HYPOXIA TASK FORCE MEETING

Dr. Shefali Mehta

Deputy Under Secretary for Research, Education, and Economics and Acting Chief Scientist

AGENDA

1. Research, Economics & Education (REE) organization
2. Current Agency Priorities
3. Research, Economics & Education Efforts on Nutrient Reduction

Research, Education, and Economics (REE) Mission Area

REE is dedicated to creating a safe, sustainable, competitive and equitable U.S. food and fiber system. We support American farmers, ranchers, and foresters and help build stronger communities, families, and youth through sound integrated research, analysis, and education.

Agricultural Research Service	Economic Research Service	National Agricultural Statistics Service	National Institute of Food and Agriculture	Office of the Chief Scientist
Chavonda Jacobs-Young, Administrator	Spiro Stefanou, Administrator	Hubert Hamer, Administrator	Carrie Castille, Director	Dionne Toombs, Director

RESEARCH, EDUCATION, AND ECONOMICS USDA

USDA IS BUILDING U.S. AGRICULTURE BACK BETTER

Containing COVID-19 pandemic & safeguarding USDA workforce

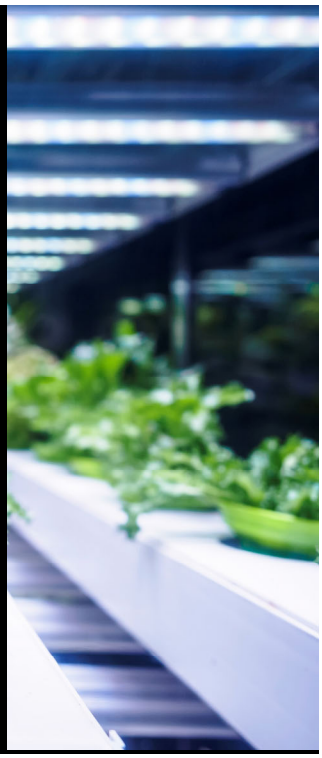
Ensuring racial justice and equity

Rebuilding the rural economy

Addressing mounting hunger and nutrition insecurity crisis

Tackling the impacts of climate change

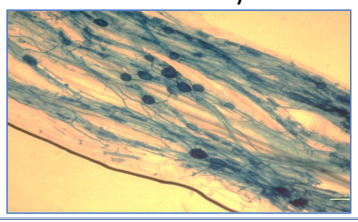
Agricultural Research Service



Overview of the Agricultural Research Service &
NP211 Water Availability and Watershed Management 2021-2025 Action Plan

- ARS is the in-house research arm of USDA
- Finding solutions to agricultural problems from Field-to-table
- 15 National programs
- ~690 research projects
- Partnerships with universities and industry

- 2,000 scientists and post docs
- 6,000 other employees
- 90+ research locations, including overseas laboratories
- ~$1.4 billion fiscal year budget



NP211:Water Availability & Watershed Management

Current Program Status

- 2016-2020 Action Plan
- 36 ARS-led projects; 299 Cooperative research projects
- $62 million;
- 126 Full-time SY's; and
- 27 locations

AGRICULTURAL RESEARCH SERVICE

- **Research on Discharge & Nutrient Concentration Data from Maumee & Sandusky Rivers**

  To identify the dominant processes influencing past phosphorus loading patterns and inform predictions of future watershed response, ARS examined discharge and nutrient concentration data from two Lake Erie tributaries that have experienced substantial shifts in phosphorus concentration and loading over the past 40 years.

- **MAPHEX System**

  A truck-mounted mobile system capable of removing up to 95 percent of the phosphorus from raw dairy manure while leaving greater than 90 percent of the nitrogen behind in the fluid to be used for fertilization.

- **Nitration Separation in Contaminated Water**

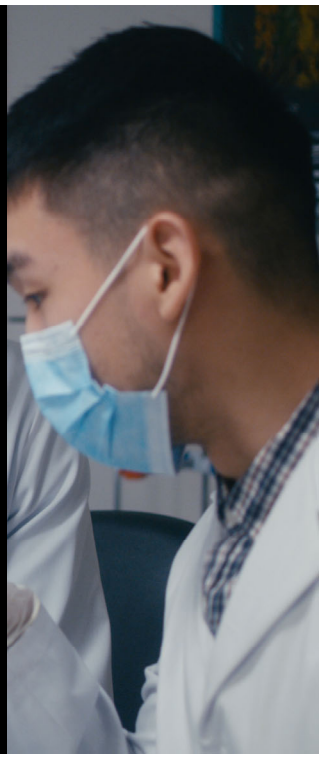
  System can separate nitrate from contaminated water and concentrate it for reuse as fertilizer. Capable of removing ~42% of nitrate from water passing through it, concentrating it into a tank for subsequent use elsewhere as fertilizer.

- **Long-Term Agro-Ecosystem Research Network & Conservation Effects Assessment Projects**

  Ongoing research on nutrient management and best management practices including manure management from animal feeding operations and water use and conservation on irrigated croplands.

RESEARCH, EDUCATION, AND ECONOMICS USDA

National Institute of Food and Agriculture



NATIONAL INSTITUTE OF FOOD & AGRICULTURE

- **NIFA-Funded Land-Grant University Committees**
  - **Southern Extension & Research Activities (SERA) Committee 46 –** works to identify shared priorities for collaboration to strengthen networks, conservation systems research and outreach, and monitoring and tracking progress to achieve the goal of reducing the hypoxic zone.
  - **Additional Working Groups:** SERA-17, SERA-43, NC 1195, NC 1190, & NCERA 217
- **Multi-State Science Projects**
  - **Iowa State** field studies to evaluate the performance of nitrogen application timing and use of winter rye cereal crops on drainage water quality and crop production.
  - **University of Minnesota** research on targeted practices for poorly drained agricultural soils.
  - **Universities of Illinois & Arkansas's** recently completed projects on nutrient loss.
- **NIFA's Competitive Grants & Capacity Grants**

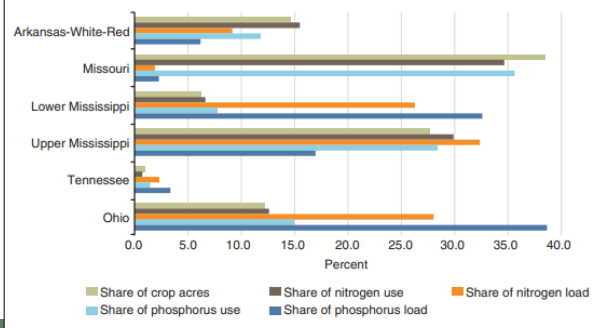
Economic Research Service

ECONOMIC RESEARCH SERVICE

Reducing Nutrient Losses From Cropland in the Mississippi/Atchafalaya River Basin: Cost Efficiency & Regional Distribution

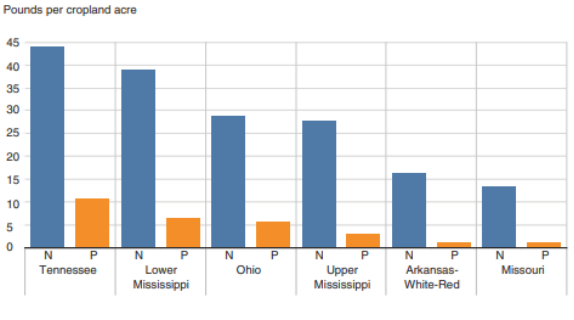
Provides insights into how policies for addressing Gulf hypoxia & nutrient related water quality issues in the Mississippi/Atchafalaya River Basin could be more cost-effective.

Figure 3.1
Baseline acreage, nutrient use, and nutrient loadings by sub-basin*



*REAP's baseline is designed to approximate production patterns in the year 2007.
Source: USDA, Economic Research Service, Regional Environment and Agriculture Programming (REAP) model.

Figure 3.3
Average baseline nutrient loss per acre of cropland, by sub-basin



Notes: N = nitrogen; P = phosphorus.
Source: USDA, Economic Research Service calculations with the REAP-CEAP (Regional Environment and Agriculture Programming-Conservation Effects Assessment Project) framework.

National Agricultural Statistics Service

NATIONAL AGRICULTURAL STATISTICS SERVICE

- **Agricultural Chemical Use Program –** USDA's official source of statistics about on-farm chemical use and pest management practices.
- **Preparing for the 2022 Census of Agriculture –** Taken once every five years, the Census of Agriculture looks at land use and ownership, operator characteristics, production practices, income and expenditures.

RESEARCH, EDUCATION, AND ECONOMICS USDA

Thank you!

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