

TRAVELS WITH RUTH IN SEARCH OF CONSERVATION IDEAS

PFI ANNUAL CONFERENCE

JANUARY 10TH, 2025


PRACTICAL FARMERS
of Iowa

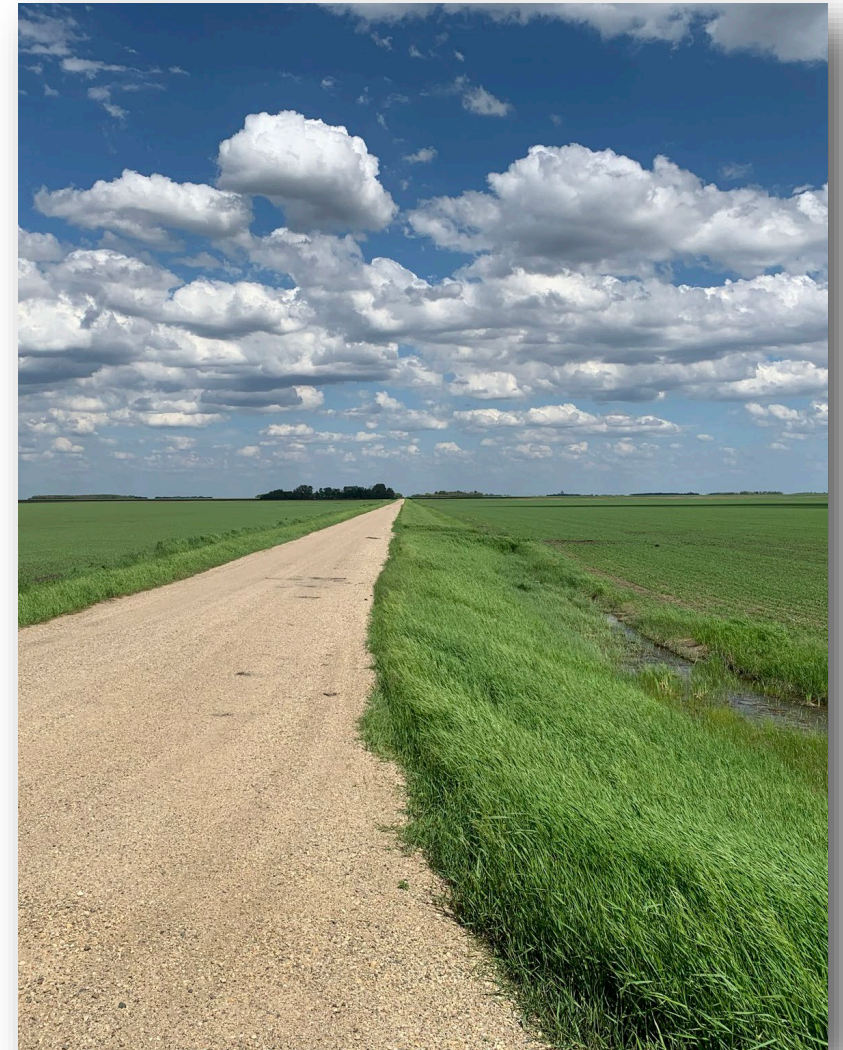
RUTH MCCABE

CONSERVATION MANAGER


HEARTLAND CO-OP

Roadmap:

- **Introductions & Housekeeping**
 - Who am I? Who is Heartland?
 - Who is Heartland's Conservation Team?
 - Why do we need conservation agriculture?
- **Nuffield International Scholar Program**
 - What did I study and where did I go?
 - What's going on in Iowa?
 - What's going on in the world?
 - What drives conservation farming adoption?
- **Action Items**
 - What can WE do to improve conservation farming adoption in Iowa?

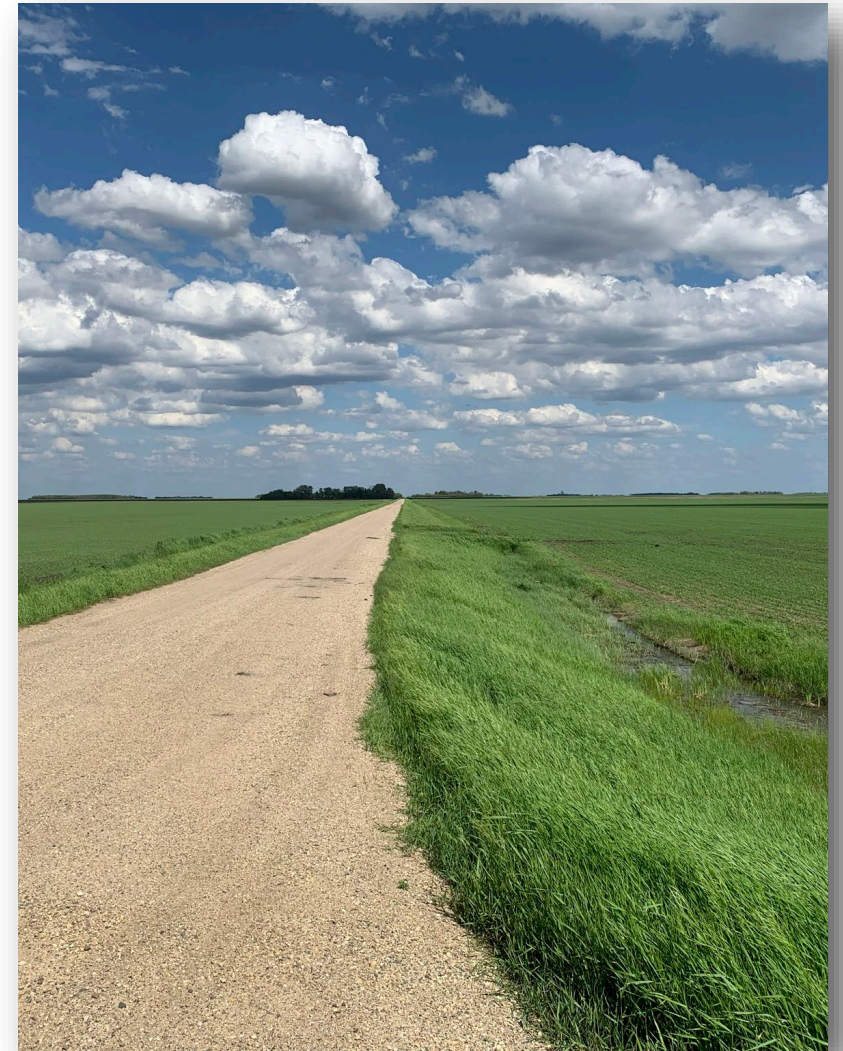


Manitoba, Canada

Roadmap:

- **Introductions & Housekeeping**
 - Who am I? Who is Heartland?
 - Who is Heartland's Conservation Team?
 - Why do we need conservation agriculture?

profi



Manitoba, Canada

Housekeeping:



Sarawak, Borneo

- “User experience may vary!”
- Religiosity around conservation farming practices helps no one
- Use the slide numbers, write your questions down

Who am I?



Who is Heartland Co-op?



Who is Heartland's Conservation Team?



- Nitrogen stabilizers
- Variable rate fertilizer application
- In-season N application
- Non-stream animal watering options
- Saturated buffers or bioreactors
- Cover crops and/or relay cropping
- Diversifying crop rotation, hay, pasture
- Vertical till, strip till, or no till
- Filter strips, waterways, prairie strips
- Improved wildlife habitat
- Wetlands, terraces, sediment basins

What is the goal of our team?

Reduce the loss of soil and nutrients from our fields!



Why does Iowa need conservation ag?



Wind erosion = "Snirt"



Ephemeral Gullies



Why does Iowa need conservation ag?



Roadmap:

- **Introductions & Housekeeping**
 - Who am I? Who is Heartland?
 - Who is Heartland's Conservation Team?
 - Why do we need conservation agriculture?
- **Nuffield International Scholar Program**
 - What did I study and where did I go?
 - What's going on in Iowa?
 - What's going on in the world?
 - What drives conservation farming adoption?
- **Action Items**
 - What can WE do to improve conservation farming adoption in Iowa?



Mato Grosso, Brazil

Roadmap:

- **Nuffield International Scholar Program**
 - What did I study and where did I go?
 - What's going on in Iowa?
 - What's going on in the world?
 - What drives conservation farming adoption?



Mato Grosso, Brazil

A Bird in The Hand

Leveraging short-term profits for long-term sustainability



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS



HEARTLAND CO-OP[®]



What is the Nuffield International Farming Scholarship Program?

- Mission is to build future agricultural leaders and enhance agricultural knowledge sharing around the world
- 4 – 5-month travel scholarship completed over two years with a final manuscript published at the end
- Scholars meet with leaders in politics, financial sector, agribusiness and of course...FARMING!

What did I study?

- Conservation farming adoption in major grain producing nations
- Independent Research Travel
 - Chesapeake Bay (1 week)
 - Western Canada (3 weeks)
 - Midwestern Brazil (3 weeks)
 - Eastern Australia (3 weeks)



Irrigated wheat in Alberta, Canada

Where else did I go?

- Contemporary Scholars Conference (CSC)
 - 2 weeks
 - United Kingdom
- Global Focus Program (GFP)
 - 4 weeks
 - Singapore, Borneo, Denmark, Brazil, Australia



Tribal-managed rice paddy in Sarawak, Borneo



United States

Canada

United States

Greenland (Denmark)

Svalbard (Norway)

UK

Germany

Russia

Kazakhstan

Mongolia

China

India

Australia

Malaysia

Brazil

ATLANTIC OCEAN

ATLANTIC OCEAN

PACIFIC OCEAN

PACIFIC OCEAN

INDIAN OCEAN

ATLANTIC OCEAN

Chapter 1:

Introduction to Iowa



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS
 UNITED STATES of AMERICA



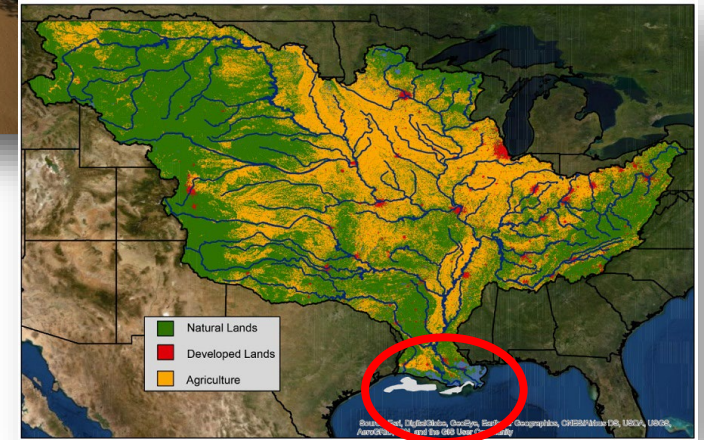
Ch. 1 Introduction to Iowa:



Iowa is #1 in several agricultural commodities:

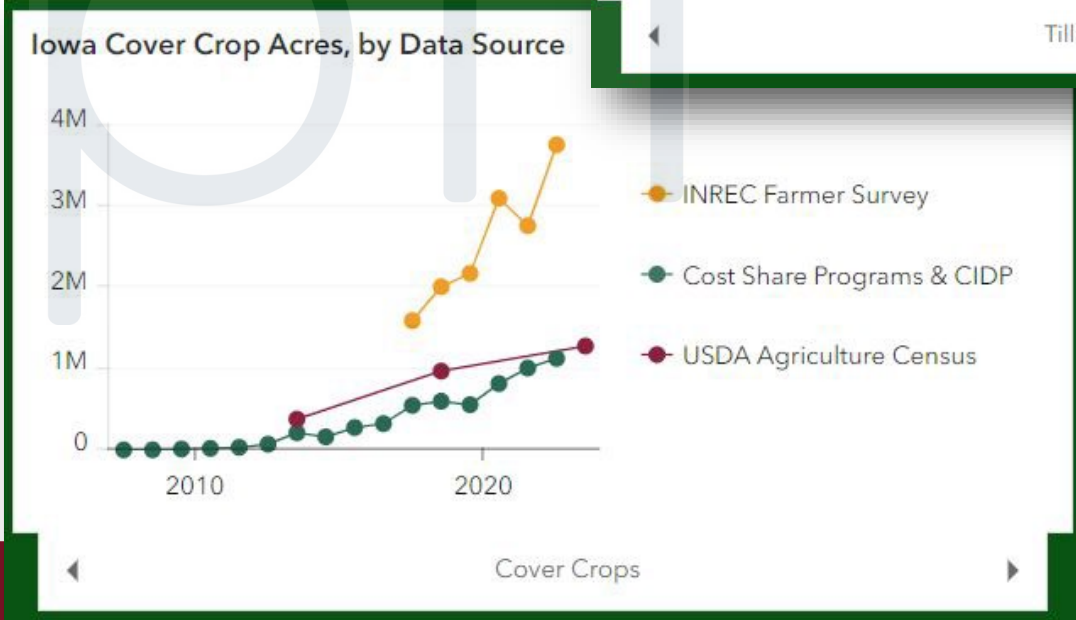
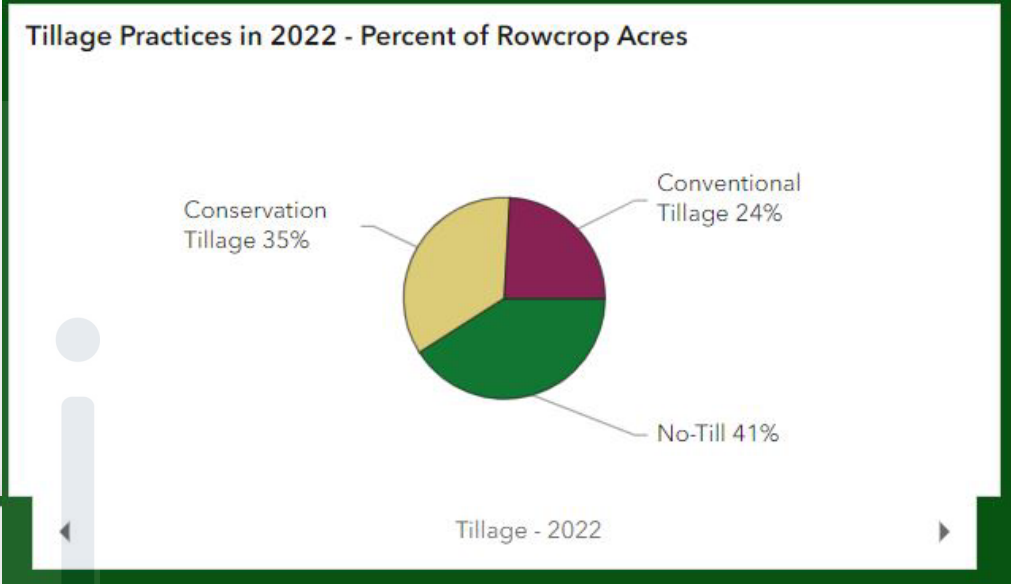
- Hog production
- Corn production
- Egg production
- Soybean (okay...#2 only to Illinois)

Ch. 1 Introduction to Iowa: What's going on in conservation here?



Ch. 1 Introduction to Iowa: What's going on in conservation here?

- 2013: Iowa Nutrient Reduction Strategy
- 2023: Made significant strides...
- Is Iowa really “the worst” at CFP adoption?
- Picked four places to visit:
 - Chesapeake Bay and Eastern Australia
 - Western Canada and Midwestern Brazil



Chapter 1: Research objectives

1. What are the primary drivers of conservation farming adoption around the world?
2. How can conservation stakeholders support and improve CFP adoption in Iowa?
3. How can agricultural retailers support and increase the adoption of CFPs among their farmer-customers?

*CFP = Conservation Farming Practice



Soybean field in Mato Grosso do Sul, Brazil



Fresh pea harvest, Delmarva Peninsula, Maryland

Chapter 1: In other words, by getting out of Iowa...

- Can I learn something that we could use to improve Heartland's conservation department?
- Can I learn something that would be useful to the conservation community in Iowa?

Chapter 2:

What's happening in conservation around the world?

(Research Objective 1: What are the primary drivers of conservation farming adoption around the world?)



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS
 UNITED STATES of AMERICA



HEARTLAND CO-OP[®]

Ch. 2 So what's happening around the world?

- Used interview data from six of the twelve countries/regions that I visited:
 - 53 farmers
 - 23 ag retail professionals
 - 38 NGO/Gov't representatives
- I had two big takeaways...



Cover cropper in Queensland, Australia

Ch. 2 So what's happening around the world?



Gully erosion in Queensland, Australia

- First: Yes, **no-till** is very commonplace outside the US
- Everything else? Nope!
 - CCs...kind of?
 - No waterways
 - No shelterbelts
 - No buffer or filter strips
- Soil degradation is commonplace

A worldwide problem...



Ch. 2 So what's happening around the world?

- Second: One consistent theme came up in almost every conversation that I had...
- **Short term financial impact**



No-tiller in Saskatchewan, Canada

Chapter 3:

What factors influence short-term financial impact?

(Research Objective 1: What are the primary drivers of conservation farming adoption around the world?)



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS
 UNITED STATES of AMERICA



HEARTLAND CO-OP[®]

Ch. 3 What factors influence short-term financial impact?



Organic hog production in Denmark

- Upfront or implied costs
- Is the practice a “game changer”?
- How do the soils, climate, environment impact the CFP?
- Is the farmer also the landowner?
- Is there sufficient, reliable, and non-burdensome cost-share programming available to support the CFP?

Ch. 3 What factors influence short-term financial impact?

Upfront Costs:

- Seed and planting costs
- New machinery requirements

Implied Costs:

- Reduction in yields
- Significant increase in labor hours
- Loss of acreage access



Who assumes these costs?

Drill with built-in roller crimper, Delmarva Peninsula

Ch. 3 What factors influence short-term financial impact?



Grain intercropping and no till in Manitoba, Canada

Is the practice a “game changer”?

- The reason no-till is so popular in the places I visited? **YIELD.**
- Western Canada: almost 100% no-till or extreme min-till adoption
- Brazil: 60% no-till / CC adoption
- Australia: almost 90% no-till adoption
- Chesapeake Bay: Almost 90% no-till or extreme min-till adoption
- **Tenants AND owner-operators alike!**

Ch. 3 What factors influence short-term financial impact?



Grain intercropping and no till in NSW, Australia

How do the soils and climate impact the CFP?

- Visited places with:
 - less rainfall than Iowa
 - dry, hot climate
 - older, less fertile soils
- CFPs in these places increase moisture holding capacity and reduce soil surface heat
- Central Iowa has the richest soil with the highest OM rates in the world...
- **CFPs don't offer very many (if any) short term benefits in Iowa because our soils hide abuse!**

Ch. 3 What factors influence short-term financial impact?

Is the farmer also the landowner?

- CFPs less likely to be adopted by tenants or absentee landowners (NOLs)
- Strongly supported by research
- Heavily impacted by length of land tenure

Look at Iowa:

- 60% of Iowa ag land is rented
- 88% of those leases are cash-rent
- 70% are year by year

...if you're a tenant farmer on a Y2Y lease...



Sugarcane production in Goías, Brazil

Ch. 3 What factors influence short-term financial impact?



No-till and crimped cereal rye ahead of grain corn, Delaware

Is there sufficient and non-burdensome cost-share programming available to support the CFP?

- Iowa is #1 in the US for adoption of permanent vegetative CFPs (buffer strips, grass waterways, etc.)
- I rarely saw permanent vegetative CFPs in other countries
- Support from cost share programming like CRP doesn't exist in other countries
- When looking at cost share programs that favor tenants...it's a different story

Ch. 3 What factors influence short-term financial impact?

What about tenant cost-share options?

- In-field CFPs like no till, CCs, 4R nutrient GAPs
- Most states don't have state-level cost share
- Those that do (usually) can't pay enough
- Federal cost share option (CSP or EQIP) can pay enough but...
 - Notoriously difficult to get into
 - Demand is far greater than supply
 - Often need landowner approval



Heavily tilled potato fields rotated with small grains, Victoria, Australia



Ch. 2 and 3 Bringing it home to Iowa!

- What really drives conservation practice adoption?
- What affects short-term financials?
- If we're going massively improve CFP adoption in Iowa...
- **We need to differentiate between the needs of landowners and the needs of tenants**

Saturated Buffer “Batch & Build” Structure
in Iowa, USA

Roadmap:

- **Introductions & Housekeeping**
 - Who am I? Who is Heartland?
 - Who is Heartland's Conservation Team?
 - Why do we need conservation agriculture?
- **Nuffield International Scholar Program**
 - What did I study and where did I go?
 - What's going on in Iowa?
 - What's going on in the world?
 - What drives conservation farming adoption?
- **Action Items**
 - What can WE do to improve conservation farming adoption in Iowa?



Rural NSW, Australia

Roadmap:



- **Action Items**

- What can WE do to improve conservation farming adoption in Iowa?



Rural NSW, Australia

Chapter 4:

What is the role of conservation stakeholders in CFP adoption?

(Research Objective 2: How can conservation stakeholders support and improve CFP adoption in Iowa?)



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS
 UNITED STATES of AMERICA

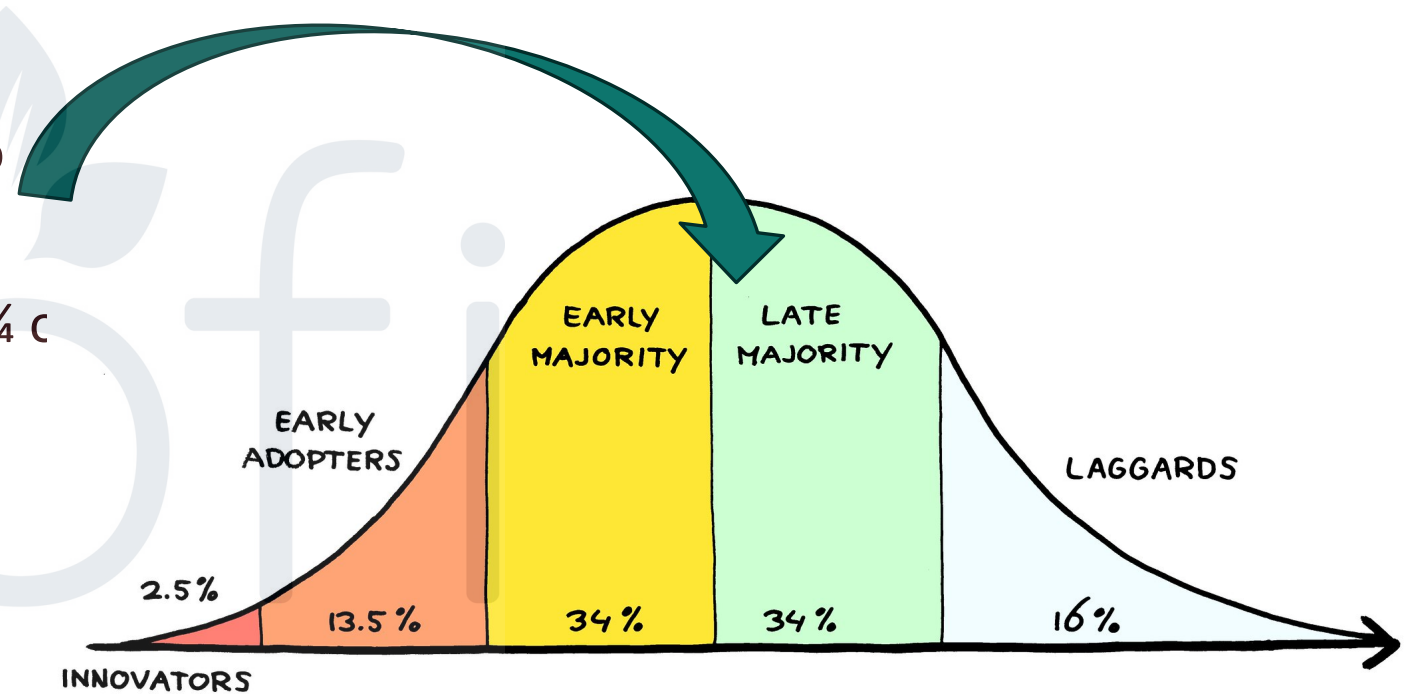


HEARTLAND CO-OP[®]

Ch. 4 How can conservation stakeholders support and improve CFP in Iowa?

Partner with an ag retailer!

- If true conservation change is going to happen, you need these folks:
- Most of these farmers probably rent $\frac{3}{4}$ c their acres
- We work with these farmers, and we understand their business model
- We know what sells!
- We can help design effective conservation programs



Ch. 4 How can conservation stakeholders support and improve CFP in Iowa?



Multi-species cover crop mix, CSIRO Boorowa Ag Research Station, NSW, Australia

Researcher / University

- How do CFP adoption decisions differ for a farmer when they do not own the land?
- How is ROI impacted when the farmer is a tenant?

Public Agency

- Stop letting perfect be the enemy of good
- Consider incentive programs that follow the tenant and not the acre
- Consider practice flexibility (i.e. vertical till with CC incorporation)

Ch. 4 How can conservation stakeholders support and improve CFP in Iowa?

Policy Maker

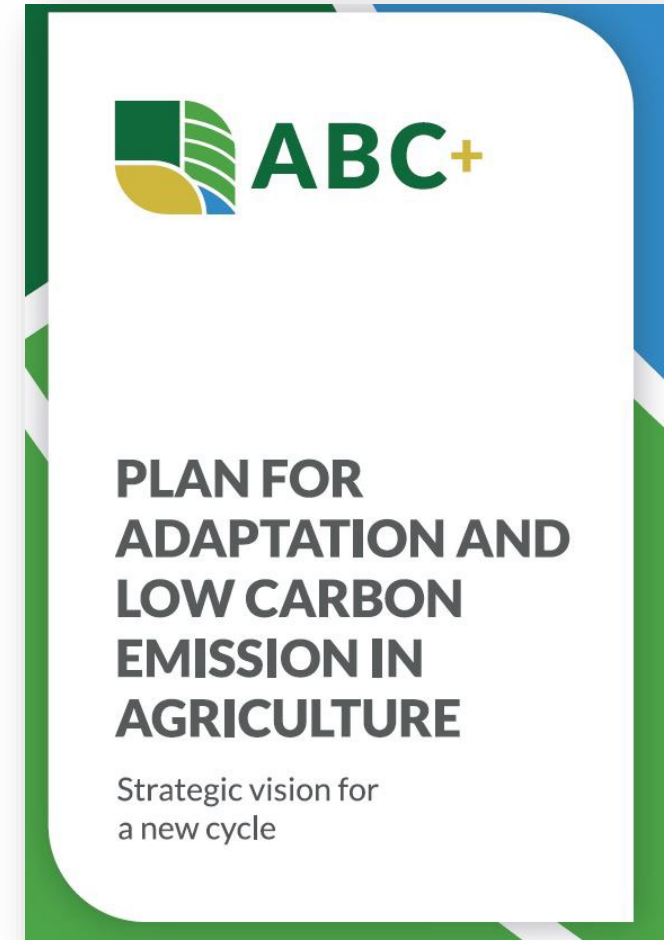
- Modify tax code to incentivize long-term leases for landowners OR incentivize sharing in CFP costs

Non-profit

- Don't act as a gatekeeping middleman - be useful or get out of the way
- Example: Environmental Defense Fund and Heartland's Sustainability Linked Loan

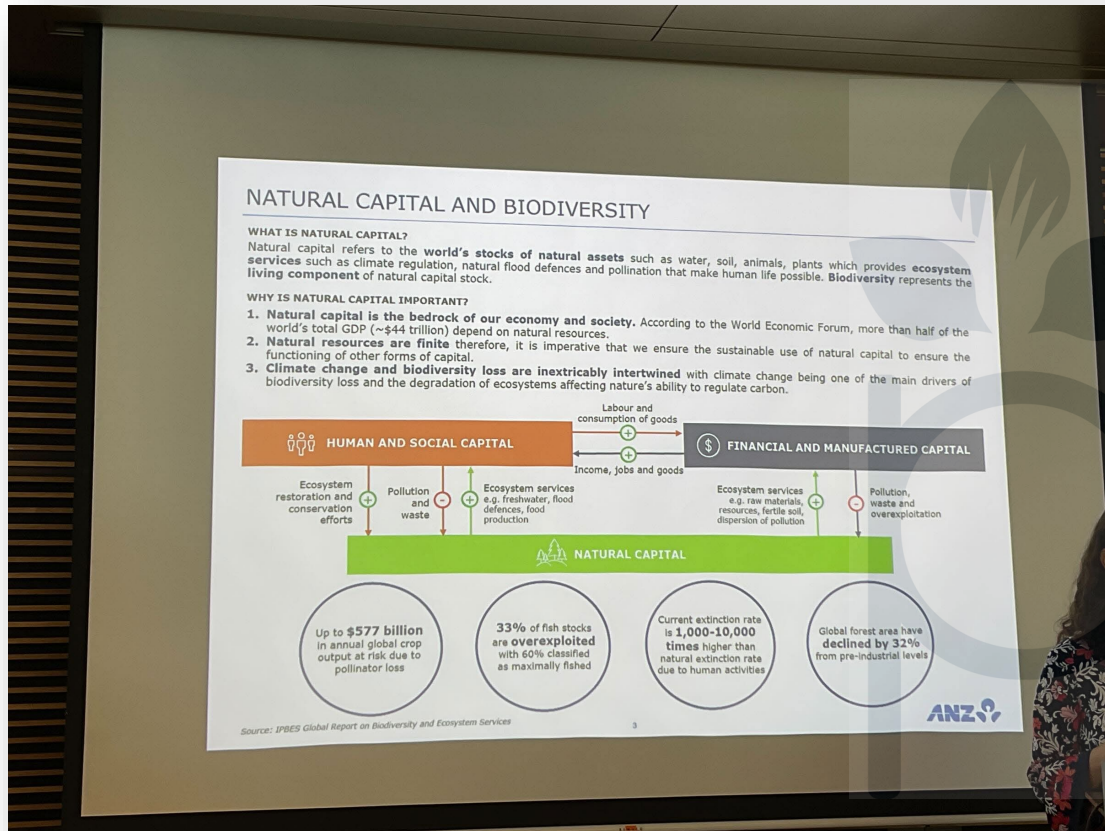
Landowner / Land Manager

- Protecting soil ensures long-term viability of the land
- Share in the cost of CFP adoption
- Consider long-term leases or crop sharing



Brazil's 2024 federal policy for conservation targets landowner tax incentives

Ch. 4 How can conservation stakeholders support and improve CFP in Iowa?



ANZ Bank HQ in Singapore is considering biodiversity credit schemes

Supply Chain / Lending Partners

- It's not all about carbon credits!
- Invest in or create a **biodiversity** credit scheme

Everyone Else

- Statistics show that we like cheap food and fuel!
- Ask your local, state, and federal policy makers to increase funding for locally-led conservation initiatives

Chapter 5:

How can ag retailers improve conservation adoption in Iowa?

(Research Objective #3: How can agricultural retailers support and increase the adoption of CFPs among their farmer-customers?)



NUFFIELD
INTERNATIONAL
FARMING SCHOLARS
 UNITED STATES of AMERICA



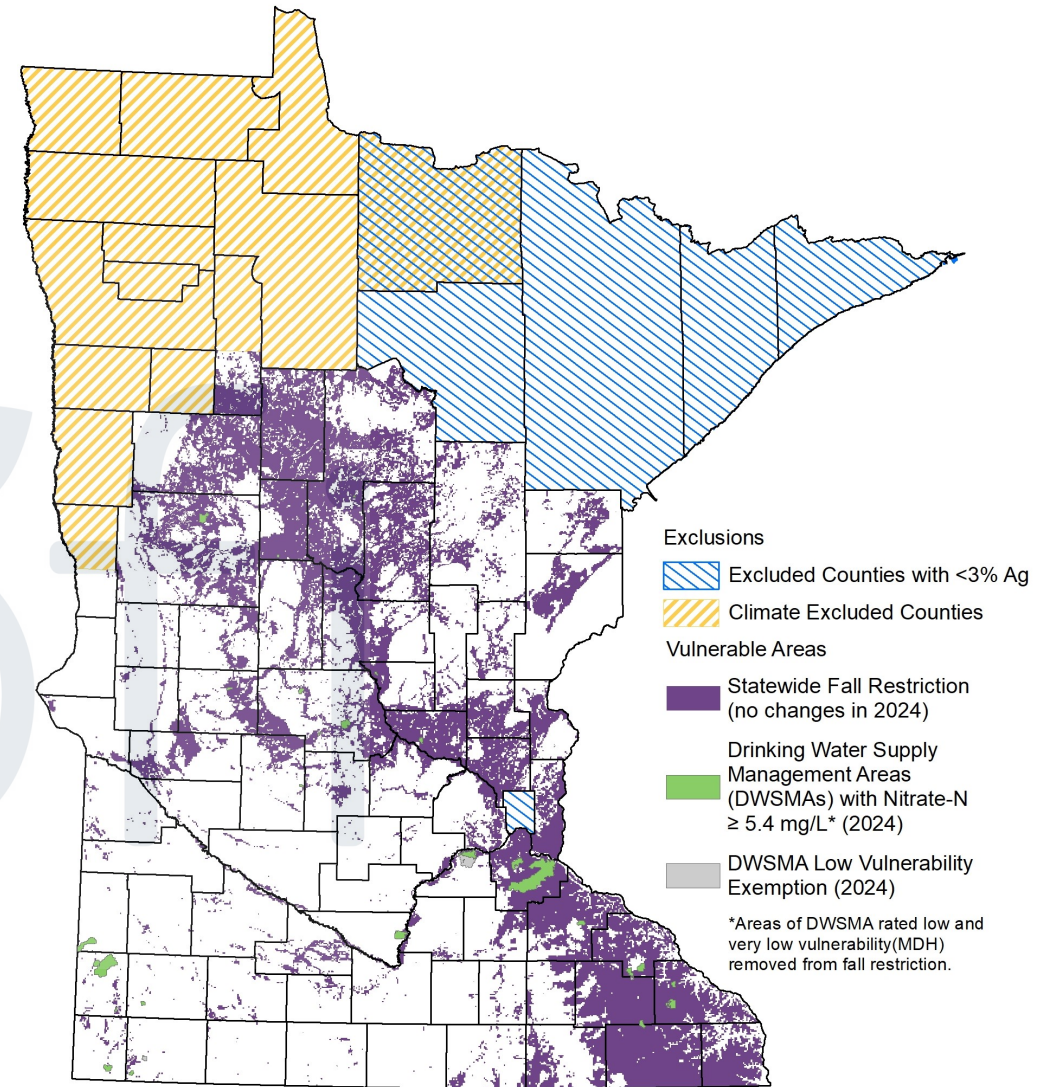
HEARTLAND CO-OP[®]

Ch. 5 How can ag retailers support and improve CFP in Iowa?

Fall Restrictions Map 2024

First, why do we need to care:

- Without productive soil, our businesses don't matter
- Regulatory action is MUCH closer than you think
- Conservation isn't going away but we will if we don't stay relevant



Updated 1/12/2024

The Minnesota Department of Agriculture

Ch. 5 How can ag retailers support and improve CFP in Iowa?



Danish Agriculture & Food Council discussing public/private partnerships, Denmark

- Figure out how to work CA into your business plan
- We don't run a charity, and that's okay
- Be transparent about what you can and cannot support
- Public/Private Partnerships
- **No matter what...support must come from the top**

Looking back...what did I learn?

- We're not doing as badly as we think we are!
- Short term profits are a reality that can't be trumped by potential long-term sustainability
- We should target our conservation programs to either tenants OR landowners



Somewhere in Brazil

Looking forward...what's next?

- Can we stack CFPs in a way that is both profitable and impactful for tenant farmers in Iowa?
- Can we change how we utilize our limited public funding to prioritize the biggest “bang for our buck” approaches to conservation in Iowa?
- How do we engage with non-farming landowners AND their tenants in a way that is equitable?



Regenerative Agronomist in Denmark

Thank you!

Ruth McCabe

rmccabe@heartlandcoop.com

(515) 418 8358



What about golf courses?



- Iowa has approx. 400 golf courses
- Average golf course is 18-hole, 150 acres
- 60,000 acres of golf courses in Iowa
- Compared to 26,000,000 acres of row crops
- Avg. golf course applies 87 lbs N per acre
- 2,610 TONS N per year total for all golf courses
- Avg. corn acre gets 180 lbs N per acre
- Assume 1/2 row crop acres are corn each year
- 1,170,000 TONS N per year total for all corn acres

What about wild geese?

- IDNR estimates Iowa's wild geese flock at 90,000 birds
- Avg. goose eliminates 2 lbs feces per day
- 180,000 lbs feces per day for 90,000 birds
- 65,700,000 POUNDS feces per year
- Divide by 2,000 lbs = 32,850 tons goose feces per year
- How many TONS of livestock manure are produced per year in Iowa?
- 50,000,000 tons livestock manure per year



SHIFT Proposal



Oats and camelina seeded in State Center, Iowa
(Agronomist for scale)

- Targets tenant farmers
- Landowner approval not needed
- Targets in-field, annual CFPs
- Goal is 2 – 3 CFPs per acre per year
- Up to \$75 per acre per year - \$25 per CFP
- Payment bonus in third year if three practices are maintained for entire program
- Five-year commitment to maintain at least two CFPs on each acre
- Program follows tenant, acreage swaps are ok