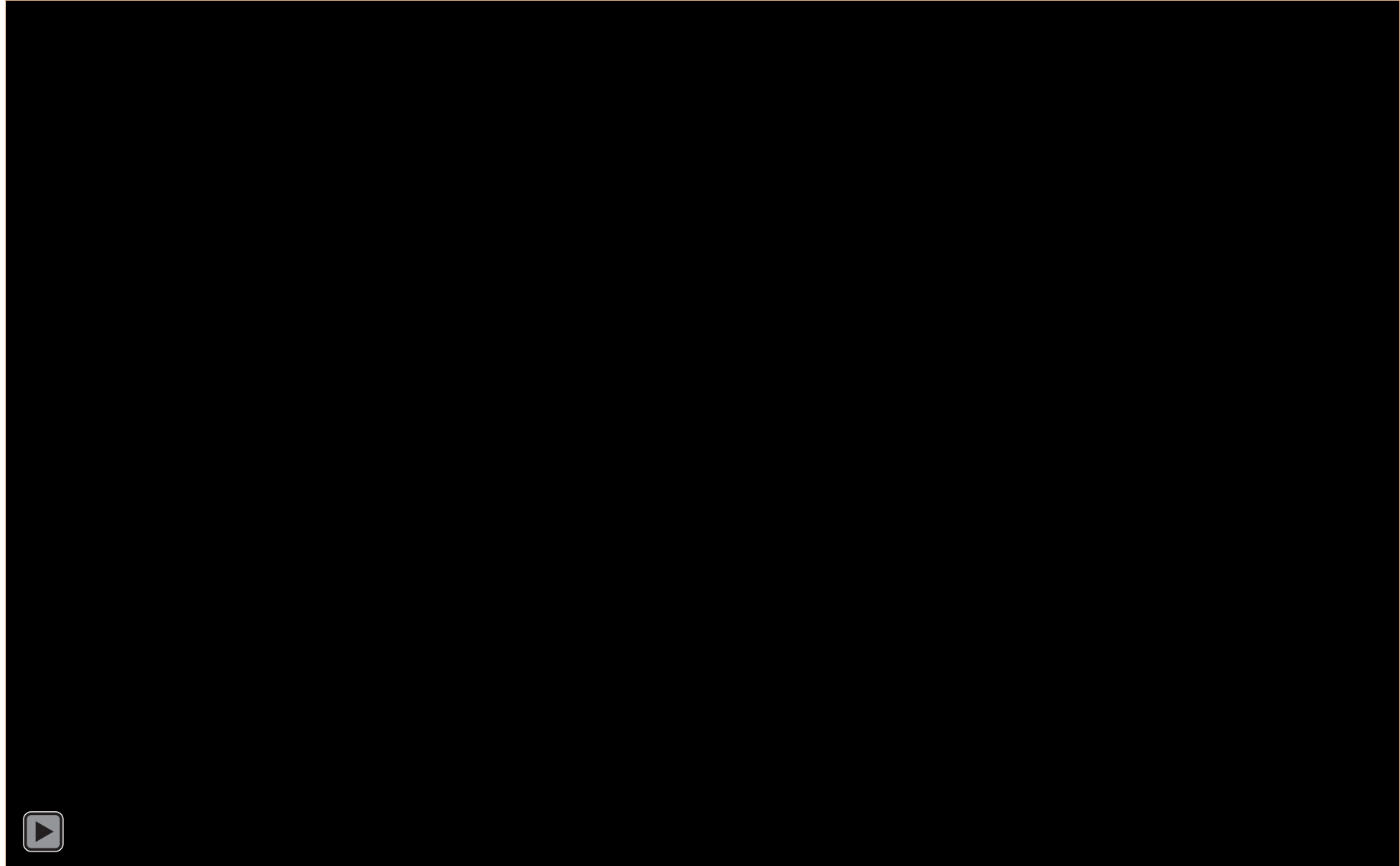
Metrics 8-12

Metrics 13-18

The Midwest Region includes data from Arkansas, Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

See [this graphic](#) for a list of herbicide use metrics, or visit the [Key Indicators of Herbicide Use](#) page at the Heartland Study website for a detailed description and methodology for each metric.

Changes in Soybean Herbicide Use 1990-2030





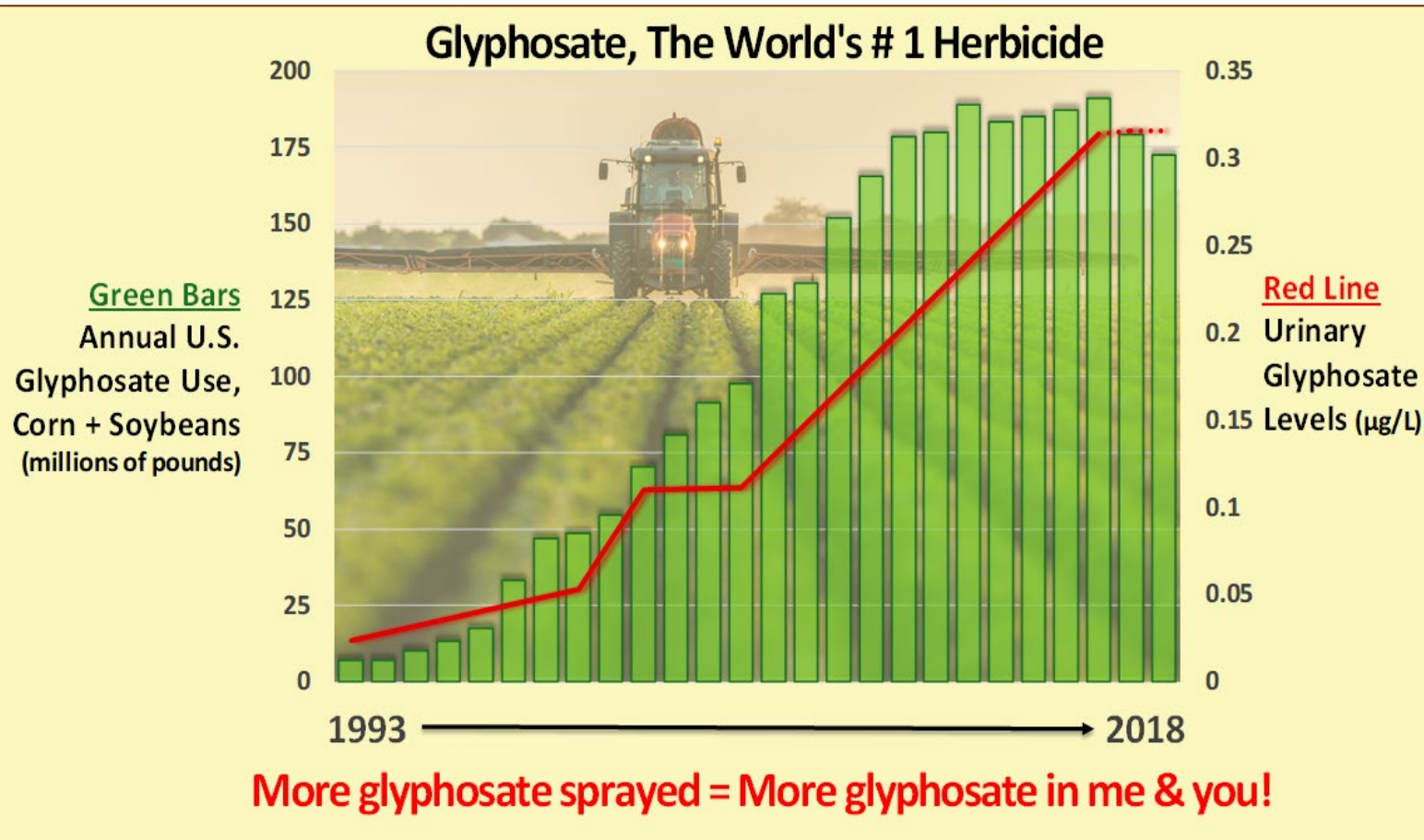
Pretty mind-blowing!

2,4-D bypasses GBHs as the most widely applied soybean herbicide by about 2030???!!!???

The spread of 2,4-D+GLY resistant weeds renders DuoEnlist essentially useless by 2030.

What's next? Paraquat resistant beans? Not a chance, paraquat's days are numbered.

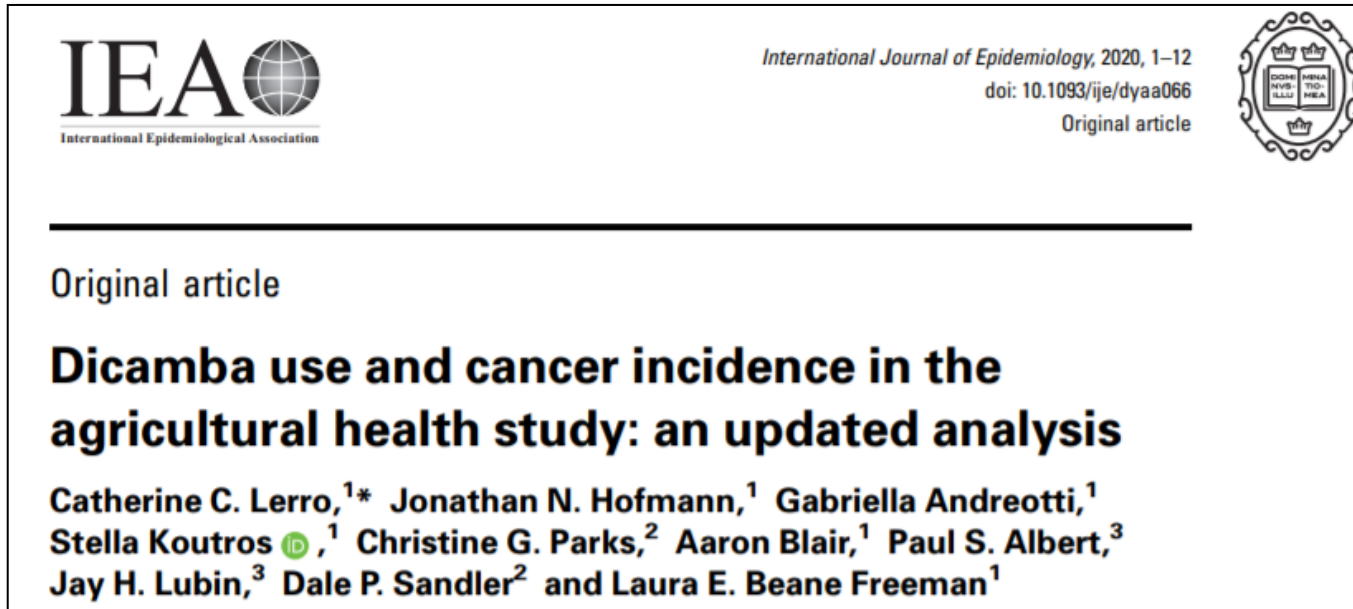
Emerging Evidence of Herbicide-Driven Adverse Impacts on Public Health



Exposures are rising, as are risks of adverse human health effects:

- Reproduction
- Infant and children's neurodevelopment
- Cancer -- GLY/GBHs "probable human carcinogens," and 2,4-D and dicamba are "possible carcinogens"

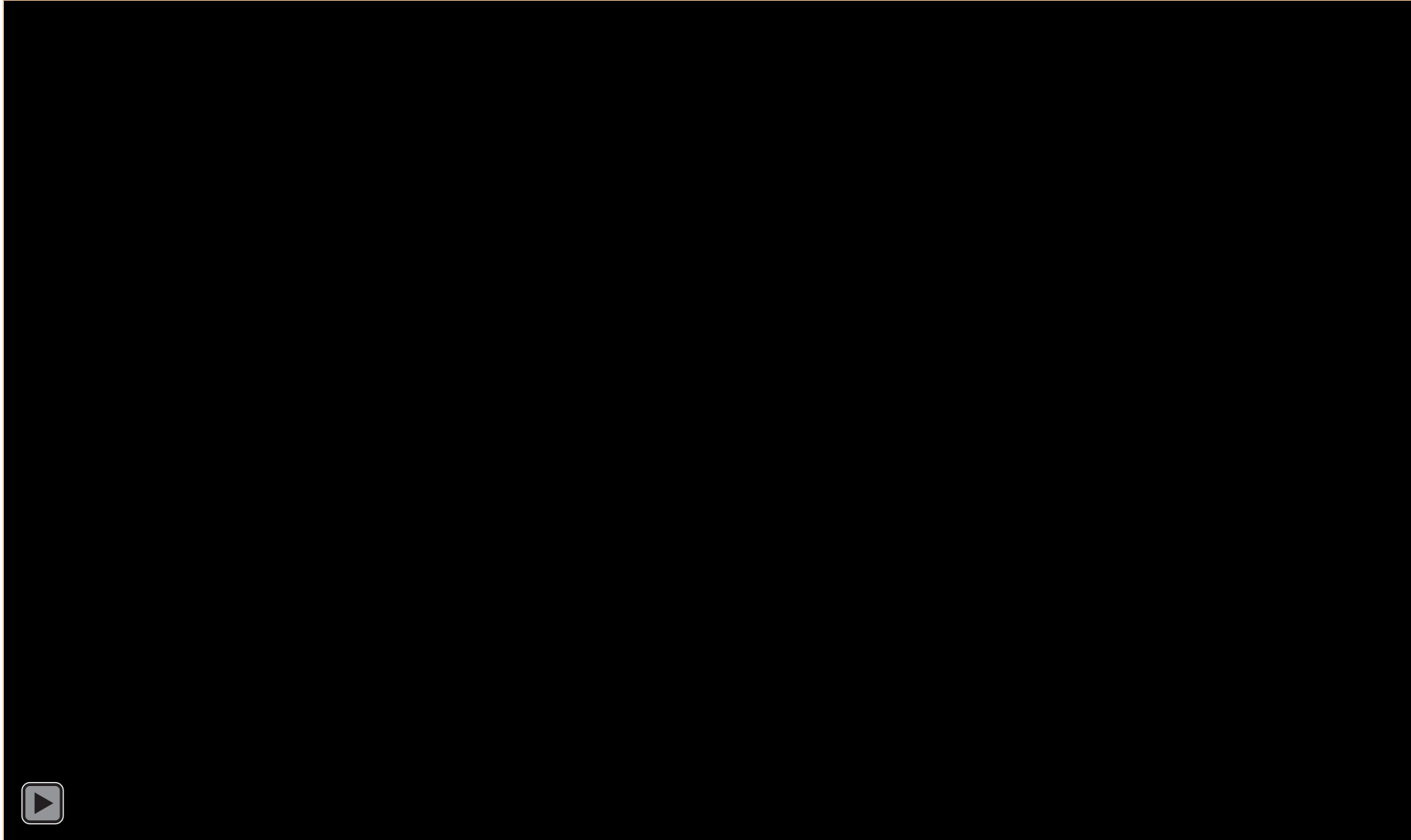
New Evidence of Dicamba Cancer Risk



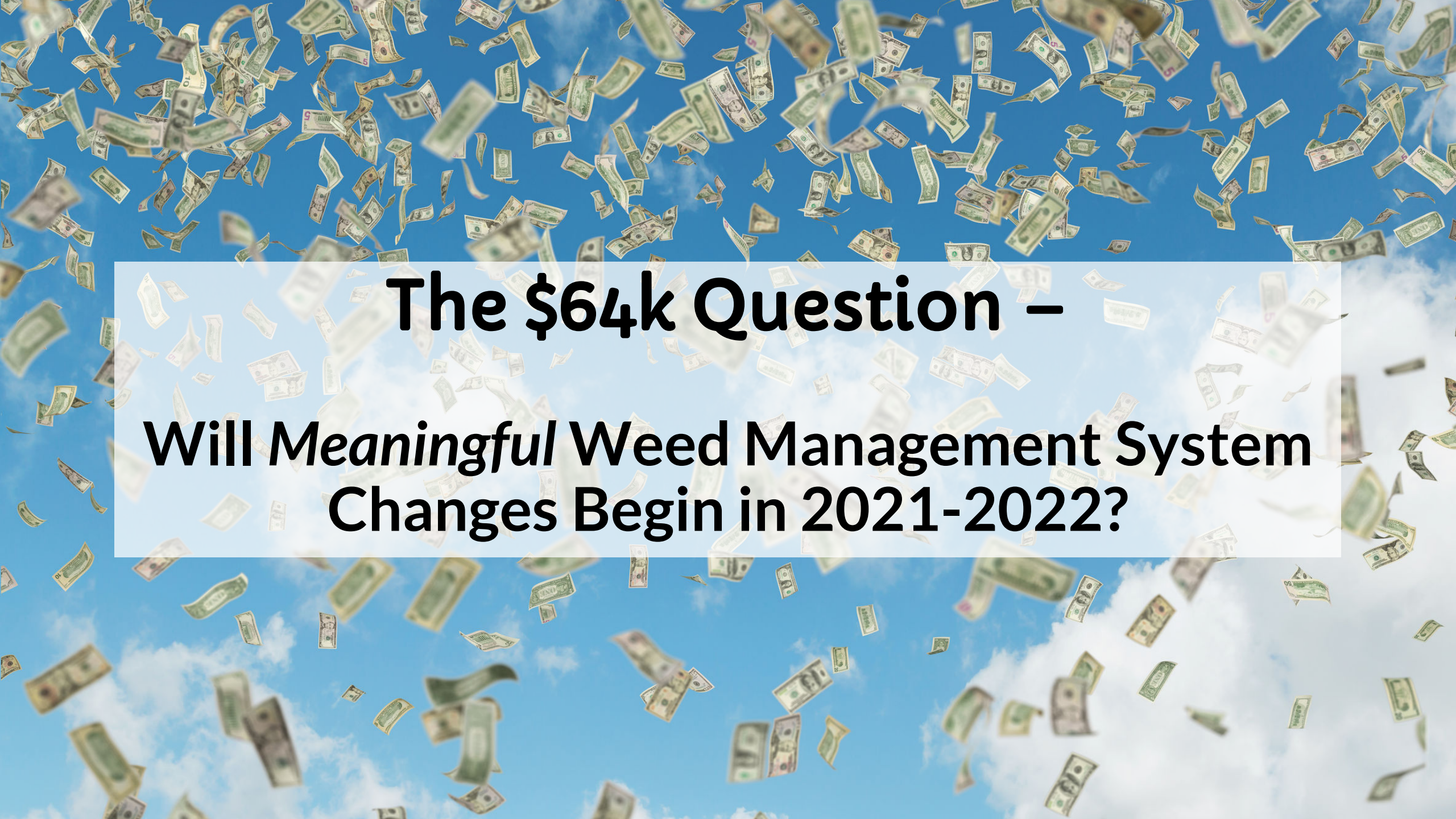
- Study re-evaluated association between dicamba use and cancer in the AHS.
- 12 additional years and 2,702 new cases of cancer. ***Almost 50,000 applicators, 53% reported using dicamba.***

- Highest exposure group had elevated risks of some cancers:
 - Liver and intrahepatic bile duct cancer – ***Odds Ratio 1.80***
 - Chronic lymphocytic leukemia – Odds Ratio 1.20

What About Other Pesticides?



*NOTE: Video
is still for
first 17
seconds.*

The background of the entire slide is a vibrant blue sky filled with soft, white clouds. Scattered throughout the sky are hundreds of US dollar bills, appearing to be falling from above. The bills are in various orientations and focus, creating a sense of dynamic movement and abundance. The bills include \$100, \$50, and \$20 denominations.

The \$64k Question –

***Will Meaningful Weed Management System
Changes Begin in 2021-2022?***

\$64K ? -- Four Factors Driving the Answer



- 1.** Farmers can expect serious profitability challenges as weed management costs more and works less well.



2. Ag subsidies will face strong deficit-reduction pressure, made more acute by new investments in President-Elect Biden's "Climate Smart Farming" initiative.
 - Bipartisan embrace of soil health investments in Green New Deal could reduce overall cut in ag spending – maybe a first step in bridge building toward next farmbill?
 - ***Big opportunities*** to heal failing weed management systems in the wake of soil carbon sequestration



- 3.** Future of post-emergence dicamba and Extendimax very shaky in 2021, and likely won't be a major factor beyond 2022. Coming to a farm near you -- Huge increase in reliance on DuoEnlist.



4. Off-target crop, tree, and vine damage, coupled with mounting evidence of adverse human health effects, will intensify pressure for change.

Question Welcomed.

Thanks for Inviting Me!

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