

20 NEW 24 USES FORUM



Agricultural Utilization Research Institute



Welcome & Setting the Stage



Shannon Schlecht
Executive Director
AURI



Aaron Knewton
VP Food & Agribusiness
Compeer Financial



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Attorney
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Setting the Stage

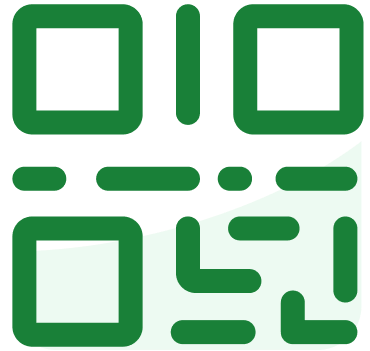


Shannon Schlecht

Executive Director

AURI

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#1419221**

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What sector(s) of the ag value chain do you represent?

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What are your key desired takeaways from the day?

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Resources Underpinning the Bioindustrial Opportunity



Carolyn Olson
Co-owner
Fairview Farms &
AURI Board



Gary Prescher
Chair
MN Corn Research
& Promotion Council



Neal Jakel
President
Fluid Quip Technologies



Brandon Day
Chief Operating Officer
The Yield Lab Institute

Resources Underpinning the Bioindustrial Opportunity



Carolyn Olson

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Fairview Farms &

AURI Board

Resources Underpinning the Bioindustrial Opportunity



Gary Prescher

Chair

MN Corn Research &
Promotion Council

Corn as a feedstock

Gary Prescher

Chair, Minnesota Corn Research & Promotion Council

Minnesota Corn Background

- Two separate and independent organizations
- Minnesota Corn Growers Association (MCGA)
- Minnesota Corn Research & Promotion Council (MCR&PC)
- One Mission: Identify and promote opportunities for corn growers while enhancing quality of life



New and Expanded Uses



Green Hydrogen
Sustainable Aviation Fuel

U.S. Corn Long-term Projections

| Item | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| Planted Acres (million) | 88.6 | 94.9 | 91.0 | 89.0 | 89.0 | 88.5 |
| Yield (bushel/acre) | 173.4 | 173.0 | 181.0 | 183.0 | 185.0 | 187.0 |
| Production (million bushels) | 13,715 | 15,064 | 15,040 | 14,840 | 15,005 | 15,070 |
| Total Use (million bushels) | 13,769 | 14,340 | 14,560 | 14,760 | 14,930 | 15,030 |
| Ending Stocks (million bushels) | 1,361 | 2,111 | 2,616 | 2,721 | 2,821 | 2,886 |
| Stocks-to-use ratio, percent | 9.9 | 14.7 | 18.0 | 18.4 | 18.9 | 19.2 |
| Farm Price (\$/bushel) | 6.54 | 4.95 | 4.50 | 4.30 | 4.30 | 4.30 |

Note: Marketing year beginning September 1 for corn.

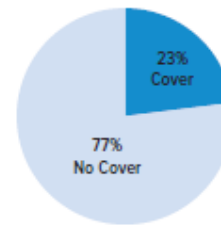
Projections completed in October 2023.

Source: USDA, Economic Research Service, based on data from USDA, Interagency Ag Projections Cmte.

Sustainability - Environment

- 2023 Minnesota Corn's directors committed to undertake on farm sustainability assessments, which include **Soil Health, Water Quality, Economics, Carbon Sequestration & GHG Emissions, and Edge-of-Field Conservation Practices**
- Inaugural assessment covered nearly 37,000 acres

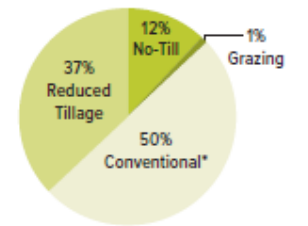
COVER CROPS BY % OF ACRES



Cover crop varieties include **cereal rye, grass hay, mustard, oats, pea, pearl millet, rapeseed, triticale and winter wheat.** According to the 2017 US Ag Census, the national average is **4% cover crop adoption, 37% no-till adoption, and 35% reduced till adoption.**

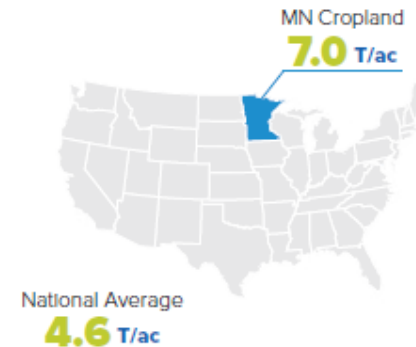
*Conventional tillage is defined as 70% or more residue incorporated and/or three or more passes of a tillage implement(s) in a given growing season.

TILLAGE BY % OF ACRES



EROSION AVERAGE (USDA)

The USDA National Resources Inventory provides estimates on average erosion for different systems across the US.*



IN-FIELD ENVIRONMENTAL OUTCOMES

The data is reflective of weather and soils influence in addition to implemented in-field management practices for the project year.¹

Soil Erosion Rate **OVERALL FARM**
0.67 T/ac

IN-FIELD PRACTICES COMPARISON IMPACTS

When compared to conventional practices (i.e. conventional tillage, no cover crop scenario), in-field farm practices generated:¹

19,293 tons of soil saved Instead of being lost to erosion, which is the same as
1,206 dump trucks of soil

Sustainability - Environment

IN-FIELD ENVIRONMENTAL OUTCOMES

*This data reflects the influence of weather, soils and implemented in-field management practices for the project year.**

| | OVERALL FARM |
|--------------------------------|----------------------------------|
| Net GHG Emissions | 0.01 T CO₂e/ac |
| Soil Carbon Sequestered | 0.16 T C/ac |

MANURE SAVINGS

Manure applied to fields provides organic matter, which positively impacts carbon sequestration. Manure was applied on **18% of acres**. The acres that received a manure application had an average of **155 lbs/ac of nitrogen** applied from the organic manure source. This is an estimated **cost savings of \$770,996** due to the reduction of synthetic fertilizers.



CROPLAND

93%

MIXED FORAGE

3%

4%

IN-FIELD PRACTICES COMPARISON IMPACTS

When compared to conventional practices (i.e. conventional tillage, no cover crop scenario), in-field farm practices generated:†



16,296 fewer tons of CO₂e, which is the same as



3,164 average passenger cars off the road for a year



4,336 tons of soil carbon sequestered

Resources Underpinning the Bioindustrial Opportunity



Neal Jakel

President

Fluid Quip Technologies

Resources Underpinning the Bioindustrial Opportunity



Brandon Day

Chief Operating Officer
The Yield Lab Institute



THE SOY INNOVATION CHALLENGE

New and Novel Uses of Soybean Meal





Applications by Category



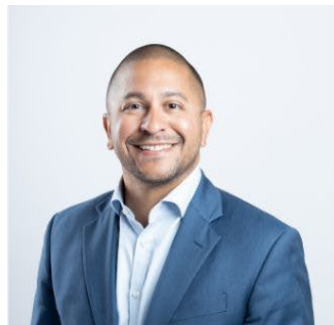


Applications from Around the Globe





The Soy Innovation Challenge Judges



Mac Marshall

Vice President Market Intelligence
United Soybean Board



Derick Jiwan

Innovation & Business Development
WinField United & Propellant Ventures



Mark Miller

CEO and Managing Director
Alliant Ventures



Laurie Isley

Director
United Soybean Board



Shannon Tignor Ellis

Director
United Soybean Board



Ryan Richard

Director
United Soybean Board



Brian Pierce

Bioproducts Development Director
Smithbucklin



Nida Ansari

Founder and CEO
Karmic Partners



Matthew Crisp

Co-founder and Advisor
Benson Hill





The Soy Innovation Challenge Finalists





Programming Calendar



Panel Discussion



Audience Questions & Answers



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**One word best describing your greatest
takeaway from this panel?**

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