



Caring for You and Your Farm®

**Winter Landowner Seminar
2025**

Beyond the Headlines



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Agenda

- **Grains Used for Fuel**
- **Alternative Energy**
- **Land Ownership (Foreign and Factory Farms)**
- **Water Efficiency and Irrigation**
- **Environmental Impacts of Drainage Tile**
- **Questions?**





Grain Used for Fuel

Biofuel on the road to energy, cost savings

Recent advances and viability in biofuel production

Environmental, economic, and energetic costs and benefits of biodiesel and ethanol biofuels

How Corn Ethanol for Biofuel Fed Climate Change

Growing Crops for Biofuels Has Spillover Effects

Biofuel policies and the current food crisis

Food vs. Fuel: Diversion of Crops Could Cause More Hunger

Sustainable Aviation Fuel: Safe, Reliable, Low Carbon

Food Versus Fuel Debate



What's Driving This?

- We've seen a surge in the U.S. ethanol & biofuels markets over the past several decades
 - Goals/Initiatives to reduce Greenhouse Gas Emissions
 - Low Carbon Initiatives, Emissions Goals, Net-Zero Pledges
 - Politics and Policies
 - Clean Air Act (1970), Renewable Fuel Standards (2005), Biofuel Act (2006), Low Carbon/Clean Fuel Standards
 - Tax credits and subsidies such as 40B and 45Z
 - Additional demand stream for corn and soybean supply is needed
 - Utilize more of the US corn and soybean production
 - Biofuels for export



Inflation Reduction Act

- 40B Tax Credit for SAF (expired at the end of 2024)
 - Focused on Climate Smart practices:
 - Cover Crop
 - No-till (includes strip till)
 - Enhanced Efficiency Fertilizer (Nitrogen stabilizers)
- 45Z Tax Credit provides incentive for biofuel producers to lower their CI score
 - Goes into effect on Jan 1, 2025
 - Partial guidance was just released in January 2025
- What will happen with a new administration? Will incentives continue?



Emission Reductions

- Corn Ethanol is currently 40-50% less emissions-intensive than gasoline
- Renewable Diesel reduces GHG emissions by up to 85% compared to regular diesel
- Sustainable Aviation Fuel can reduce aviation emissions by over 75%
- Green Methanol reduces CO₂ emissions by up to 95% and N₂O by up to 80%



Sources: Harvard, Department of Energy, USDA

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How much grain is used for fuel?

- Approximately 35-40% of U.S. corn goes to ethanol production
- Just over 20-25% of U.S. soybeans are crushed for biofuel production
- Biofuels provide co-products used for livestock feed
 - Dried Distillers Grains (DDGs)
 - Soybean Meal



A Threat to Food Security?

- We continue to increase yields despite losing land to development, wind, solar, etc.
- Additional demand is needed to offset supply
- Impact to food supply in the US is minimal, but will reduced exports hurt other world areas?
- Competition for productive land area
- Pressure on sources and prices for products like vegetable oils





Alternative Energy Headlines

Forestry experts question DNR's plan to cut 400+ acres of state forest near Gaylord for solar

Expansion of Large-Scale Solar Power Generation on Farmland Is Underway

Concerns about Wind Energy's Impact on Communities

Insight: As solar capacity grows, some of America's most productive farmland is at risk

How Amazon is supporting farmers through solar and wind farm investments



Agricultural Concerns about Solar Energy



Reduction in acres creating a higher demand to raise yields on less acres

Erosion and environmental impacts from construction and during operation

Local ecosystem and wildlife habitat disruption

Panels need to be cleaned to optimize performance - water requirements



Agricultural Concerns about Wind Energy



Reduction of Productive land

Erosion and Environmental Impacts

Local ecosystem and wildlife habitat disruption

Shadow Flicker – Strobing Effect

Farming efficiency affect – Aerial Applications

What happens when towers are decommissioned or repowered?



Benefits of Alternative Energy



Reduced dependency on fossil fuels



Financially beneficial to landowners



Up to 95% of a wind turbine can be recycled



Job creation





Foreign Land Ownership Headlines

How Much U.S. Farmland
Does China Really Own?

Data Dive: Records Show Steep Rise In
Foreign Ownership Of Hawai'i Farmland

**Most foreign-owned ag land remains in
friendly hands**

**Foreign Investment in U.S. Agricultural Land Is Raising National
Security Concerns**

Protecting Our Nation's Farmland from Foreign Adversaries

**LEGISLATURE VOTES TO ADDRESS FOREIGN
LAND OWNERSHIP**



What Foreign Country Owns the Most U.S. Farmland?

- A) Mexico
- B) China
- C) Netherlands
- D) Canada



Headline: China is Buying a Large Percentage of U.S. Farmland

- Why people believe this to be true:
 - Reports in the media of Chinese purchases of land
 - Political positioning to restrict foreign land ownership
- Other common claims:
 - Concerns that China is attempting to control the U.S. food supply or own land for hostile reasons
 - Foreign countries own a significant amount of productive U.S. farmland
 - The amount of foreign investment in U.S. farmland has risen significantly in recent years



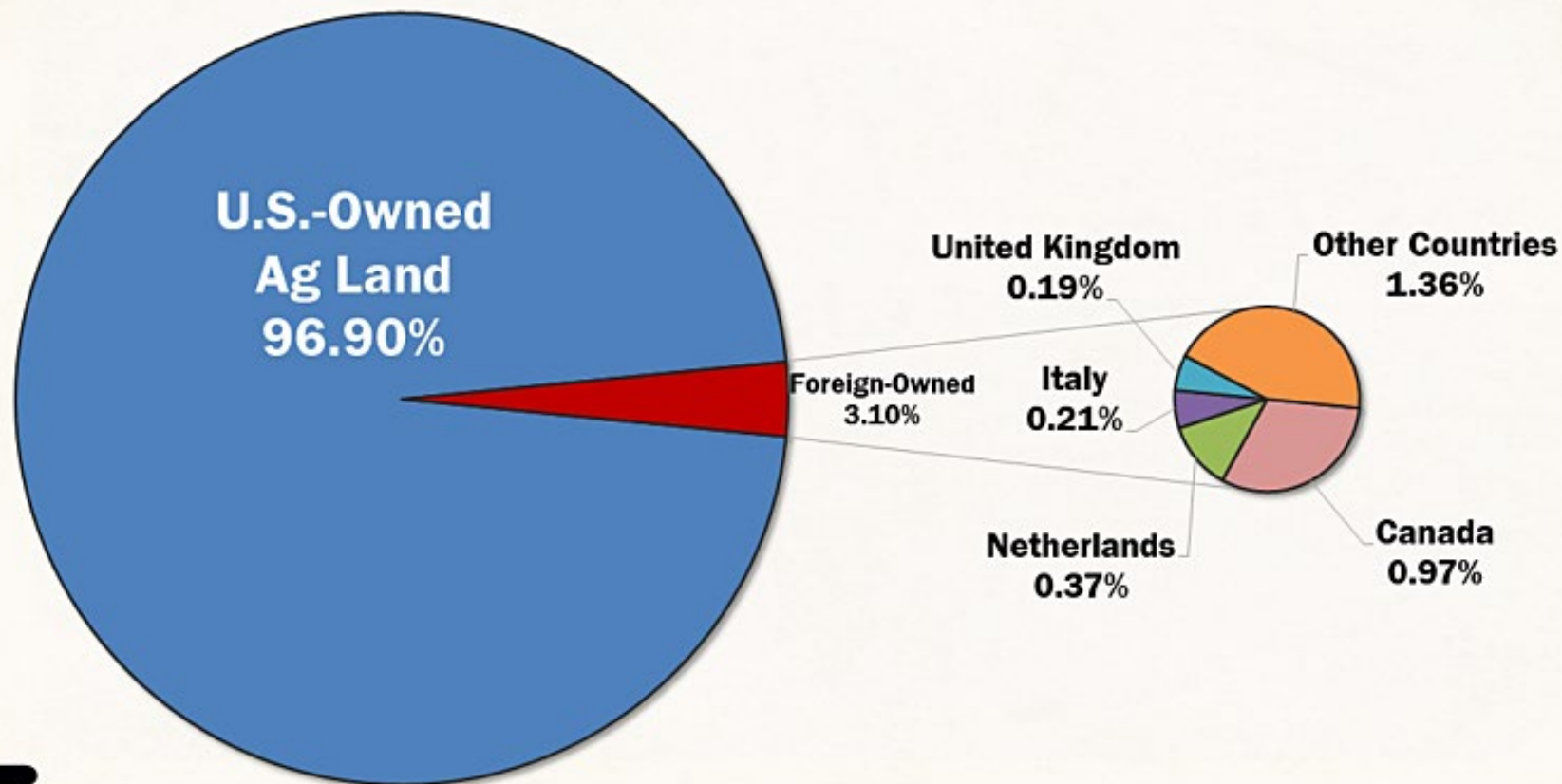
Beyond the Headlines

- Only 3.1% of all U.S. ag land is foreign-owned
 - 40.83 million acres out of 1.3 billion total acres
 - Of that, China owns 0.03%
- The majority of foreign-owned ag land is forestland (48%)
- Most foreign-owned ag land is outside of the Midwest
 - Top 3 States: Texas, Maine, and Colorado
- Foreign ag land ownership up by just 2.1% since 1981
 - Corresponds with overall increased interest in farmland as an investment



FIGURE 1: U.S. AGRICULTURAL LAND BY ORIGIN OF OWNER

3.1% of U.S. ag land is foreign owned as of 2021 (40.83 million acres)



AMERICAN FARM BUREAU FEDERATION*

Source: Farm Bureau Calculations, USDA FAS

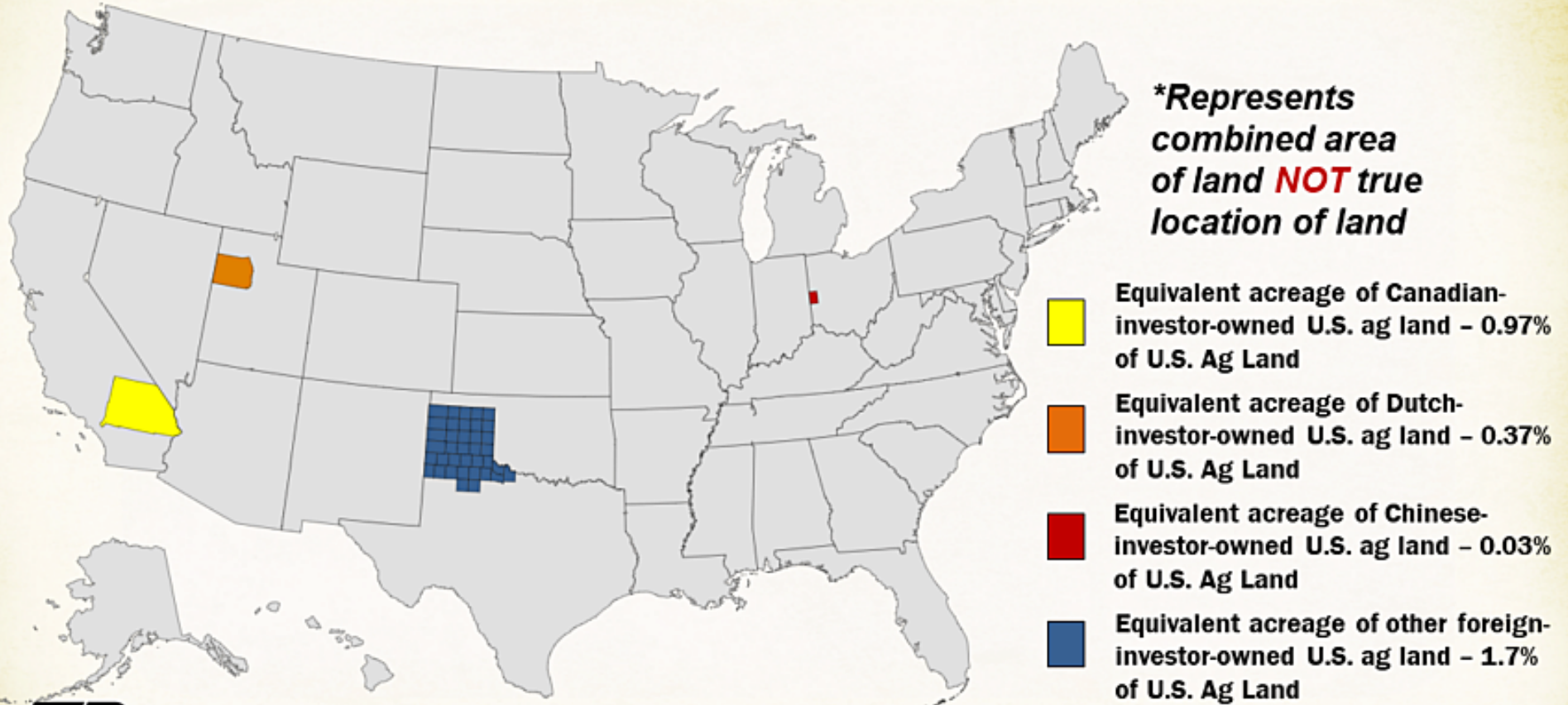


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FIGURE 7: VISUALIZING EQUIVALENTS OF FOREIGN-INVESTOR-HELD U.S. AG LAND

Shaded counties symbolize equivalent acreage of foreign owned U.S. ag land by nationality of foreign investor.



AMERICAN FARM BUREAU FEDERATION*

Source: Farm Bureau Calculations, USDA FAS

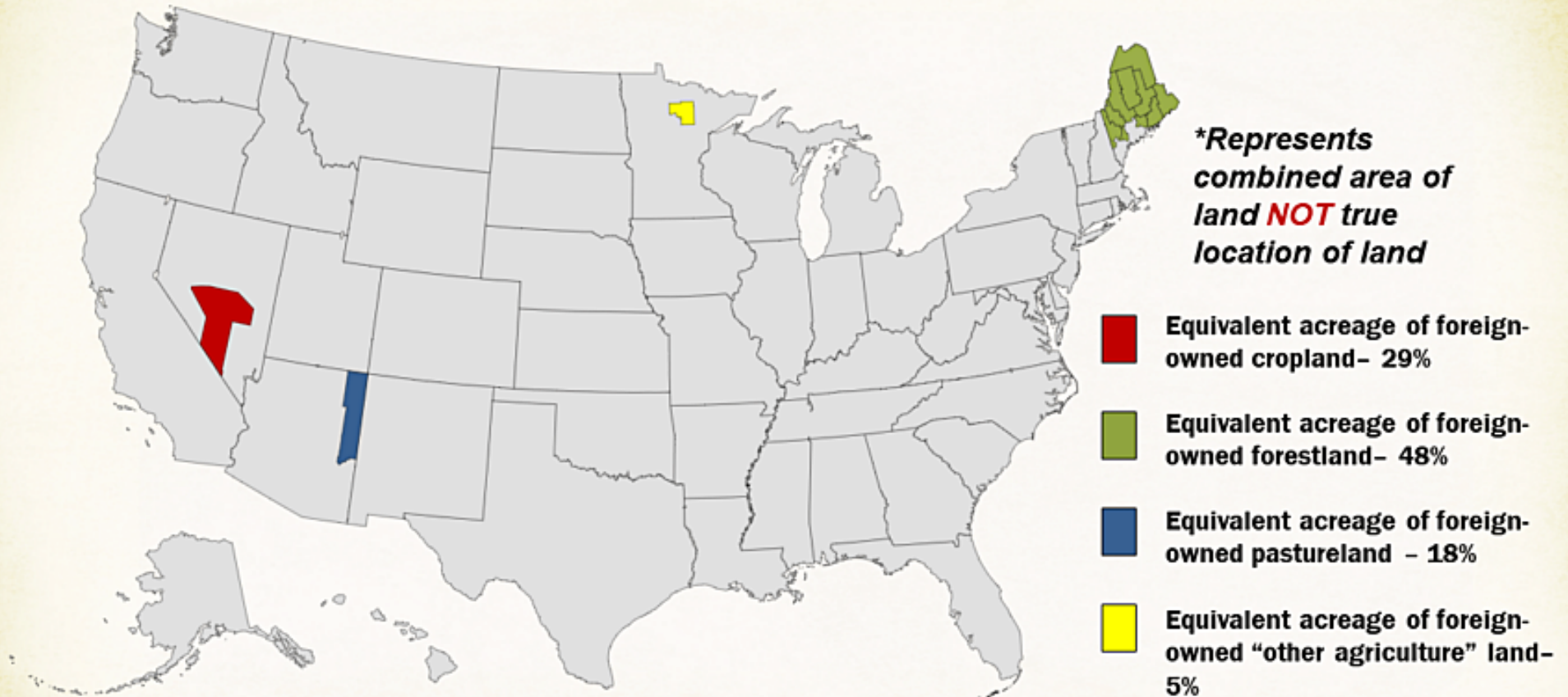


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FIGURE 5: VISUALIZING EQUIVALENTS OF FOREIGN-INVESTOR-HELD U.S. AG LAND

Shaded counties symbolize equivalent acreage of foreign owned U.S. ag land by agricultural land type



AMERICAN FARM BUREAU FEDERATION*

Source: Farm Bureau Calculations, USDA FAS



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Factory Farms and CAFO Headlines



US Factory Farm Animal Population Soars by 50 Percent in 20-Year Span

**Factory Farms Are Ruining
Rural America's Economy**

Most California factory farms, close to irrigation canals,
threaten U.S. food safety

99% of US farmed animals live on factory farms, study shows

**Is agriculture really full of
'factory farms'?**



Headlines: Corporate or "Factory Farms" are Taking Over Farm Ownership

- Why people believe this is true:
 - Farms are getting larger
 - CAFOs get labeled as factory farms
- Other common claims:
 - "Factory farms" are cruel to animals
 - Disregard to public health, environment and climate issues
 - Has broken our food system
 - Small operations don't have a chance to survive



How Many Farm Operations are Corporate or "Factory" Farms?

- A. 75% or more
- B. 50% or more
- C. 25% or more
- D. Less than 10%



Beyond the Headlines

- 96% of farms in the United States are Family Owned
 - 1,626,608 small family farms
 - 112,185 mid-size family farms
 - 84,029 large scale family farms
 - 66,977 Nonfamily farms
- 90% of farmland acres are still operated by family farms



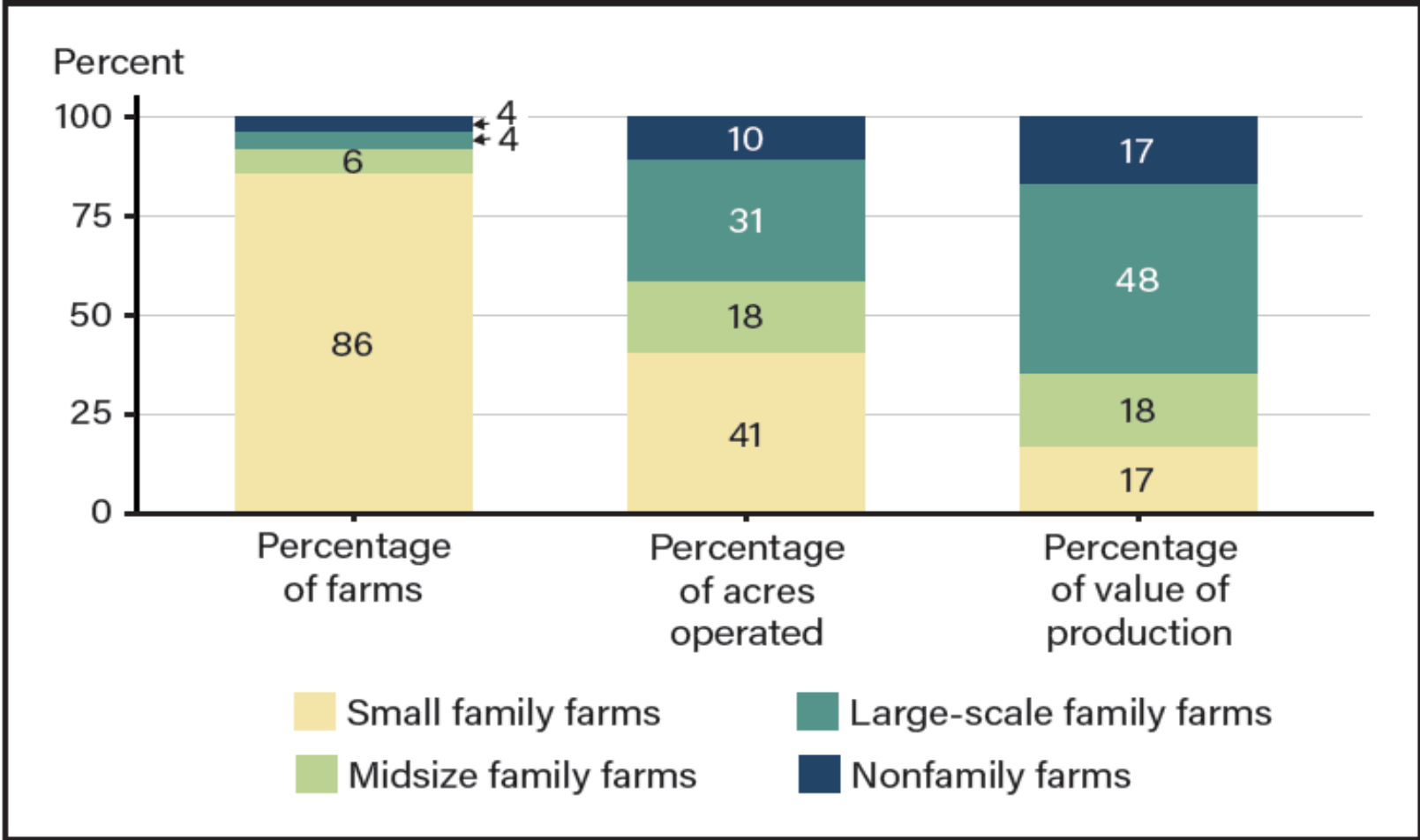
Source: USDA ERS December 2024 Publication

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Beyond the Headlines

Distribution of farms, acres operated, and value of production by farm type, 2023



Source: USDA ERS 2024

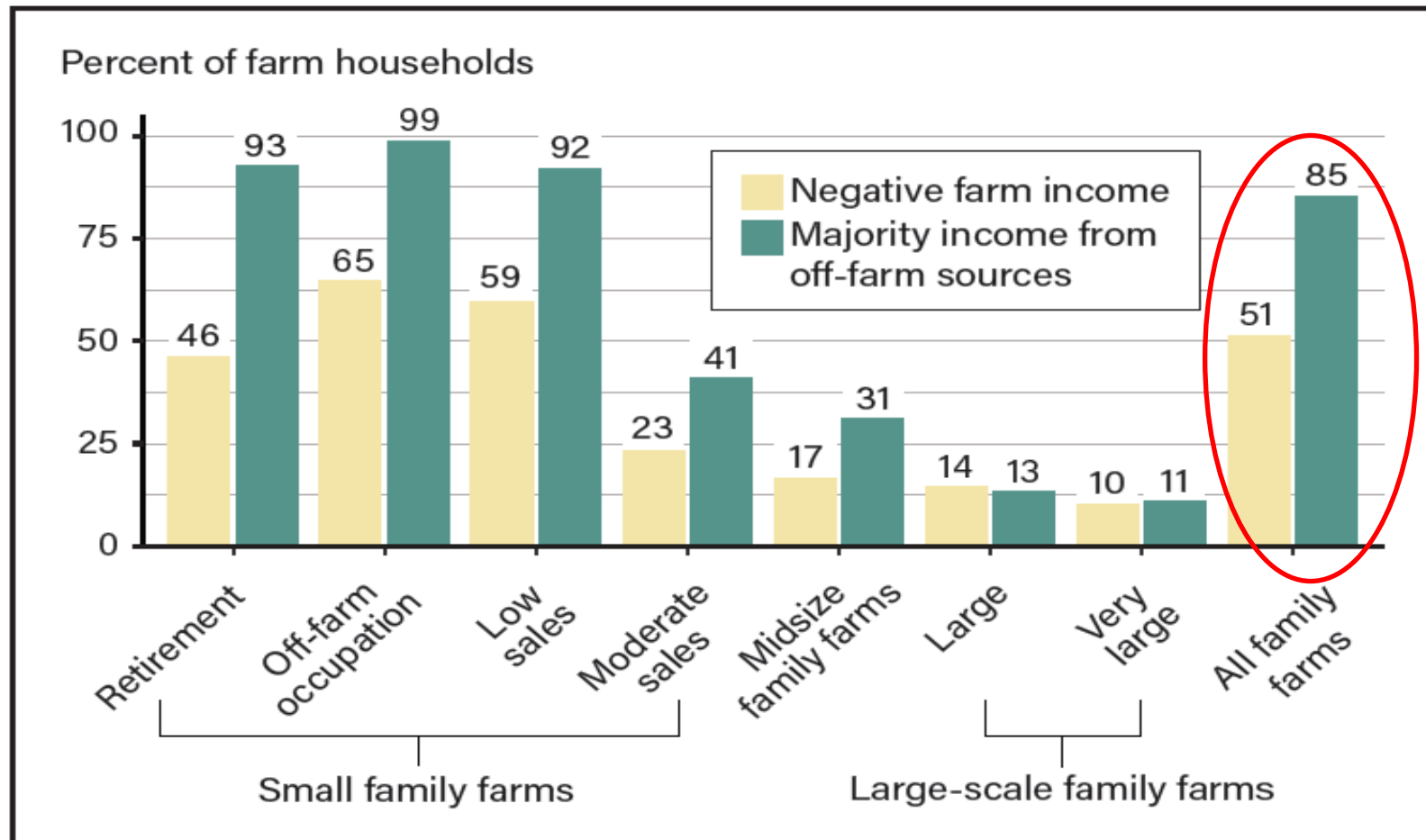
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“Why do taxpayers subsidize rich farmers?”

The Washington Post

Share of principal operator households with negative farm income and a majority of their income from off-farm sources by farm type, 2023



Source: USDA, Economic Research Service (ERS)

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Irrigation and Water Efficiency

Conservation Versus Efficiency in Agriculture

**SUSTAINABLE AGRICULTURE
WATER USE HINGES ON
IRRIGATION EFFICIENCY**

**Making Every Drop Count: Redefining
Water Efficiency in Agriculture**

Doing More with Less Water

The Irrigation Efficiency Paradox

Irrigation efficiency and water withdrawal in US agriculture

Irrigation & Water Use

Small changes can yield big savings in
agricultural water use

**Multi-disciplinary strategy to optimize irrigation
efficiency in irrigated agriculture**

**Water Conservation
in Agriculture**



Low Efficiency

Sprinkler Systems



Flood Irrigation



Slightly More Efficient



More Efficient



Inline Emitters



Soil Moisture Monitoring



Efficiency Gains

- Improving from flood irrigation (least efficient) to buried dripline (most efficient)
 - 70% less water needed with drip vs flood
- Technology continues to improve
 - Water used to irrigate corn is down 18% since 1998
- Drought tolerant crops are being bred to use water more efficiently
- Reclaiming excess water in holding ponds to reuse is becoming more common





Environmental Impacts of Drainage Tile

‘We should have a sense of urgency’ as farm drainage tile drives nutrient pollution

Impact of agricultural drainage

Tile-drained Farm Fields Generally Increase Yields but Can They Protect Water Quality Too?

Talking Tile: Drainage and the environment

How Does Tile Drainage Work? Crop Benefits and Environmental Impacts

Increase of drainage tile fuels nutrient pollution

Beneath the Surface

Make it drain: Is tile right for your fields?



Who remembers seeing this?



Comments Often Heard About Drainage Tile

- Moves water to rivers faster
- Pulls all the water out of the soil
- Dumps fertilizer in surface water
- Responsible for the dead zone in the Gulf



Facts About Tile

- Water moves through soil profile by gravity to tile.
- Only excess water moves into tile – Spring of 2024 is great example, it took a lot of rain soaking into the soil before the tile ran
- Opens pore space to air - improving root growth and plant health
- Opens space for next rain event - allowing more water to move under the ground rather than eroding the surface



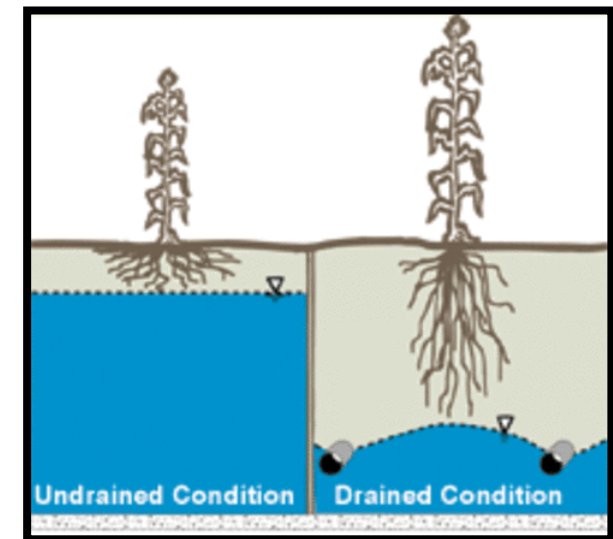
What About Nutrients?

- Some nutrients move through the soil with water
 - Nitrogen or Nitrates can leach into tile lines
 - Practices have changed over the years
 - Split applications & Stabilizers
- Some nutrients attach to soil particles
 - Examples are Phosphorous and Potassium
 - Erosion carries soil and nutrients into surface water
 - Waterways and filter strips help keep these nutrients where they belong
- The right amount, the right place, the right time



Advantages of Tile

- Reduced erosion
- Enhanced soil aeration and water infiltration
- Improved soil structure
- Higher, more consistent yields
- Less plant stress
- Improved planting and harvest conditions
- Increased land values



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The screenshot shows the Hertz Farm Management website. At the top is the Hertz logo and a navigation menu with links: ABOUT, FARM MANAGEMENT, REAL ESTATE, APPRAISAL, AG INFO, SEMINARS, and INVEST. Below the navigation is a section titled "Contact one of our offices" featuring a map of the central United States with yellow location pins. To the right of the map is a "How Can We Help?" section with text explaining the company's goal to help with farm ownership and a photo of a group of people. Below the map is a "Find a Farmland Professional" search bar and a list of 15 office locations, each with a phone number and "Hertz" and "Details" buttons. At the bottom right is a contact form with fields for First Name, Last Name, Phone, Email, and Message, along with a "Join Our Mailing List" checkbox and a "Submit" button.

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