



Cover Crops & Soil Health Opportunities

Iceberg or Tsunami?



GrasslandOregon

Novel solutions for growing concerns.

Curious by nature

Inspired by challenges

Driven to learn and find answers

Corn for Grain 87 million
Soybean 76 million

Acres of Potential...

Corn & Soybean
~163 Million Acres

This list
> 246 Million Acres

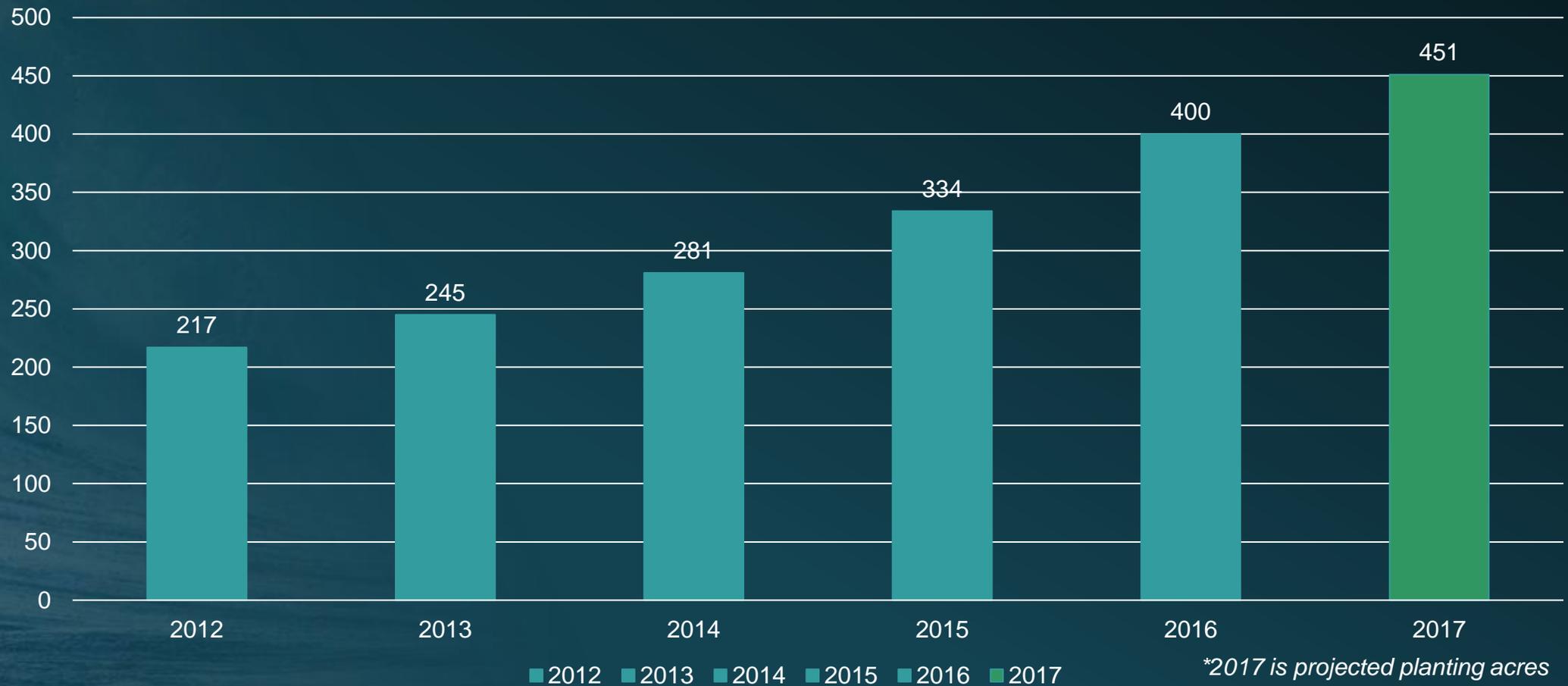
AG Census Total Farmland
> 805 Million Acres

...In the US alone

Vineyards/Grapes 1.1 million
Forage & Pastures 106 million
Corn for Silage 7.1 million
Vegetables 4.1 million
Sunflowers 3.5 million
Orchards 5.2 million
Sorghum 5.5 million
Cotton 9.3 million
Wheat 98 million
Beets 1.2 million
Pulse 2.8 million
Rice 2.6 million

Average Acres of Cover Crops Per Farm in the U.S.

Cover crop acres per farm – reported growth rate of about 15%



EROSION CONTROL
INCREASE YIELD
BUILD ORGANIC MATTER
ALLEVIATE COMPACTION

SUSTAINABILITY

Water Quality **Water Infiltration** **Water Holding**

Goals / Benefits

Creating Root Pathways **Added Crop Rotations**

Improve Boggy Soils **Nematode Control** **Reduce Labor Costs**

Nitrogen Fixation **Phosphorous Management**

Nitrogen Stability **Disease Suppression** **Weed Suppression**

Increase Soil Temp **Beneficial Insectary** **Increase Worm Activity**

Decrease Soil Temp **Deep Soil Potassium Access**

Insect Control **Mineral Uptake** **Reduce Equipment Passes**

Improve Biology **Pollinator Habitat** **Improve Saline Soils** **Control Chemical Leaching**

Reduce Input Costs **Increase Microbial Activity** **Biofumigation**



Water Management

Pest Control

Biofumigation

Organic Matter

Disease Control

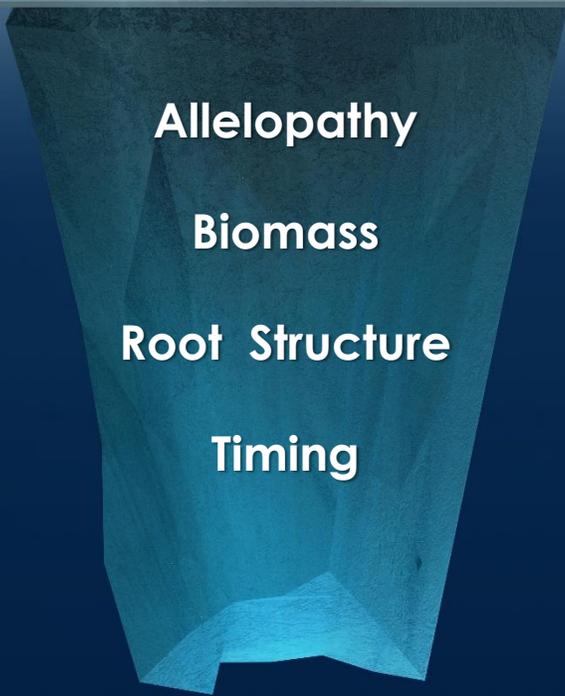
Yield

Biology

Nitrogen Contribution

Weed Suppression

WEED SUPPRESSION



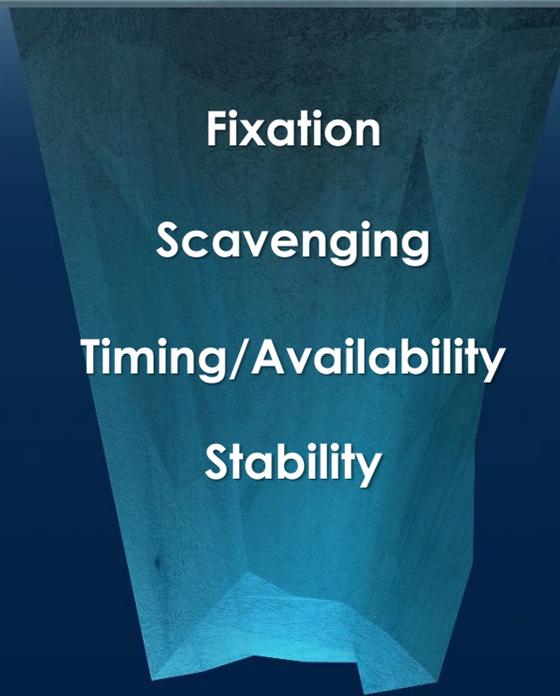
Allelopathy

Biomass

Root Structure

Timing

NITROGEN CONTRIBUTION



Fixation

Scavenging

Timing/Availability

Stability

BIOLOGY



Beneficial or Detrimental Attributes

Above Ground
Rodents/Disease

Below Ground
Host or Non-Host

Nematodes
Other Micro-Organisms

A Few Tools...





GO

Grassland Oregon

Novel solutions for growing concerns.



Breeds of Cattle



ABERDEEN ANGUS



BEEF SHORTHORN



BELGIAN BLUE



BELTED GALLOWAY



BLONDE D'AQUITAINE



BRITISH WHITE



CHAROLAIS



HEREFORD



LIMOUSIN



LINCOLN RED



SOUTH DEVON



GALLOWAY



HIGHLAND



MURRAY GREY



RED POLL



SIMMENTAL



GLOUCESTER



DEXTER



AYRSHIRE



LONGHORN



JERSEY



DEVON



IRISH MOILED



WELSH BLACK



DEXTER



WHITE PARK



HOLSTEIN



SUSSEX



A Clover is a Clover is a Clover...



CLOVER

ZigZag	Crimson	Southern Bur
Ball	Medium Red	Hop
Subterranean	Persian	Alsike
Rose	White Dutch	Button
NZ White	Yellow Blossom	Rabbits Foot
	Berseem	
	Balansa	
	Grandiflorum	

FIXation Balansa Clover
96,154 lbs. Green Biomass

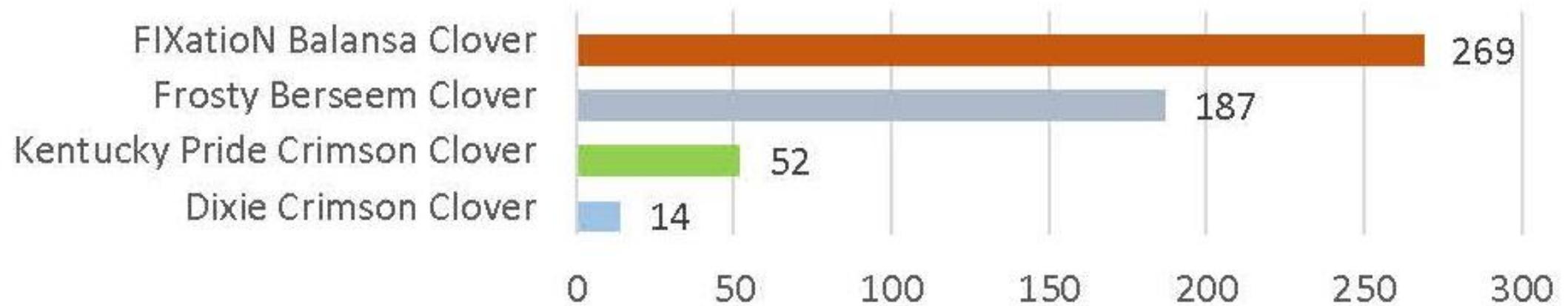


Dixie Crimson Clover
5,162 lbs Green Biomass



University of Illinois
Ewing Demonstration Center
Evaluation of Cover Crops in Corn Production

Nitrogen in Biomass lbs./A.



University of Illinois
Ewing Demonstration Center
Evaluation of Cover Crops in Corn Production



Species	Crop	Variety	Seeds/lb	Seeding Rate (PLS seeds/ft²)	Seeding Rate (PLS lb/ac)
<i>Avena strigosa</i>	black oats	Cosaque	12,019	42	152
<i>Avena strigosa</i>	black oats	Soil Saver	30,468	42	60
<i>Secale cereale</i>	cereal rye	Abruzzi	19,404	42	94
<i>Secale cereale</i>	cereal rye	Aroostook	23,176	42	79
<i>Secale cereale</i>	cereal rye	Brasetto hybrid	21,354	42	86
<i>Secale cereale</i>	cereal rye	Elbon	32,348	42	57
<i>Secale cereale</i>	cereal rye	FL 401	24,104	42	76
<i>Secale cereale</i>	cereal rye	Guardian	14,996	42	122
<i>Secale cereale</i>	cereal rye	Hazlet	13,252	42	138
<i>Secale cereale</i>	cereal rye	Maton	20,875	42	88
<i>Secale cereale</i>	cereal rye	Maton II	21,532	42	85
<i>Secale cereale</i>	cereal rye	Merced	29,866	42	61
<i>Secale cereale</i>	cereal rye	Oklon	20,452	42	89
<i>Secale cereale</i>	cereal rye	Prima	12,988	42	141
<i>Secale cereale</i>	cereal rye	Wheeler	21,354	42	86
<i>Secale cereale</i>	cereal rye	Wintergrazer-70	23,251	42	79
<i>Vicia villosa</i>	hairy vetch	Lana	12,350	7	25
<i>Vicia villosa</i>	hairy vetch	Purple Prosperity	15,960	7	19
<i>Vicia villosa</i>	hairy vetch	TNT	17,520	7	17
<i>Vicia villosa</i>	hairy vetch	CCS-Groff	19,930	7	15
<i>Vicia villosa</i>	hairy vetch	Vilana	14,180	7	22

SOYBEAN CYST NEMATODE STUDY

SCN/Forage Legumes 2015

Trial established on 3/11/15 and inoculated with 2920 SCN eggs + 1860 J2s per cone.

Trial terminated on 5/1/15. Plants destructively sampled and roots scrubbed to release SCN females.

SCN population from Decatur MI, RR Trial 2014

Soil: 88.3% sand, 6.7% silt and 5.0% clay; pH = 7.1; CEC = 3.9 meq/100 g

Plant populations: alfalfa and clovers, 3 plants/cone; brassica, mustard and peas, 2 plants/cone and all others, 1 plant/cone.

No.	Species	Cultivar	SCN females, cysts and eggs per conetainer												fe
			Rep 1				Rep 2				Rep 3				
			females	cysts	SUM	eggs^	females	cysts	SUM	eggs^	females	cysts	SUM	eggs^	
1	alfalfa	Foregrazer	0	1	1	225	0	0	0	980	0	0	0	1200	
2	alfalfa	L449 APH2	0	0	0	390	0	0	0	505	0	0	0	110	
3	alfalfa	L455	0	1	1	10	0	0	0	15	0	0	0	30	

X	SCN eggs^	
	SD	SE
1273.75	1032.371	258.093
265.00	217.064	54.266
223.75	410.921	102.730

A Few Tools...





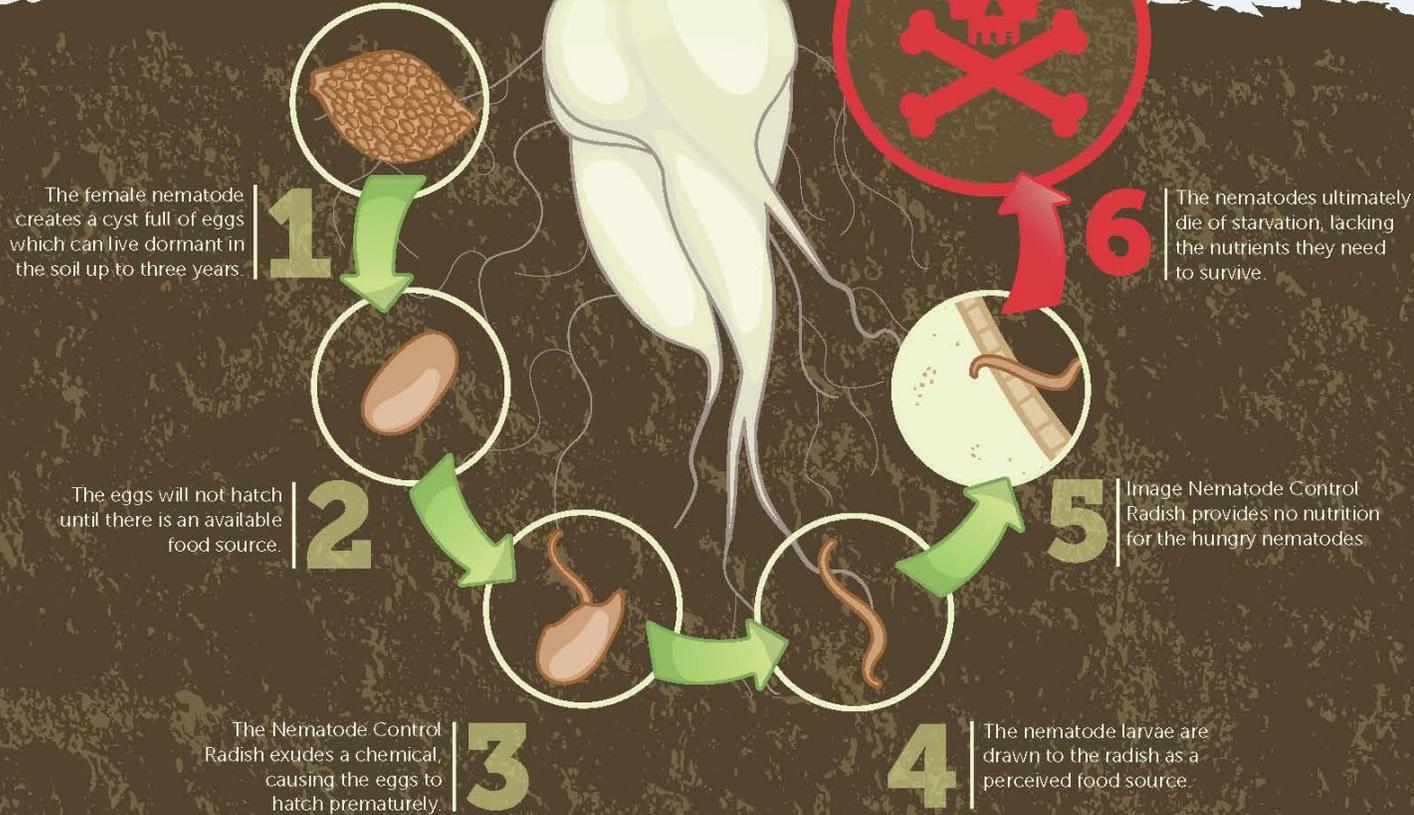






BREAK THE NEMATODE CYCLE

Novel solutions
for growing concerns.





Grassland Oregon

Novel solutions for growing concerns.





OPPORTUNITIES

COVER CROP SEED SALES



Specialize
Differentiate
Expand your network
Become the local Expert

LOCAL COVER CROP PLOTS



Observations
On-Farm Success Examples
Sharing/Learning
Highlight your related products/services

EQUIPMENT



Sales
Rentals
Options

EDUCATION

CONSULTING

EXPERTISE

Seminars

Round-Table
Discussions

Crop Insurance

Government Programs

On farm Rx

Comprehensive Crop
System Management

Assist with Gov't
Programs

Assist with Insurance
Programs

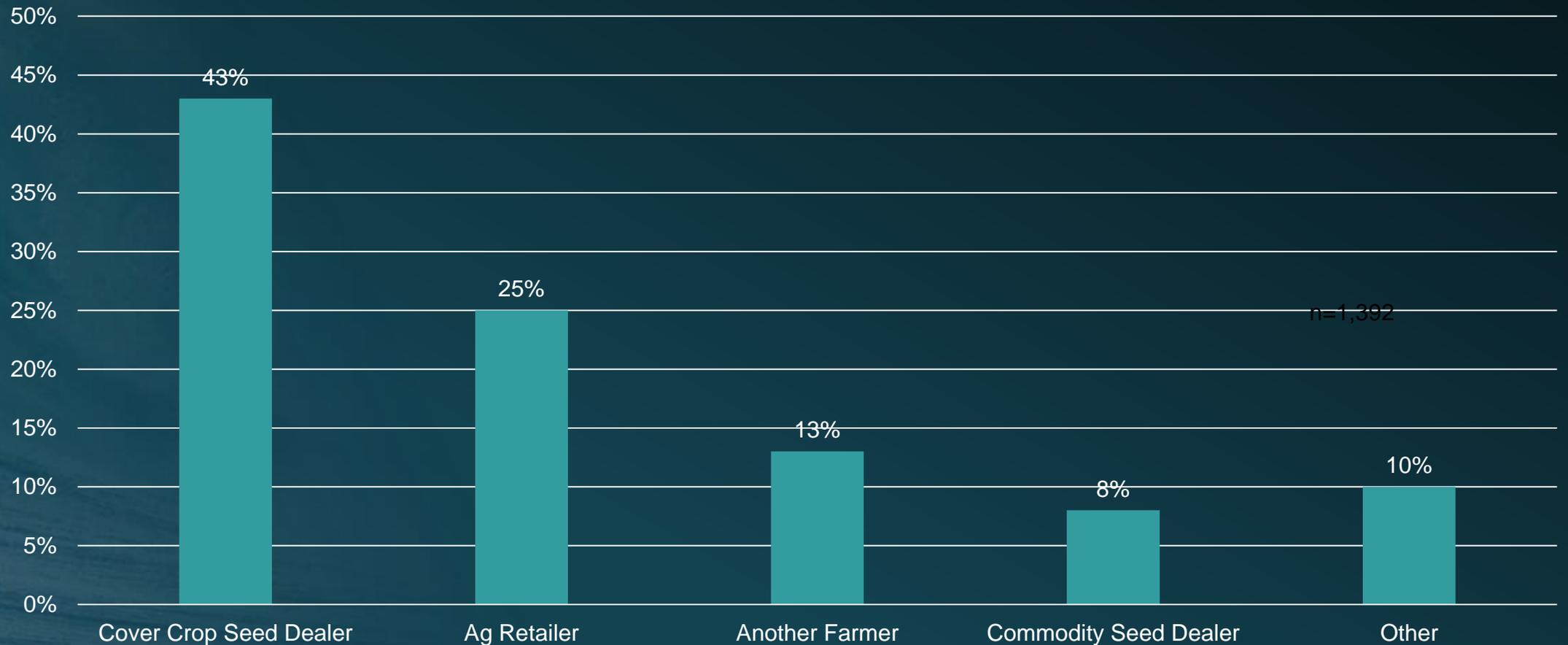
Value

Connecting Dots

Local Source for
Information

Community Trust

Where Farmers Want to Purchase Cover Crop Seed in the Future



EROSION CONTROL
INCREASE YIELD
BUILD ORGANIC MATTER
ALLEVIATE COMPACTION

SUSTAINABILITY

Water Quality **Water Infiltration** **Water Holding**

Goals / Benefits

Creating Root Pathways **Added Crop Rotations**

Improve Boggy Soils **Nematode Control** **Reduce Labor Costs**

Nitrogen Fixation **Phosphorous Management**

Nitrogen Stability **Disease Suppression** **Weed Suppression**

Increase Soil Temp **Beneficial Insectary** **Increase Worm Activity**

Decrease Soil Temp **Deep Soil Potassium Access**

Insect Control **Mineral Uptake** **Reduce Equipment Passes**

Improve Biology **Pollinator Habitat** **Improve Saline Soils** **Control Chemical Leaching**

Reduce Input Costs **Increase Microbial Activity** **Biofumigation**

A **B**
CRIMSON CLOVER
VARIETY: KENTUCKY PRIDE
LOT: M9-16-KCC-166

C	PURE SEED:	99.83%	
	OTHER CROP SEED:	0.00%	
D	INERT MATTER:	0.17%	
	WEED SEED:	0.00%	E
F	NOXIOUS WEEDS:	NONE FOUND	
	GERMINATION:	81.00%	G
	HARD SEED:	9.00%	
	TOTAL GERMINATION:	90.00%	
	TEST DATE:	9/16	
H	ORIGIN:	OREGON	
	NET WEIGHT:	50LB/22.68KG	

GREENER WORLD SEED COMPANY
123 MAIN STREET
HARTLAND USA
AMS 4804

The local Ag Retailer's pricelist offers Dixie Crimson clover at \$1.80/lb. and FIXation Balansa Clover at \$2.60/lb. WOW! Seems like an easy decision if you only look at things from a cost-per-pound perspective. But let's take a little deeper look:

Dixie Crimson

~ 135,000 seeds per pound (raw)
Plant rate = up to 20 lbs/A. (drilled)

The cost per acre = \$36

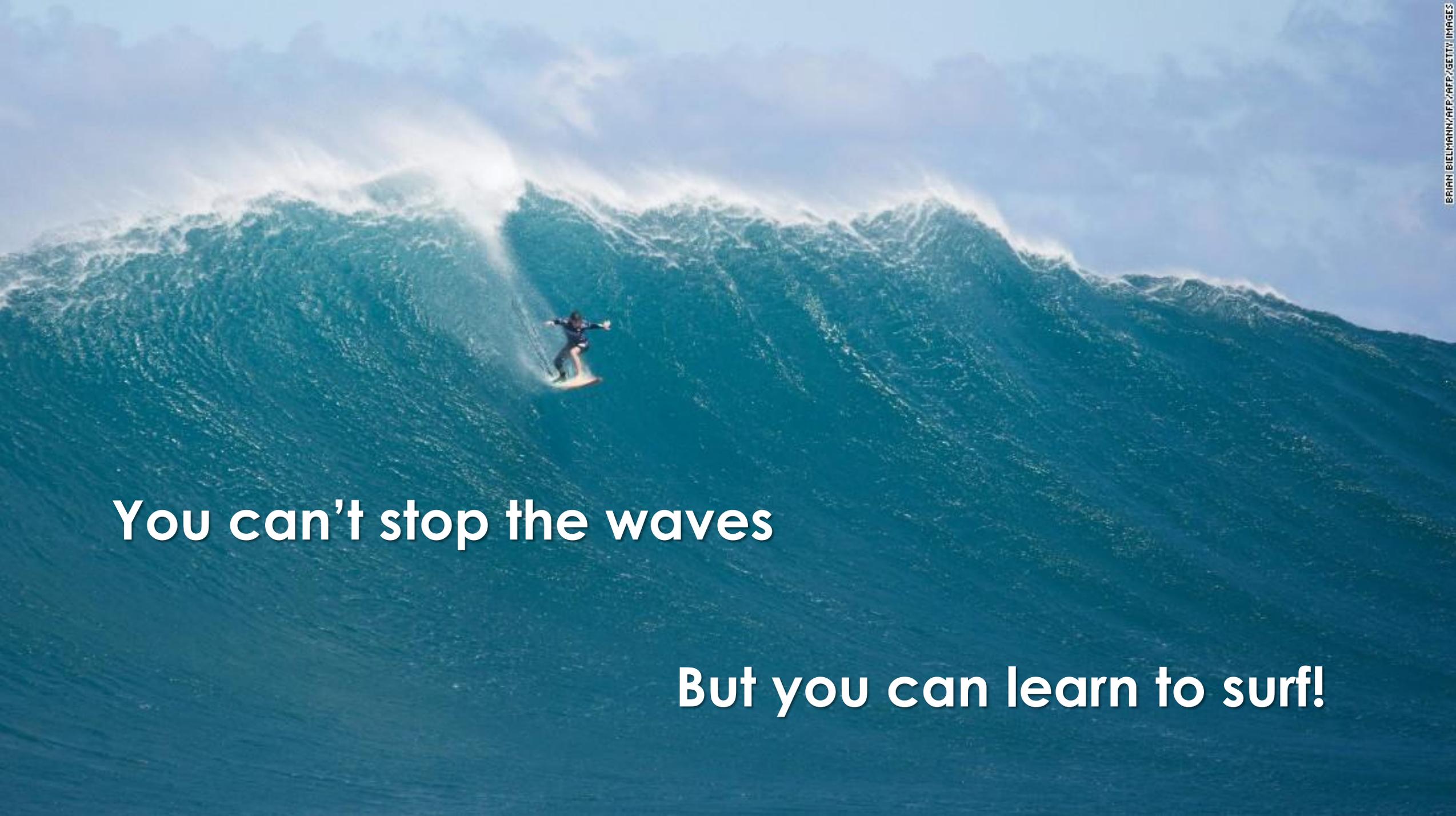
FIXation Balansa Clover

~500,000 seeds per pound (coated)
Plant rate = up to 8 lbs/A. (drilled)

The cost per acre = \$20⁸⁰

Cost per acre provides a clearer picture of your real cost.



A high-angle, wide shot of a surfer riding a massive, curling blue wave. The surfer is positioned in the center of the wave's face, appearing small against the scale of the water. The wave is a deep, vibrant blue, and the sky above is filled with soft, white clouds. The overall scene conveys a sense of power and natural beauty.

You can't stop the waves

But you can learn to surf!



GrasslandOregon

Novel solutions for growing concerns.

Risa DeMasi - @SeedNerd

Grassland Oregon - @GOSeed

www.GrasslandOregon.com