



Welcome to *The Current*, the North Central Region Water Network's Speed Networking Webinar Series

Market-based Approaches to Conservation: 2PM CT

1. Submit your questions for presenters via the chat box. The chat box is accessible via the purple collaborate panel in the lower right corner of the webinar screen.
2. There will be a dedicated Q & A session following the last presentation.
3. A phone-in option can be accessed by opening the Session menu in the upper left area of the webinar screen and selecting "Use your phone for audio".

This session will be recorded and available at northcentralwater.org and learn.extension.org.



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northcentralwater.org



Today's Presenters:

- **Caroline Wade**, Program Director, Ecosystem Services Market Consortium
- **David LeZaks**, Senior Fellow, Croatan Institute
- **Maggie Monast**, Director, Working Lands, Environmental Defense Fund

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Caroline Wade



Caroline Wade is ESMC's Program Director providing leadership and coordination across the ESMRC project team and Working Groups to guide research, development, demonstration, and deployment of cost-effective, scalable programs, technologies and approaches needed to launch the ESMC market in 2022. Prior to joining the ESMC she served as the Agriculture Program Director for the Illinois Chapter of The Nature Conservancy leading sustainable agricultural initiatives to improve water quality and soil health. She previously worked for the Illinois Corn Growers Association as the Nutrient Watershed Manager collaborating with partners in Illinois and across the country on sustainability efforts in agricultural production systems. She graduated from Illinois State University with a B.S. in Environmental Health and Environmental Science and a M.S. in Agriculture.





ECOSYSTEM
SERVICES MARKET
CONSORTIUM

Ecosystem Services Market Consortium

**Developing a Science and Outcomes Based Ecosystem Services
Market for Agriculture**

Caroline Wade, Program Director
November 10, 2020

ESMC MISSION

...advance ecosystem service markets that
incentivize farmers & ranchers to improve soil
health systems that benefit society





**Outcomes-based national scale ecosystem
services market conceived & designed...**

...for agriculture

...to overcome past market challenges

**...to recognize & reward farmers &
ranchers for their impacts**



ESMC/ESMRC Members

Founding Circle Members



Legacy Partner

Members



ESMC Funders



MCKNIGHT FOUNDATION



How is ESMC Different from other Markets?

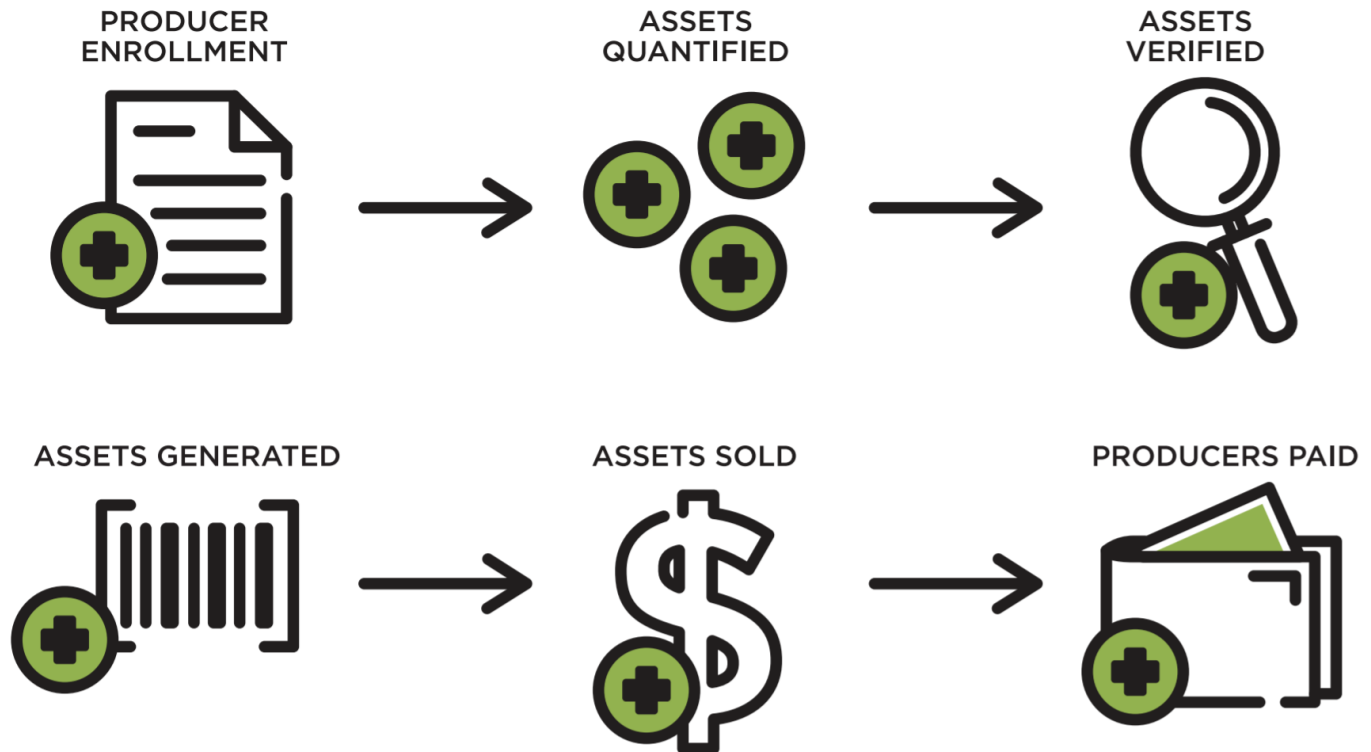
- **Non-profit** organization: mission and impact-oriented
- Collaborative effort with **entire ag supply chain** at the table
- Investment of \$22M+ in technologically advanced quantification & verification approaches to drop costs and reduce producer burden
- **Systems-based and practice-agnostic**
- Science and outcomes-based; pay for performance
- Pays producers for **4 credits in 1 process**
 - Soil C, net GHG, water quality & water conservation
- Generation of credits for **multiple markets**; Innovative, tiered, modular protocols

ESMC Protocol: Tiered, modular design

| Scope | Environmental Assets Generated by Protocol | | |
|---------|--|------------------------------|--------------------------------|
| | GHGs ^a | Water Quality ^b | Water Quantity |
| Scope 1 | Scope 1 GHG Credit | Scope 1 Water Quality Credit | N/A |
| Scope 3 | Scope 3 GHG Asset | Scope 3 Water Quality Asset | Scope 3 Water Efficiency Asset |

- a. Soil carbon can be reported separately from net GHGs.
- b. Separate credits and assets can be issued for phosphorus, nitrogen, and sediment.

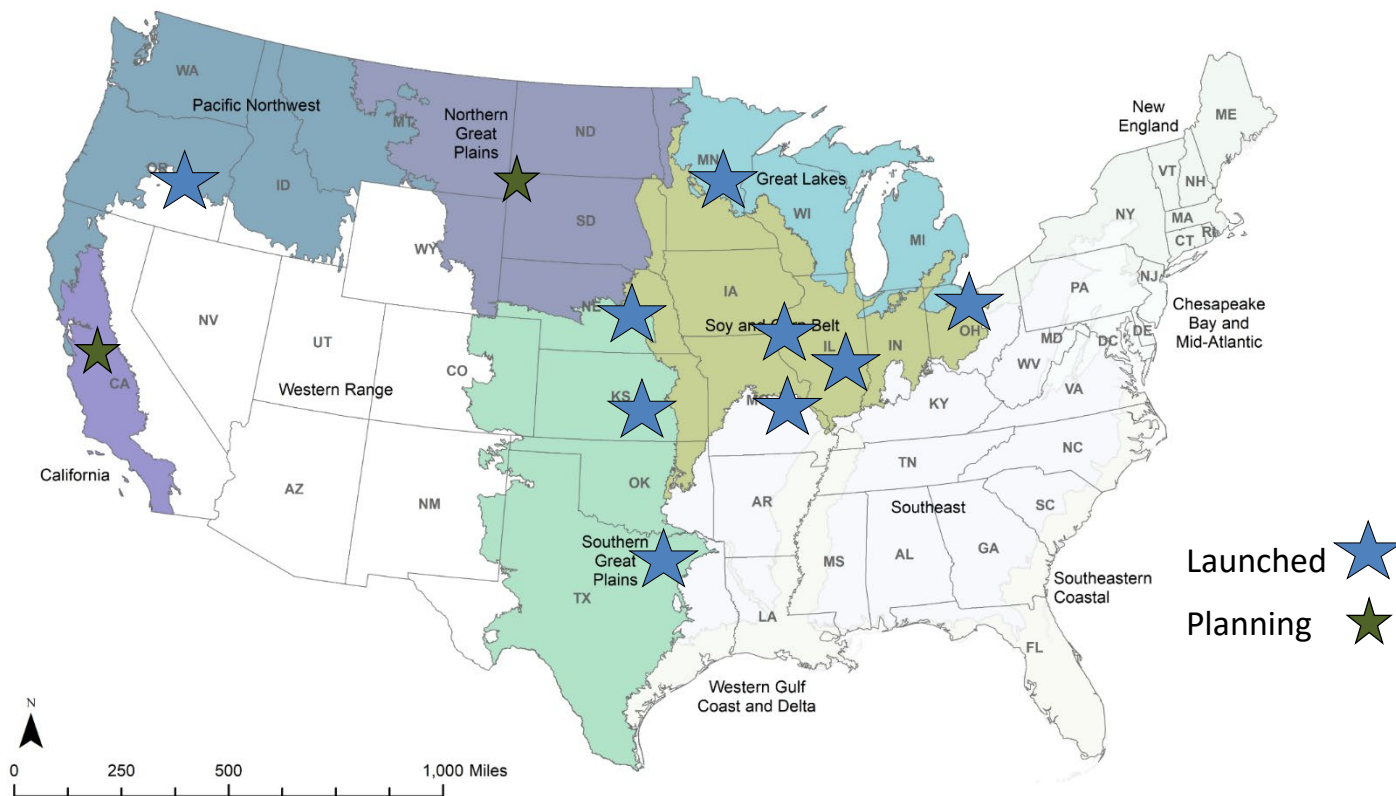
ESMC Market Function Overview:



ESMRC – *Preparing for Market Launch*

- *Investments in RDD&D for a high-tech, cost-effective national launch*
- *Research goals through 2022*
 - ✓ Testing & refining all program aspects:
 - ✓ Protocols and methodologies
 - ✓ Measurement and quantification
 - ✓ MRV Platform technology
 - ✓ Program and verification training
 - ✓ Costs and efficiencies of asset generation
 - ✓ Market needs and demand
 - ✓ Scaling through partnerships & pilots with members
- *2022 and beyond*
 - ✓ Scale throughout contiguous US
 - ✓ Additional credit/asset generation to be added, including biodiversity, habitat conservation, etc.

ESMC Pilot Project Locations



ESMRC Program and Pilot Project Research

- Improvements to the MRV platform
 - Data collection gap analysis
 - Soil Sampling Stratification App
 - Evaluation of innovative soil C measurement tools
 - N₂O quantification improvements
 - Quantification model testing and refinement
 - Comparing water quality modeling approaches
 - Exploring remote sensing technologies for data collection and verification
 - Pursuing certification of program, protocols, assets
-
- ✓ **Bringing down the cost of quantification and asset generation**
 - ✓ **Meeting the needs of buyers and producers**
 - ✓ **Implementation at scale**

THANK YOU

QUESTIONS?

<https://ecosystems-services-market.org>



David LeZaks



David LeZaks is an environmental scientist and financial activist whose work is centered around developing innovative mechanisms for financing the transition to agroecological farming and food systems. Before joining Croatan Institute, Dr. LeZaks led the Regenerative Food Systems initiative at Delta Institute in Chicago, where he managed a portfolio of projects that focused on the design and deployment of disruptive mechanisms to unlock substantial capital flows into regenerative agriculture. Earlier in his career, David was a postdoctoral scientist at the University of Wisconsin – Madison, where he completed his Ph.D. in Environment and Resources and an M.S. in Land Resources. Currently, he serves in advisory roles to Mad Agriculture, the Savanna Institute, Nourish, Council of Development Finance Agencies' Food Systems Finance Advisory Council, and the Transformational Investing in Food Systems initiative, an allied initiative of the Global Alliance for the Future of Food.



Aligning Capital to Build Soil Wealth

David LeZaks, PhD



CROATAN
INSTITUTE

INVESTMENT
SOCIAL GOOD
ECOLOGICAL RESILIENCE

The True Cost of food – an untold story

The hidden costs of global food and land use systems sum to \$12 trillion, compared to a market value of the global food system of \$10 trillion

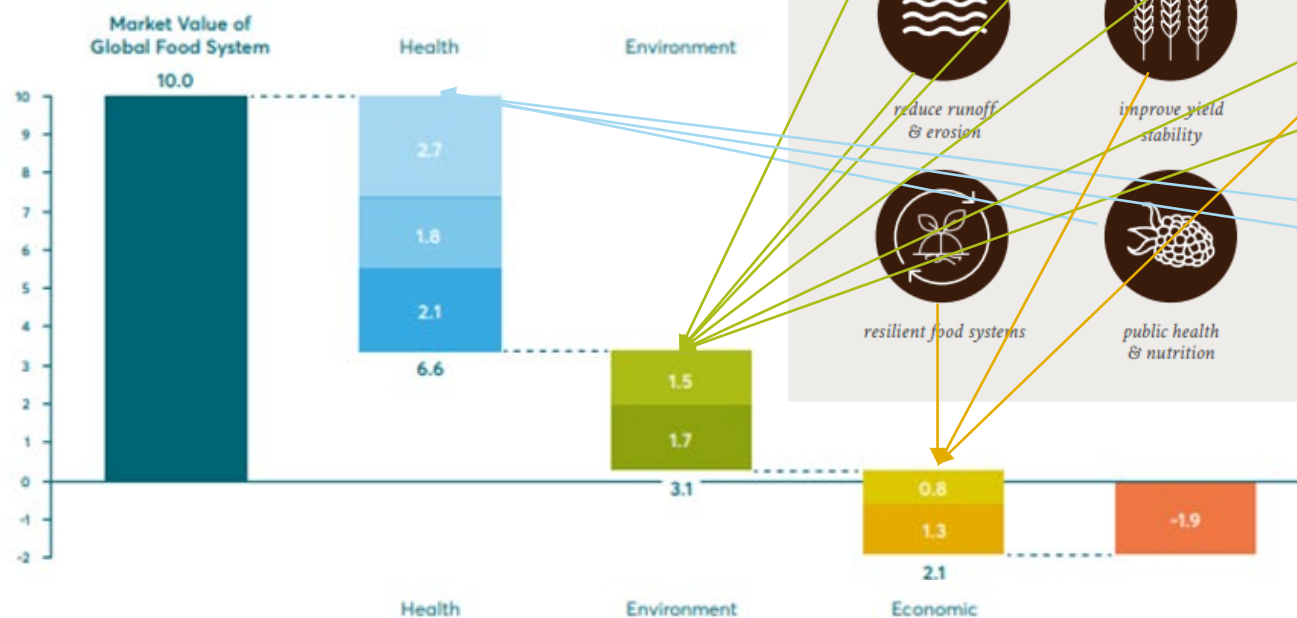
Trillions USD, 2018 prices



The True Cost of food – an untold story

The hidden costs of global food and compared to a market value of the

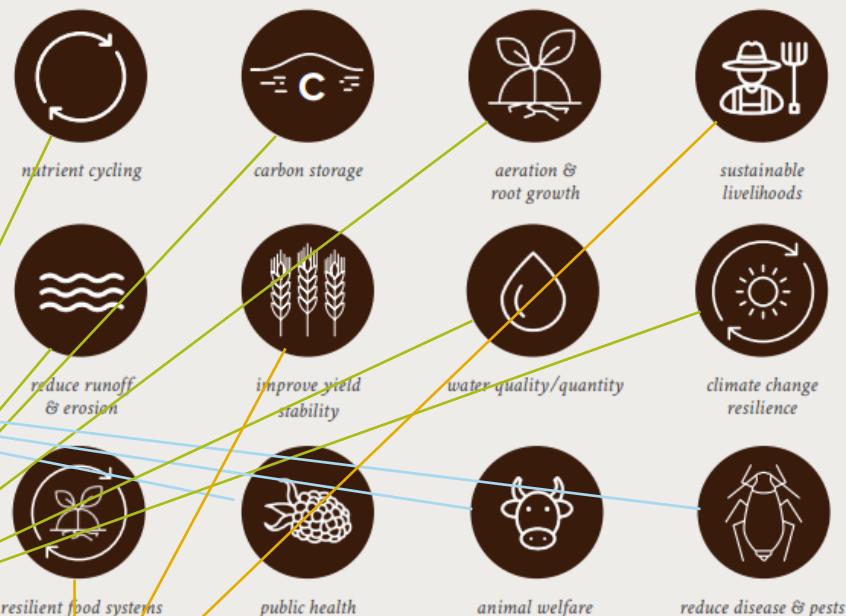
Trillions USD, 2018 prices



Soil Wealth (2019)

SELECTION OF PUBLIC AND PRIVATE BENEFITS DELIVERED BY INVESTING IN REGENERATIVE AGRICULTURE

FIGURE 2



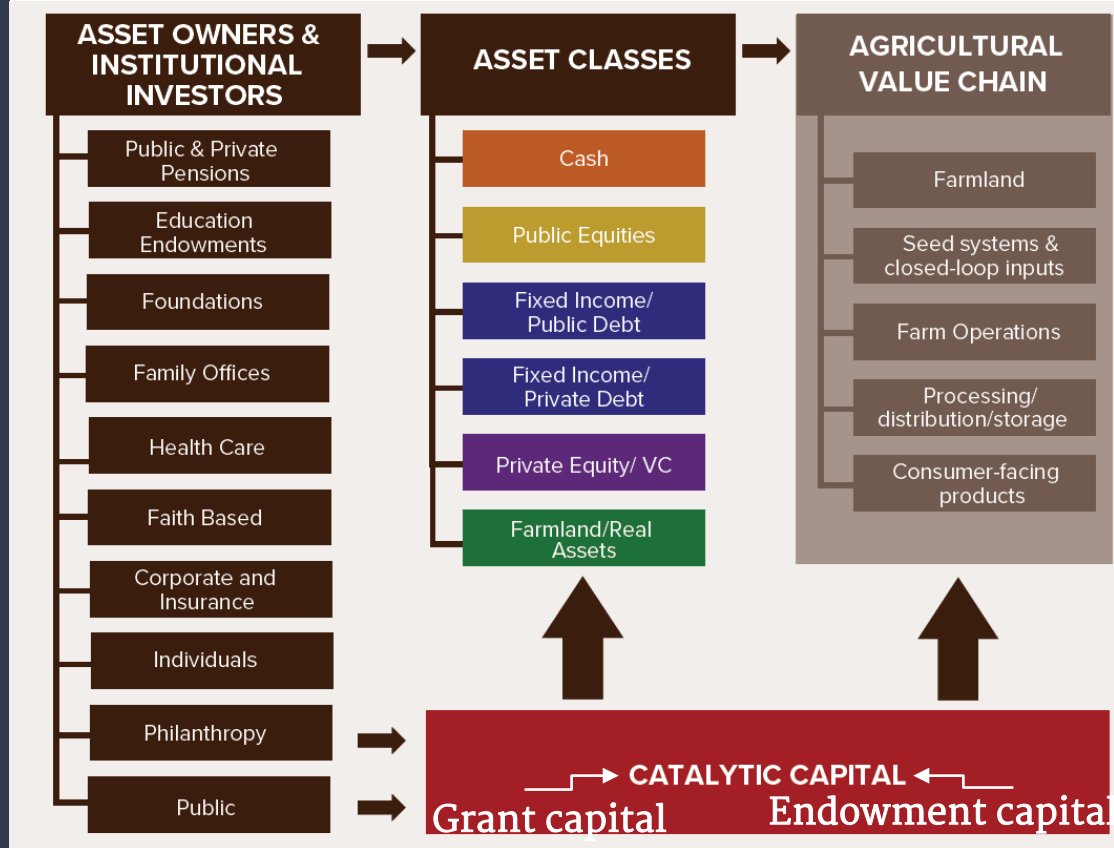
“You can’t fix
a broken food
system with a
broken
finance
system”

Natalie Reitman-White @
Organically Grown
Company



Capital allocation from the financial value chain to the agricultural value chain

Source:
SoilWealth.org



A story in four Examples

1. New financial mechanisms – Rural Regenerative Organic Districts
2. Agroforestry
3. Grassland 2.0
4. Small grains



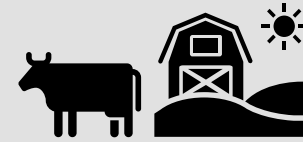
Photo credit: Nancy Griswold

Regenerative Organic Agricultural Districts (ROADs)

Establish special-purpose soil wealth improvement districts that would become magnets for regenerative agriculture investment.



Regenerative Organic Ag District (ROAD)



Investment into
regenerative ag.
value chain

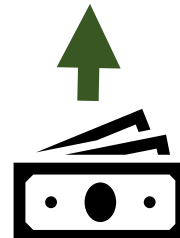
Financial
returns on
investment

Impact:
Soil health &
community
wealth returns

Designate
district



Stakeholders

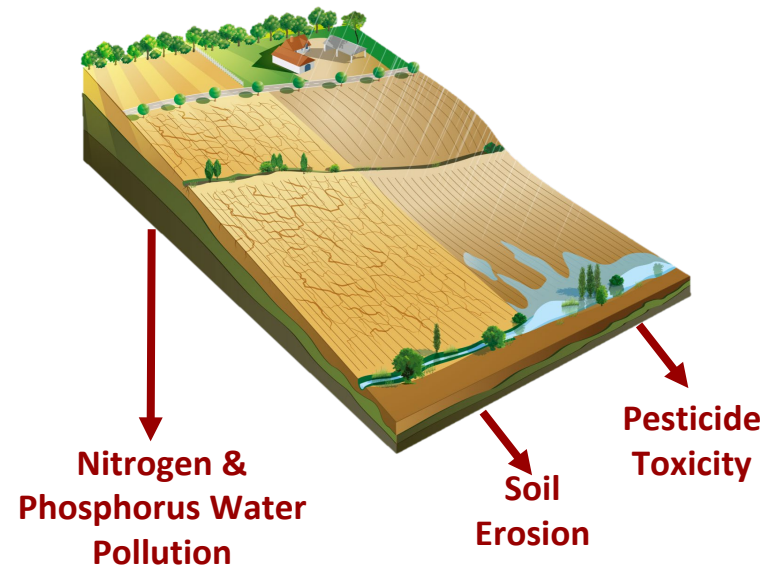


Investors

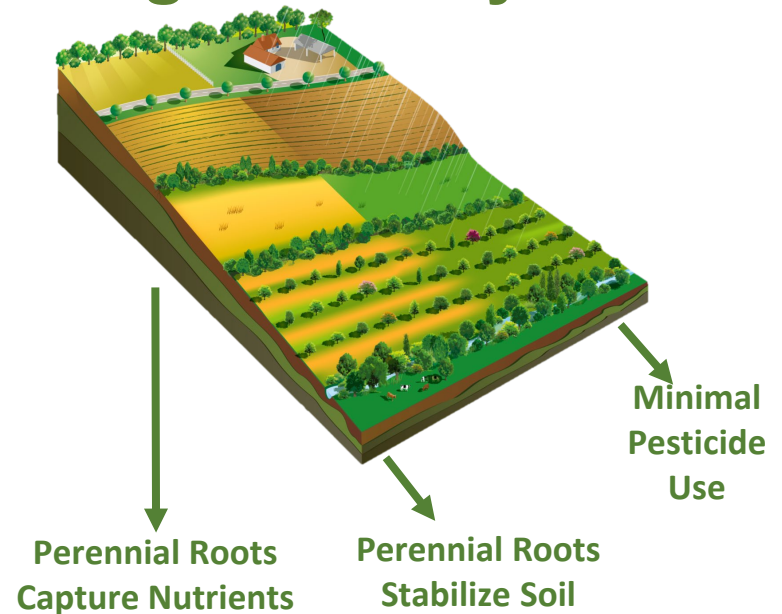


Financing a more perennial agriculture

Status Quo



Agroforestry



Key Tree Crops of the Midwest

HAZELNUT

“Soy on Trees”



Specialty Markets

\$7bn current, global
\$14bn within decade

→ **Ferrero** (*Nutella, Ferrero Rother, Kinder Bueno*)

→ **Mondelez International** (*Cadbury, Milka*)

→ **Nestle, Hershey, Mars**

Commodity Markets

Supplant soybean market
\$40bn on 34m hectares in US

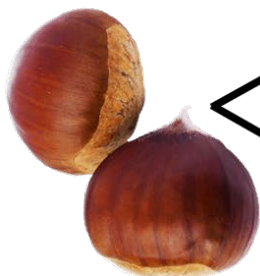
→ **Protein** *soy-free, gluten-free food*

→ **Animal Fodder** *complete protein*

→ **Oil** *food / biodeisel*

CHESTNUT

“Maize on Trees”



Specialty Markets

\$2bn current, global
\$2.5bn within decade

→ **Fresh Nuts** *grocery/direct-to-consumer*

→ **Chips, Dried** *brewing, baking*

→ **Bob's Red Mill** *specialty flours*

Commodity Markets

Supplant maize market
\$63bn on 39m hectares in US

→ **Flour & Sweetener** *gluten-free food*

→ **Animal Fodder** *caloric density*

→ **Starch** *industrial feedstock*



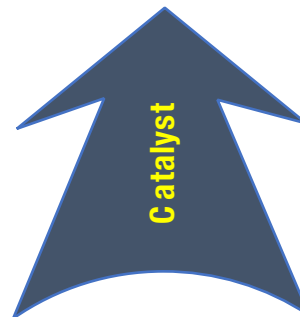
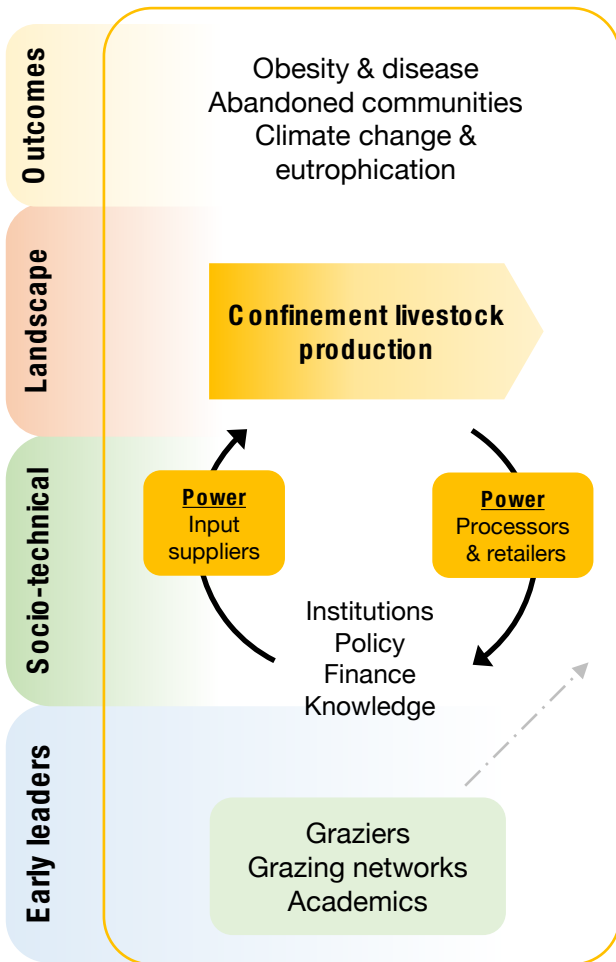
grassLAND 2.0

Response to 3 problems:

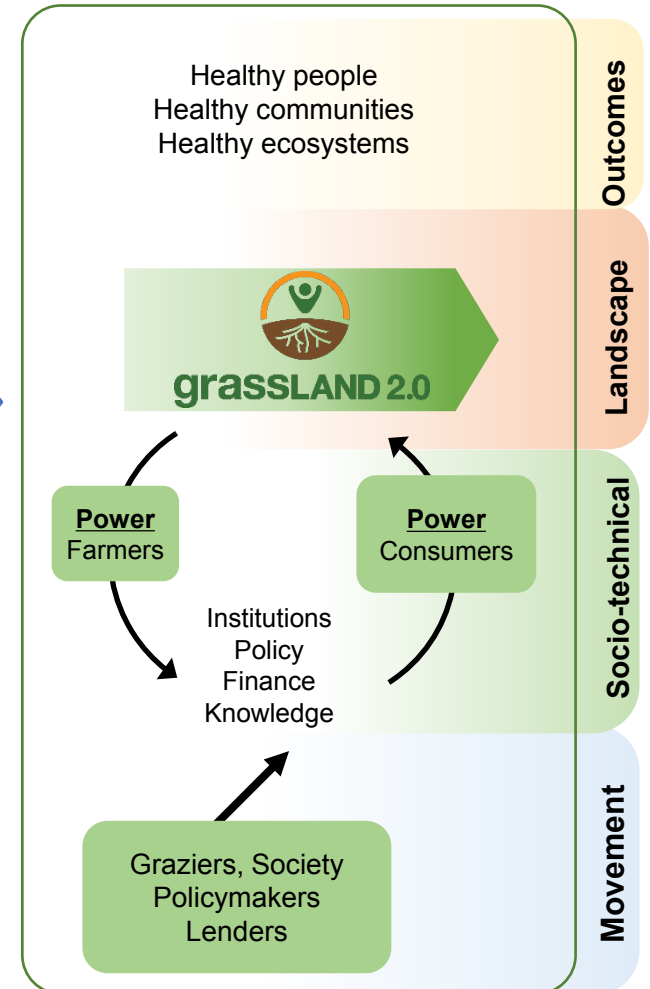
1. Farmer profitability
2. Environmental degradation
3. Community decline



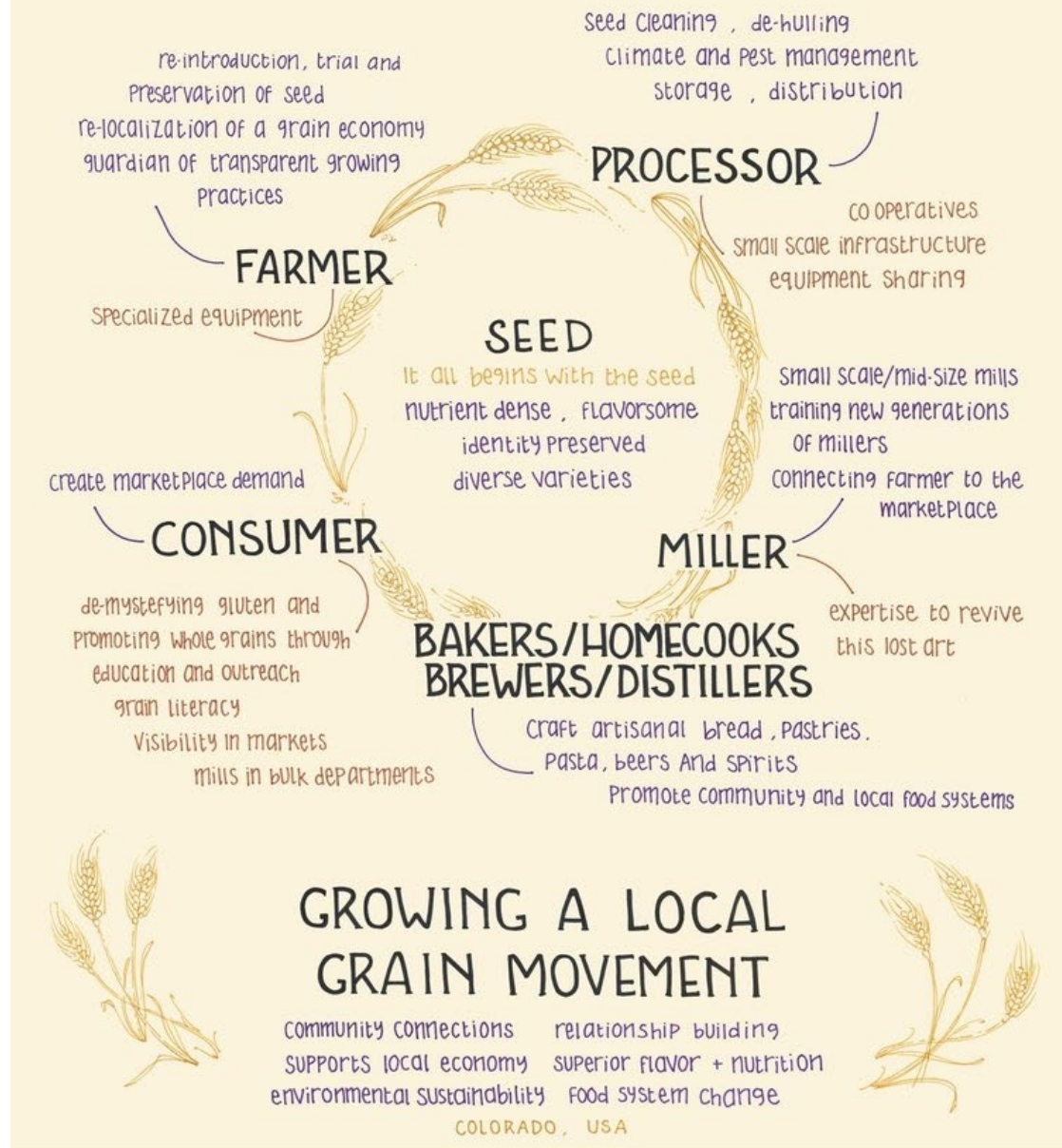
Current (annual) system



Future (perennial) system

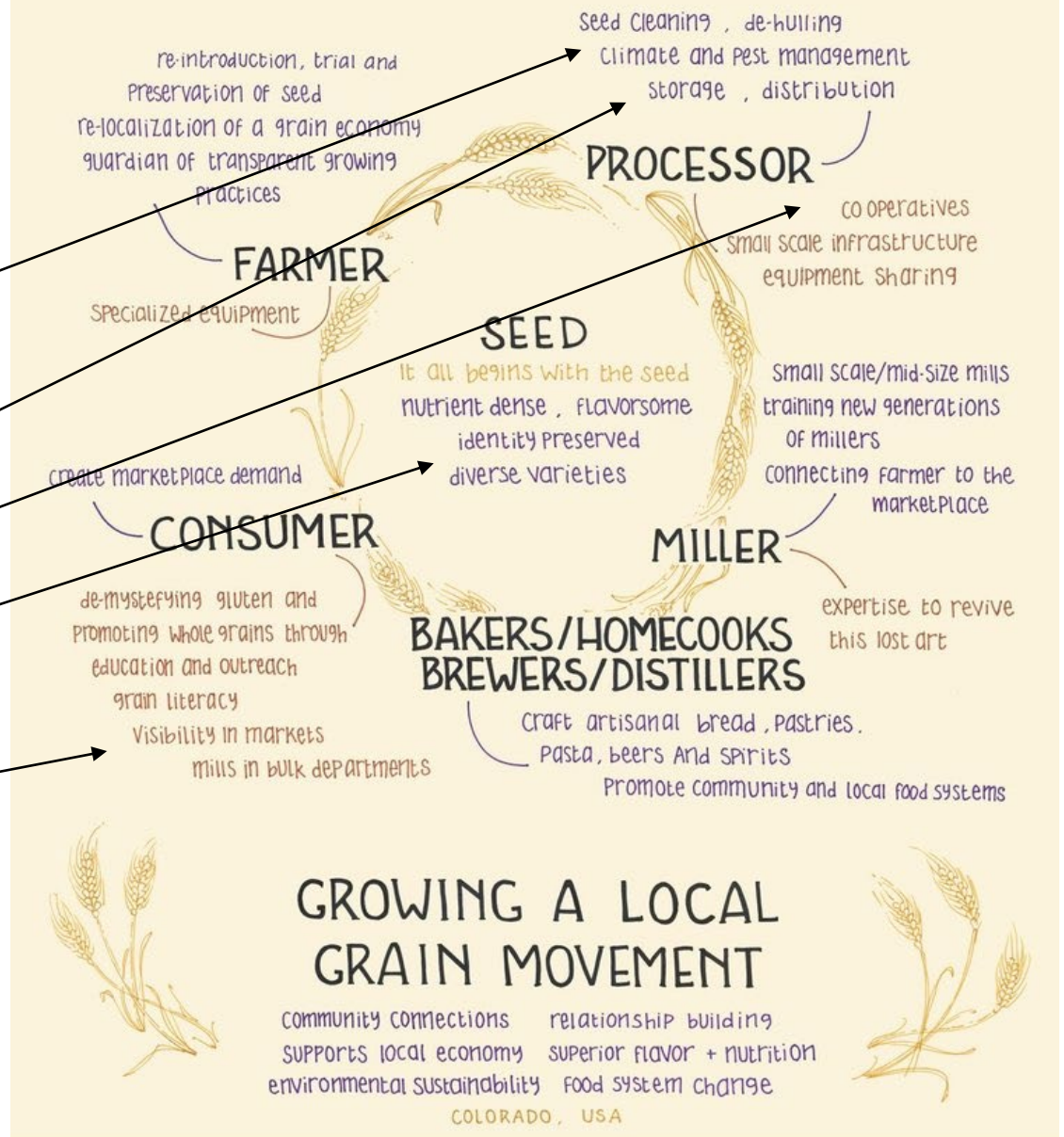


Regional Grain System Development



Opportunities for capital deployment

- Production loans and transition finance
- New cleaning technology companies
- Regional co-op development
- Milling infrastructure
- Public / private seed breeding
- Consumer purchasing
- Brand development



Additional information

- Croatan Institute & Rural Regenerative Organic Districts
 - Soil Wealth: Investing in Regenerative Agriculture across Asset Classes (soilwealth.org)
 - <https://www.croataninstitute.org/sustainable-rural-development-projects/project/regenerative-organic-agricultural-districts-roads>
- Agroforestry & Savanna Institute
 - <http://www.savannainstitute.org/>
 - <http://www.savannainstitute.org/hazelnut-report.html>
- Grassland 2.0
 - <https://grasslandag.org/>
- Regional Grain Systems
 - <http://graincollaborative.com/>
- Barriers For Farmers & Ranchers to Adopt Regenerative Ag Practices In The US
 - <https://forainitiative.org/barriers-for-farmers-ranchers/>



Maggie Monast



Maggie Monast is a Director on Environmental Defense Fund's Working Lands team. Maggie works with farmers, financial institutions, agricultural organizations and others to create an agricultural system that drives climate stability, clean water, and food security. Monast works to quantify the farm financial impacts of conservation practice adoption, collaborates with major financial institutions and food companies to develop financial solutions that support farmer adoption of conservation, and identifies policy solutions to advance resilient agriculture. You can read more here: <https://edf.org/farm-finance>. Maggie began working with EDF in 2011. She holds a Master's Degree in Environmental Management with a focus on economics from Duke University and a Bachelors in Economics and Political Science from Tufts University. Maggie previously interned with the U.S. Senate Committee on Agriculture, Nutrition, and Forestry. She also currently serves on the North Carolina Environmental Management Commission.





Financing Resilient Agriculture

**How agricultural lenders can reduce climate risk
and help farmers build resilience**



Contributors



Dick Wittman



ECONOMIC +
ENVIRONMENTAL
RISK **COALITION**



K • C O E
I S O M

**LONG ROWS
CONSULTING
Scott Marlow**

Climate Impacts on Agriculture

- Precipitation and temperature variability
- Storms and fires
- Weeds, disease and pests





“Concerns about climate change are now a permanent part of the operating environment for rural America; they are here to stay regardless of which political party happens to be in power at state or federal levels.”

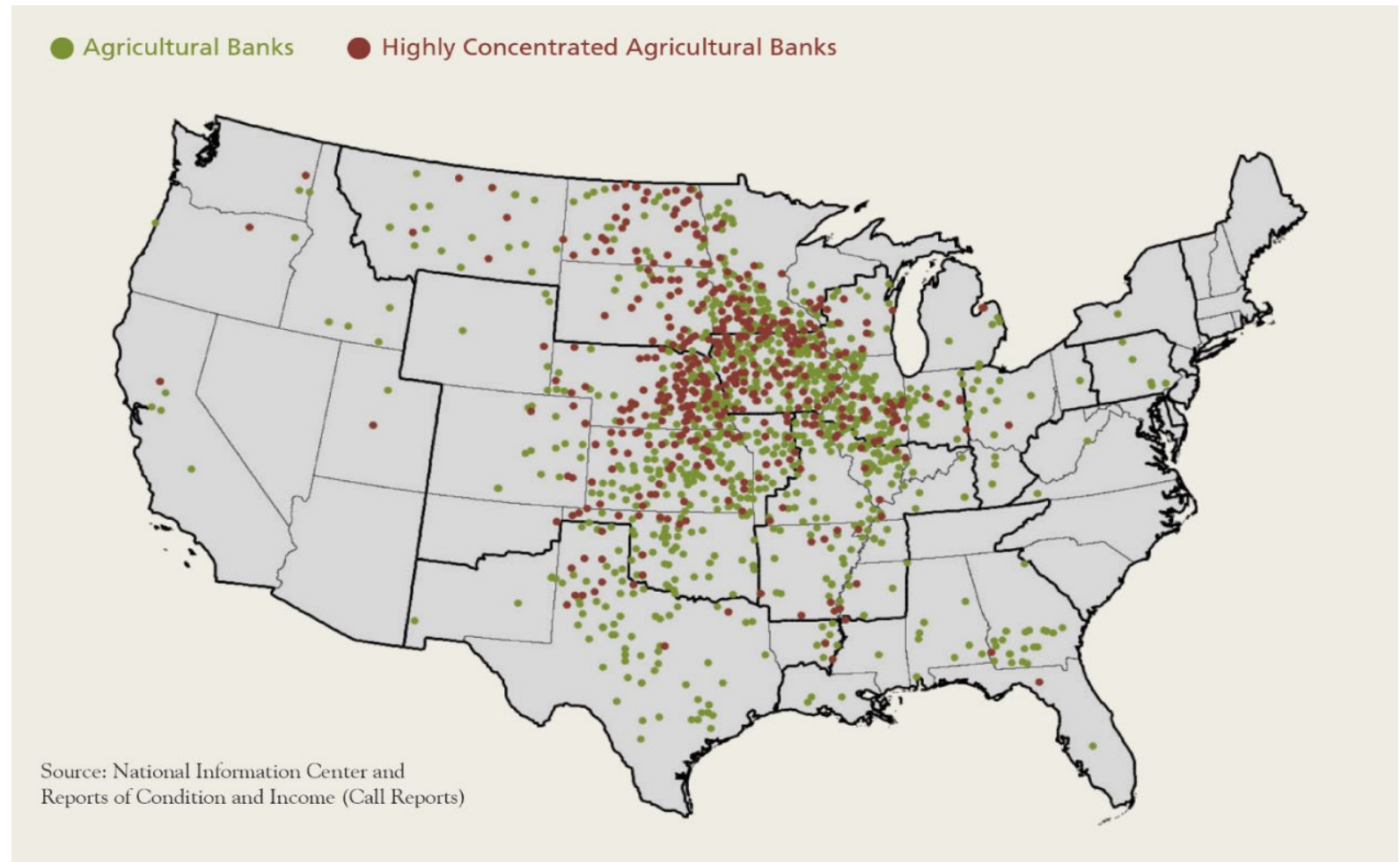
**– Tom Halverson,
President and CEO of CoBank**

The 2019 Floods: Risks to Lenders

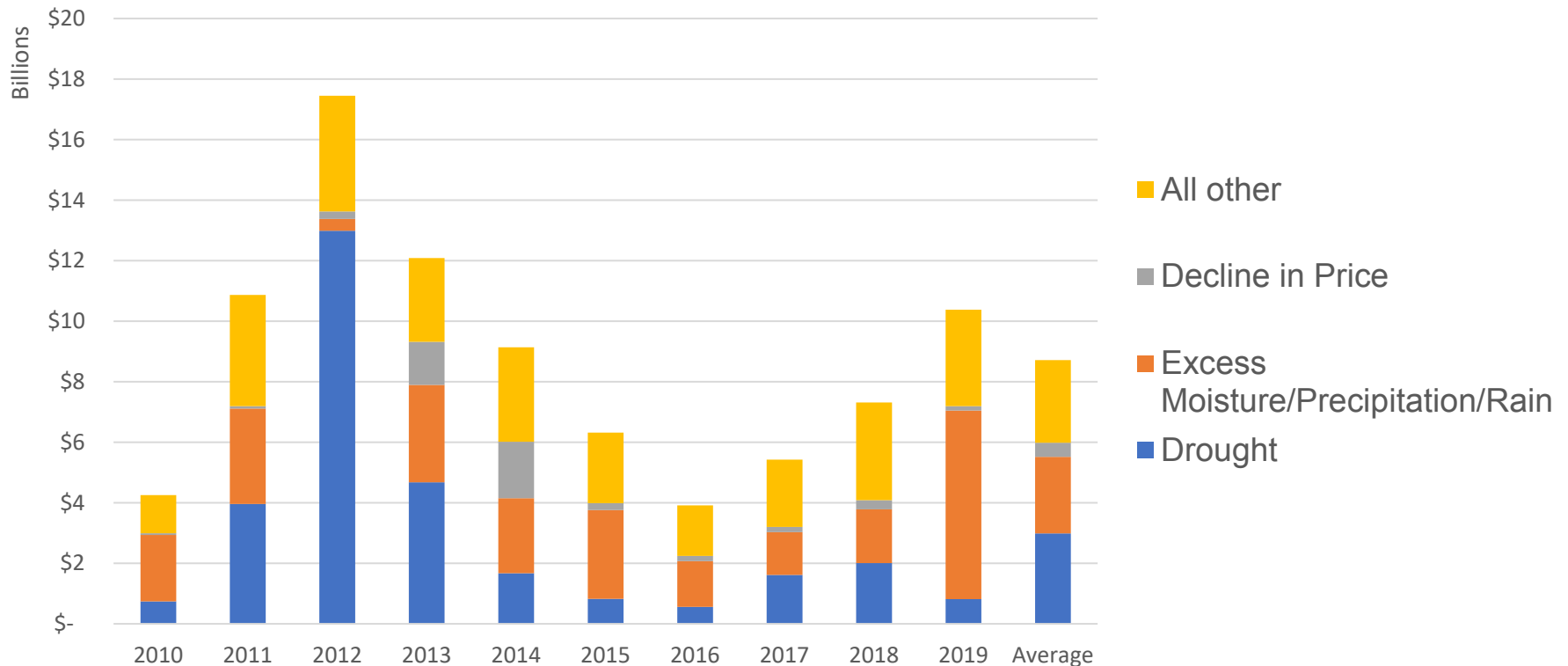
- Midwest banks reported 70% of borrowers were at least moderately affected.
- The region's agricultural loan portfolio reported its highest rate of "major" and "severe" repayment problems in 20 years.



50% of agricultural loans are held by banks with at least 25% of their portfolio concentrated in agriculture



Federal Crop Insurance Indemnity Claims by Type (\$)



Climate change could cause crop insurance costs in the second half of the century to increase between 3% and 37% depending on emissions and adaptation.

Climate-Resilient Agriculture

- Build soil health through practices like cover crops and no-till
- Manage water and inputs effectively
- Diversify crop rotations and integrate livestock



The Financial Case for Resilience

- Reduce production costs
- Increase yield stability
- Diversify revenue

Barriers: short-term transition costs, risk, learning and time



Recommendations:

1. Assess climate risk at the lending institution level
2. Understand the role of resilient agriculture in managing climate risk
3. Design lending programs or products that support farmers in building climate resilience





To download: <https://edf.org/aglending>

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Question and Answer Session

We will draw initial questions and comments from those submitted via the chat box during the presentations.

Today's Speakers

Caroline Wade – cwade@ecosystems-services-market.org

David LeZaks – lezaks@croatianinstitute.org

Maggie Monast – mmonast@edf.edu





NORTH CENTRAL REGION
WATER NETWORK

Thank you for participating in today's *The Current*!

Visit our website, northcentralwater.org, to access the recording and our webinar archive!

Upcoming Webinar to note from our climate team:

Drought Decision Calendars for Specialty Crops

Monday, December 14, 2020 at 1pm CT

Register at northcentralclimate.org/webinars

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