



Industry Policy Insights - Exploring What Matters

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Industry Policy Insights

Exploring What Matters

Environmental Impacts

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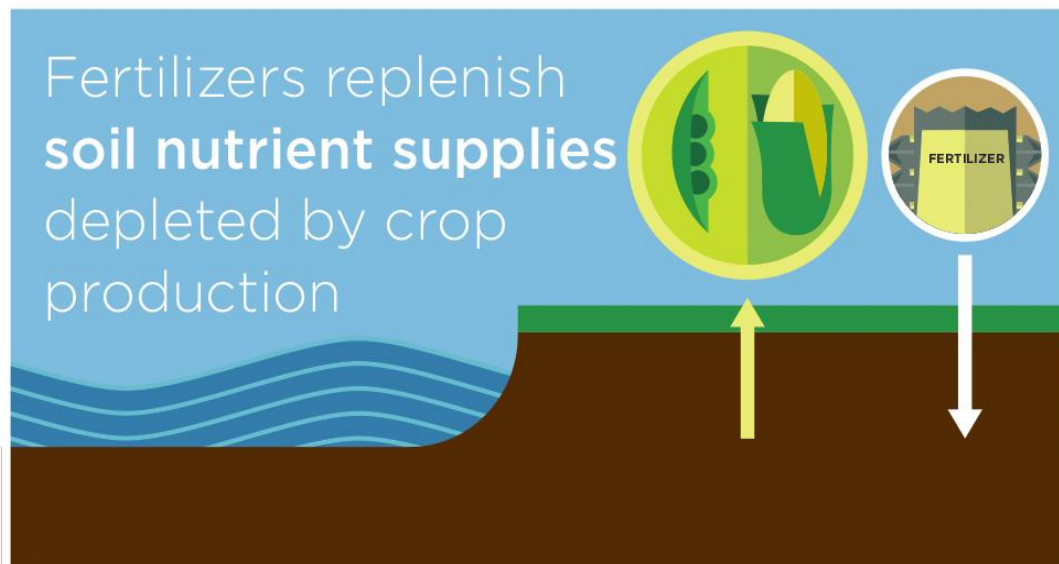
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Influences on Nutrient Use

Lara Moody, P.E.

Senior Director Stewardship & Sustainability

What We Know.....



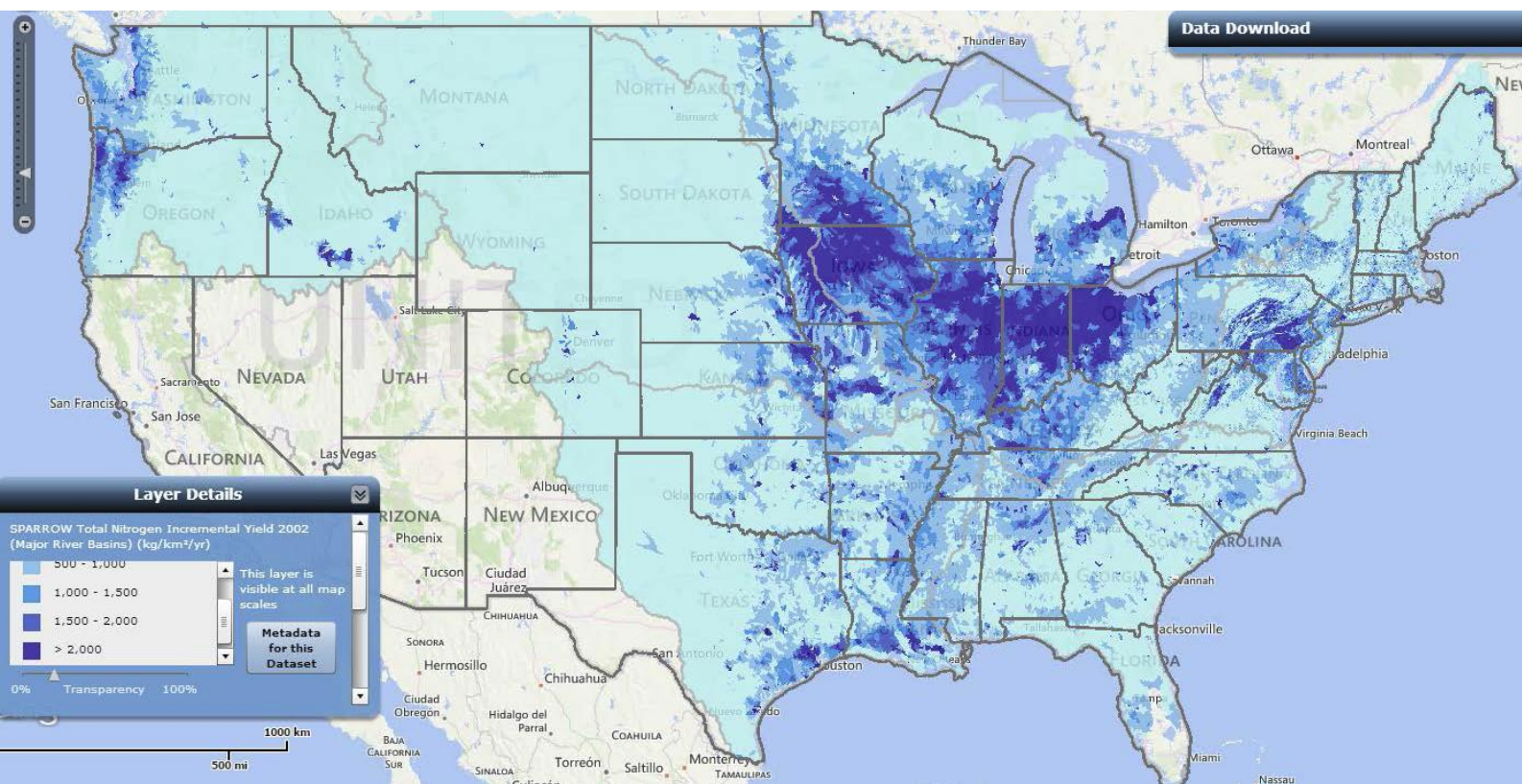
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What They Think.....

- Agriculture overuses fertilizers
- Reduce nutrient pollution by reducing fertilizer use
- Nutrient use on the farm should be regulated

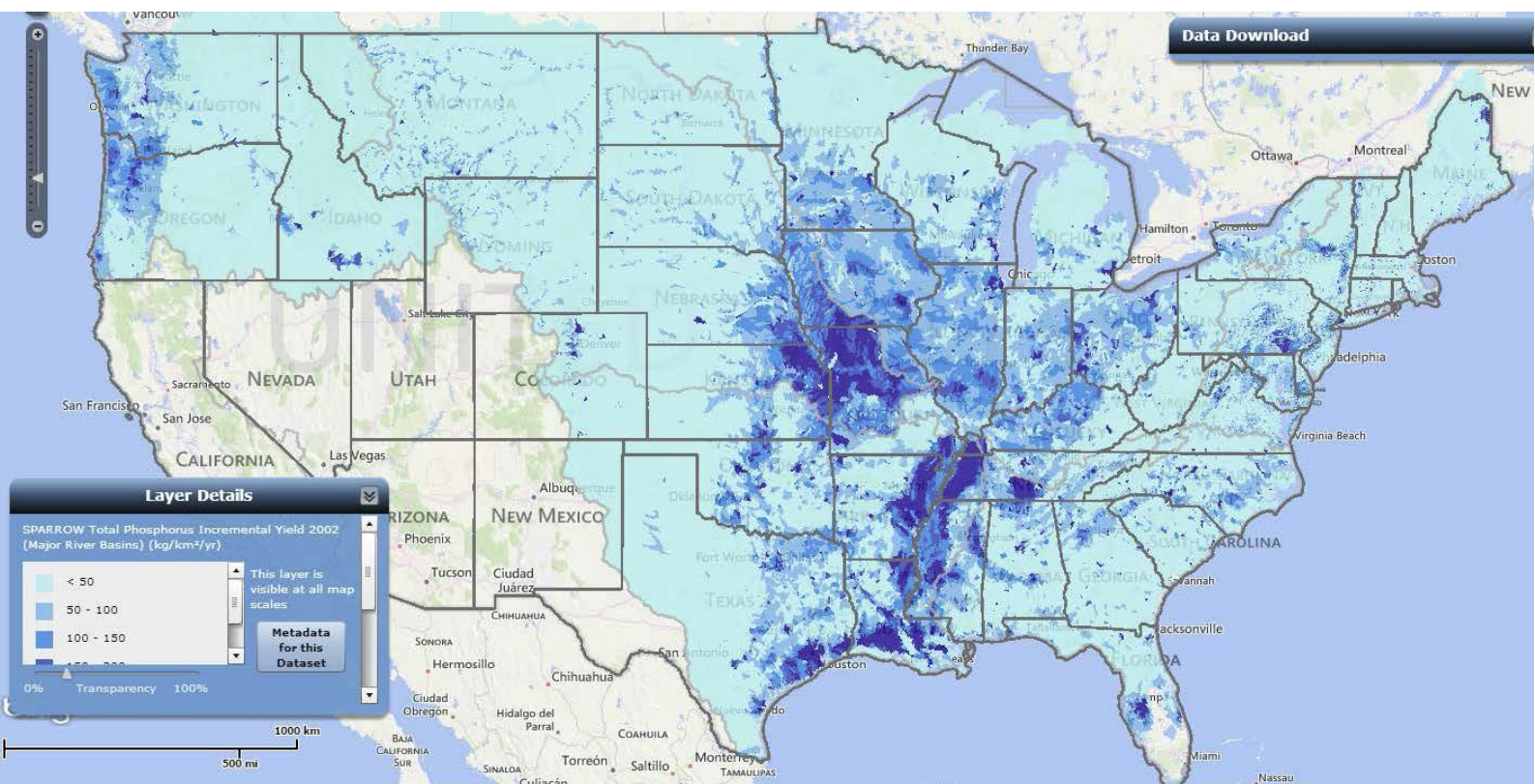


Nitrogen Lost to Watersheds



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Institute**

Phosphorus Lost to Watersheds



**Fertilizer
Institute**

GHG Emissions

Figures are averages for the period 2001-2010, expressed in billion tonnes CO₂ eq

Global emissions from agriculture (crops & livestock) continued to increase in the last 50 years

1961
2.7 billion tonnes
CO₂ eq

2011
more than
5.3
billion tonnes
CO₂ eq

The largest emitters in agriculture are:

40%



Enteric
fermentation

16%



Manure left
on pasture

13%



Synthetic
fertilizers

10%



Paddy rice

7%



Manure
management

5%

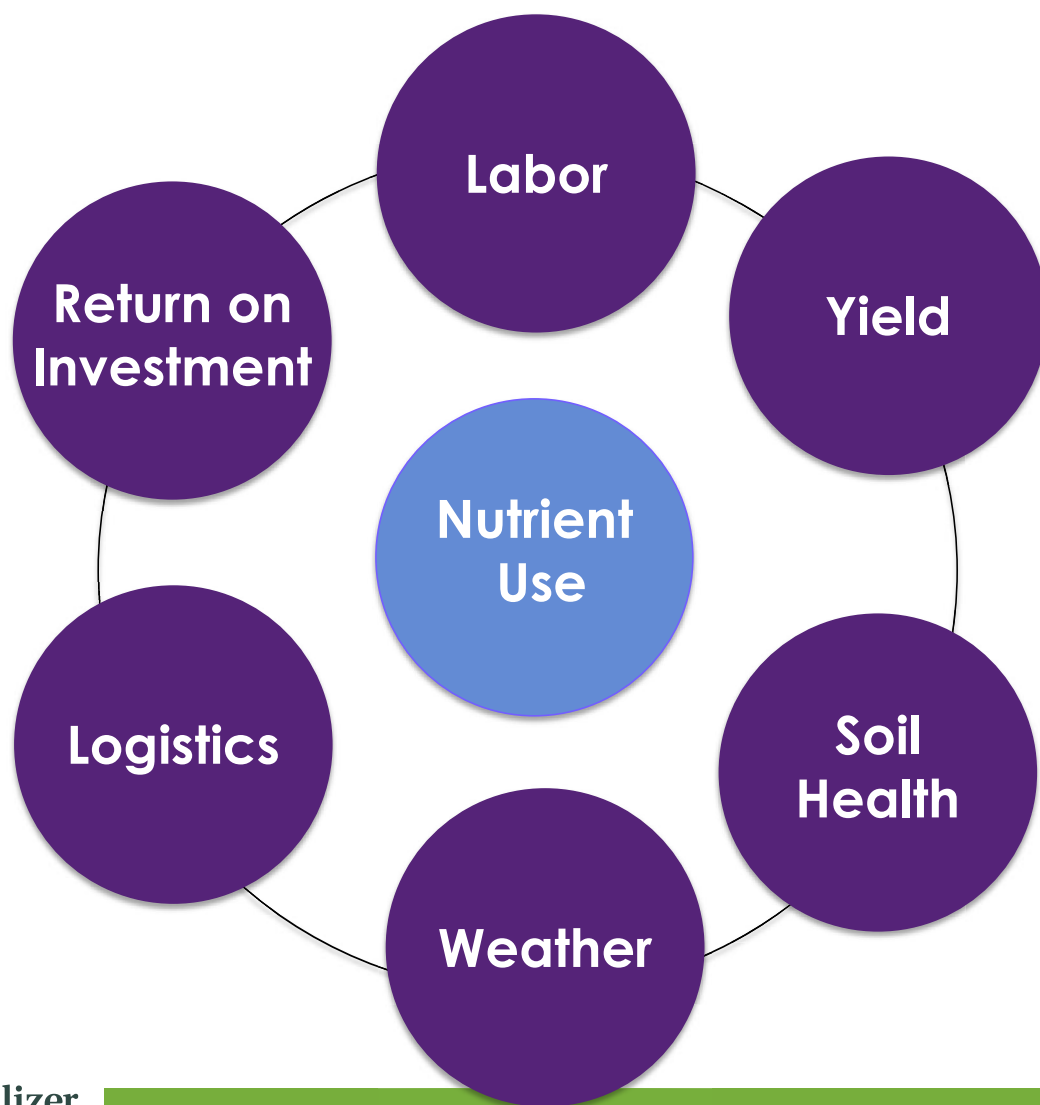


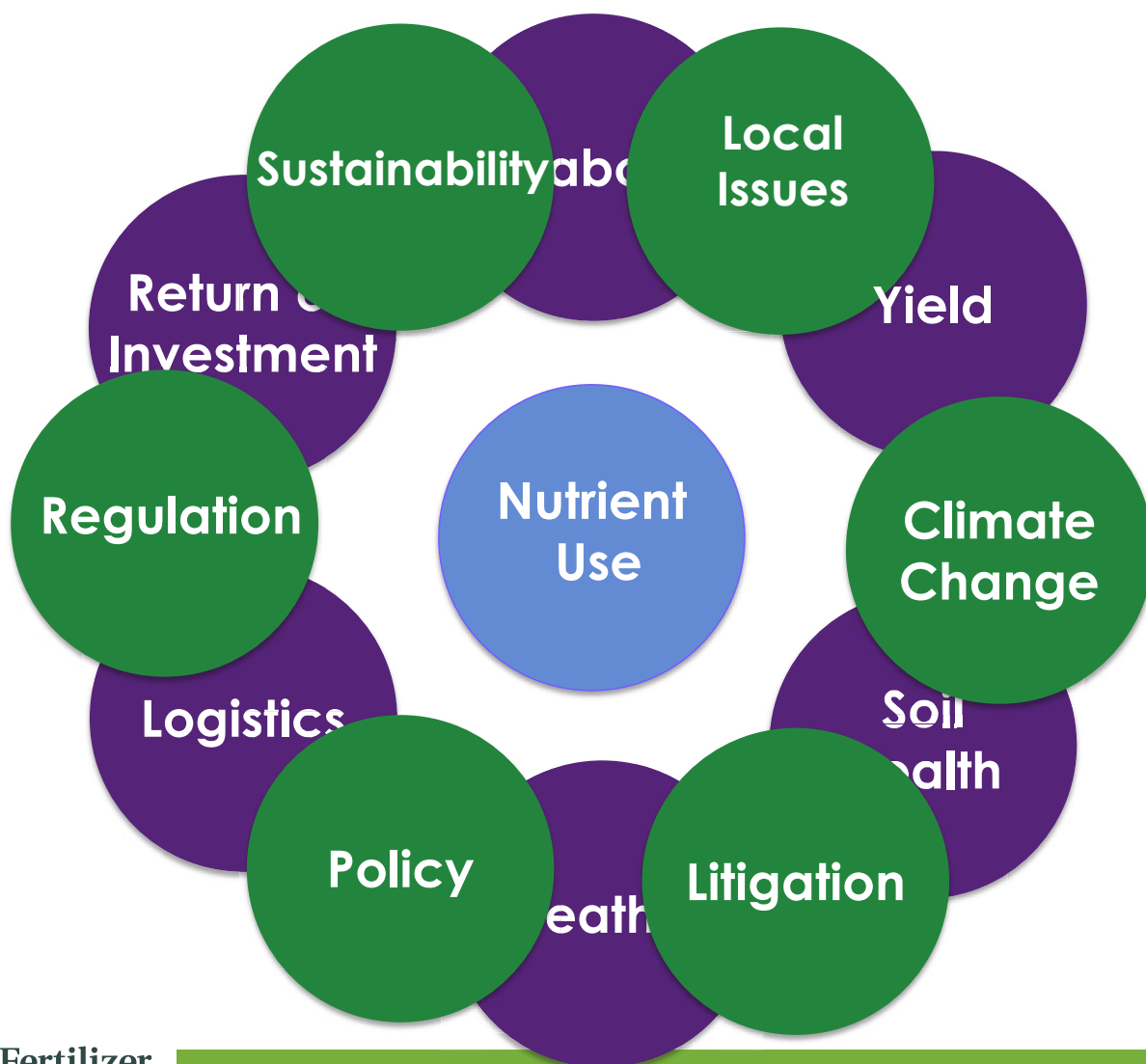
Burning of
savannahs

www.fao.org



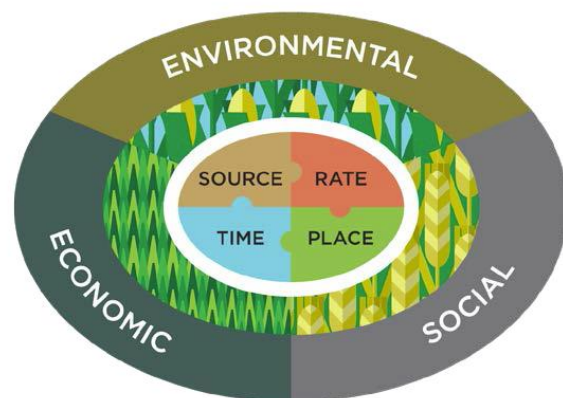
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4R Nutrient Stewardship

- Improve agricultural production while contributing to social well being and minimizing environmental impacts (benefits water & air quality)



RIGHT SOURCE

Matches fertilizer type to crop needs.



RIGHT RATE

Matches amount of fertilizer to crop needs.



RIGHT TIME

Makes nutrients available when crops need them.



RIGHT PLACE

Keeps nutrients where crops can use them.



WOTUS – EPA Guidance



Regulation

- Rule defining what waters fall under federal jurisdiction.
- Clean Water Act addresses only “navigable” waters; confusion over what is navigable.
- Rule expands the number of water bodies subject to regulation
- Any water body within 1500 feet of a tributary to a navigable water will be subject to regulation
- Could impact land use decisions on farms, particularly ditches.
- Rule finalized in May; being litigated by states and industry.



Nutrient Reduction Strategies



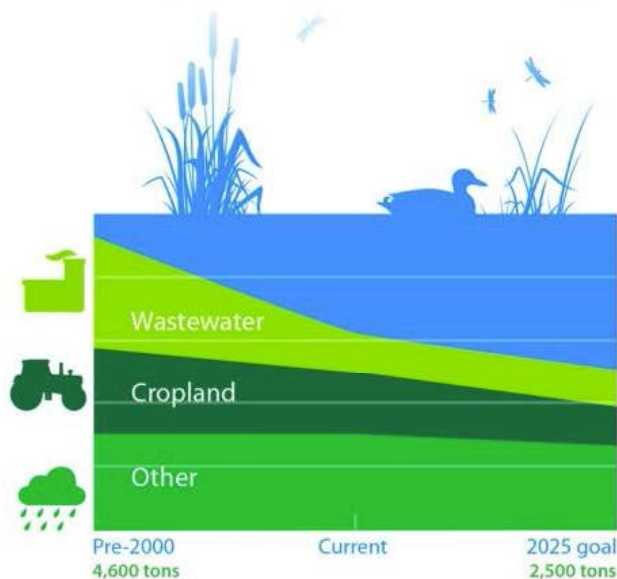
Policy

- Pathway pursued by states on Mississippi River Basin Hypoxia Task Force
 - Arkansas
 - Indiana
 - Illinois
 - Iowa
 - Louisiana
 - Kentucky
 - Minnesota
 - Mississippi
 - Missouri
 - Ohio
 - Tennessee
 - Wisconsin
- Reduce Hypoxic Zone from 6000 to 2000 mi² by 2035
 - 20% nutrient loss reduction by 2025
 - 45% nutrient loss reduction by 2035

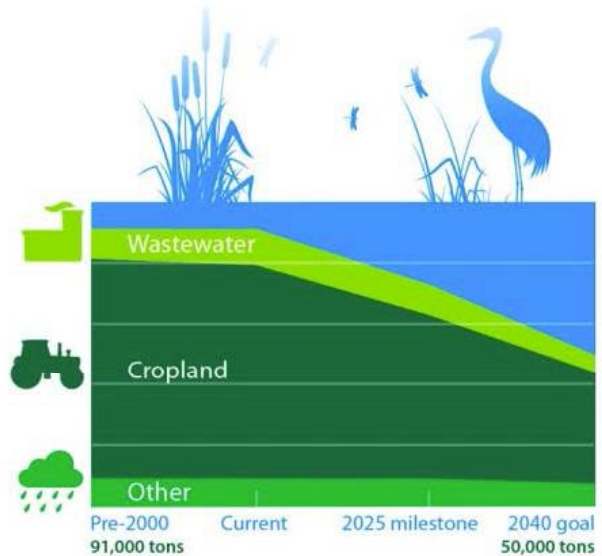


MN Nutrient Reduction Strategy Targets

Phosphorus loads in the Mississippi



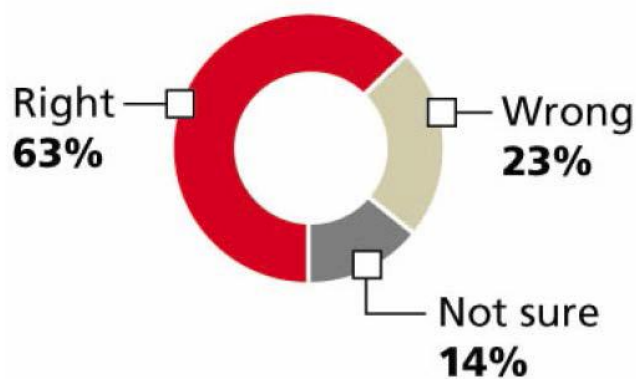
Nitrogen loads in the Mississippi



Iowa - Des Moines Water Works

Litigation

- Sued upstream drainage districts claiming failure to obtain permits for nitrate discharges
 - \$7,000/day to treat nitrates
 - Aging treatment plant infrastructure
 - Voluntary efforts for farmers are not working



Source: Des Moines Register Iowa Poll of 807 Iowa adults Feb. 15-18; margin of error: plus or minus 3.5 percentage points

THE REGISTER



Field to Market



Sustainability

- Food supply chain pursuing sustainable ag
- Ag commodities, agribusiness, conservation, food supply chain, and academic organizations engage through Field to Market
 - Metrics - Verification
 - Goals - Scaling-Up through technology
- Educating non-ag representatives on 4Rs
- Integrating 4Rs in sustainable ag arena



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Climate Smart Agriculture



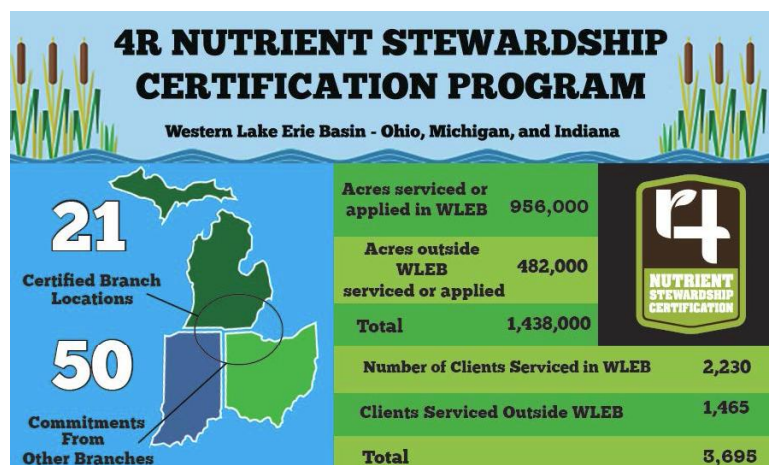
Climate
Change

- Fertilizer being drawn into conversation on climate change
- US making commitments at COP 21 and a portion of the goal is linked to agriculture
- USDA NRCS tasked with GHG reduction efforts related to soil health and N stewardship
- Climate Smart Ag focus is optimizing productivity, mitigating emissions and increasing resilience

Western Lake Erie 4R Efforts

Local Actions

- Algal bloom in Western Lake Erie affecting drinking water, fishing industry and recreation
- 4R Certification program for service providers
- 4R based legislation
- Supporting 4R research
- Stakeholder support



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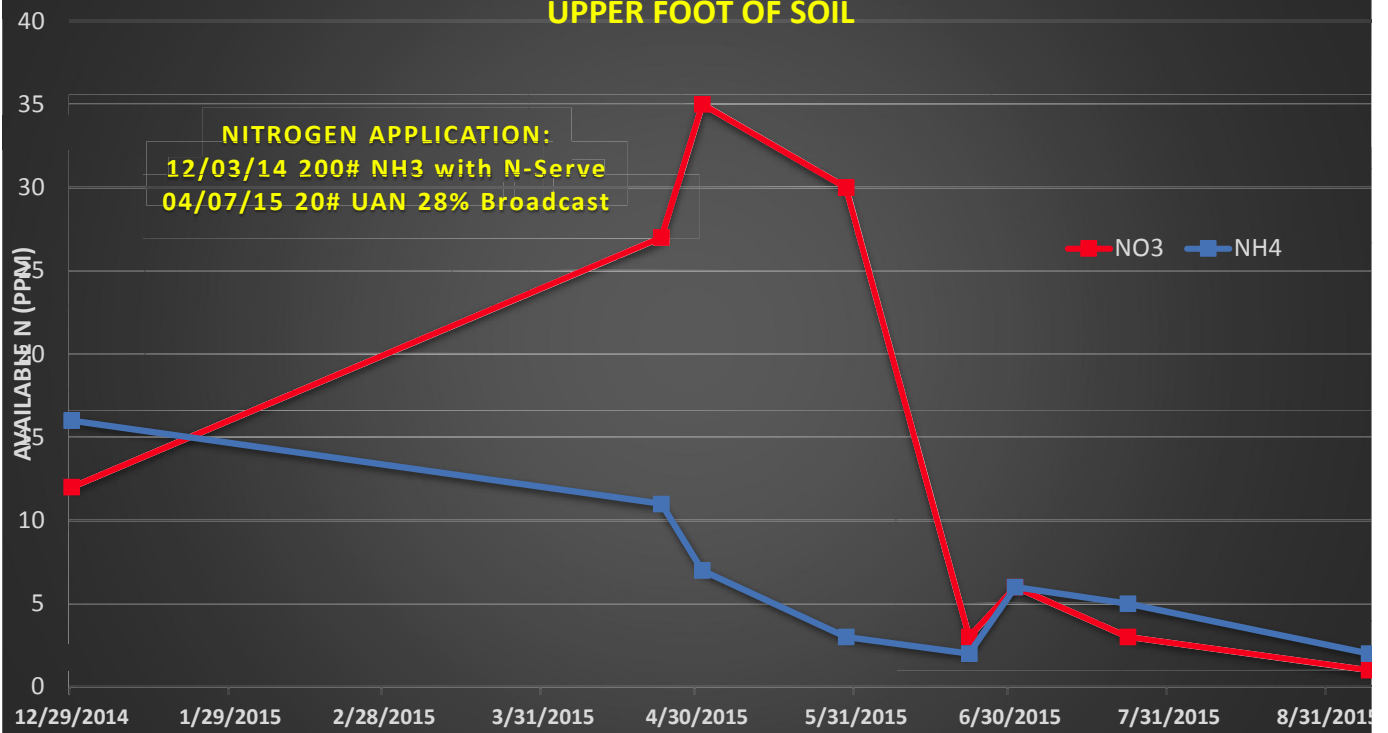
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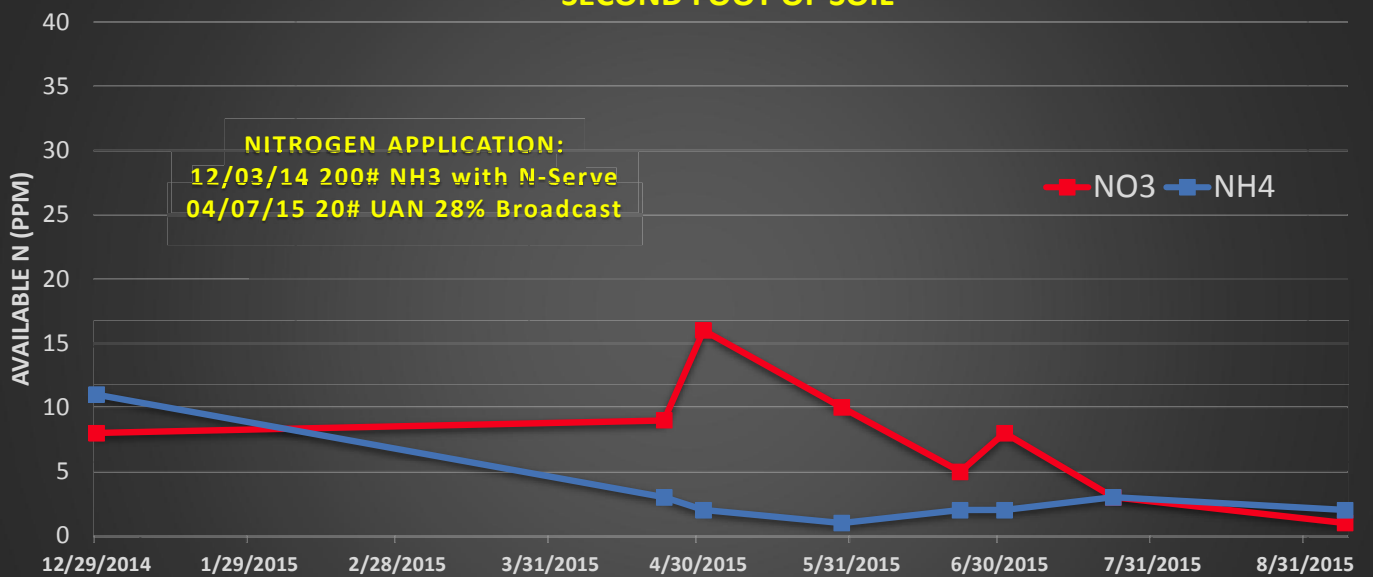
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N-WATCH SITE - 2015 GROWING SEASON UPPER FOOT OF SOIL

NITROGEN APPLICATION:
12/03/14 200# NH3 with N-Serve
04/07/15 20# UAN 28% Broadcast

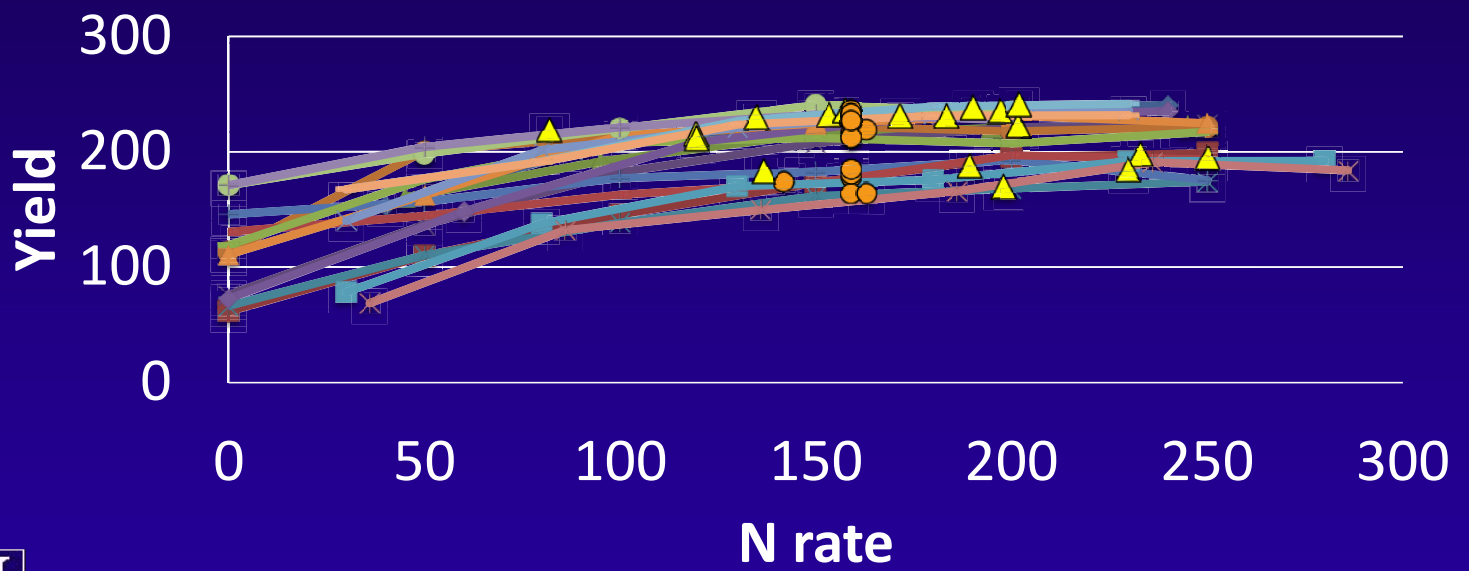


N-WATCH SITE - 2015 GROWING SEASON SECOND FOOT OF SOIL



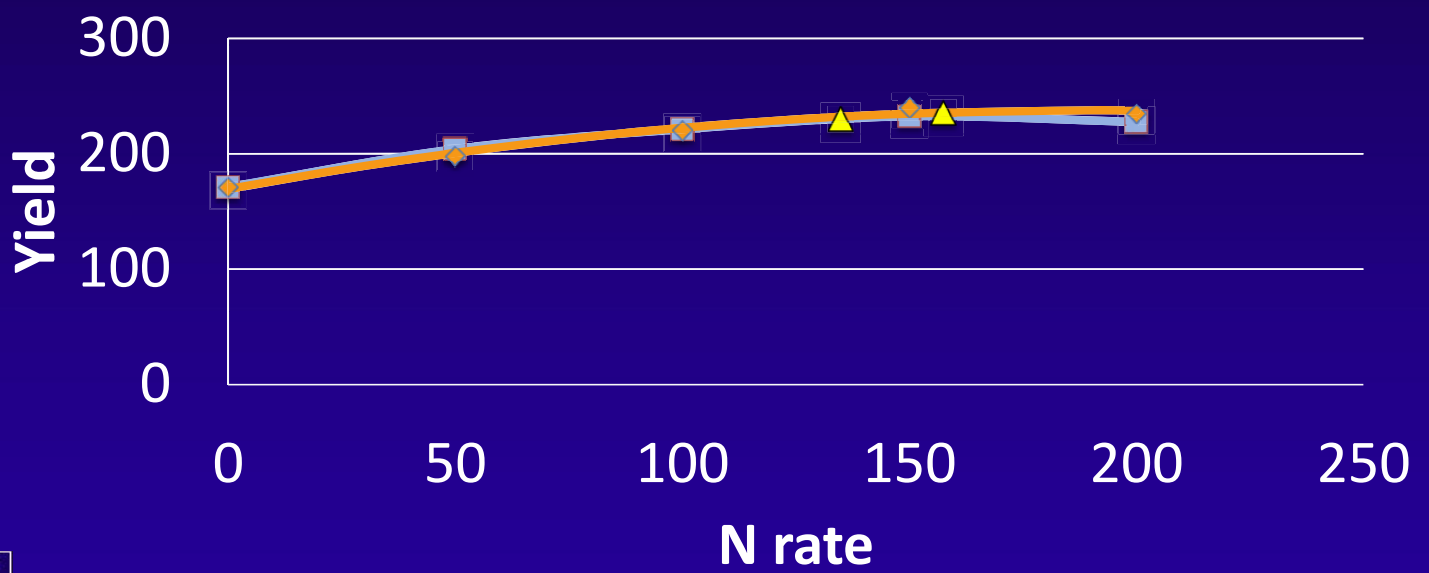
18 On-Farm N Trials Soy-Corn 2014

▲ Opt ● MRTN



On-Farm Soy-Corn 2014

◆ Fall ■ Spring ▲ Opts





THEY'VE TAKEN THE PLEDGE. ARE YOU READY?

Regan Wear - CHS Shipman

Zachary Belleville - CHS Shipman

Mike Koenigs - Dow AgroSciences

Ben Martin - Akron Services

Dustin Ehler - Ehler Brothers

Ken Ferrie - Crop-Tech Consulting

Harold Reetz - Reetz Agronomics

Mark Zorn - Rabideau Grain

Rich Selinger - Rosen's

John Musser - Stephenson Service Co

John Morrell - Piatt County Service Co

Tim Hughes - United Prairie

Walmart - Fertilizer Optimization Video



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Walmart Sustainable Agriculture Fertilizer Optimization

Rising to the Challenge

Fertilizer Optimization is a top sustainability priority for our food business. Rising to the challenge of feeding 9 billion people requires the entire value chain to produce more while minimizing the impact of their actions.



Achieving Fertilizer Optimization

Fertilizer optimization can be achieved by increasing nutrient use efficiency while also achieving productivity goals. Walmart depends on the American farmer to efficiently produce the key

Action

[Walmart Sustainable Agriculture Introduction](#)

[Walmart Sustainable Agriculture Key Food Commodities](#)

[Walmart Sustainable Agriculture Supporting Farmers and their Communities](#)

Also of Interest

[Our Goals - Our three sustainability goals](#)

[How to Make a Difference - How can you help?](#)

[How to Make a Difference - Reduce food waste](#)

[Success Stories - Sharing our success](#)

[GHG Innovation - Share what you've achieved](#)

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Policy Perspectives

Industry Policy Insights



Policy Challenges for Fertilizer Production

Rosemary O'Brien
Vice President, Public Affairs

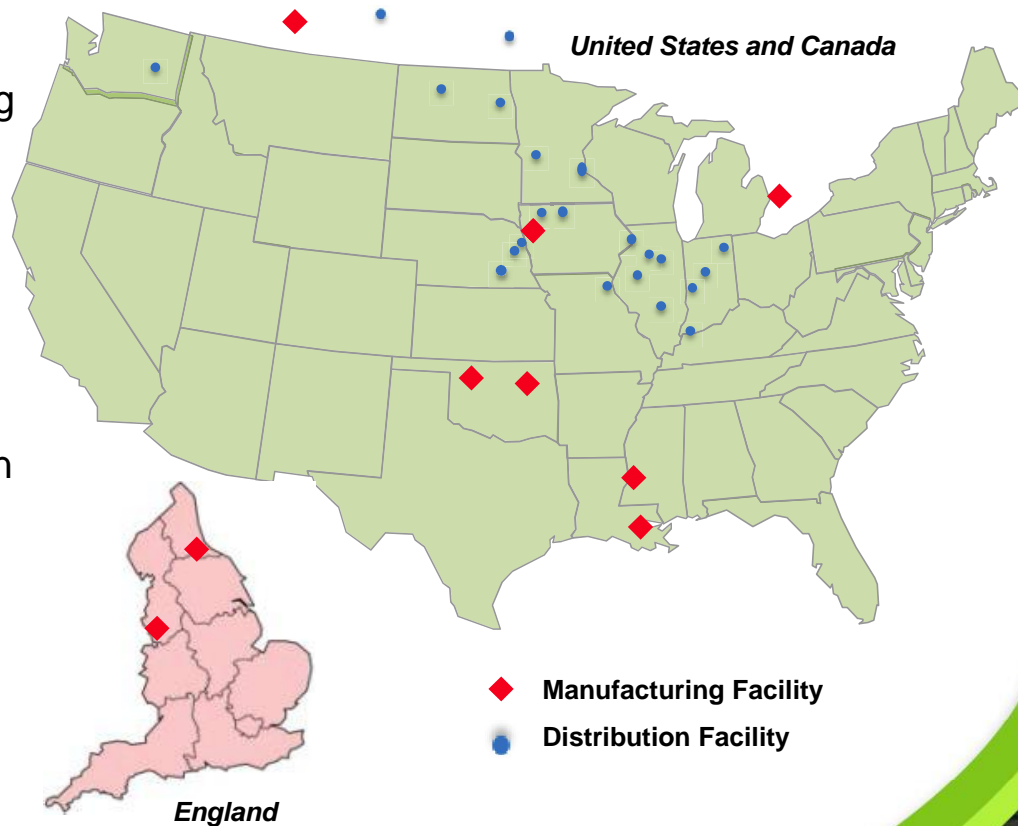
Fertilizer Outlook and Technology Conference
November 10, 2015



Feeding the Crops that Feed the World



- ◆ CF Industries is a global leader in the manufacturing and distribution of nitrogen products
- ◆ Serves agricultural and industrial customers
- ◆ 2,400+ employees
- ◆ Nine nitrogen complexes in four states, two Canadian provinces, and the UK
- ◆ Over \$4 billion is being invested in expansion projects in Port Neal, IA and Donaldsonville, LA





 **CF Industries®**

Greenhouse Gas Regulations

U.S. State of Play



versus



***But, ultimately, it will
come down to . . .***





Ozone Standards



*More stringent standard, but industry
breathes sigh of relief*

75

parts-per-billion



70

parts-per-billion



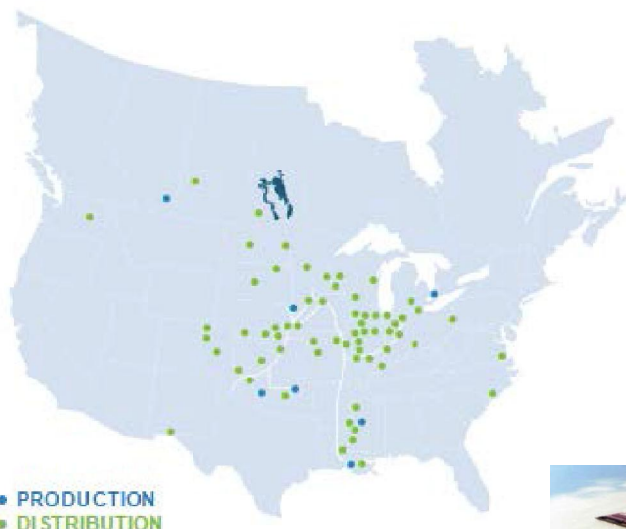
Transportation

 **CF Industries®**

Policy Challenges for our Distribution Network



Pipeline



Rail



Truck



Barge



Safety and Security *Industry Takes Initiative*

 **CF Industries®**



Federal agency
representatives tour the
training center.



Retail facility
gets certified.





Jean Payne

Illinois Fertilizer Chemical Association



International Clients

WHO WE ARE

WHAT WE DO

HOW WE WORK

MENU



LIGHTHOUSE CLIENTS

Navigate the regulations!

[Enter Snapshots here](#)

COMPASS CUSTOMERS

Helping you find your way
one regulation at a time.

[Enter here](#)

STRATEGIC PARTNERSHIPS

Altogether Better!

[More Info](#)



MyRMP

Suite of Guidance Materials

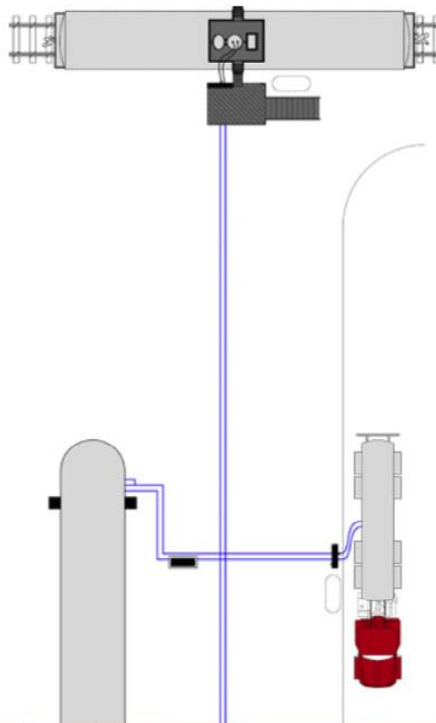
[Tutorial](#)

MyRMP Introduction

- 1 Management
- 2 Offsite Consequences
- 3 Process Safety Information
- 4 Process Hazard Analysis
- 5 Operating Procedures
- 6 Training
- 7 Mechanical Integrity
- 8 Management of Change
- 9 Pre-Startup Safety Review
- 10 Compliance Audit
- 11 Incident Investigation



The
Fertilizer Institute
Nourish, Replenish, Grow



MyPSM

Suite of Guidance Materials

[Tutorial](#)

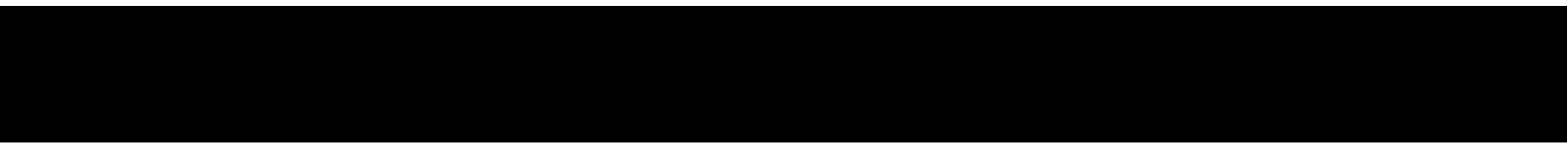
MyPSM Introduction

- | | |
|----------------------------|---|
| Process Safety Information | D |
| Process Hazard Analysis | E |
| Operating Procedures | F |
| Training | G |
| Mechanical Integrity | J |
| Management of Change | L |
| Pre-Startup Safety Review | I |
| Compliance Audit | O |
| Incident Investigation | M |



PSM Video

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External Pressures

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Industry Reputational Challenges...



Bigger is Not Always Better



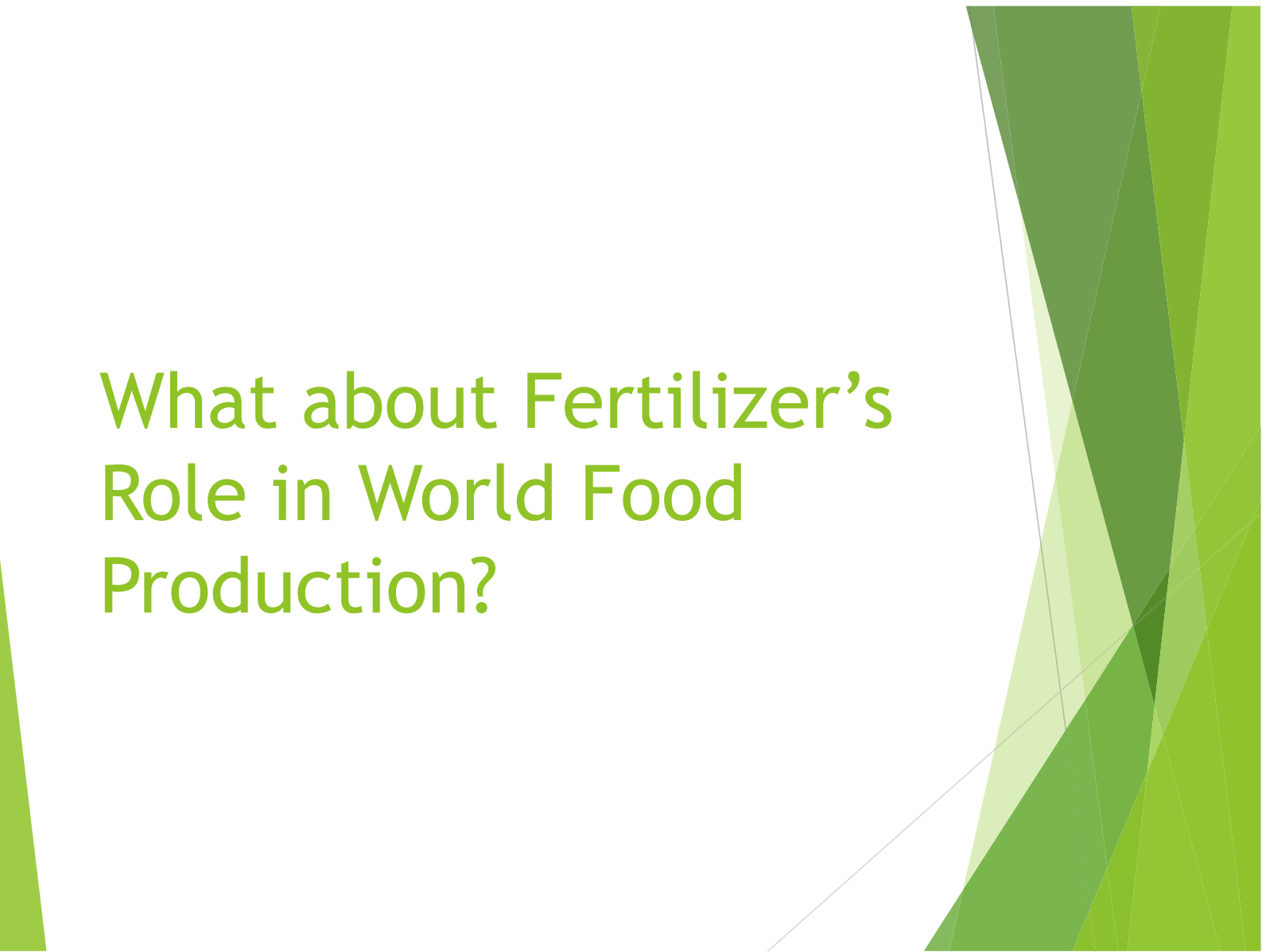
Reputation is not Static - It Must be Earned and Maintained

“Brands are fragile and they fail. Sometimes brands that are loved are also least liked. No brand is stable—they’re either rising or declining.”

Michael J. Silverstein, senior partner
at [Boston Consulting Group](#)



What about Fertilizer's Role in World Food Production?



Social Media - Cultivating a World of Silos and Tribes



Like it or Not, we are Competing
with Cute Cat Videos...





“People don’t care about how much you know, until they know how much that you care.”

Dr. Vincent Covello

Director and Founder, Center for Risk Communication



Building our Brand Means Showing We Care



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