



PRACTICAL *farmers*
of Iowa

Rebuilding the Small Grains Economy

- **MISSION**

Equipping farmers to build resilient farms and communities.



Rotation Effect

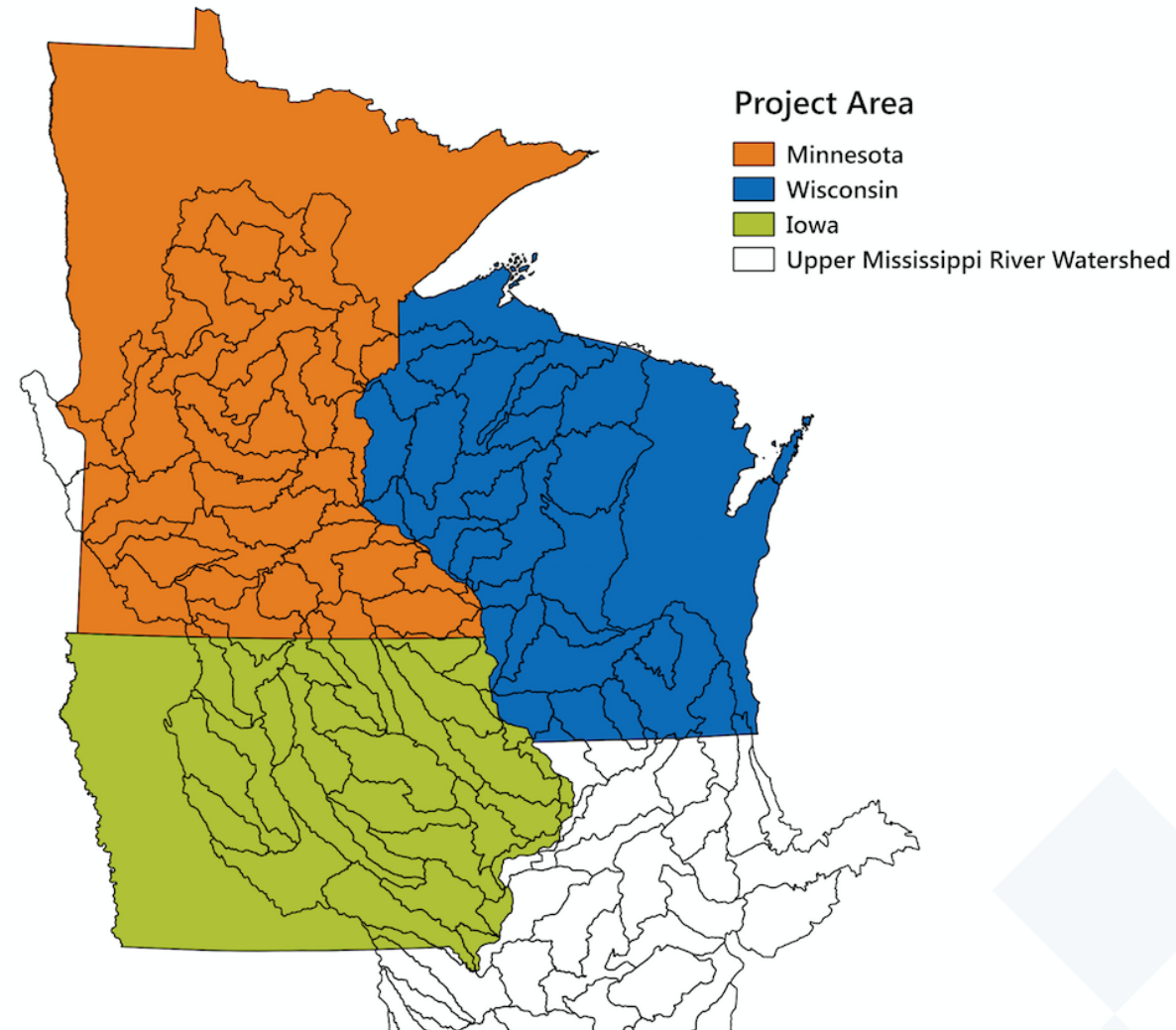


“Incorporating more legumes into my rotation lets me cut back on N fertilizer rates.”

—Tim Sieren, Keota



2016 CIG Award: Small Grains Large Gains



This material is based on work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under number 69-3A75-17-30.

2016 CIG Award: Small Grains Large Gains

Cost share of \$40/acre on up to 80 acres per farmer

	Budgeted Acres	Actual Acres
2017	825	825
2018	1,325	2,706
2019	1,500	119
Total:	3,650	3,650


Methods

- Farmers participate in cost share on small grain crop + legume cover crop 2017
- Farmer data collected via survey in 2017 & 2018
- Data used to populate:
 - Enterprise Budgets
 - Resource Stewardship Evaluation Tool (RSET)
 - Fieldprint Calculator (FPC)
 - Cool Farm Tool (CFT)
- Even though farmers would have third and fourth crops in rotation only 2017 and 2018 years used for this analysis
- Management changes captured include addition of a cover crop and changes in inputs to following crop year


But Can it Pay??

Can it pay?? Yes!

Iowa Enterprise Budget per Acre for Small Grain Rotation versus Corn-Soybean Rotation

	IOWA STATE UNIVERSITY			
YEAR:	2017	2018	2017	2018
CROP:	SOYBEAN	CORN	OATS	CORN
TOTAL COST <i>(Operating plus Overhead)</i>	\$503.15	\$827.24	\$889.48	\$694.60
NET RETURN OVER TOTAL COST	\$90.47	\$180.57	\$156.86	\$452.86
NET RETURN OVER OPERATING COST	\$351.88	\$460.10	\$428.69	\$728.59
SUMMARY:				
TWO-YEAR NET RETURN OVER TOTAL COST		\$271.04		\$609.72
ANNUAL NET RETURN OVER TOTAL COST		\$135.52		\$304.86
ANNUAL NET RETURN OVER CORN-SOYBEAN ROTATION		\$-		\$169.34


Diversify Revenue Streams

		IOWA STATE UNIVERSITY			
YEAR:		2017	2018	2017	2018
CROP:		SOYBEAN	CORN	OATS	CORN
REVENUE		\$594	\$1,007.81	\$1,046	\$1,147.46
Grain		\$594	\$804.96	\$389	\$916.50
Straw		\$-	\$202.85	\$280	\$230.96
Hay		\$-	\$-	\$377	\$-

Incorporate Livestock



Decrease Weed Management Expenses

	IOWA STATE UNIVERSITY			
YEAR:	2017	2018	2017	2018
CROP:	SOYBEAN	CORN	OATS	CORN
INPUTS	\$93.45	\$154.99	\$344.40	\$31.20
Nitrogen	\$-	\$39.30	\$-	\$-
Application		\$8.70	\$-	\$-
Phosphate	\$14.96	\$31.98	\$-	\$-
Potash	\$20.75	\$17.55	\$-	\$-
Manure	\$-	\$-	\$190.40	\$-
(Application)	\$-	\$-	\$154.00	\$-
Herbicide	\$40.00	\$48.36	\$-	\$27.00
Machinery	\$8.40	\$4.20	\$-	\$4.20
Insecticide	\$-	\$-	\$-	\$-
Fungicide	\$-	\$-	\$-	\$-
Lime	\$9.34	\$4.90	\$-	\$-

Mean annual herbicide use, 2008-2016

Crop phase	2-year rotation, conventional	2-year rotation, low input	3-year rotation, conventional	3-year rotation, low input	4-year rotation, conventional	4-year rotation, low input
	lb active ingredients/acre					
Corn	1.04	0.04	1.04	0.04	1.04	0.04
Soybean	1.42	0.10	1.42	0.10	1.42	0.10
Oat with red clover or alfalfa	—	—	0	0	0	0
Alfalfa	—	—	—	—	0	0
Rotation average	1.22	0.08	0.85	0.05	0.61	0.04

Low input vs. conventional: **-93%**
 2-year vs. 3-year and 4-year: **-33% and -50%**

Reduce Purchased Fertilizer

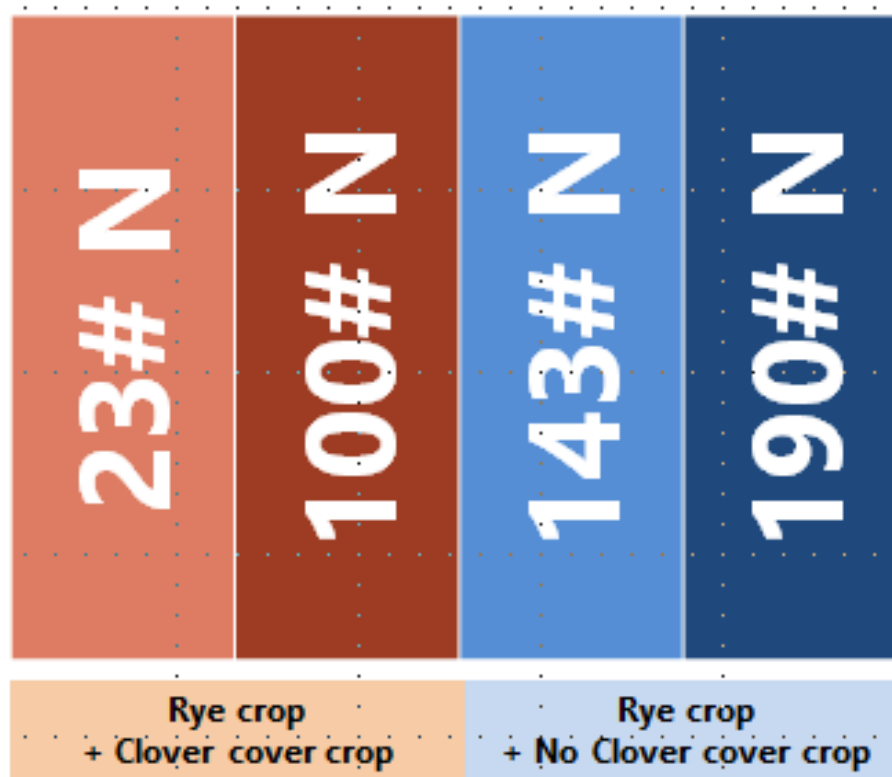


“Incorporating more legumes into my rotation lets me cut back on N fertilizer rates.”

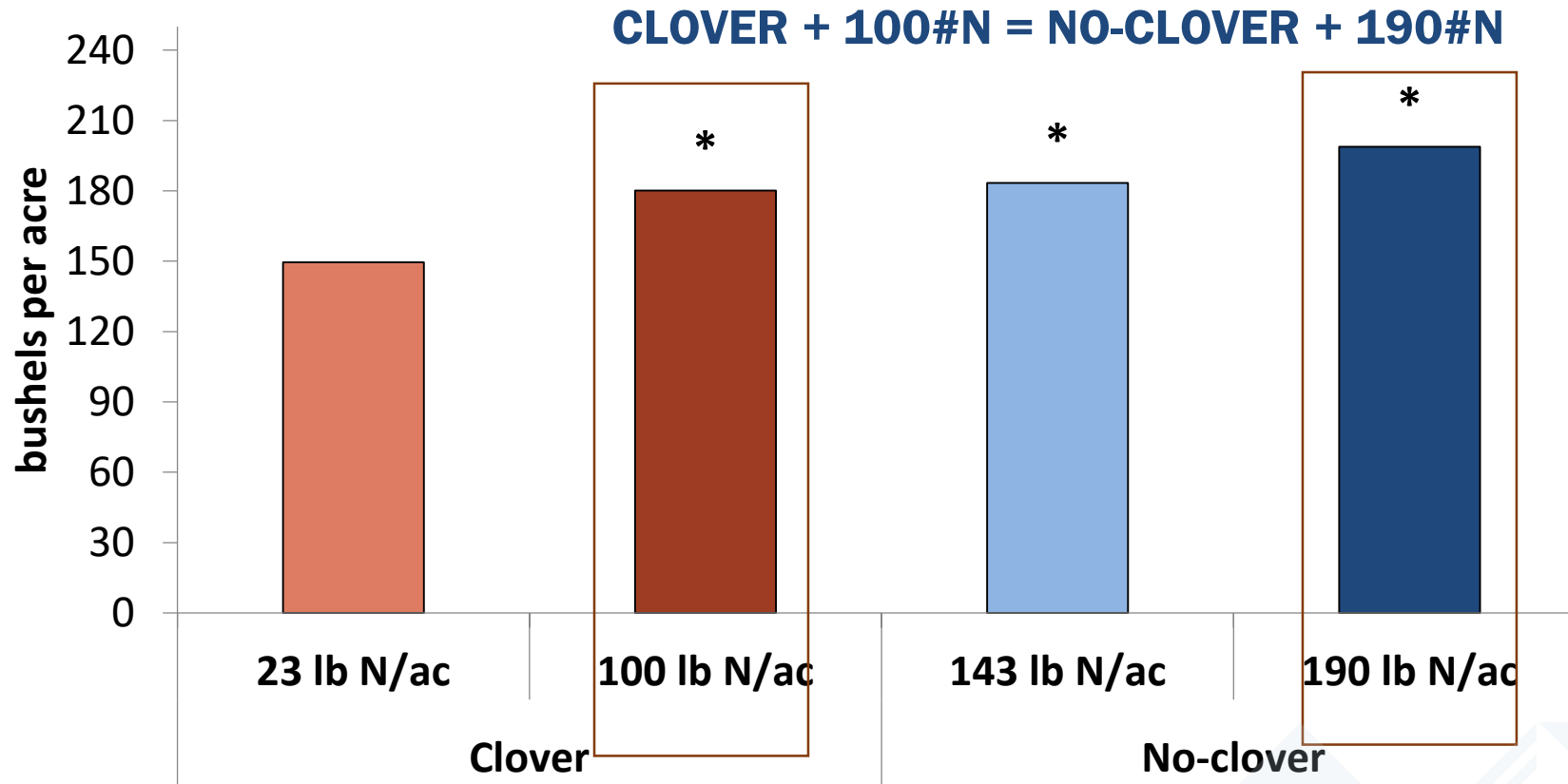
—Tim Sieren, Keota

HOW MUCH N FERTILIZER CAN BE REPLACED BY RED CLOVER “GREEN MANURE” COVER CROP?



- Tim Sieren, Keota



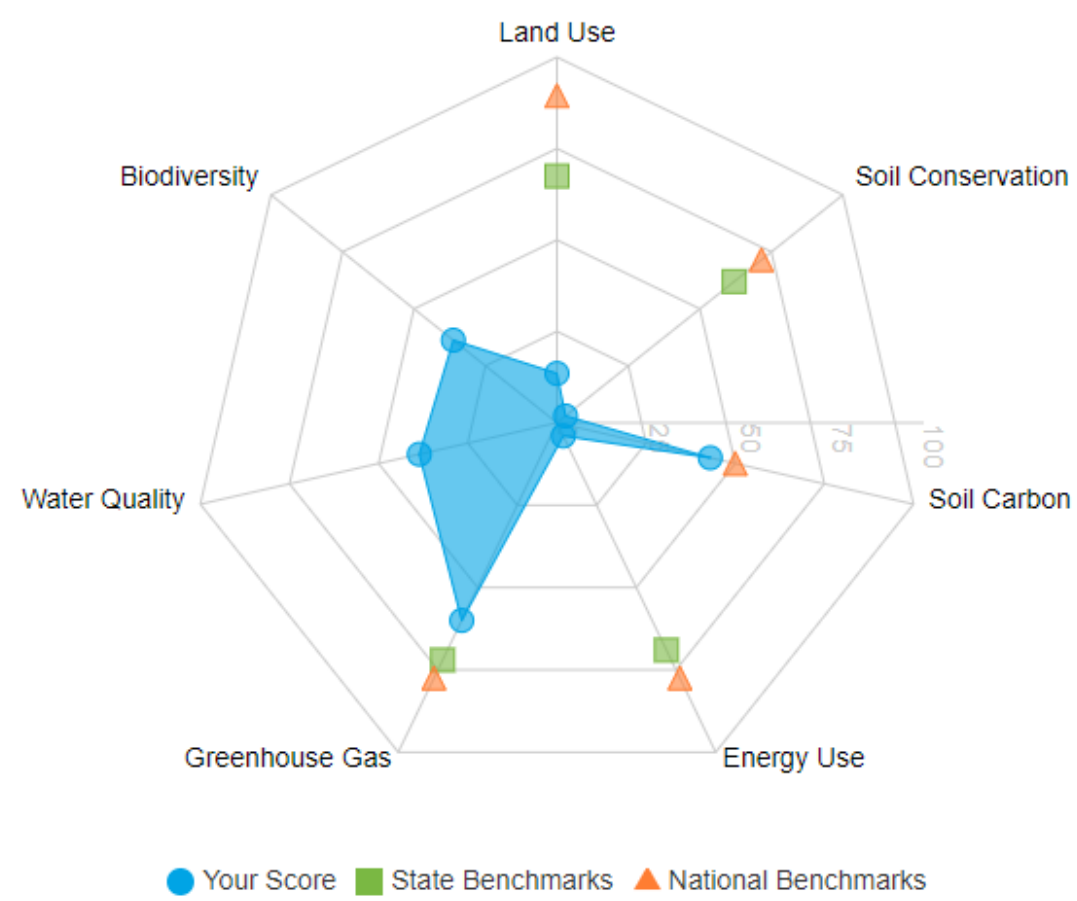
N FERT. REPLACEMENT OF CLOVER: CORN YIELDS



***N FERTILIZER REPLACEMENT =
90 lb N/ac**

	IOWA STATE UNIVERSITY					
YEAR:	2017	2018	2017	2018	2017	2018
CROP:	SOYBEAN	CORN	OATS	CORN	OATS	CORN
TOTAL COST <i>(Operating plus Overhead)</i>	\$503.15	\$827.24	\$889.48	\$694.60	\$617.25	\$687.87
NET RETURN OVER TOTAL COST	\$90.47	\$180.57	\$156.86	\$452.86	\$(306.25)	\$964.51
NET RETURN OVER OPERATING COST	\$351.88	\$460.10	\$428.69	\$728.59	\$(74.08)	\$1,191.63
SUMMARY:						
TWO-YEAR NET RETURN OVER TOTAL COST		\$271.04		\$609.72		\$658.26
ANNUAL NET RETURN OVER TOTAL COST		\$135.52		\$304.86		\$329.13
ANNUAL NET RETURN OVER CORN-SOYBEAN ROTATION		\$-		\$169.34		\$249.11

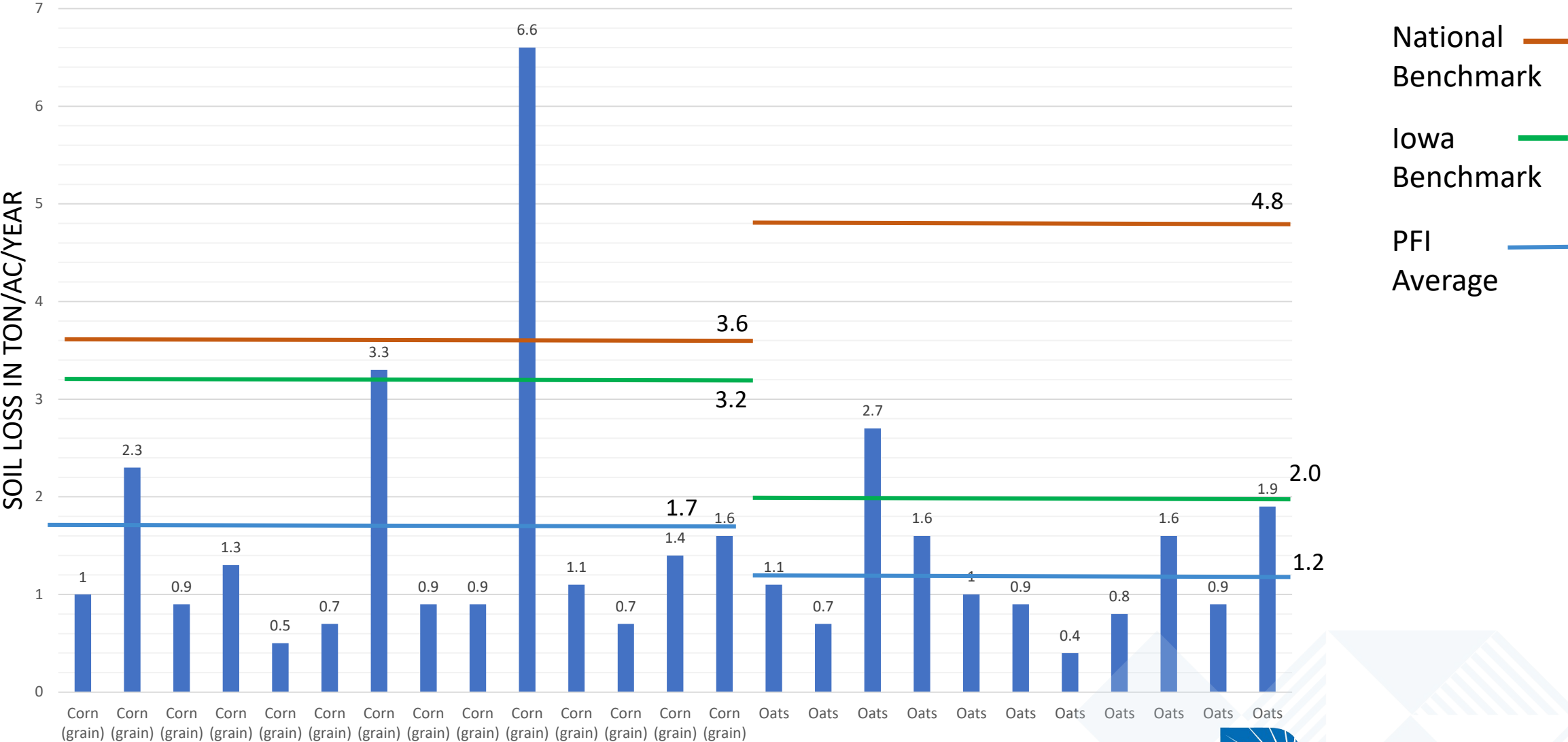
Tools Results

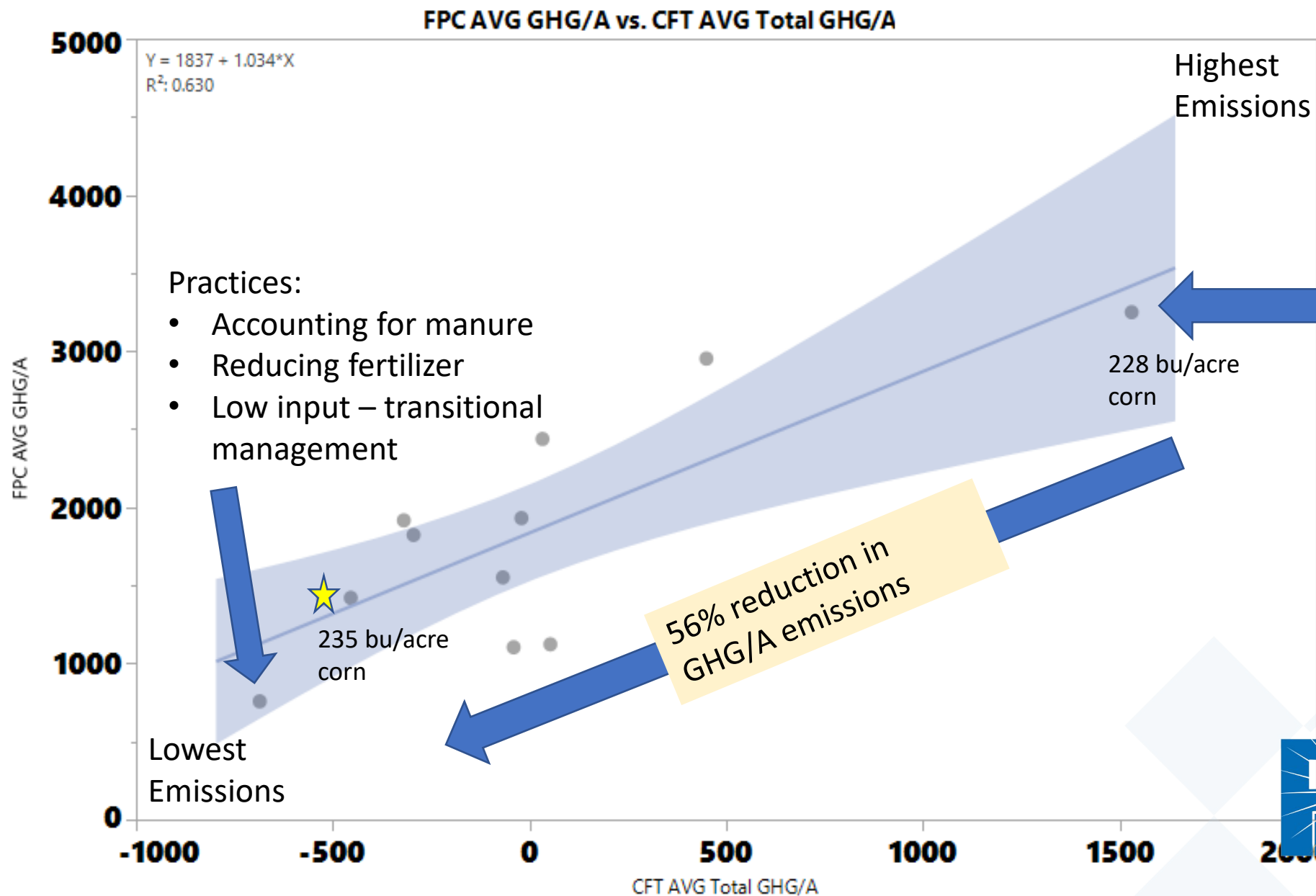


Cropland Stewardship Achievement



Fieldprint Calculator Soil Conservation Score

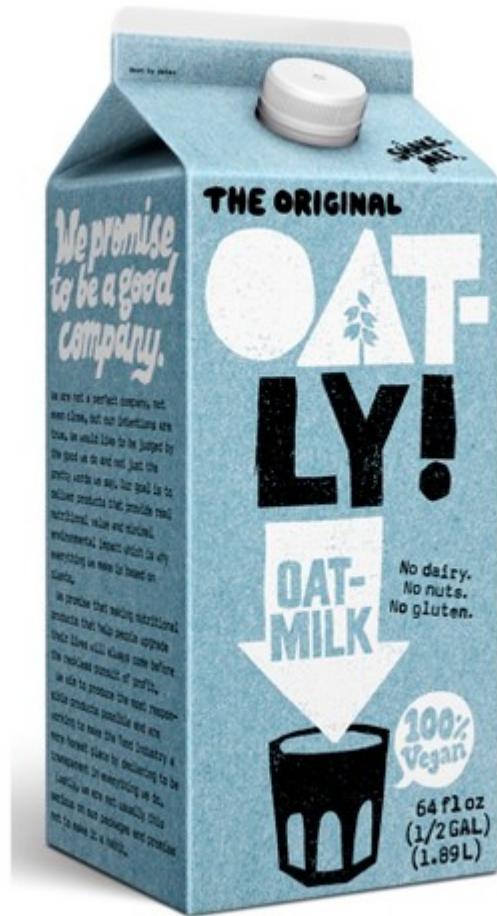




Practices:

- Not reducing fertilizer
- No accounting for nutrients in manure
- Many pest management passes

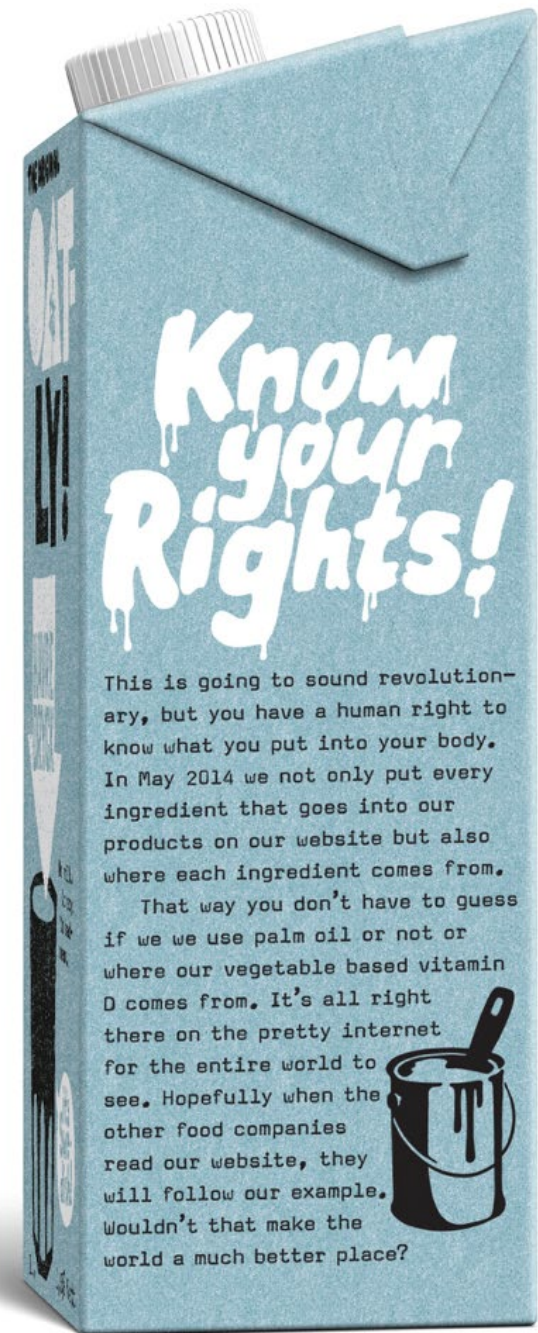
Human Food



GRAIN MILLERS

THE ORIGINAL

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OUR US PRODUCTS





OATLY NORTH AMERICAN FOOTPRINT
2019 / 2020

Dayton, IA
May 2019





Dayton, IA
July 2019

Arco, MN
July 2019



Jannelund's Farm Örebro, Sweden





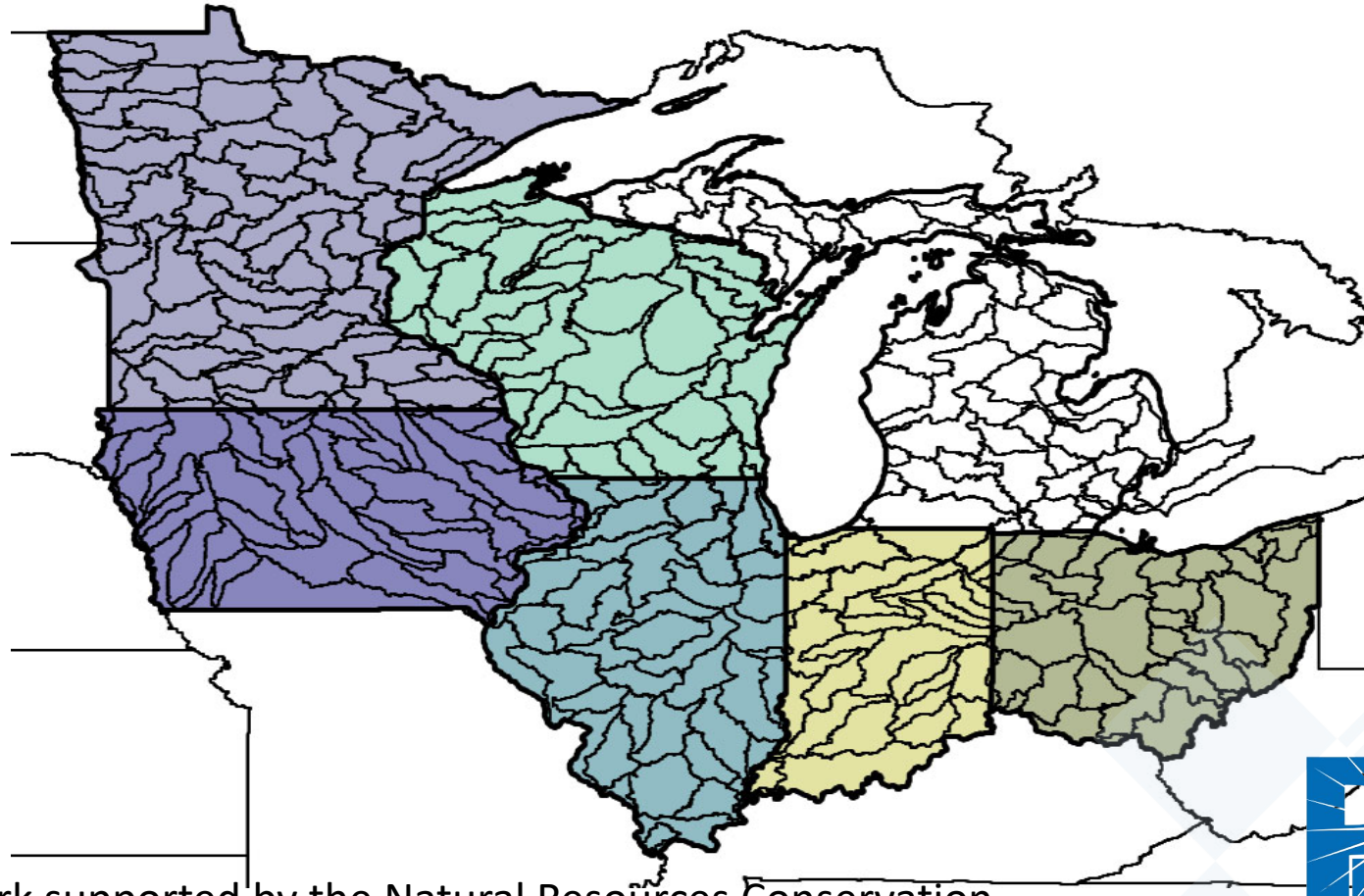
Adam Arnesson, Jannelund's Farm Örebro, Sweden

Take-Aways from First CIG

- Farmers are eager to diversify crop rotations, but lack of markets is a disincentive to adoption at scale
- Food grade small grain markets aren't enough:
 - Low volume
 - No alternative to premium markets if specifications (test weight, etc.) aren't met



2018 CIG Award: Reviving Feed and Seed Markets to Grow Small Grains in the Cornbelt



This material is based on work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under numbers NR193A750008G004 .



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