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Sustainable Agricultural Research

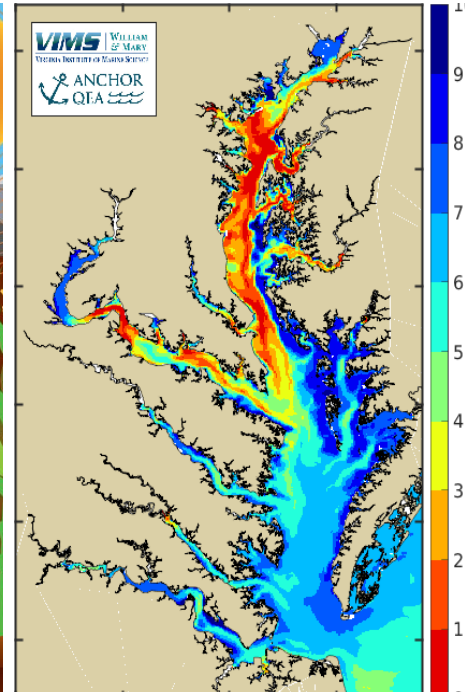
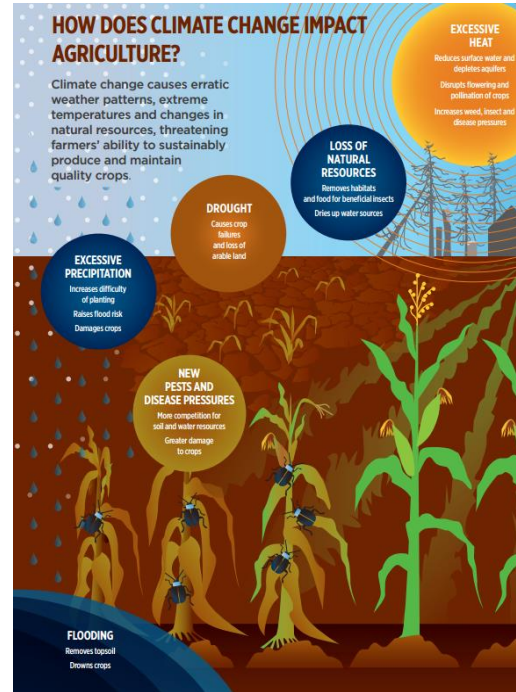
Climate-Smart Research for the Farms of the Future
Briefing Series: Farm Bill in Focus
September 12, 2023

Lawson Connor

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Farming Impacts and Agricultural Sustainability

- External Concerns
 - Nitrate pollution
 - Eutrophication
 - Dead-zones in downstream waterways
- Internal Concerns
 - Soil erosion
 - Nutrient leeching
 - Increased yield sensitivity to extreme weather events
- Further exacerbated by climate change
 - Droughts, extreme heat, excess wet conditions occur more frequently
- Interactions with Farm Bill Programs
 - Crop insurance effects:
 - Cover crop adoption incentives
 - Higher drought sensitivity

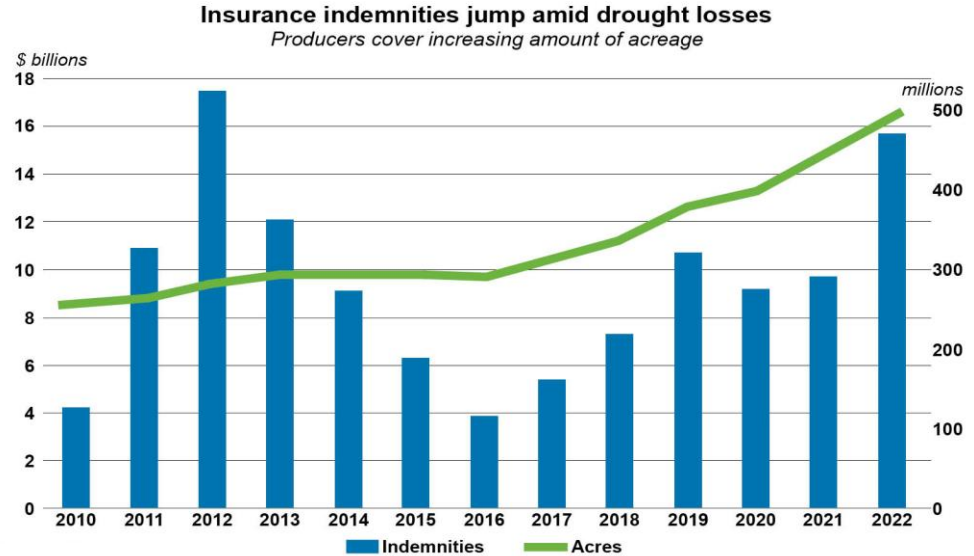


Figures: Impact of climate change on agriculture (left) and Hypoxic zones in Chesapeake bay (right). **Sources:** Crop Life International. VIMS dead-zone report



Potential for Increased Cost of Administering Farm Programs

- Increasing indemnity outlays particularly due to dry weather
 - Greater Acreage enrollment in crop insurance
 - Increased drought vulnerability

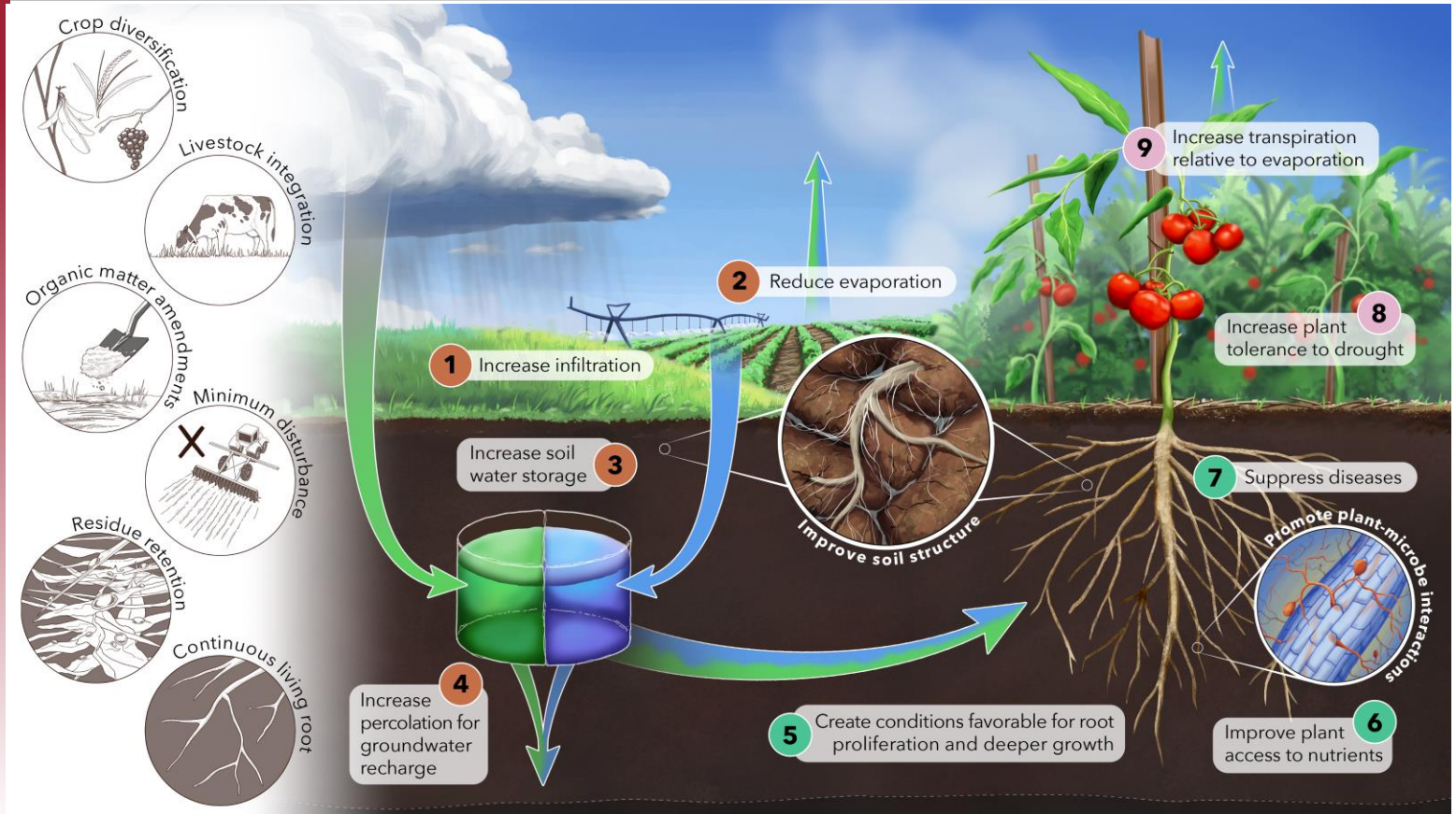


Adapted from Agri Pulse, January 25th, 2023.

Data Source: USDA RMA Summary of Business

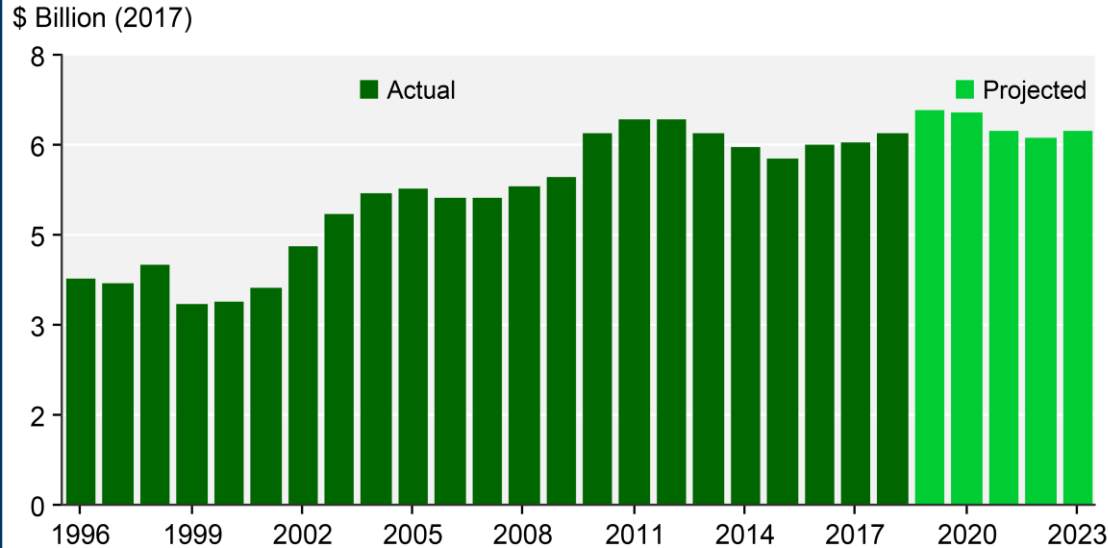


Diversified Cropping Systems





Inflation-adjusted annual spending for major USDA conservation programs, 1996-2018, with projections to 2023 1/



1/ Includes these programs and predecessors: Conservation Reserve Program, Agricultural Conservation Easement Program, Environmental Quality Incentives Program, Conservation Stewardship Program, Regional Conservation Partnership Program, and Conservation Technical Assistance (CTA). CTA is funded annually through appropriations; here it is assumed constant at \$769 million (nominal). Spending is adjusted to constant (2017) dollars, with assumed annual inflation of 2 percent for 2019-23.

Source: USDA, Economic Research Service analysis of Office of Budget and Policy Analysis (OBPA) data on actual funding for 1996-2018, OBPA estimates for 2019, and Congressional Budget office projections for 2020-23.

Federal Funding For Conservation

- Federal funding for conservation has increased
- The largest chunk of the funding has gone to promote adoption and maintenance of cover cropped acres.

Research Has Three Main Focuses

- Our research has focused on addressing internal concerns in row crop agriculture
- Addresses concerns regarding costs of program administration
- Understanding and mitigating unintended effects



Intended and Unintended effects of farm bill programs on practices adoption



Effects of practice adoption on farm economics: Drivers of heterogeneous effects



Alternative strategies for incentivizing practice adoption

Selected Outcomes



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SUBMITTED ARTICLE



Payments from agricultural conservation programs and cover crop adoption

Byungyul Park¹ | Roderick M. Rejesus² | Serkan Aglasan³ |
Yuyuan Che² | Stephen C. Hagen⁴ | William Salas⁴

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Crop Insurance Participation Rates and Asymmetric Effects on U.S. Corn and Soybean Yield Risk

Lawson Connor and Ani L. Katchova

SUBMITTED ARTICLE



Crop insurance participation and cover crop use: Evidence from Indiana county-level data

Understanding the effect of cover crop use on prevented planting losses

Sunjae Won¹ | Roderick M. Rejesus² | Barry K. Goodwin² |
Serkan Aglasan^{3,4}

AFRI and FFAR Funding

Arkansas Democrat  Gazette

Health of soil, risks studied

by Ryan McGeeney Special to The Commercial | August 11, 2023 at 2:42 a.m.



Row-crop farmers plant potatoes in the soil in this Sept. 7, 2022 file photo. In the inset, Lawson Connor, an agriculture economist for the University of Arkansas System Division of Agriculture, is the primary investigator for Arkansas' involvement in research examining soil health practices. (Main, AP/Hussein Malla; inset, courtesy photo)

LAND CORE

A 501c3 organization advancing soil health policies & programs that create value for farmers, businesses & communities.

- Key Objectives
 - Develop open access Cover crop dataset
 - Understand heterogeneous economic effects of Rotational complexity and cover crop adoption
 - Develop tool that can inform lenders of risk profiles of practice adopting fields and farms



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Thanks

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