



Land O'Lakes SUSTAIN

Farmer-owned and farmer-driven stewardship

Matt Carstens

Twitter: @mattcars1

LinkedIn: Matt Carstens

LAND O'LAKES, INC.

**The agricultural industry is
where our biggest global
challenges play out.**

We need to grow more with less and conserve our resources

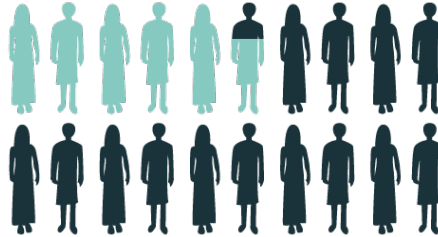
CLOSING THE FOOD GAP



60%

Required increase in
food calories to feed 9
billion people by 2050

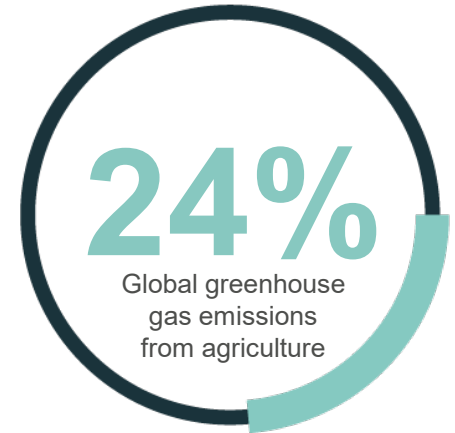
SUPPORTING ECONOMIC DEVELOPMENT



28%

Global population directly
or indirectly employed by
agriculture

REDUCING ENVIRONMENTAL IMPACT



Global greenhouse
gas emissions
from agriculture

Prices Creep Higher Ahead of Fall Applications- DTN

*Des Moines Water Works cannot win damages in nitrate case
-Des Moines Register*

*Overuse of farm fertilizer drives state's first effort to regulate it
-Minnesota Star Tribune*

*In the Heart of the Corn Belt, an Uphill Battle for Clean Water
- Yale 360*

*Controversial Des Moines Water Works Lawsuit Calls For Farmers to Clean Up Drinking Water
- Civil Eats*

U.S. Farmers Make Conservation Decisions that Impact...

915 Million Acres

47% of land in continental U.S.





LAND O'LAKES, INC.

2018

Increasing importance of sustainability

Consumers are increasingly considering sustainability issues in their purchase decisions.

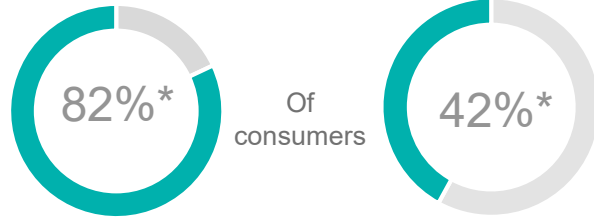


Today's consumer



Value
+
Values

SUPPORTING EVIDENCE



in emerging markets, and . in developed markets

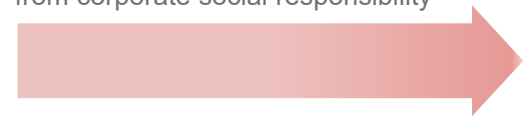
*“believe they have a responsibility to purchase products that are good for the environment and society”**

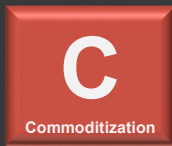
86% of US Consumers

Expect Companies to Act on Social, Environmental Issues***

Companies see up to **20%** price

premium and **20%** revenue growth from corporate social responsibility**





Increasing rise of private label brands and commoditization of categories

THE RISE AND RISE AGAIN OF PRIVATE LABEL

"There is a new retail revolution underway. . . We're talking about the development of private-label products and the new challenges that this will present for brands and manufacturers across the globe. . ."

- Nielsen 2018*

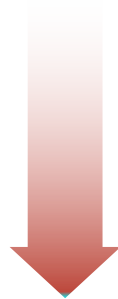
Price
Quality
Convenience



Commodities



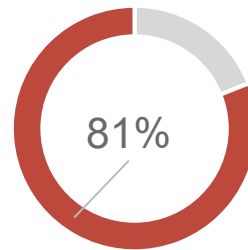
SUPPORTING EVIDENCE



Loyalty to Mega Brands is decreasing

90%

of Top 100 CPG Brands losing market share**



Of consumers buy private label products at grocery***

***In 2017, private brands outpaced national brands by

8%

Sources*AT Kearney survey, Fortune, Euromonitor, IBIS World, Nielsen survey, EcoFocus Worldwide Study, **

*<https://www.nielsen.com/us/en/insights/reports/2018/the-rise-and-rise-again-of-private-label.html> ***Damon Private Brand Intelligence Report 2018

LAND O'LAKES
SUSTAIN[®]

Why Land O'Lakes SUSTAIN

Dairy
Foods

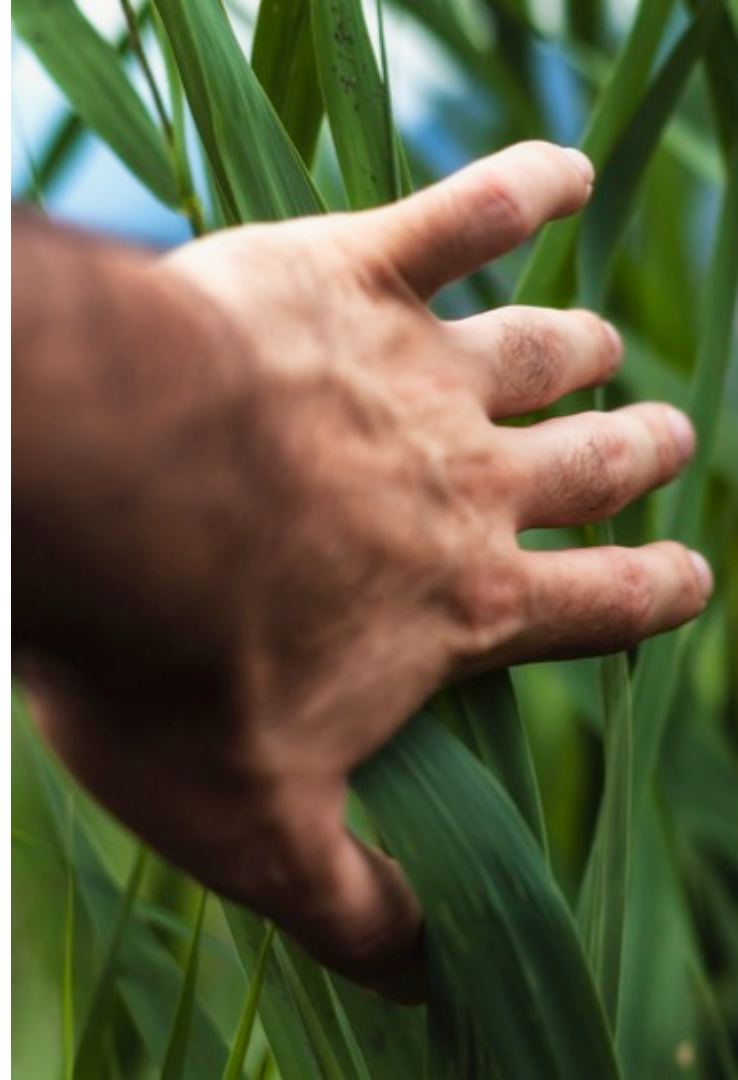
Purina

Winfield

SUSTAIN

With nearly 4,000 members the Land O'Lakes network touches:

- **25%** of America's crop farmers
- **30%** of American animal protein
- **50%** of America's harvested acres
- **90%** of America's grocery retail outlets



Systemic Solutions Throughout the Value Chain

- Meet farmers where they are on their stewardship journey
- Creating conservation solutions acre-by-acre & animal-by-animal
- Using data-driven insights to create customized stewardship recommendations by farm and for every business



DELIVERING

Unmatched scale and capability
to engage farmers in
advancing conservation
solutions across millions of
acres of farmland



COLLECTING

On-farm data to help farmers continuously improve their stewardship and help consumers understand how their food was produced



CONNECTING

The food and agriculture value chain – bringing together company-level sustainability commitments and acre-by-acre conservation



A man wearing a blue and white plaid shirt, dark shorts, and a grey baseball cap stands with his hands on his hips, looking out over a vast green field. The TRUTERRA logo is overlaid on the right side of the image. The logo consists of the word "TRU" in white on a dark teal background and "TERRA" in white on an orange background. The background of the entire image is a photograph of a man in a plaid shirt and cap standing in a green field, looking out over a vast landscape. The bottom of the image has a solid olive green band. On the right side, there are white, stylized, wavy lines resembling topographic map contours.

TRUTERRA



Advancing farmer led
stewardship through
conservation practices

Across a wide array of
crops & geographies

Applicable throughout
the industry



As a leader in scaling private-sector conservation solutions, Land O'Lakes SUSTAIN is taking the next step in farmer-led and farmer-driven sustainability through Truterra™

Suite of on-farm stewardship offerings

- Insights Engine is the cornerstone technology
- SoilVantage
- Other tools

Truterra™ Insights Engine

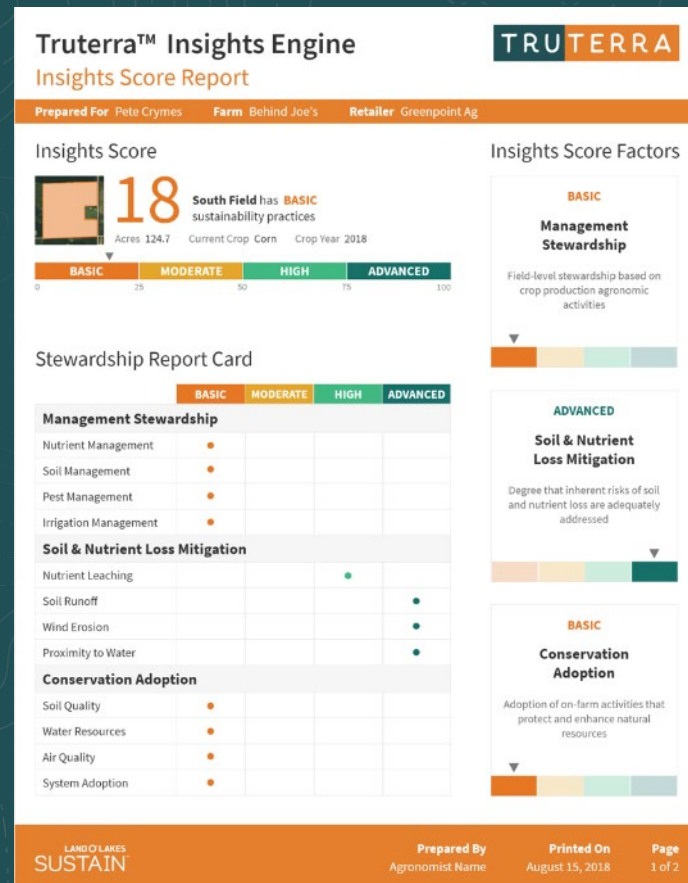
Truterra Insights Score

Yield and Profit Insights

Stewardship Indicators

Field Print Calculator 3.0

Walmart Gigaton Challenge



Profit Insights

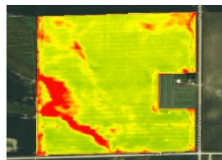
Current Field Information

Grower Name Pete Crymes
Farm Name Behind Joe's
Field Name South Field
Field Size 124.7 acres
Current Crop Corn
Crop Year 2018

Select Comparison Scenario:

- ☐ Enhanced Nitrogen Practices ⓘ
- ☐ Improved Residue Cover ⓘ
- ☐ Strip Tillage ⓘ
- ☐ Interseeded Winter Cover ⓘ
- ☐ Post Harvest Winter Cover ⓘ
- ☐ Contour Conservation Management ⓘ
- ☐ Terrace Conservation Management ⓘ
- ☒ Profit Focused Conservation Cover ⓘ
- ☐ Build custom practice ⓘ

Current Practices



Profit Map

Profit Performance Estimate

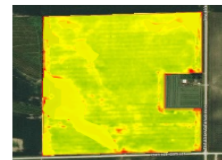
Acres	124.7	
Yield ⓘ	170.5	bu/ac
Profit ⓘ	-6.13	\$/ac
Total Profit ⓘ	-877.87	\$
ROI ⓘ	-0.8	%

Stewardship Performance Estimate

Insights Score ⓘ	18	
Soil Erosion ⓘ	27.7	
Soil Quality ⓘ	-	
Emissions ⓘ	16.6	

Selected Comparison Scenario:

Profit Focused Conservation Cover



Profit Map

Profit Performance Estimate

Acres	109.8	
Yield ⓘ	180.9	bu/ac
Profit ⓘ	37.55	\$/ac
Total Profit ⓘ	5,381.44	\$
ROI ⓘ	5.4	%

Stewardship Performance Estimate

Insights Score ⓘ	41	
Soil Erosion ⓘ	15.1	
Soil Quality ⓘ	-	
Emissions ⓘ	15.8	

Potential Revenue Opportunities

No revenue opportunities were found for this practice set.

View all revenue opportunities →

SUSTAINABILITY SUMMARY

TRU **TERRA**



129
GROWERS



1,269
FARMS



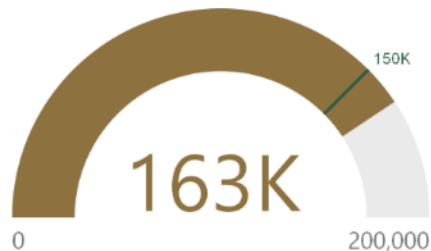
1,854
FIELDS



163k
ACRES

ACRES ASSESSED

OF 150,000 ACRE GOAL



ACRES BY CROP



CORN

85.34K



SOYBEANS

73.29K

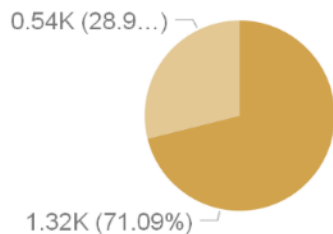


OTHER

4.04K

ASSESSMENTS PER FIELD

● Single Assessment ● Multiple Assessments



ACRES BY YEAR

2017

131K

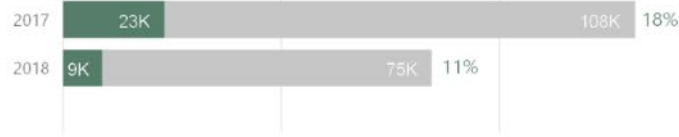
2018

84K

NUTRIENT MANAGEMENT

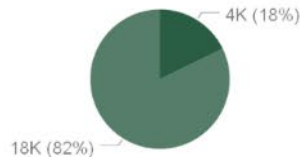
ACRES USING A NUTRIENT MODEL

-3.23% ↓



NUTRIENT MODEL METHOD BY ACRE

● Nitrogen Model & Phosphorous Index ● Nitrogen Model



ACRES USING VARIABLE RATE TECHNOLOGY

3.50% ↑

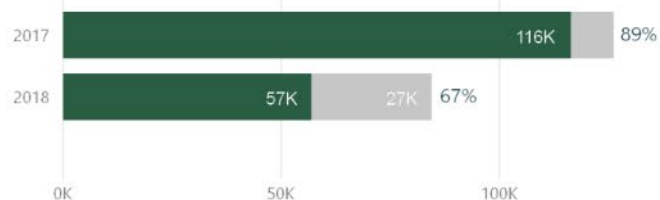


VARIABLE RATE USE

N	P	K	Acres
			63,029
			36,573
			5,955
			2,228
			1,529
			743

ACRES USING SAMPLING METHODS FOR DECISIONS

-0.19% ↓

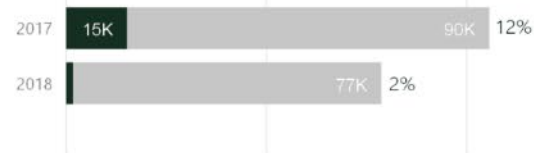


SAMPLING METHOD USE

Soil Nitrate	Stalk Nitrate	Tissue Sampling	Acres
			27,459
			4,009
			3,594
			1,009
			713
			178
			146

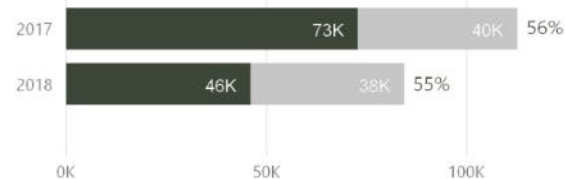
ACRES WITH NUTRIENT MANAGEMENT PLAN

-3.44% ↓

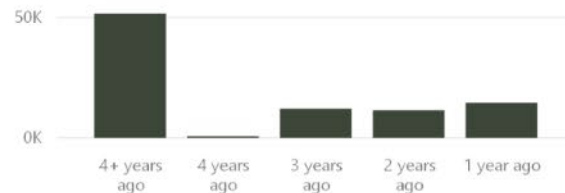


ACRES WITH LIME APPLIED

2.62% ↑



YEAR LIME APPLIED BY ACRE





No one farmer, company, conservation group, government entity can scale sustainability efforts on their own.

We must work together to connect every link in the food supply chain - from farm to fork.



LAND O' LAKES, INC.

Thank you

Any comments/thoughts are welcome

