



# Economic Impacts of Farmland Protection in Wisconsin

November 12, 2024



**American Farmland Trust**  
SAVING THE LAND THAT SUSTAINS US





# Welcome

- Housekeeping items
- Wisconsin's changing landscape
- Farmland protection: the why and how
- Farmland Protection Economic Impact Assessment
- Fund Our Farmland

# American Farmland Trust

SAVING THE LAND THAT SUSTAINS US



**PROTECT FARMLAND**



**PROMOTE SOUND FARMING PRACTICES**



**KEEP FARMERS ON THE LAND**

**No Farms  
No Food®**

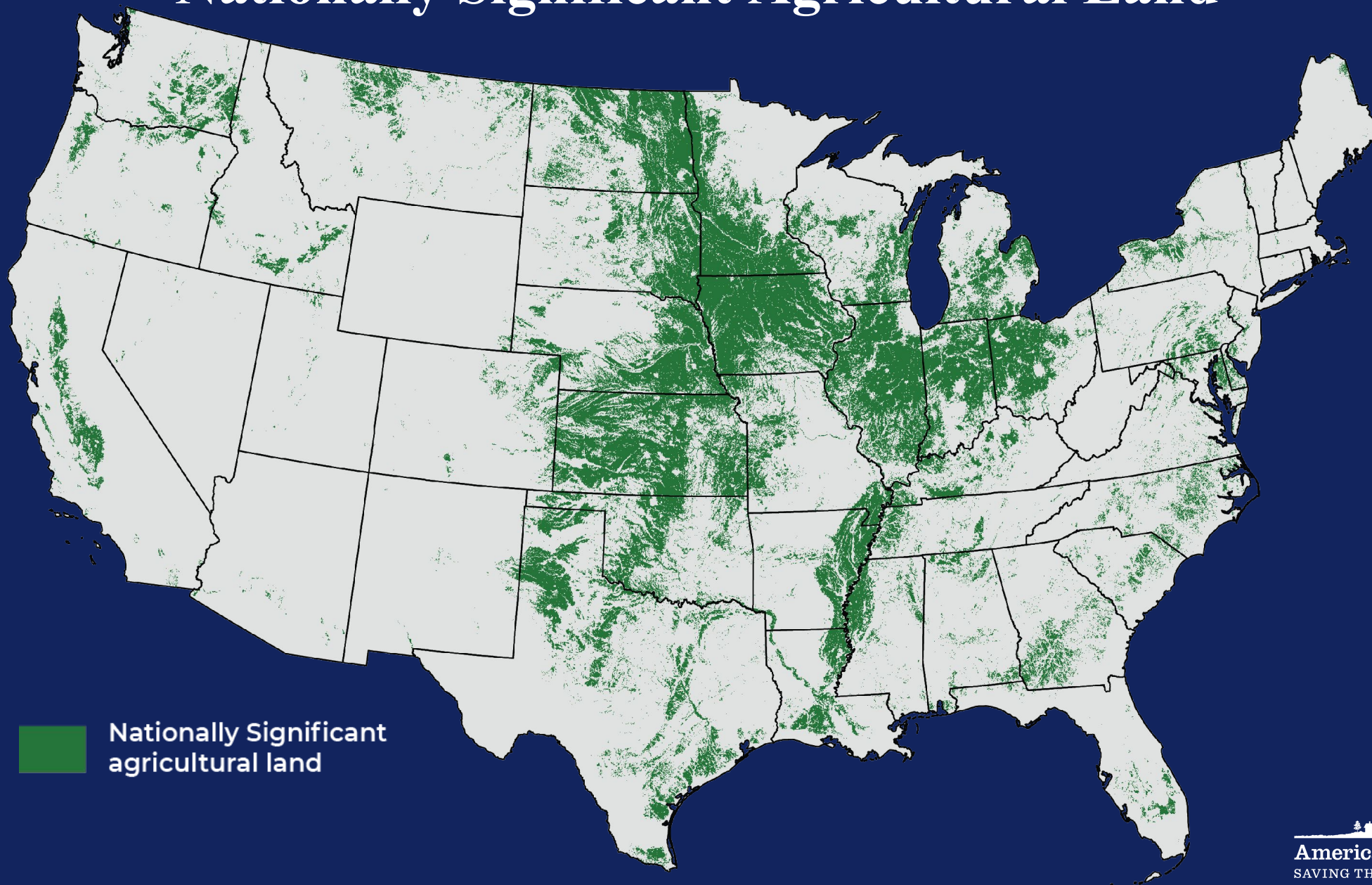
  
American Farmland Trust



# Development Threatens Each State's Best Agricultural Land

- From 2001–2016, the U.S. converted 11 million acres of agricultural land
  - Equal to all the land planted to fruits, nuts and vegetables in 2017
  - 2000 acres/day
- Low-density residential land use is a major threat
  - 4 million acres were converted to urban and highly developed land use
  - Nearly 7 million acres were converted to low-density residential land use
- 4.4 million acres of the total conversion occurred on Nationally Significant agricultural land

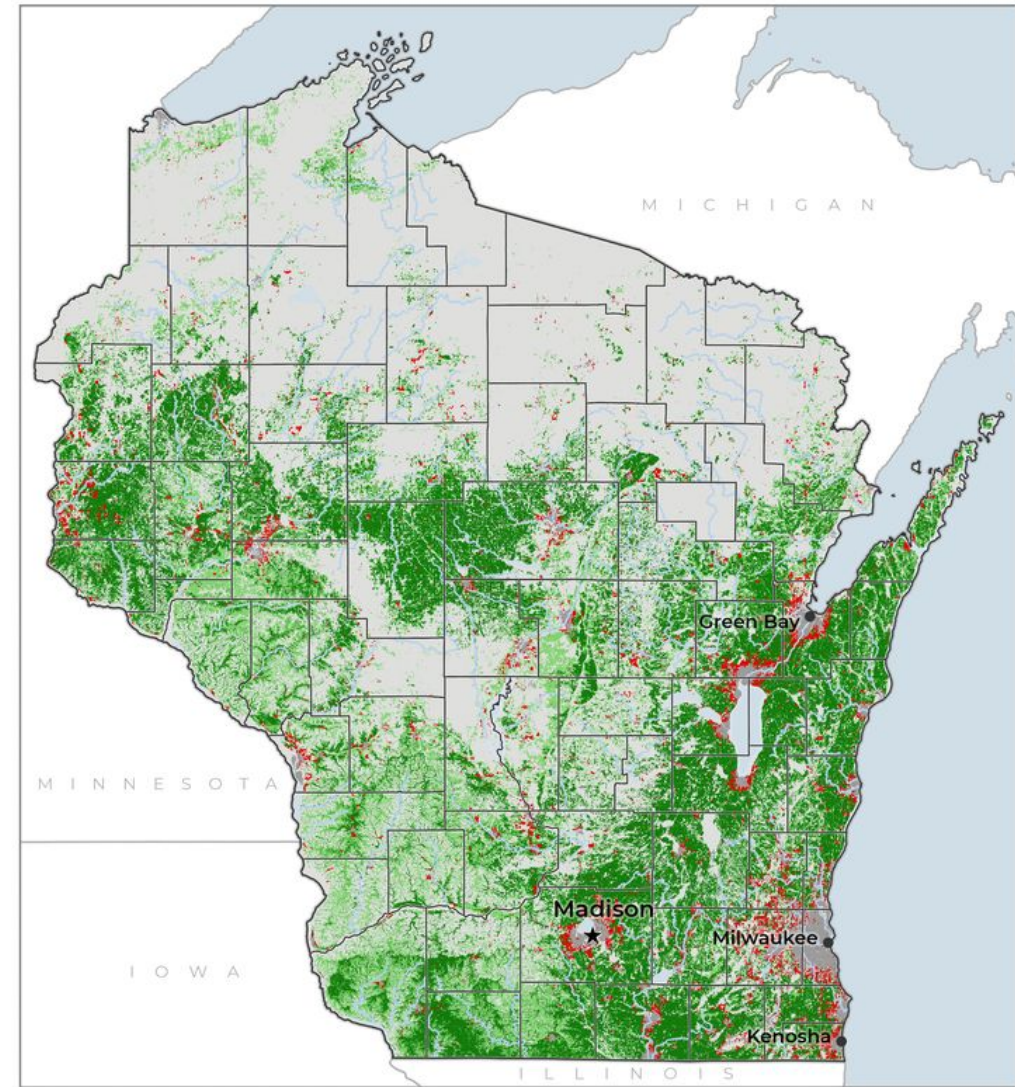
# Nationally Significant Agricultural Land



Nationally Significant  
agricultural land

# WI Agricultural Land Conversion 2001-2016

- 9.1 million acres of Wisconsin agricultural land is considered nationally significant
- Nearly 250,000 acres converted out of agricultural use—enough land to generate \$190 million in annual revenue
- 62% of converted land became low-density residential use, i.e. large lot development that fragments agricultural land base



# Acres AND Farms are decreasing

- Number of farms and farmland acres in WI declined from 2007 to 2022 (figure 1), though sales increased (figure 2).
- Farmland consolidation is a consistent trend across the U.S. (MacDonald 2020), but can make land access difficult for beginning farmers (Saitone and Sexton 2017) and hurt rural communities and economies (Schmit et al. 2016).

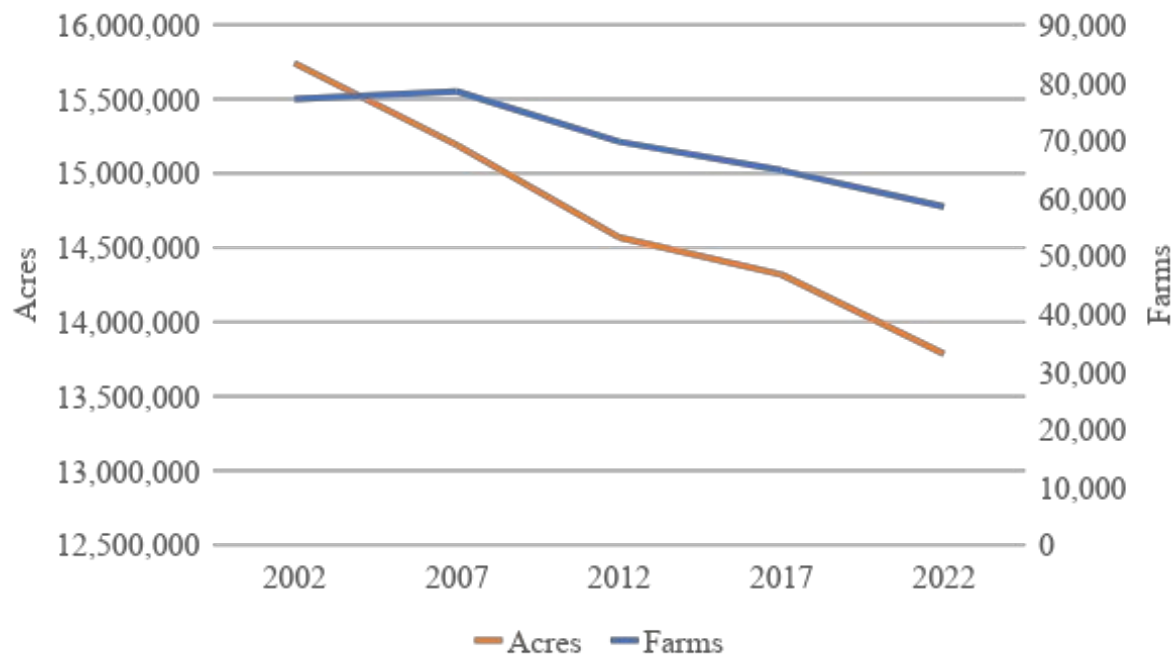


Figure 1. Farms and acres in Wisconsin from 2002-2022

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, 2002, 2007, 2012, and 2022 Census of Agriculture.

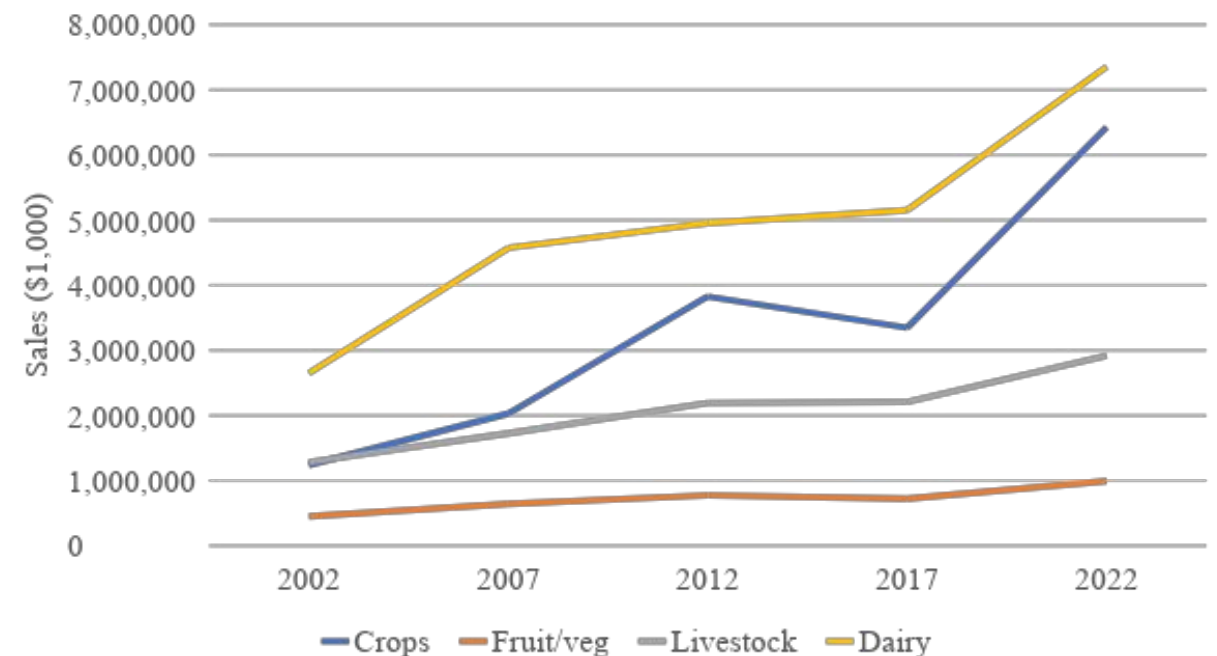
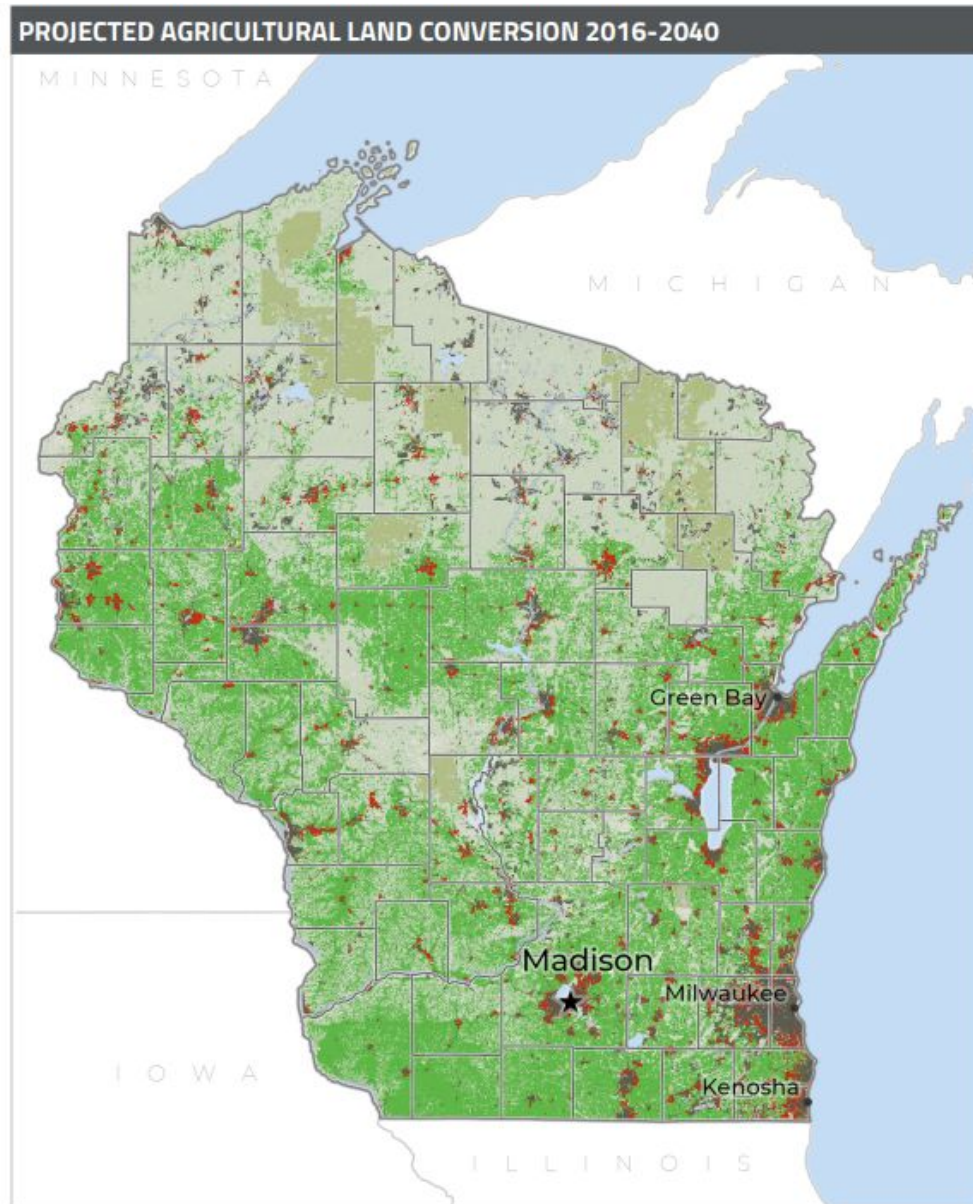


Figure 2. Sales by commodity in Wisconsin from 2002-2022

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, 2002, 2007, 2012, and 2022 Census of Agriculture.

# Projected Conversion 2016-2040



Wisconsinites will pave over, fragment, or compromise

**515,200 acres**  
of farmland.

That's the equivalent of losing

**2,400 farms,**  
**\$377 million**  
in farm output, and  
**6,400 jobs**

based on county averages.<sup>1</sup>

**67%** of the conversion  
will occur on Wisconsin's  
Nationally Significant land.<sup>2</sup>

Hardest-hit counties:

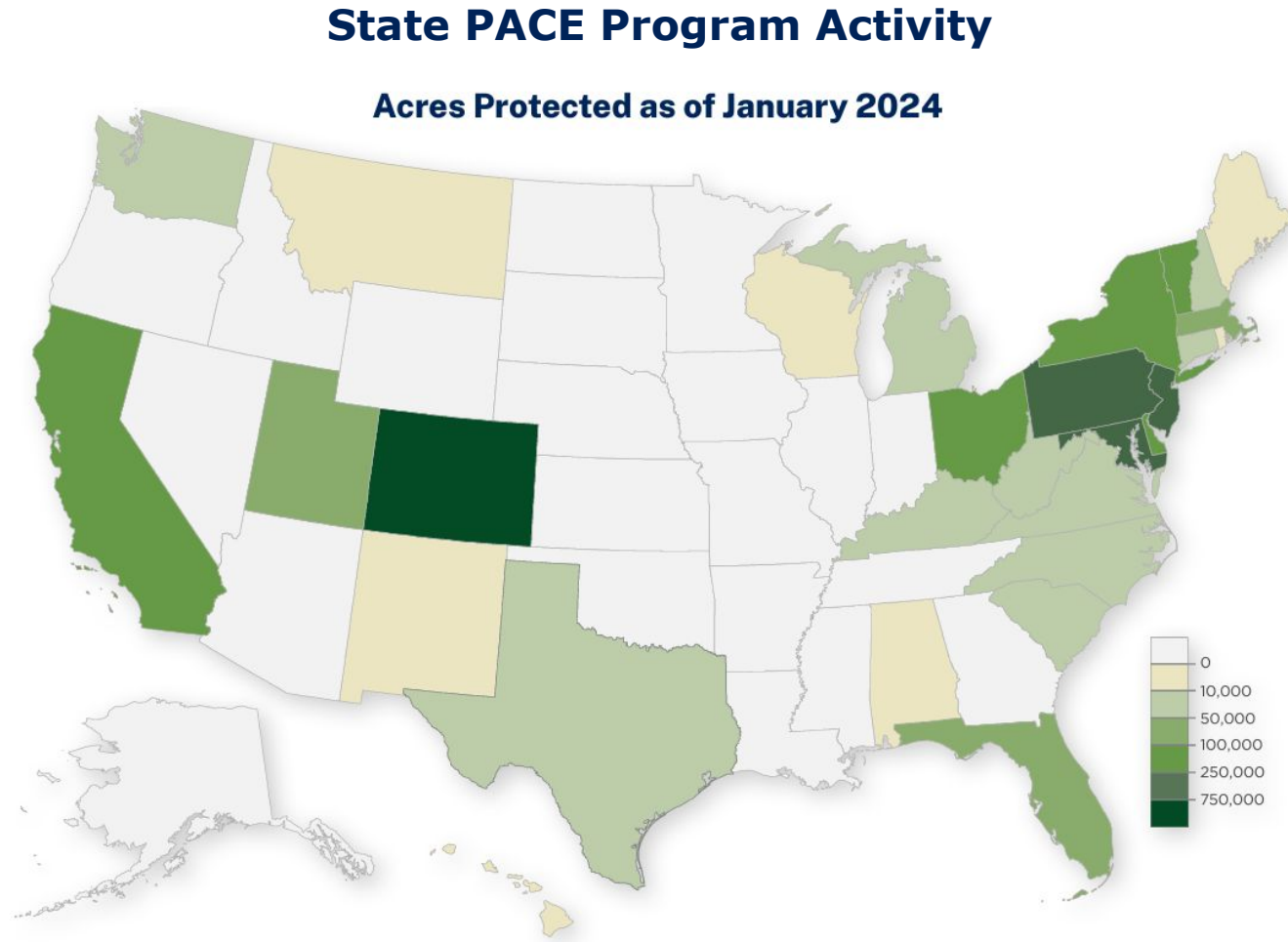
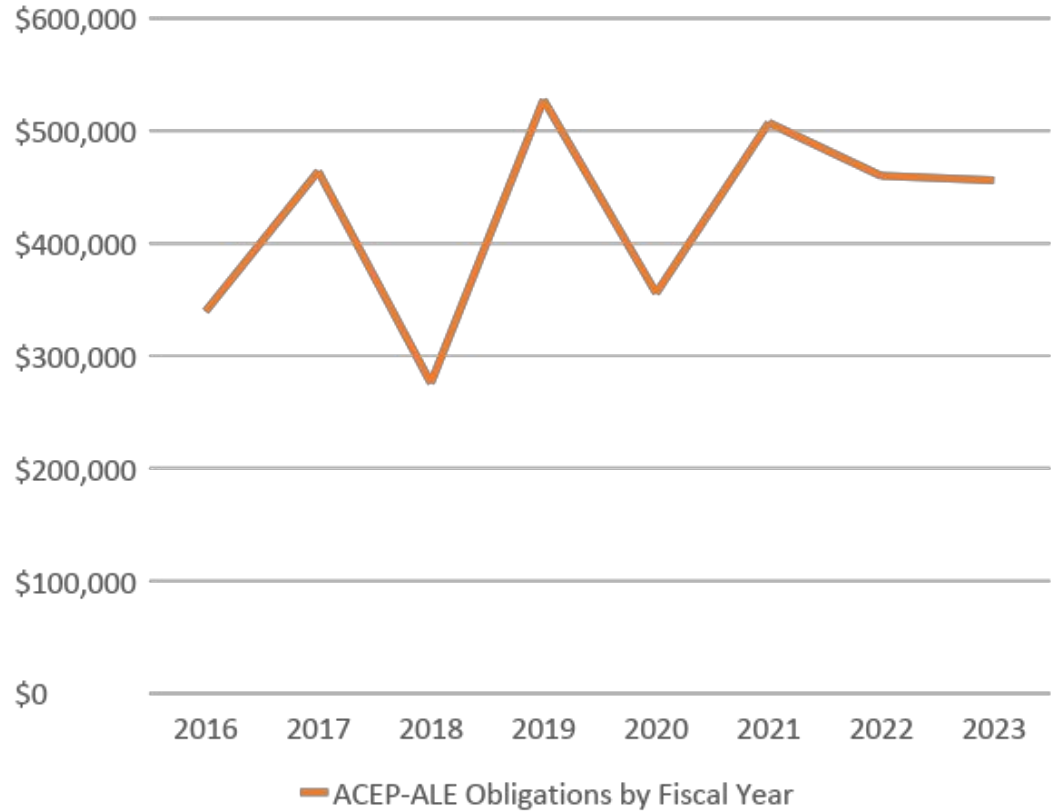
- ▶ **Dane**
- ▶ **Waukesha**
- ▶ **St. Croix**



# Top 12 States: Acres of Nationally Significant Land

State	Business as Usual	Better Built Cities	Runaway Sprawl
Texas	990,900	631,500	1,232,200
North Carolina	737,000	397,700	1,042,500
Tennessee	420,000	244,100	568,000
Ohio	378,200	218,400	504,600
Pennsylvania	355,700	201,900	497,800
Georgia	347,900	209,000	467,700
Wisconsin	342,900	203,700	455,600
Alabama	337,200	188,900	459,000
Indiana	321,800	184,300	429,400
Michigan	304,000	163,400	446,000
Illinois	292,700	191,800	358,400
Mississippi	292,400	151,300	420,500
Contiguous U.S.	9,021,200	5,258,100	12,064,100

# Permanent Farmland Protection in Wisconsin



# Wisconsin Farmland Protection Partnership



Explore. Thrive. Belong.

OZAUKEE WASHINGTON



Land Trust





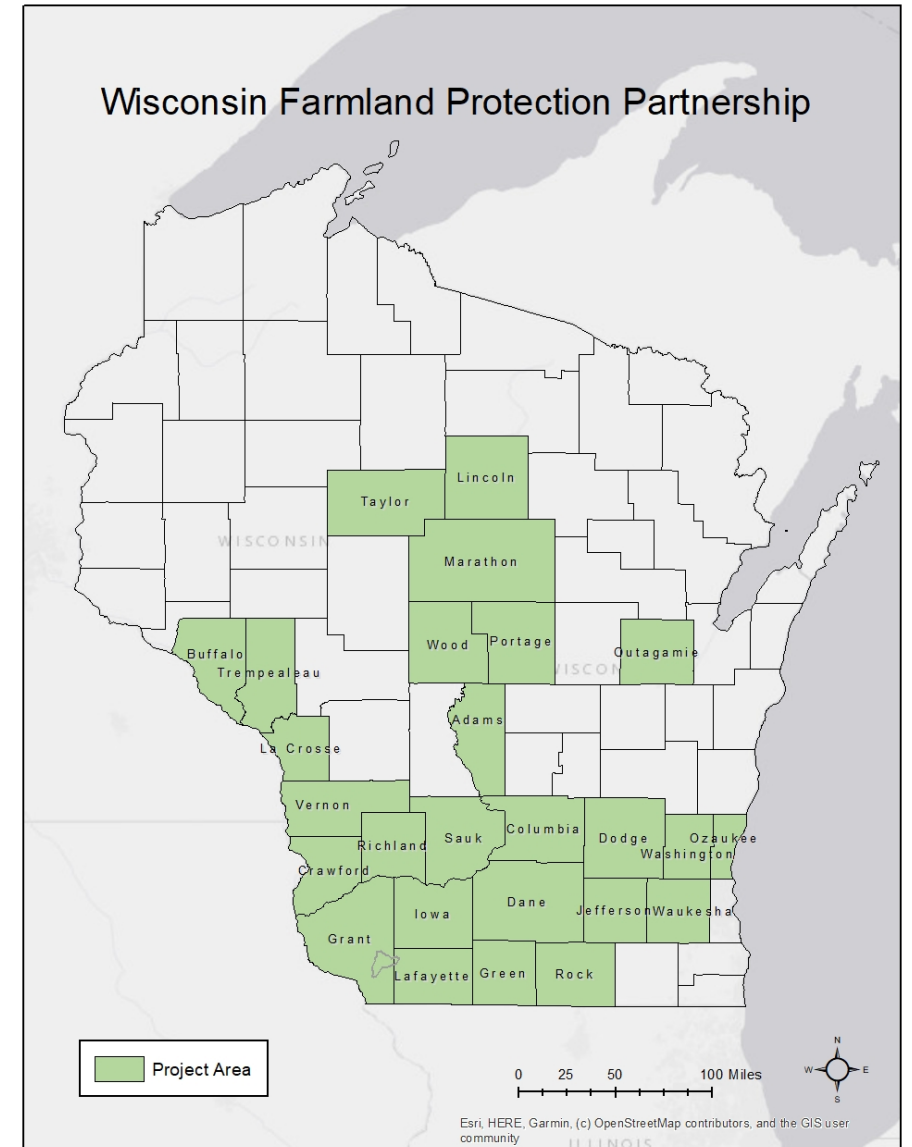
**Wisconsin Farmland  
Protection Partnership**

- \$7 million awarded to Project from NRCS

- \$11.4 million in partner contributions

- Project Goals:

- **Increase the number of farms and acres permanently protected**
- Demonstrate the value of agricultural conservation easements and highlight the **need for additional agricultural conservation easement funding** in the state
- Share information on farmland protection among farmland protection practitioners, particularly related to **soil health practices, and farmland access for historically underrepresented\* growers**



# What is a Conservation Easement?

- A *voluntary* legal agreement between a landowner and a conservation organization or government agency
- *Permanently* limits a property's uses in order to protect the property's conservation values
- Can be *donated or sold*
- Donations in whole or in part are eligible for a *federal charitable tax deduction*
- Land remains in *private ownership* and on the tax rolls
- Easement is *monitored and enforced* by the holder

















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# What is an **Agricultural** Conservation Easement?

- A type of conservation easement
- Protects the land's agricultural resources for current and future *agricultural use*
- Places restrictions on *non-compatible development*



Permitted	Conditional	Prohibited
 <p><b>Agricultural activities</b></p>	 <p><b>Houses</b></p> <ul style="list-style-type: none"> <li>• Number of houses</li> <li>• Reasonable expansion</li> <li>• Farmer or farm worker occupied</li> <li>• Location</li> </ul>	 <p><b>Unlimited residential development</b></p>
 <p><b>Agricultural structures</b></p>	 <p><b>Permanent agricultural structures</b></p> <ul style="list-style-type: none"> <li>• Size</li> <li>• Location</li> </ul>	 <p><b>Unlimited subdivision</b></p>
 <p><b>Rural enterprises</b></p>	 <p><b>Rural enterprises</b></p> <ul style="list-style-type: none"> <li>• Location</li> </ul>	 <p><b>Commercial and industrial development</b></p>  <p><b>Unlimited commercial mineral extraction</b></p>
 <p><b>Renewable energy structures</b></p>	 <p><b>Renewable energy structures</b></p> <ul style="list-style-type: none"> <li>• Scaled for on farm use</li> <li>• Plan for decommissioning</li> <li>• Location</li> </ul>  <p><b>Impervious surfaces</b></p> <ul style="list-style-type: none"> <li>• Area covered</li> <li>• Location</li> </ul>	 <p><b>Activities that harm agricultural resources or prevent agricultural use</b></p>

# FLEXIBLE



## They “why”

- Farmer legacy
- Fostering the next generation of farmers
- Supporting local foods
- Pressing environmental concerns
- Local and state economies



# Roots Tall and Deep: The Monis Family

**WISCONSIN FARMLAND PROTECTION  
ECONOMIC IMPACT ASSESSMENT  
PREPARED FOR THE WISCONSIN FARMLAND PROTECTION  
PARTNERSHIP AND AMERICAN FARMLAND TRUST**

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Dr. Becca B.R. Jablonski and Dr. Allie Bauman

*November 12, 2024*

# *Project Background & Overview*

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## QUESTION

If \$30 million is invested annually in agricultural conservation easements in the state of Wisconsin, what are the economic impacts to the state?



Photo Credit: Wisconsin Public Radio

<https://www.wpr.org/agriculture/demand-wisconsin-farm-land-remains-strong>

# *Intro to Economic Impact Assessments*

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- We use input-output (I-O) models to produce our multipliers:
  - I-O models allow us to track the flow of transactions between local industries, sales by industries to households, and to other “final users” of goods or services (e.g., government).
  - They are specified for particular geographies as only "local" purchases count.



## DIRECT EFFECT



Nolls Dairy Farm

## DIRECT EFFECT



## INDIRECT EFFECT



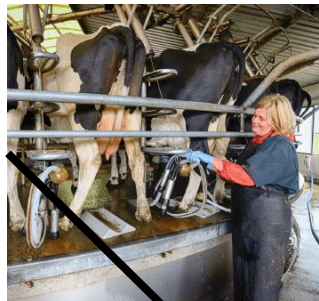


## INDIRECT EFFECT

## DIRECT EFFECT



## INDUCED EFFECT



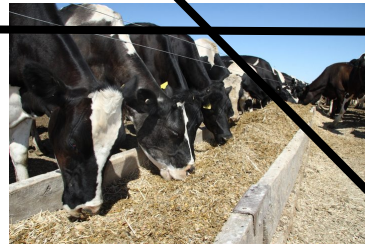


**DIRECT EFFECT**

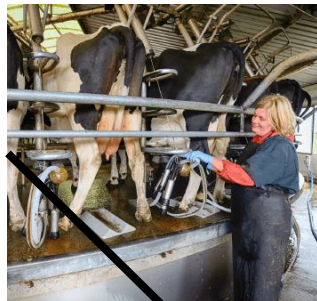


**INDIRECT EFFECT**

**TOTAL VALUE OF THE ECONOMIC IMPACT = DIRECT + INDIRECT + INDUCED EFFECTS**



**INDUCED EFFECT**





# *Primary Guiding Literature & Assumptions*

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## **CONSERVATION EASEMENT LITERATURE PROVIDES USEFUL INFORMATION ON:**

- a) The economic impact assessment methodology (Daniels 2019; Huber et al. 2020; Seidl et al. 2018), and
- b) Who participates in farm and ranch lands production programs and how recipients spend the funds (e.g., Clark 2010; Dempsey 2023; Esseks et al. 2013; Esseks and Schilling 2014; Huber et al. 2020; Seidl et al. 2018; Wisconsin Department of Agriculture Trade and Consumer Protection 2012).

# *Primary Guiding Literature & Assumptions*

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**DIFFERENT TYPES OF ECONOMIC IMPACTS ASSOCIATED WITH FARMLAND PROTECTION PROGRAMS:**

***WE FOCUS ON ESTIMATING THE IMPACT OF DIRECT EXPENDITURES ASSOCIATED WITH CONSERVATION EASEMENT PAYMENTS.***

Environmental services likely also accrue from preserved farms and those who economic impacts that can be measured, but we do not account for these in this analysis.

# Primary Guiding Literature & Assumptions

## EXPENDITURE PATTERNS:

We rely on Seidl et al. (2018) to determine how farmers and landowners spend their conservation easement payment. The way they spend their easement funds provides the basis for the allocation of the direct effect in our economic impact assessment.

Expenditure Category	Percent of total expenditures (percentage of respondents reporting use, citation)	Leakage?
Investment in Agriculture	15.11 percent (53.49, Seidl et al. 2018), 1/3 (Daniels 2019)	No
Diversification	1.10 (6.89, Seidl et al. 2018)	No
Land purchase / real estate	13.22 (27.91, Seidl et al. 2018); 20 (Daniels 2019)	No
Savings	17.32 (37.21, Seidl et al. 2018)	Yes
Debt	51.74 (58.14, Seidl et al. 2018); 35 (Clark 2010); 1/3 to 60% (Daniels 2019)	Yes
Non-business related goods	0.09 (4.65, Seidl et al. 2018)	No
Education	0.21 (4.65, Seidl et al. 2018)	No
Other / charity	1.20 (6.98, Seidl et al. 2018)	No

# Conservation-Minded

Dempsey (2023) conducted a national survey of farm and ranch lands protection program (FRPP) participants. She found that 93% of respondents reported the application of at least one conservation practice. And that rates of adoption of conservation practices are higher among FRPP owners than all producers (according to the 2017 Census of Agriculture).

Number of practices adopted by FRPP owners:

NUMBER OF PRACTICES ADOPTED	ALL OWNERS (N = 388)	PERCENT OF ALL OWNERS	OWNER-OPERATORS (N = 255)	PERCENT OF OWNER-OPERATORS	NON-OPERATING LANDOWNERS (N = 133)	PERCENT OF NOLS
At least one	362	93%	245	96%	117	88%
At least two	335	86%	230	90%	105	79%
At least three	303	78%	214	84%	89	67%
No practices	26	7%	10	4%	16	12%

***ACCORDINGLY, OUR ANALYSIS FOCUSES ON CREATING A NEW “CONSERVATION-MINDED” FARM SECTOR BASED ON THE EXPENDITURE PATTERNS OF THESE OPERATIONS AS REPORTED IN THE CENSUS OF AGRICULTURE.***

# Methodology

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- We estimate the impact of a \$15 to 30 million investment in agricultural conservation easements in the state of WI as part of WI's PACE program. We assume \$15 million would come from WI and be matched by \$15 million in Federal funds.
- We follow the methods in Seidl et al. (2018).
- We start with 2022 data from IMPLAN\* and augment it with farm-level (restricted-access) data from the Census of Agriculture to account for the “conservation-minded” farm sector.

*\*IMPLAN provides data and software to conduct economic impact analyses. We use the data as a starting point for our analysis, but build the model in excel and not using IMPLAN's software. Learn more: <https://implan.com/>*

# Model Parameters & Assumptions

## DEFINITION OF STUDY REGION

State of Wisconsin

## DEFINITION OF COMMODITIES OF INTEREST

- Crop farming (not including fruits/vegetables)
- Fruit/vegetable farming
- Livestock
- Dairy

Commodities of interest and crosswalk between IMPLAN the 2022 Census of Agriculture and final aggregation

2022 IMPLAN Commodities (546 unaggregated)	2022 Census of Agriculture Commodities	Commodities of interest	Proportion of sales
<b>Oilseed and grain farming</b>	Grains, oilseeds, dry beans, and dry peas	Crop farming, not including fruits and vegetables	33%
<b>All other crop farming</b>	Peanuts, field and grass seed crops, sugarcane, sugar beets		
<b>Greenhouse, nursery, and floriculture production</b>	Nursery, greenhouse, floriculture, sod, cultivated Christmas trees and short rotation woody crops		
<b>Vegetable and melon farming</b>	Vegetables, potatoes and melons	Fruit and vegetable farming	6%
<b>Fruit and tree nut farming</b>	Fruits, tree nuts and berries		
<b>Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming</b>	Cattle and calves	Livestock	17%
<b>Poultry and egg production</b>	Poultry and eggs		
<b>Animal production, except cattle and poultry and eggs</b>	Hogs and pigs, sheep, goats, wool, mohair, and milk		
<b>Dairy cattle and milk production</b>	Milk from cows	Dairy	44%

# *Model Parameters & Assumptions*

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## **“CONSERVATION MINDED”**

Defined as operations that selected “yes” to one or more of the following in the 2017 Census of Agriculture

- Practice rotational or management-intensive grazing;
- Practice alley cropping, silvopasture, or forest farming, or have riparian forest buffers or windbreaks;
- Utilized no-till or reduced (conservation) tillage;
- Planted a cover crop;
- Organic;
- Had cropland idle or used for cover crops or soil-improvement but not harvested and not pastured or grazed;
- Had acres of cropland and pastureland on which animal manure was applied;
- Had acres of cropland and/or pastureland treated with organic fertilizer according to USDA’s National Organic Program (NOP) standards.

# Model Parameters & Assumptions

## AVERAGE EXPENDITURES (IN 2022 DOLLARS) PER YEAR FOR CONSERVATION MINDED OPERATIONS BY COMMODITY

Expense category	Livestock (n=11,206)	Dairy (n=7,463)	Crop (not including fruit/veg) (n=25,139)	Fruit/veg (n=1,960)
Breeding livestock purchased or leased; All other livestock and poultry purchased or leased	27,087	16,573	2,833	597
Feed purchased for livestock and poultry	26,985	284,675	3,428	1,399
Seeds, plants, vines, trees, etc. purchased	5,939	39,967	21,595	37,360
Fertilizer, lime, and soil conditioners purchased; Chemicals purchased	10,164	58,336	32,526	81,607
Gasoline, fuels, and oils purchased for the farm business	6,215	36,745	8,100	15,062
Repairs, supplies, and maintenance costs for the farm business	11,748	75,709	12,726	33,703
Custom work and custom hauling	3,547	44,458	4,418	4,857
Utilities purchased for the farm business	3,944	27,219	3,730	11,612
Proprietor income <sup>a</sup>	48,149	98,651	46,459	60,517
Hired farm and ranch labor	10,337	119,980	11,219	75,466

Data: Mean Source: U.S. Department of Agriculture, National Agricultural Statistics Service, 2017 Census of Agriculture restricted access data, calculated by authors. Expenditures have been adjusted for inflation to reflect 2022 dollars using the Producer Price Index by Commodity: Farm Products from the Federal Reserve Economic Data (FRED).



# Model Parameters & Assumptions

## ALLOCATION OF PACE SPENDING ACROSS IMPLAN SECTORS

Survey category (Seidel et al.)	Expenditure category (Seidel et al.)	Proportion of expenditures (Seidel et al.)
“Invested back into the ag operation through purchases of inputs (including restocking livestock herds), labor, equipment or other infrastructure (including irrigation infrastructure)”	Reinvested in Agricultural Production	15.11%
“Purchase of non-business related goods (e.g., recreational vehicle, vacation, second home)”	Non-business goods	0.09%
“Other” and “Charitable donations”	Other/Charity	1.20%
“Invested in savings (could include retirement fund or stock market investment as well as savings accounts)” and “Pay down farm debt”	Savings, Debt	69.06%
“Invested in post-high-school education of a family member”	Family education	0.21%
“Invested in non-farm land-based enterprise diversification (e.g., agritourism, hunting/fishing, outdoor recreation)”	Invested in non-agricultural enterprise	1.10%
“Invested in the purchase or lease of additional land to expand the ag operation”	Agricultural expansion	13.22%

# Results

## DIRECT, INDIRECT/INDUCED, AND TOTAL IMPACTS, AND MULTIPLIERS OF \$30 MILLION PACE INVESTMENT WHEN CONSERVATION MINDED PRODUCERS RECEIVE THE FUNDING

	Conservation minded producers			
	Direct Impact	Indirect and Induced Impact	Total Impact	Type SAM Multiplier
Total output	\$27,586,556	\$28,152,534	\$55,739,088	2.02
Labor income	\$5,253,116	\$10,909,898	\$16,163,014	3.08
Employment	100	204	304	3.02
Labor income per job	\$52,032	\$53,620	\$53,093	

# Results

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## GIVEN A \$30 MILLION INVESTMENT IN PACE PROGRAMS (\$15 MILLION FROM STATE AND \$15 MILLION FROM FEDERAL, WE ESTIMATE:

- Potential to directly impact ~13,060 acres of farmland and 55 farms.
- A total economic impact of **\$55.7 million, \$16.2 million in labor income, and 304 jobs** (assuming that conservation-minded operations receive PACE program funds).

## POTENTIAL FOR OTHER LONG-TERM IMPACTS TO WISCONSIN (NOT DIRECTLY MEASURED IN THIS ANALYSIS), INCLUDING:

- Potential for environmental benefits if conservation-minded operations are the PACE program fund recipients.
- Potential to support the next generation of farmers, assuming that those who received PACE funds sell (more affordable) land to next generation / beginning farmers.

# *Limitations*

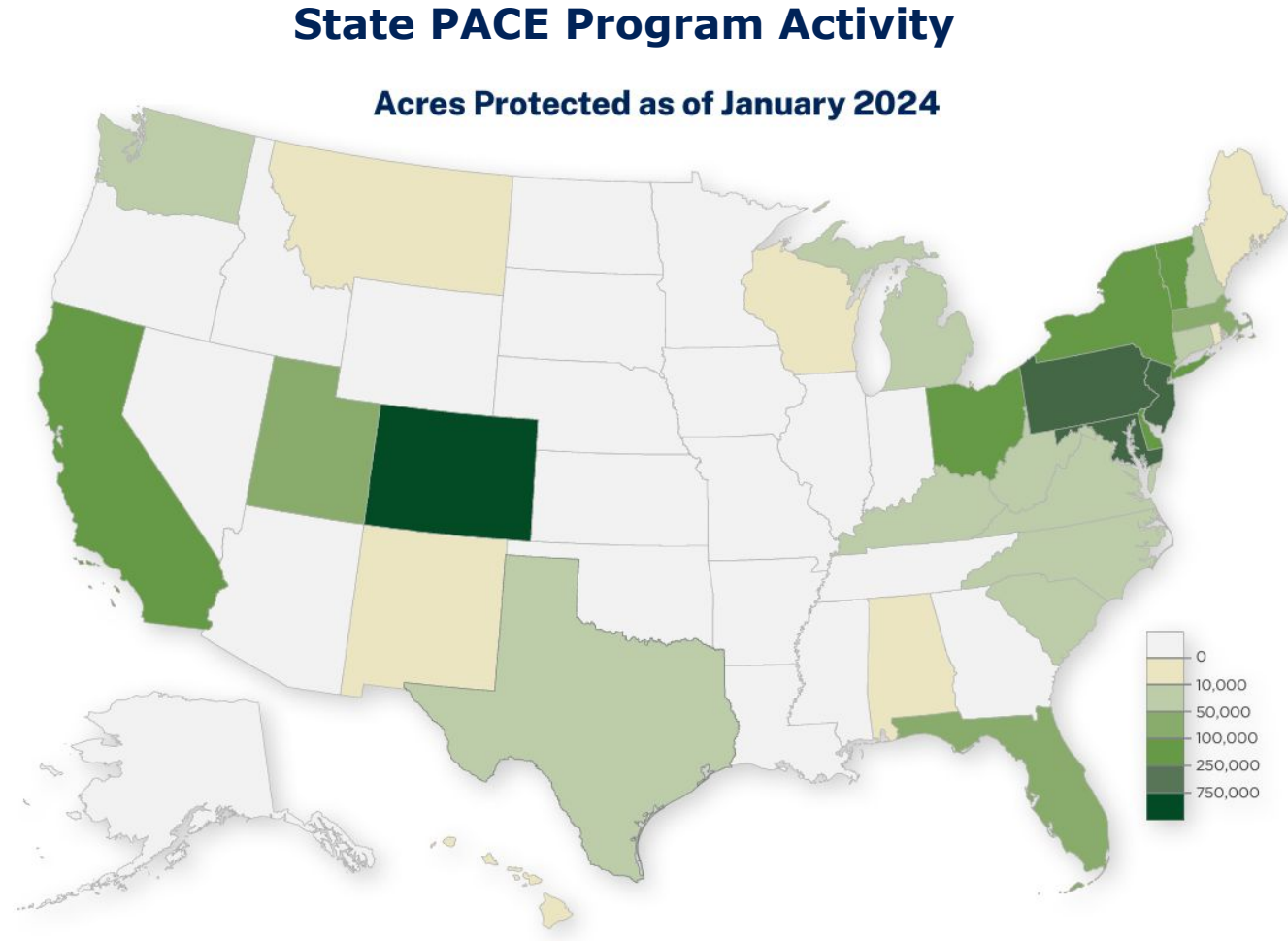
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There are several limitations to our approach, including:

- There are many assumptions built into input-output models.
- We relied on assumptions of previous research in terms of how conservation payment funds are spent rather than collecting data from producers.
- This analysis assumes that the state is allocating all new funds to the PACE program, whereas a reasonable alternative scenario would be a diversion of funds from other state programs. In other words, it is likely a more reasonable assumption that PACE program spending by the state results in less spending on other programs.

# Fund our Farmland

- Wisconsin's PACE Program
  - Administered by DATCP
  - Aim to see the program refunded in the upcoming state budget
  - Leverage USDA's investment in farmland protection
  - Support environmental services and Wisconsin farmers





Questions?

# Executive Summary

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## ESTIMATED IMPACT OF A \$30 MILLION INVESTMENT (\$15 MILLION FROM STATE AND \$15 MILLION FROM FEDERAL)

- ~12,733 acres of farmland and ~54 farms would be directly impacted by PACE program funds.
  - This assumes impacted farms are of average price and size.
- Total economic impact of **\$55.7 million, \$16.2 million in labor income, and 304 jobs.**
  - This assumes that “conservation-minded” operations are more likely to take advantage of the availability of PACE program funds (based on findings of Demsey 2023).
- Multiplier of 1.9 meaning that \$1 of investment in the PACE program would generate an additional \$0.90 of induced and indirect activity.
- Though we do not estimate this directly, potential other long-term impacts include:
  - Improved farmland access for beginning operations (2<sup>nd</sup> generation farmland protection owners, meaning they purchase protected land).
  - Improved conservation practices (given findings from national survey by Dempsey 2023).

# Key Definitions

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**IMPLAN:** economic impact assessment data that provide information on all inter-industry linkages throughout the economy; these data are the basis from which to understand how conservation payments will impact economic activity in the state and are used in the economic impact assessment model.

**MULTIPLIER:** measures the impact of a change in an industry on the overall economy. Multipliers can be broken into the direct impact, the indirect and induced impact, and the total impact.

- The **direct** impact represents the “shock” (e.g., the money the farmer receives from the PACE program).
- The **indirect** impact results from business-to-business purchases in the supply chain.
- The **induced** impact comes from household spending of labor income, after the removal of taxes, savings, and commuter income.

**TYPE SAM MULTIPLIER:** (SAM = social accounting matrix): a measure of an industry’s connection to the wider local economy by way of input purchases, payments of wages and taxes, and other transactions.

**RESPONSE COEFFICIENT:** The response coefficient describes the economic impact from each dollar spent in the economy. Because some of the spending in our model occurs in industries where a portion of the initial spending leaks out of the economy (referred to as "marginized" industries), a response coefficient is a related concept to a multiplier with the primary distinction being the units.

**LABOR INCOME MULTIPLIER** describes the dollars of labor income generated as a result of \$1 of labor income in the target industry. As an example, a labor income multiplier of 1.9 indicates that for every dollar of direct labor income in this industry, an additional \$0.90 of labor income is generated in the local economy. As with the total multiplier, the labor income multiplier will decrease to the extent that more labor is hired outside of the regional economy.



# Data Sources

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**IMPLAN:** 2022 IMPLAN data for the state of Wisconsin. IMPLAN data provide information on all inter-industry linkages throughout the economy and provides the basis from which to understand how conservation payments will impact economic activity in the state. IMPLAN data come predominantly from national sources, such as the U.S. Bureau of Economic Analysis' Regional Economic Accounts, the U.S. Census Bureau's County Business Patterns, National Household Personal Consumption Expenditures, the Annual Survey of Manufacturers, and the U.S. Department of Agriculture's National Agricultural Statistics Service (USDA NASS). Initiated from a national table of accounts, IMPLAN provides a comprehensive set of balanced social accounting matrices (SAM) for every county and state in the United States.

**USDA NASS 2017 AND 2022 CENSUS OF AGRICULTURE:** The Census of Agriculture is a complete count of U.S. farms and ranches and the people who operate them and includes data on land use and ownership, operator characteristics, production practices, income, and expenditures. It is the only source of comprehensive data on the current and past state of U.S. agriculture, providing uniform agriculture data for every county in the U.S. For this report, we use restricted-access 2017 Census data to understand expenditure patterns for “conservation-minded” farmers in Wisconsin”. We use these data as the 2022 restricted access data are not yet available to researchers. For everything else in the report related to land and the agricultural sector, we use 2022 publicly-available data unless otherwise noted.

# *Primary Guiding Literature & Assumptions*

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## **LEAKAGE:**

Not all of the payment money received through conservation payments stays in the local economy. Previous research by Daniels (2019) finds that there are three primary forms of leakages from conservation easement payments:

1. Paying down debt;
2. Taxes on easement payments;
3. Retirement savings and health-related expenditures.

Further, Daniels (2019) finds leakages often correlated with a) the size of the farm operation, b) the age of the farm operator, and c) the amount of debt of farm operations.

***WE USE THIS INFORMATION TO CONSIDER HOW THE COMPOSITION (DEMOGRAPHICS, INTEREST PAYMENTS) OF FARMS IN WI MIGHT IMPACT HOW PACE FUNDS ARE SPENT.***

# Model Parameters & Assumptions

## “CONSERVATION MINDED”

### OPERATION CHARACTERISTICS THAT INFLUENCE “LEAKAGE” OF PACE EXPENDITURE

	Proportion of operations with each primary commodity	Average size (\$ (GCFI)	Proportion young (less than 35)	Proportion middle age (35-54)	Average interest payment (\$)
<b>Conservation minded (n=45,746)</b>					
<b>Dairy</b>	0.163	1,220,153	0.248	0.741	49,408
<b>Crop (not fruit veg)</b>	0.549	170,697	0.082	0.411	9,291
<b>Fruit/veg</b>	0.043	411,791	0.160	0.556	10,048
<b>Livestock</b>	0.245	159,221	0.137	0.532	8,667

*COMPARED TO ALL OPERATIONS, “CONSERVATION MINDED” OPERATIONS ARE SLIGHTLY LARGER, ARE SIMILAR IN AGE, AND HAVE SLIGHTLY HIGHER INTEREST PAYMENTS.*