Effectively Engaging Producers in Conservation Conversations

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1. How farmers are thinking about conservation practices

2. Practical strategies for engaging farmers and landowners

Farmer perceptions of conservation practices

Farmer uncertainty about the value of conservation practices

Science, facts, beliefs and values

Social norms

Farmer identity feedback mechanisms

Increased use of sustainable farming practices would help maintain our natural resources

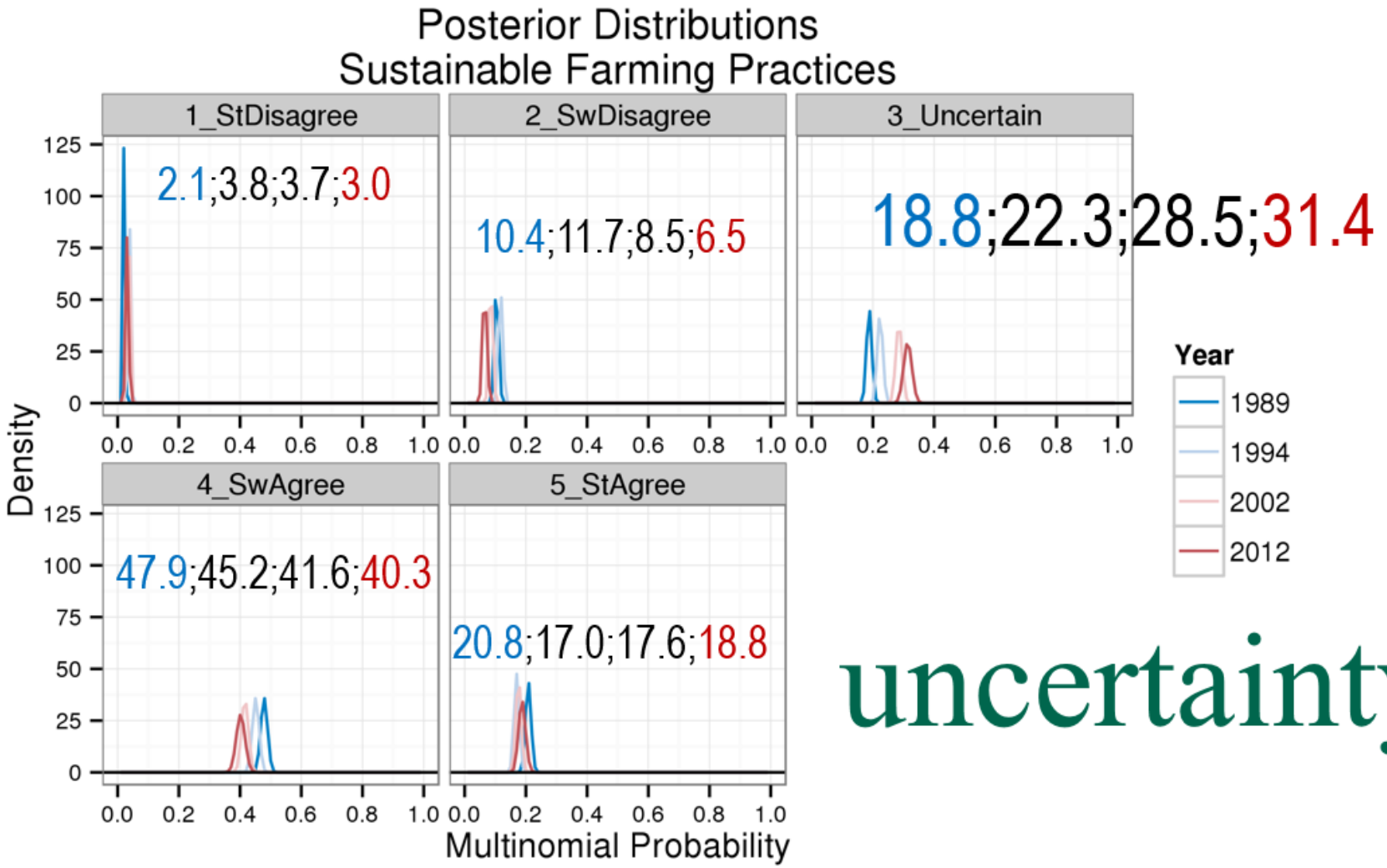


Figure based on Morton, L.W., Jon Hobbs*, J. Gordon Arbuckle, (2013). Shifts in Farmer Uncertainty Over Time About Sustainable Farming Practices and Modern Farming Reliance on Commercial Fertilizers, Insecticides and Herbicides. *Journal Soil & Water Conservation,* 68 (1), 1-12.


Science and facts…
beliefs and values

All of earth is a coupled human-natural system

Many systems with continuous feedback loops

Agroecosystems are

…complex and dynamic systems

…with many sub-systems

…nested in regional & global systems

…within one of many universes

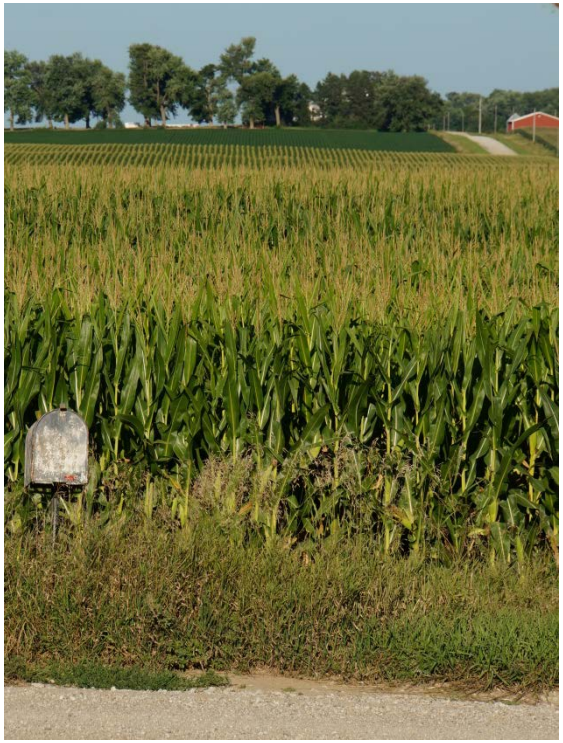
…with many overlapping feedback loops

Water

Carbon

Nitrogen

Systems



Making nature

Duality of human existence

1. humans are species in the biosphere

2. humans are creators of our environments

Facts –how the world works

Values-concepts or beliefs about desirable end states or behaviors that transcend specific situations and are used to guide behavior and are ordered by relative importance

Values differ across geography and time

…affect which land uses are given priority

…affect which science and facts matter to us

…affect how we invest time, $$, resources

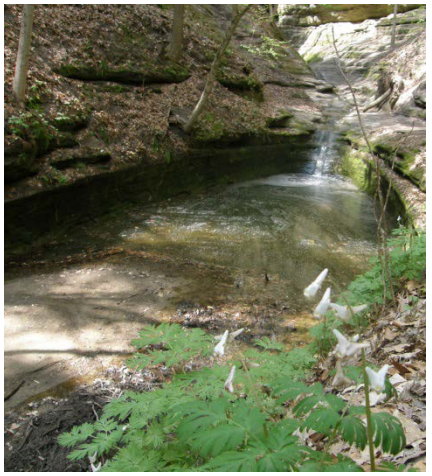
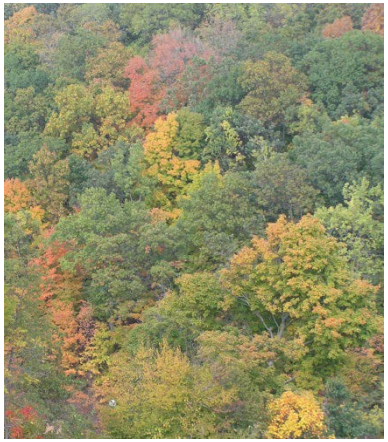
…affect whether there is a problem (or not) and how the public commons is managed

…affect whose responsibility we think is it to solve problems of the public commons

Values vary by cultures, geographies, governments

Human values determine land uses



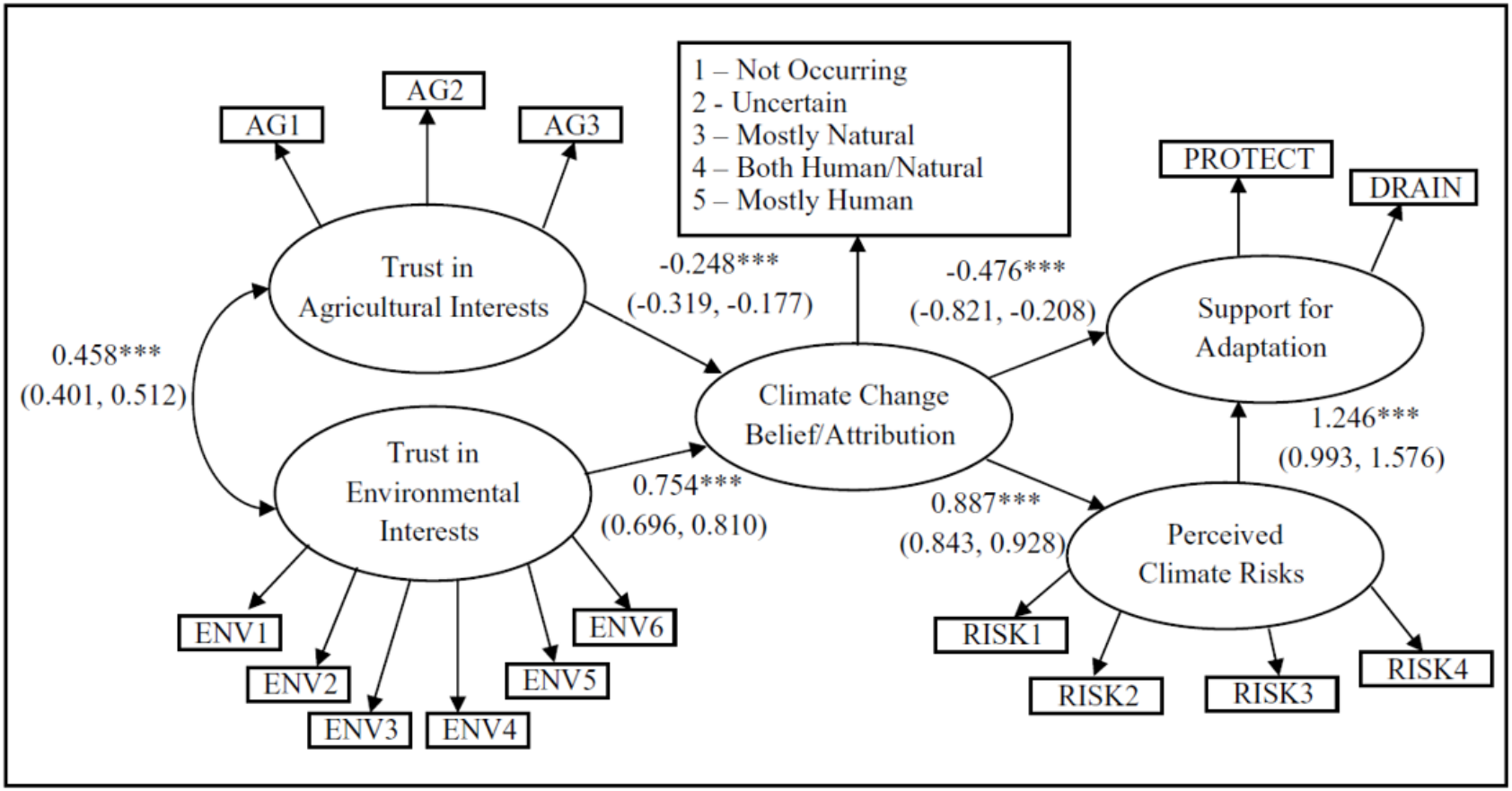








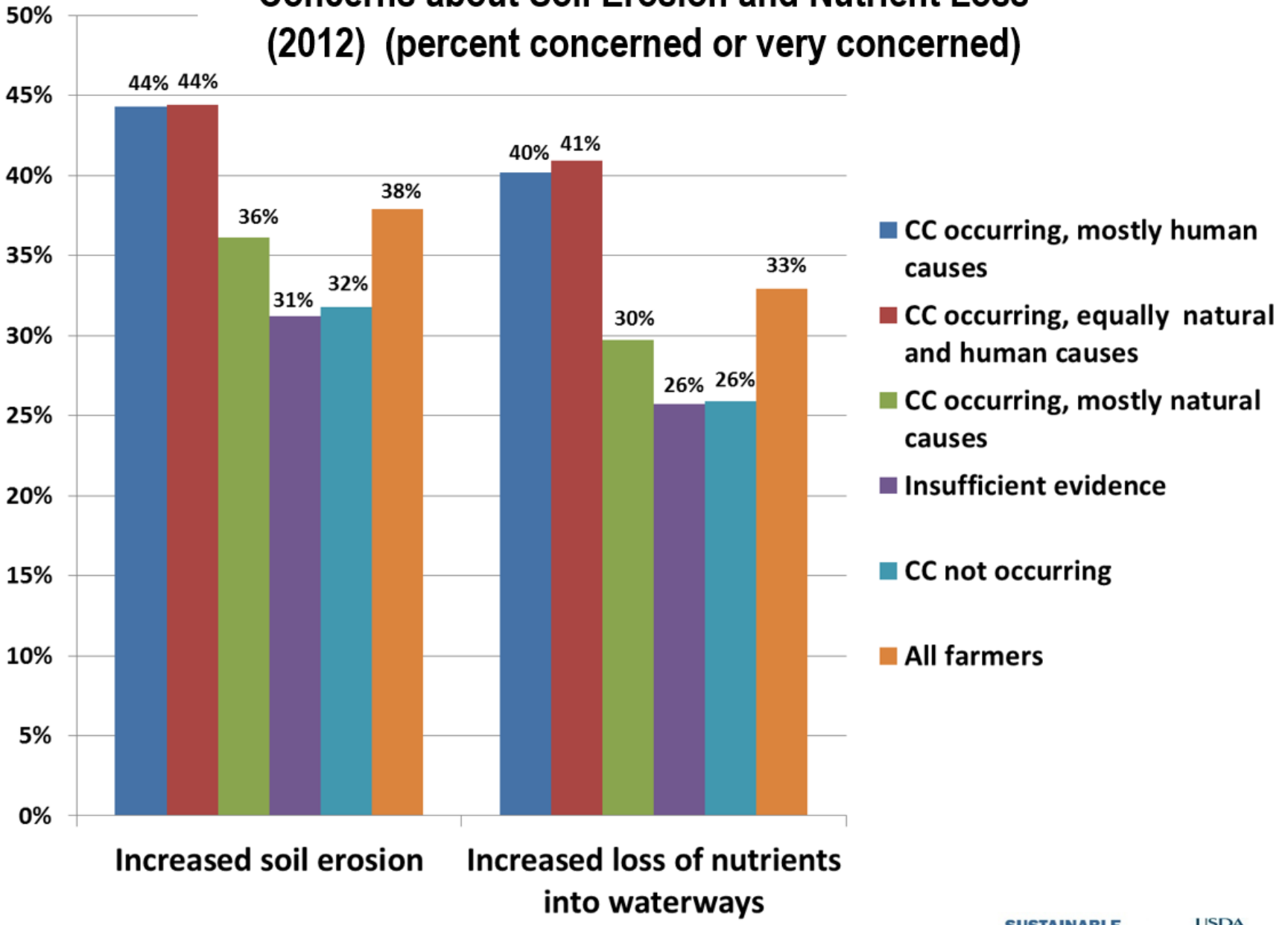


Beliefs, values and attitudes affect concerns, risk perceptions and willingness to do some things …and not others



Arbuckle, J., L.W. Morton, and J. Hobbs*, (2015). Trust, beliefs, and perceived risk as determinants of farmer support for adaptive and mitigative responses to climate change. *Environment and Behavior*. 47(2):205-234.

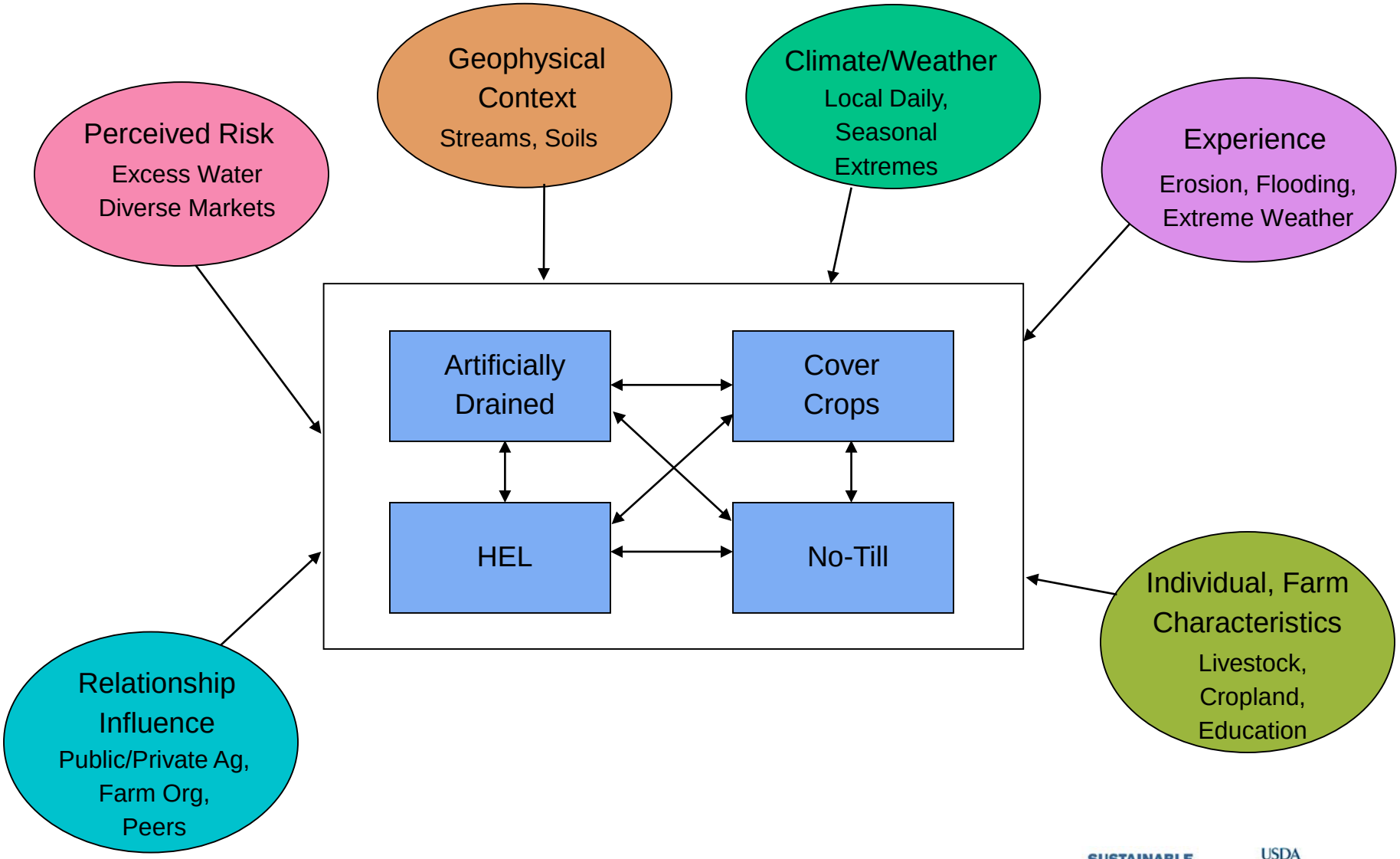
Concerns about Soil Erosion and Nutrient Loss (2012) (percent concerned or very concerned)



SUSTAINABLE CORN.ORG
CROPS, CLIMATE, CULTURE AND CHANGE

USDA
United States Department of Agriculture
National Institute of Food and Agriculture

Sociological Conceptual Framework



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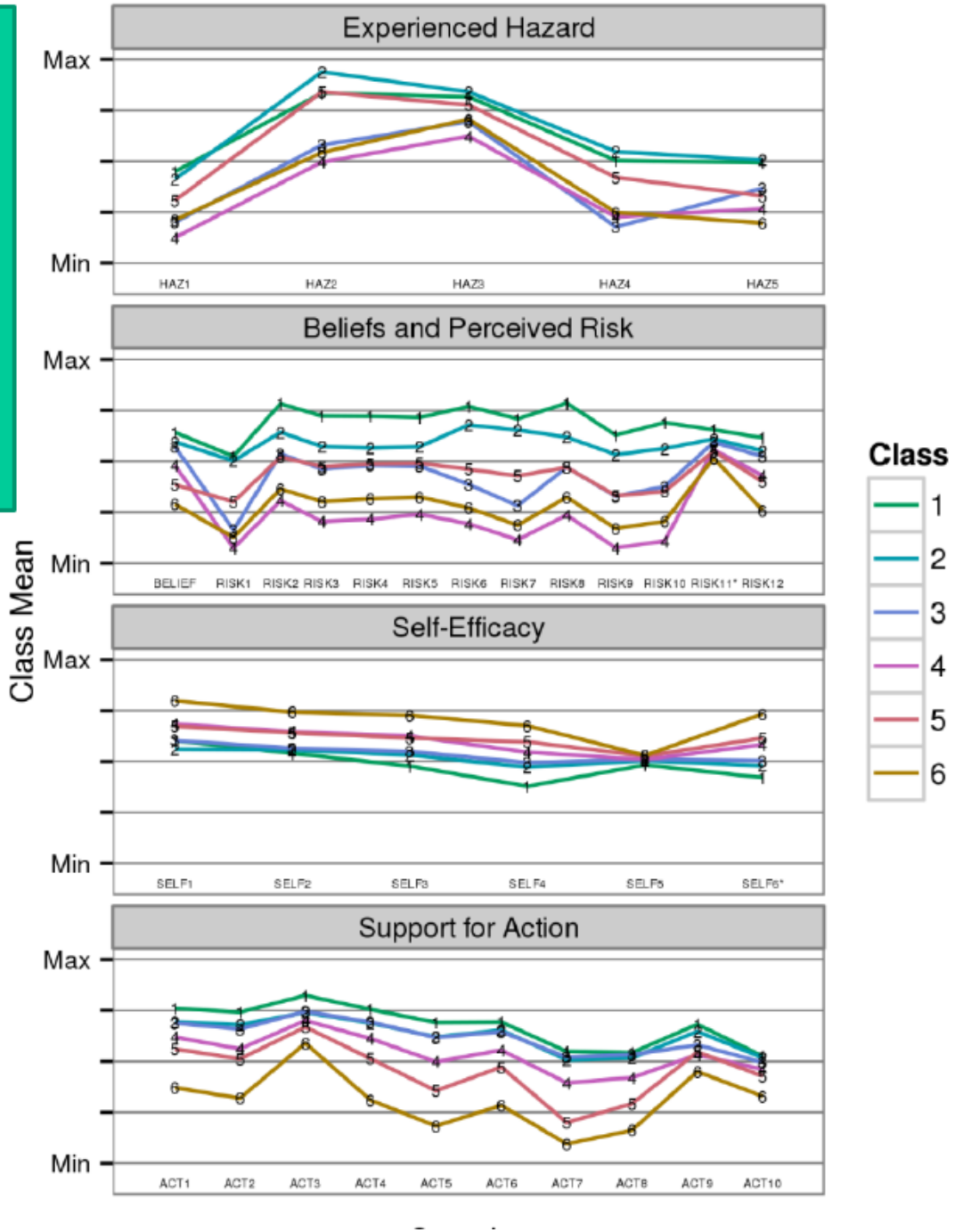
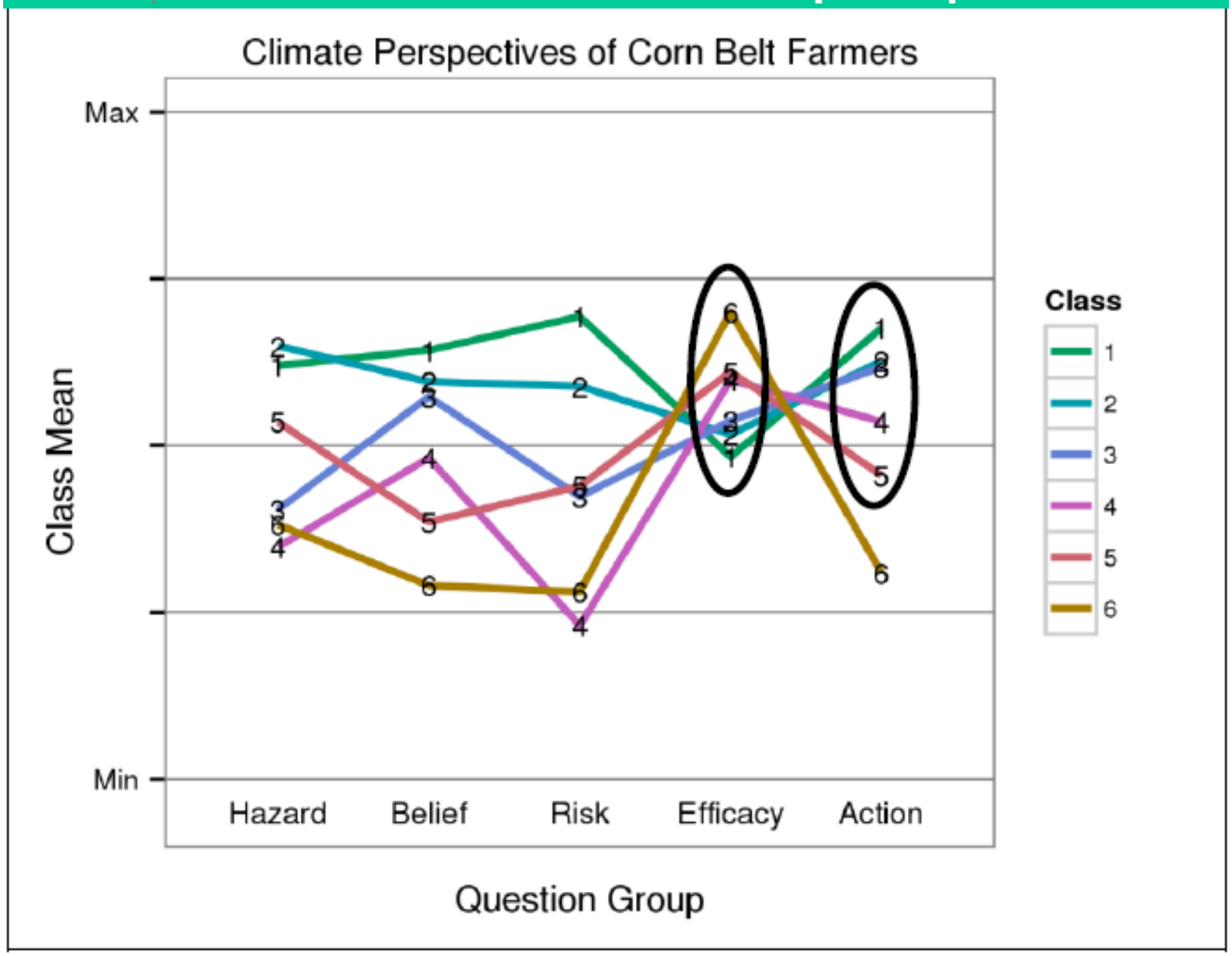
Midwest farmers
differ in their experiences,
beliefs & perceptions of risk
confidence
and support for action
(n=4,778)



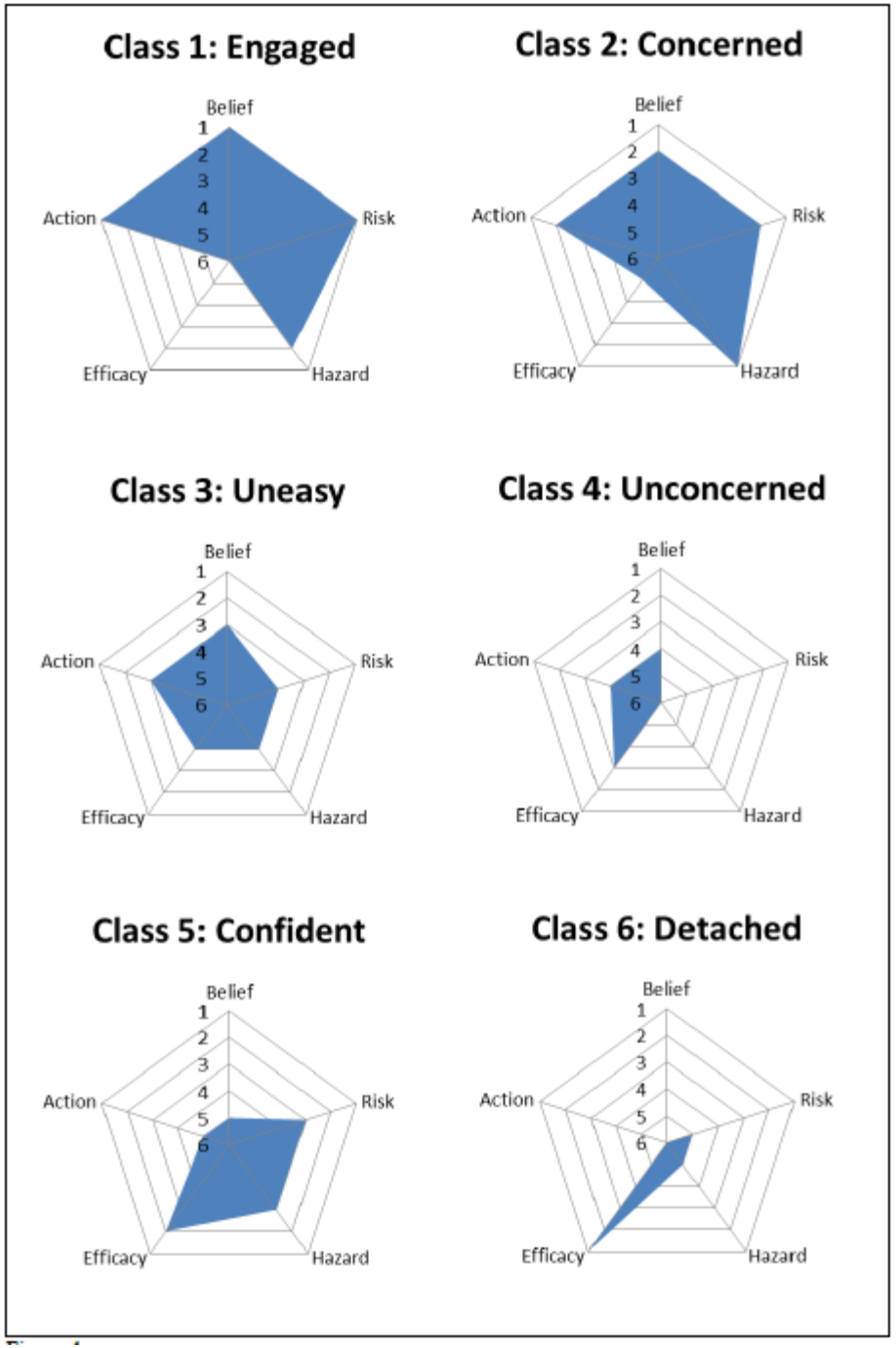
Arbuckle, J.G., J. Hobbs*, A. Loy*, L.W. Morton, L. Prokopy, and J. Tyndall, (2014). Understanding farmer perspectives on climate change: Toward effective communication strategies for adaptation and mitigation in the Corn Belt. *JSWC* Nov/Dec 69:6:505-516

…but also share common perspectives



Not all farmers are alike.

Each has unique beliefs, values, experiences, risk perceptions, and different confidences that influence what is important …and willingness to act to increase the sustainability of their agroecosystem



Human-natural systems have intricate and continuous feedback loops that lead to beneficial and mal-adaptive outcomes

Social learning combines facts & values created from feedback based on

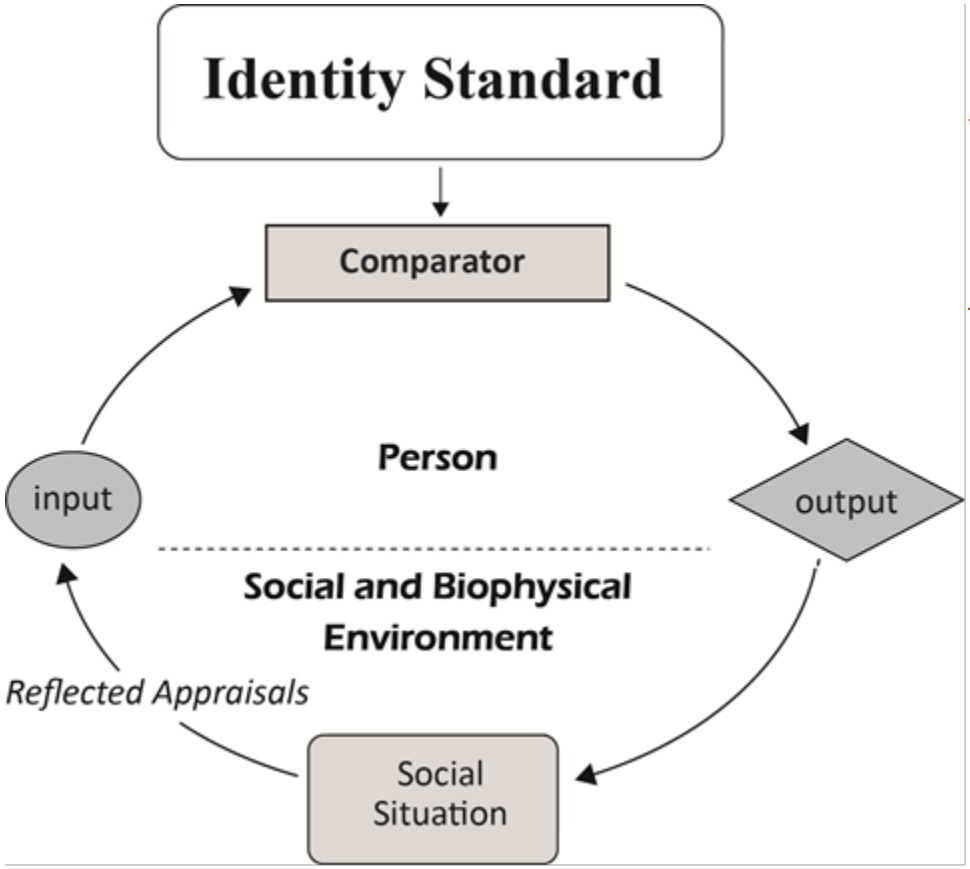
1. our own experiences
2. observation of others
3. conversations with other humans

Identity theory and social norms

Identities are how we define ourselves as individuals, in life roles and as group members

Social context and norms

- When situations/perceptions support internal identity standard there is no need to take action
- When situation/perceptions do NOT support internal identity standards the individual must take action to bring the identities into alignment



Are my actions congruent with my identity?

Feedback from social situation:

1. Reinforcement. Keep doing what I'm doing
2. Re-evaluate. Not doing the "right" thing to maintain my identity standard

Fig. 1 Identity control model. Source: Adapted from Burke (1991, p. 838)

Farmer identities

- Farmers have multiple identities
- They sort them into a hierarchy with the most important identity as the most influential

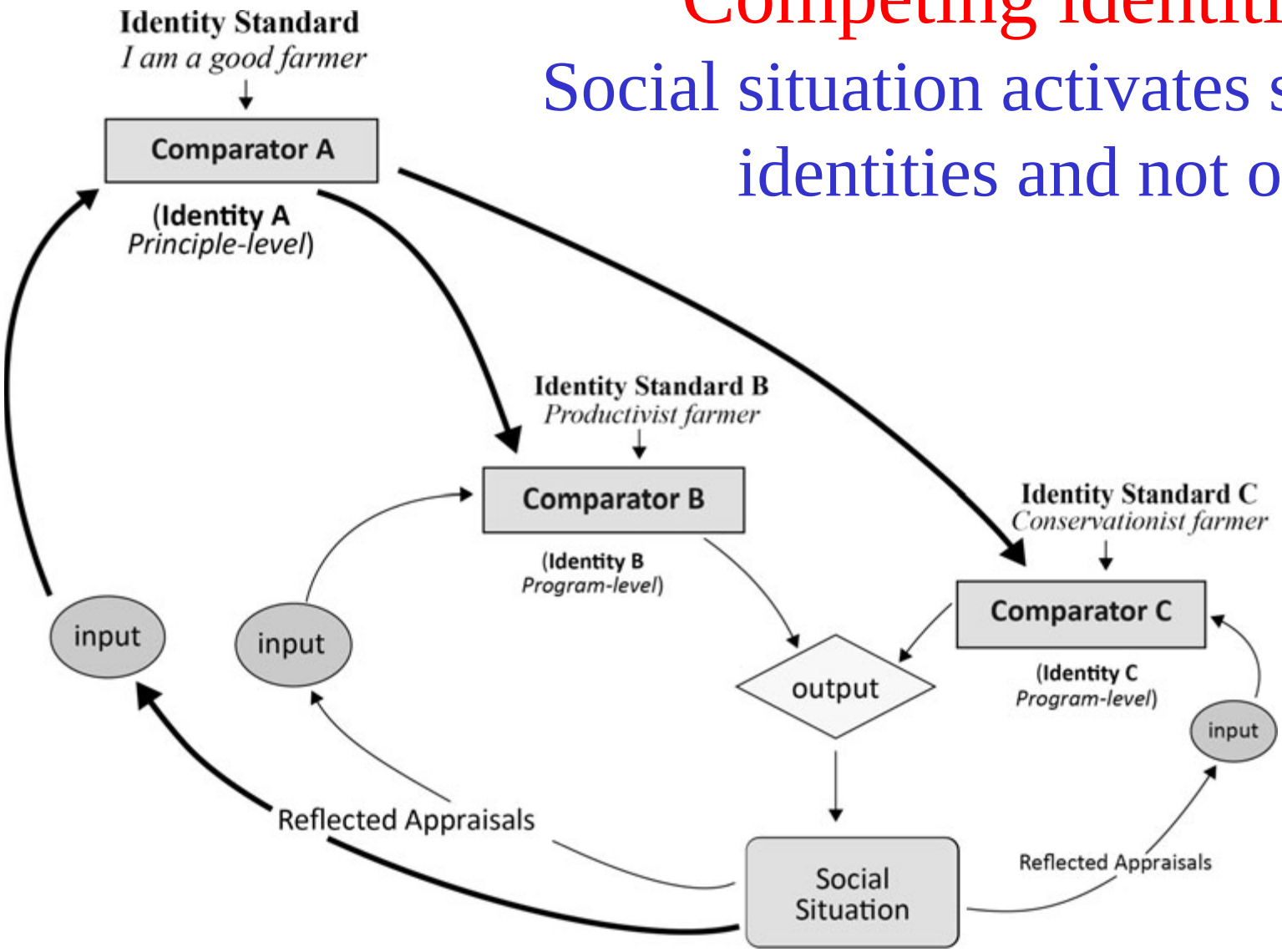
- The social and biophysical context can change the hierarchy of importance

Most typologies put farmers in a single category

Most farmers use multiple production styles, but one type is more important than others

Competing identities

Social situation activates some identities and not others



McGuire, J., L.W. Morton, A. Cast, (2013). Reconstructing the Good Farmer Identity: Changing Attitudes and Behaviors through Environmental Performance-based Management. *Agriculture & Human Values*, June 20 published online 30 (1), 57-69.

Data and Methods

2010 Iowa Farm & Rural Life Poll sent to 2,224 farmers and 1,360 responded

Q. People have different opinions about what makes a "good farmer." Please rate the following items in terms of their importance to what characteristics make a good farmer

Thirty-one items that had a five-point Likert scale that ranged from "Not at All Important" (1) to "Very Important" (5)

Factor analysis revealed four different identities within individual farmers:

productivist; conservationist; civic-minded; naturalist

Table 1. Descriptive Statistics and factor loadings for Farmer Identity Factor Analysis

					Rotated Factor Loadings			
	N	Mean(SD)	Range	α	λ_1	λ_2	λ_3	λ_4
Conservationist Farmer Identity		3.98 (0.75)	1.0-5.0	0.90				
Considers stream health	1283	4.07 (0.73)	1.0-5.0		0.775	0.132	-0.047	0.078
Minimizes soil erosion	1283	4.34 (0.63)	1.0-5.0		0.866	0.062	0.027	0.071
Minimizes nutrient runoff	1283	4.33 (0.65)	1.0-5.0		0.869	0.068	0.005	0.089
Maintains organic matter	1283	4.21 (0.65)	1.0-5.0		0.777	0.113	0.054	0.100
Profit environment impact	1283	3.86 (0.80)	1.0-5.0		0.597	0.089	0.250	0.132
Minimizes tillage	1283	3.52 (0.93)	1.0-5.0		0.477	0.284	0.141	0.413
Scouts before spraying	1283	3.92 (0.76)	1.0-5.0		0.627	0.262	0.135	0.138
Conservation over profit	1283	3.83 (0.81)	1.0-5.0		0.665	0.270	-0.063	0.236
Watershed health	1283	3.74 (0.78)	1.0-5.0		0.628	0.364	0.025	0.260
		35.82 (6.74)	9.0-45.0					
Productivist Farmer Identity		3.13 (0.90)	1.0-5.0	0.82				
Highest yield per acre	1287	3.12 (0.86)	1.0-5.0		0.018	-0.011	0.751	-0.018
Crops planted first	1287	2.59 (0.88)	1.0-5.0		-0.099	0.024	0.697	0.108
Keeps fencerows clear	1287	3.31 (1.01)	1.0-5.0		0.114	0.245	0.394	-0.438
Highest profit per acre	1287	3.23 (1.00)	1.0-5.0		0.108	0.043	0.751	-0.034
Uses chemical technology	1287	3.24 (0.90)	1.0-5.0		0.125	0.085	0.765	-0.014
Up-to-date equipment	1287	2.47 (0.86)	1.0-5.0		-0.061	0.146	0.757	0.131
Keeps fields clean	1287	3.78 (0.80)	1.0-5.0		0.309	0.241	0.509	-0.331
Farm looks nice	1287	3.28 (0.89)	1.0-5.0		0.194	0.432	0.444	-0.219
		25.02 (7.2)	8.0-40.0					
Civic Leader Farmer Identity		3.30 (0.87)	1.0-5.0	0.83				
Helps friends and neighbors	1283	3.63 (0.80)	1.0-5.0		0.221	0.561	-0.070	0.132
Shares knowledge	1283	3.62 (0.80)	1.0-5.0		0.337	0.491	0.125	0.110
Community leader	1283	3.16 (0.96)	1.0-5.0		0.094	0.779	0.165	0.018
Protects watersheds	1283	3.45 (0.85)	1.0-5.0		0.413	0.505	0.034	0.388
Shares equipment	1283	2.95 (0.91)	1.0-5.0		0.105	0.621	-0.024	0.264
Farm organizations	1283	3.01 (0.89)	1.0-5.0		0.084	0.743	0.185	0.166
Active in community	1283	3.31 (0.88)	1.0-5.0		0.134	0.787	0.147	-0.003
		23.13 (6.09)	7.0-35.0					
Naturalist Farmer Identity		3.19 (0.93)	1.0-5.0	0.70				
Minimizes pesticide use	1294	3.56 (0.86)	1.0-5.0		0.394	0.167	0.015	0.428
Uses cover crops	1294	2.71 (0.89)	1.0-5.0		0.177	0.223	-0.008	0.658
Maintains wildlife habitat	1294	3.30 (0.94)	1.0-5.0		0.292	0.209	0.000	0.624
Avoids fall tillage	1294	3.20 (1.03)	1.0-5.0		0.369	0.113	0.089	0.541
		12.77 (3.72)	4.0-20.0					

Many farmer identities

Conservationist
Productivist
Civic leader
Naturalist

Iowa Productivist Farmer

Highest yield per acre

Crops planted first

Keep fencerows clear

Highest profit per acre

Uses chemical technology

Up-to-date equipment

Keeps fields clean

Farm looks nice

Iowa Conservationist Farmer

Considers stream health

Minimizes soil erosion

Minimizes nutrient runoff

Maintains organic matter

Balances profit with environmental impact

Minimizes tillage

Scouts before spraying

Conservation over profit

Watershed health

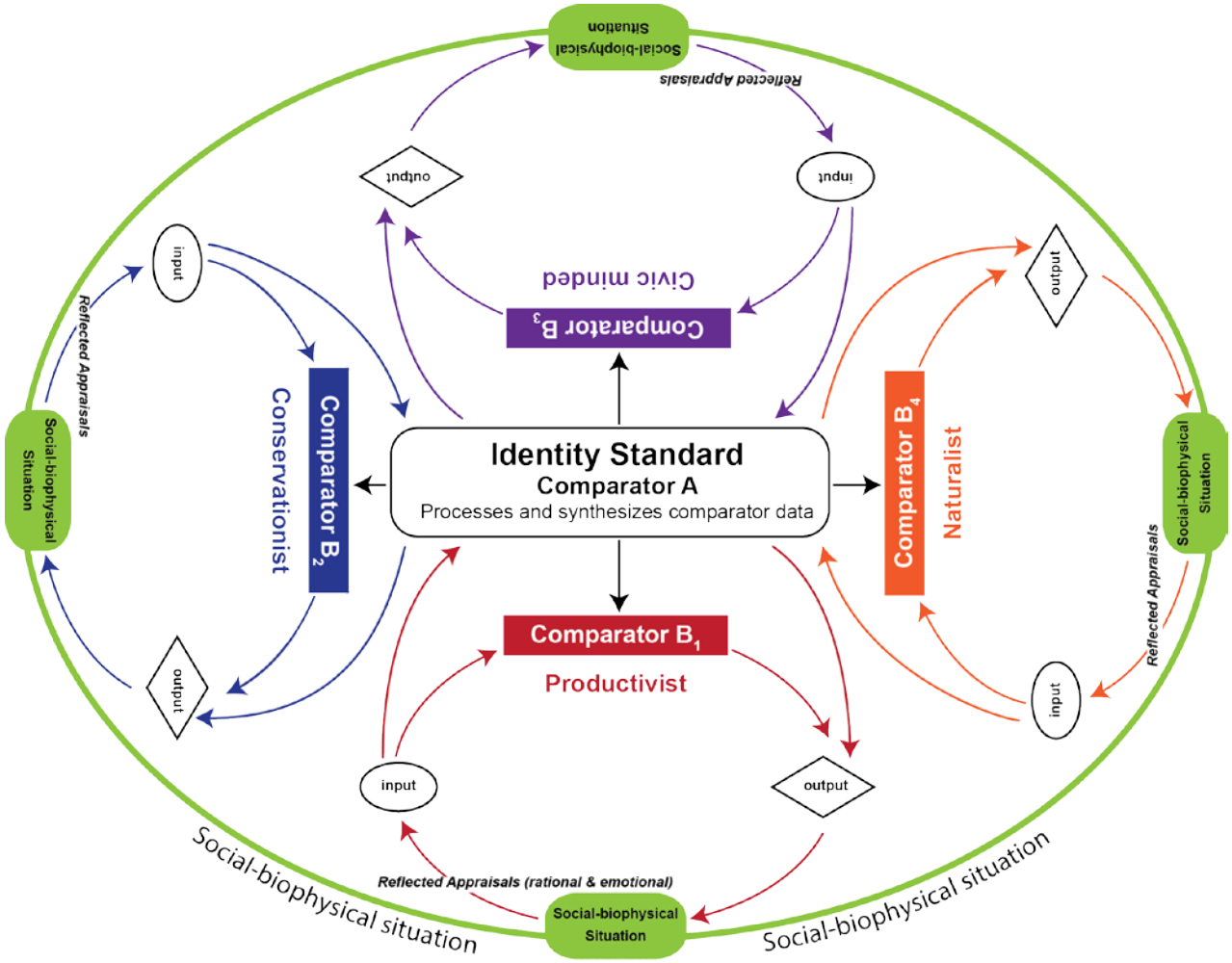
Iowa
Civic-Minded
Farmer

Helps friends and neighbors
Shares knowledge
Community leader
Protects watersheds
Shares equipment
Belongs to farm organizations
Active in community

Iowa
Naturalist
Farmer

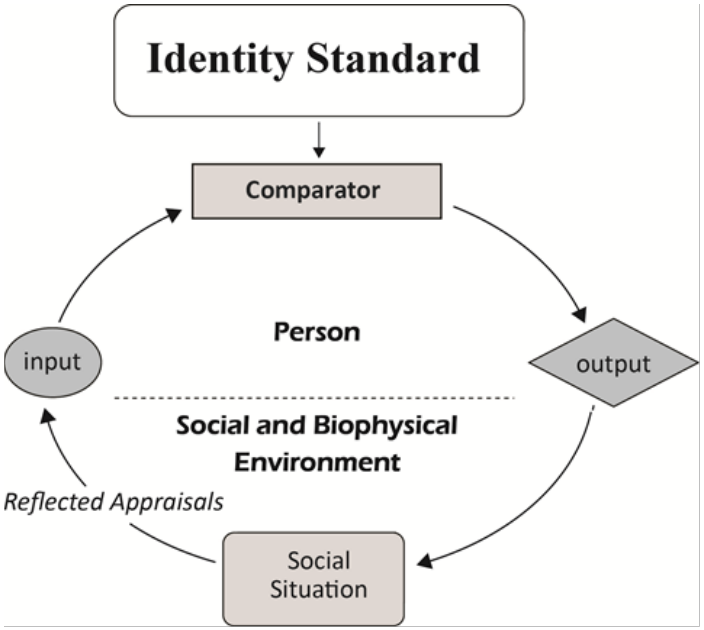
Minimizes pesticide use
Uses cover crops
Maintains wildlife habitat
Avoids fall tillage

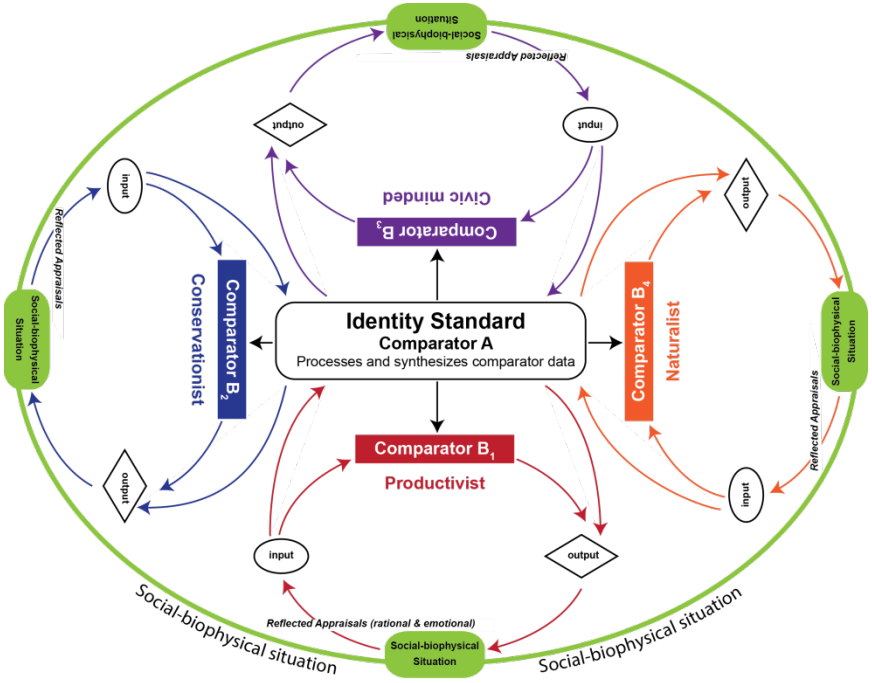
Iowa Farmer Identity Control Model



Feedback Loops

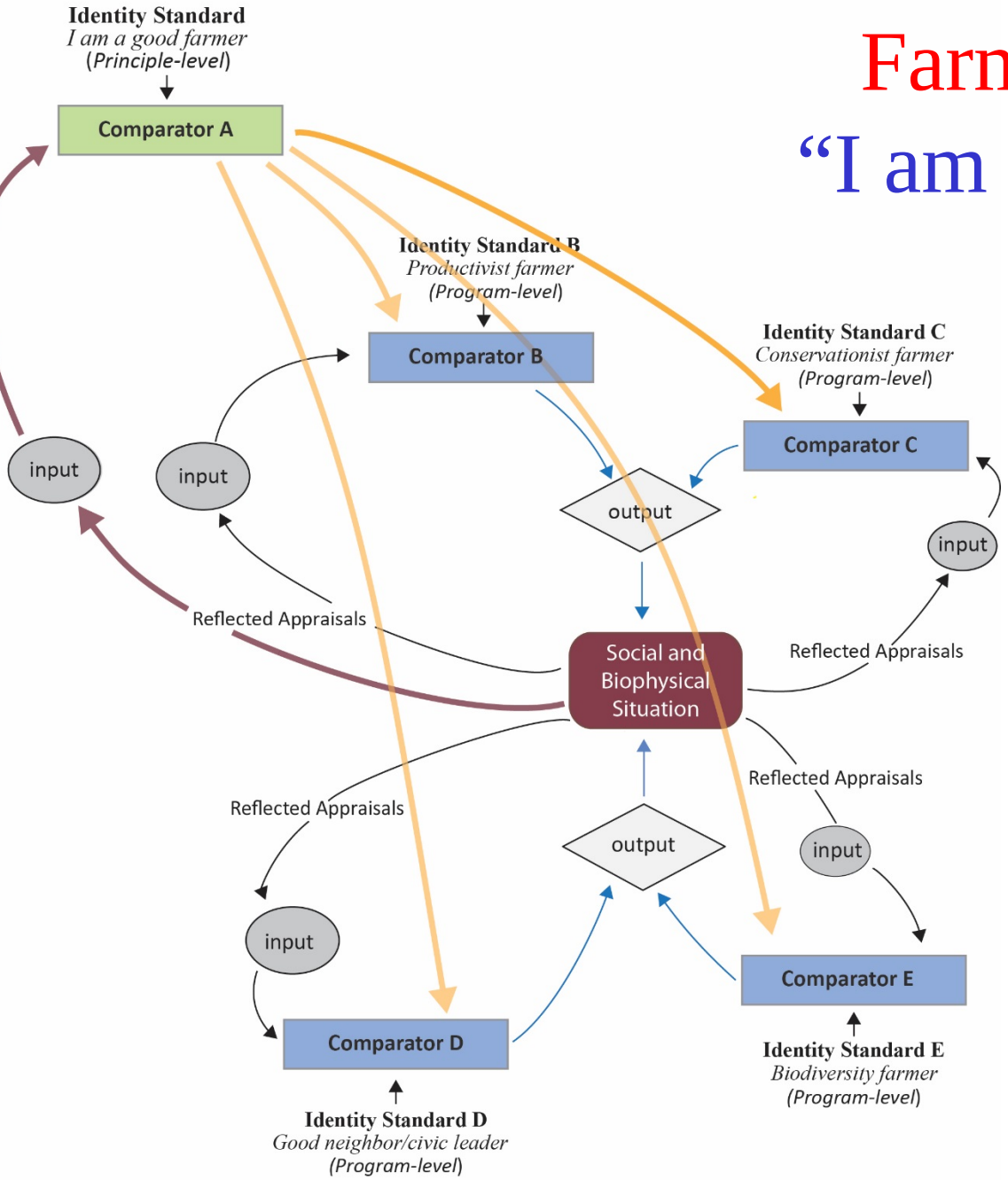
These feedback loops from human systems look very much like . . .





Farmer Identities

"I am a good farmer"

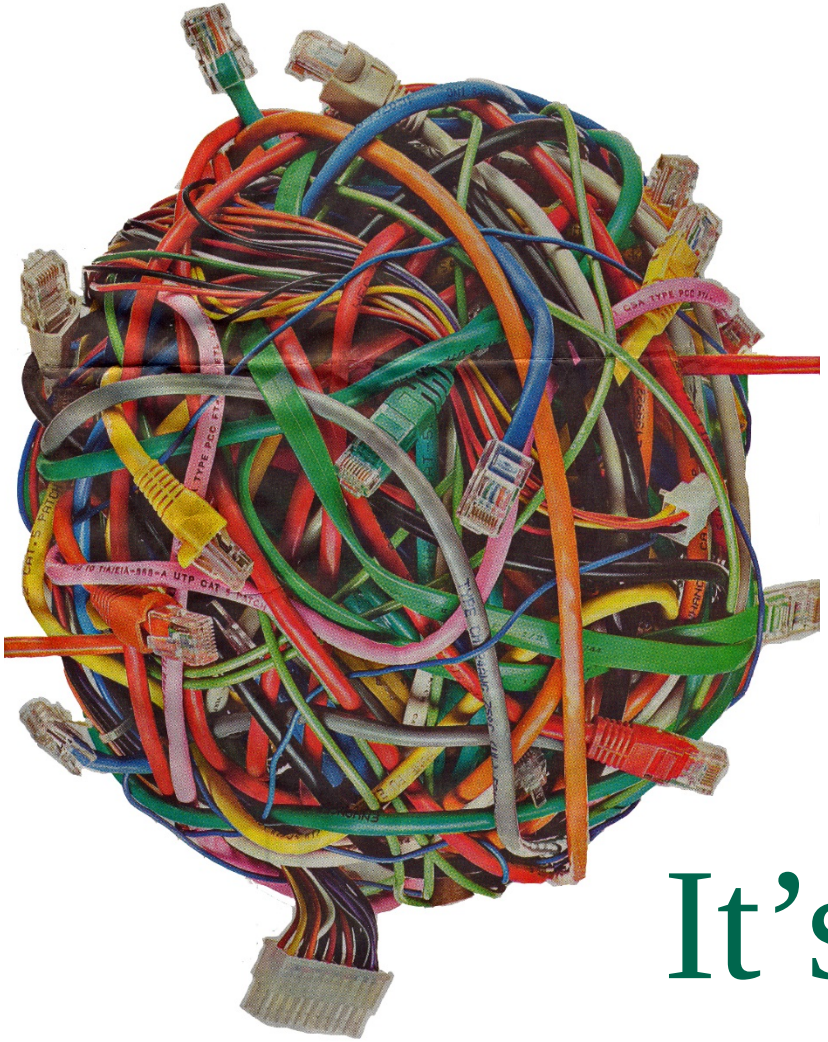


1. Do you recognize any of the four farmer identities in farmers you work with?

2. What are other identities do you see in your farmers?

3. How can understanding your farmer's dominant identity help you insert science congruent with their values?

What does all this social science tell me?
What can I do with it?



It’s complicated!

2. Practical strategies for engaging farmers

Creating conditions for social learning and changed behaviors

The group effect: leveraging and shifting social norms

Groups which share sustainable ecosystem goals can be catalysts for better management of human-natural systems

Place-based groups are civic structures which have capacity to integrate local knowledge, values, perspectives, scientific processes and factual information to accelerate social learning that can address sustaining our agroecosystem and increasing its resilience

How do they create community benefit?
by activating and accelerating social learning

1. Create deliberative spaces
2. Incorporate science and facts
3. Respect differing values
4. Negotiate shared problem definition
5. Explore and negotiate solutions
6. Increase willingness to act

Issue: 303d impaired watershed

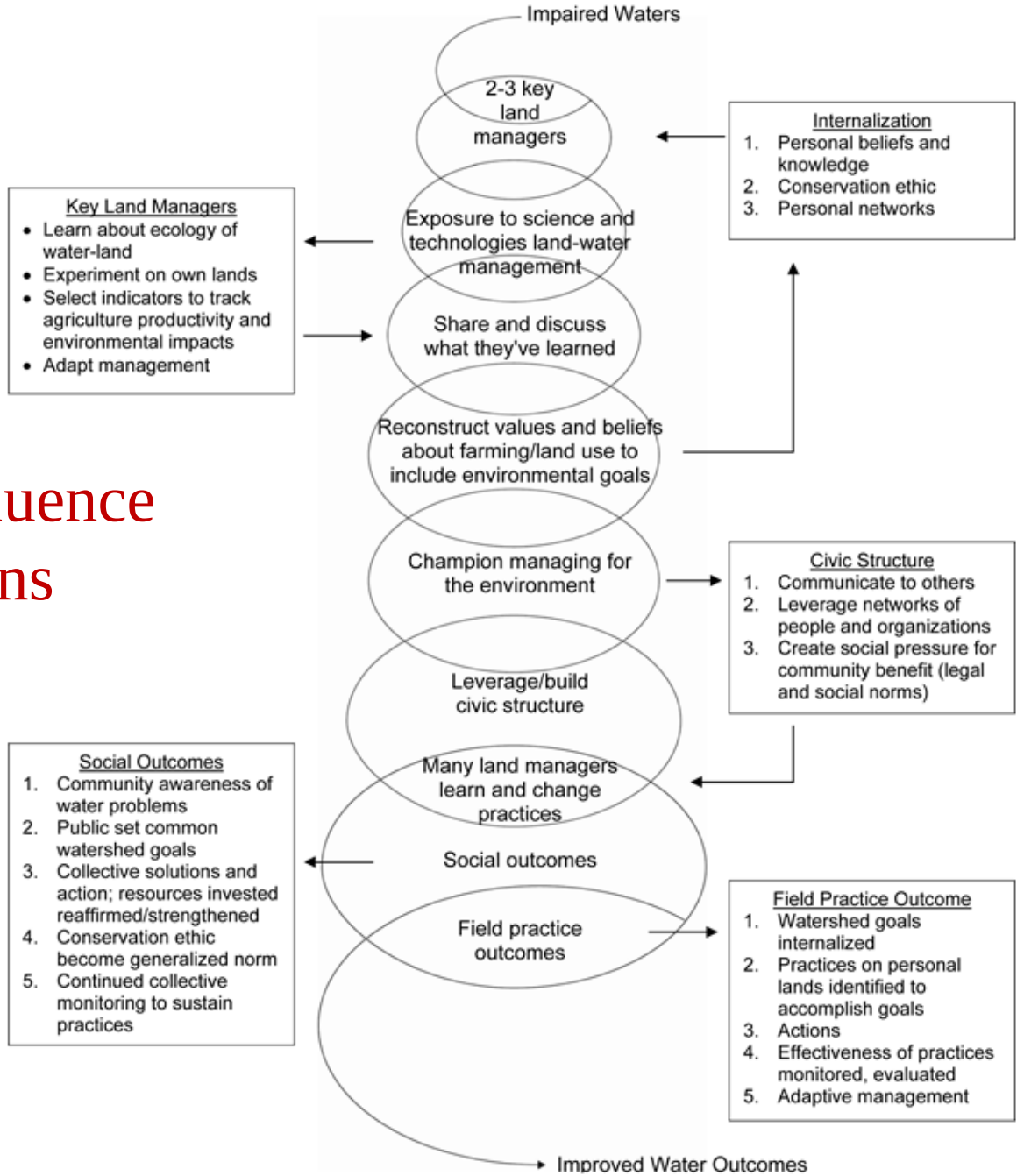
Off field and farm loss of nitrogen and phosphorus

Farmer-led performance-based watershed management Group*; feedback loop monitoring and changing practices

Create a social situation to activate conservationist and civic leadership identities

*requires technical support to realize success

The catalytic influence of local champions

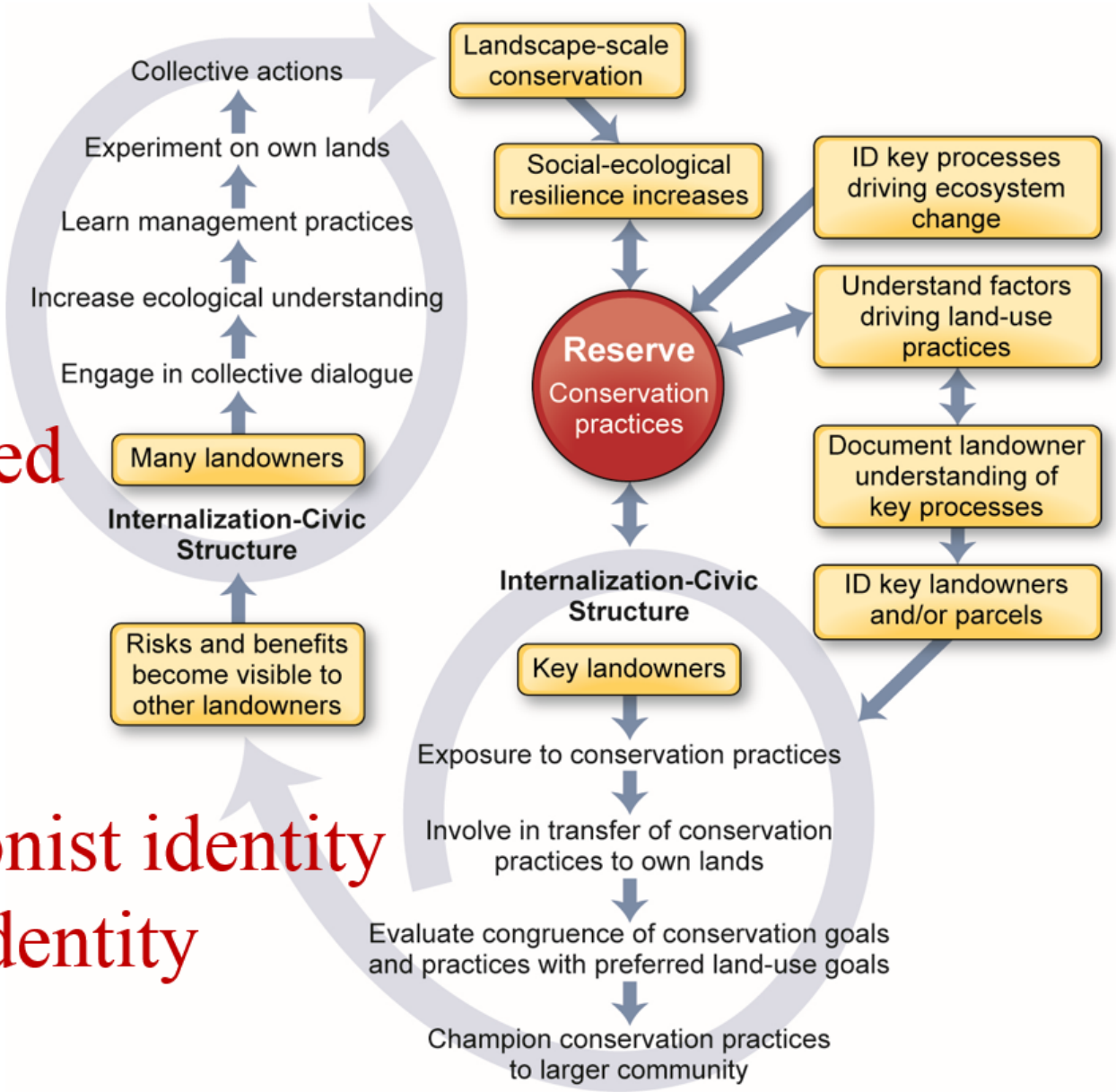


Morton, LW 2011 Citizen Involvement pp. 15-28 In Pathways for Getting to Better Water Quality: The Citizen Effect. Springer

Civic-minded identity

Conservationist identity

Naturalist identity



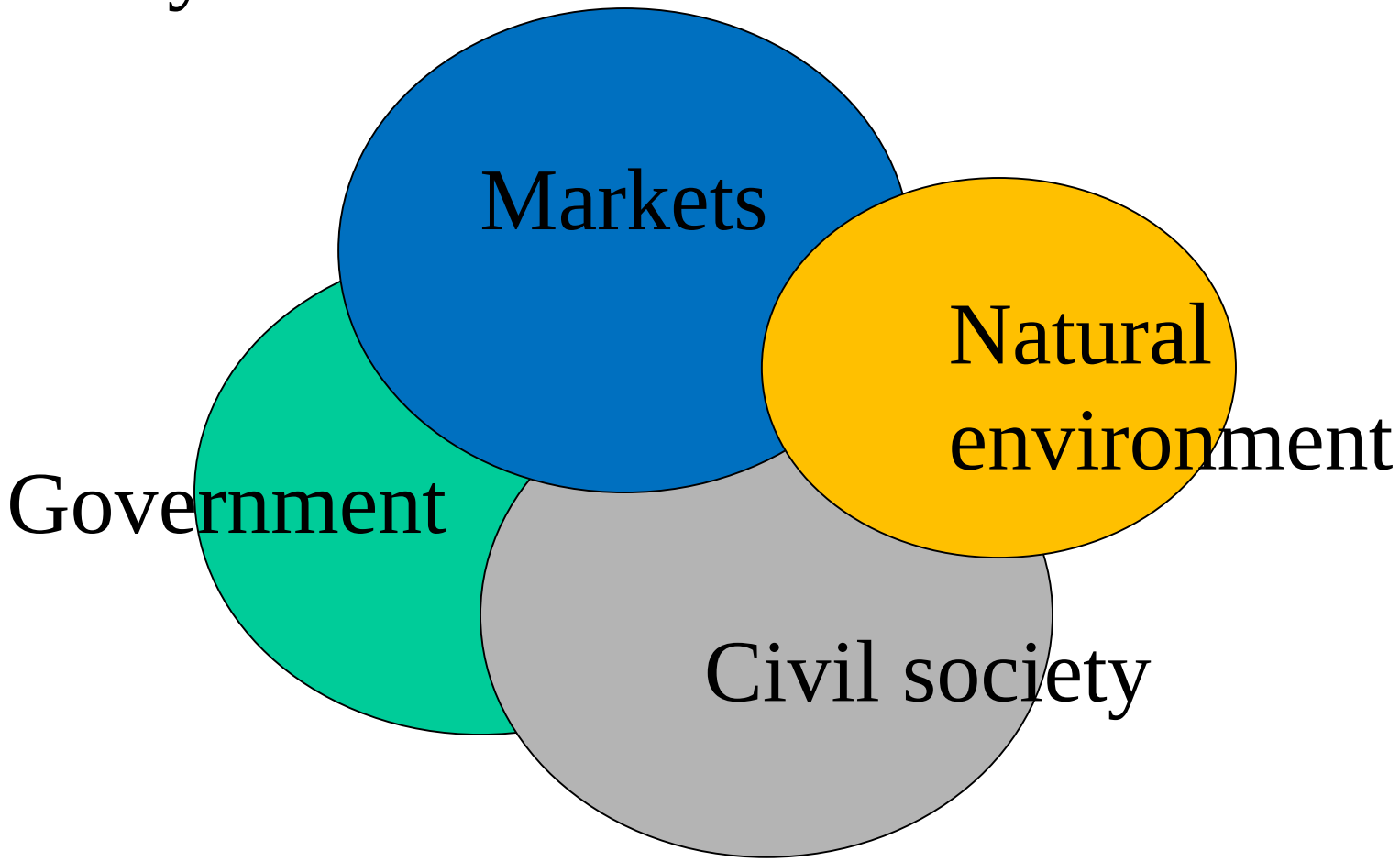
Performance-based management
Robel pole to assess vegetation structure & height

To activate productivist and conservation identities

Use of prescribed fire as “good” grassland landowner identity

To activate civic minded and grassland conservation identities

Personal identity, values, social norms and group effects address only part of the complexity



Farmers are problem solvers

1. Help them identify the problem that conservation strategies are intended to address
2. Start with where your farmer is, not where you are. Acknowledge their past experience and personal knowledge and use this as baseline for encouraging new learning and experimentation
3. Use your scientific and technical knowledge and tools to provide conservation options for solving the problem using the language they use
4. Avoid prescriptions. The context of the situation-soil, topography, crop, water, climate & resources matter….One size does NOT fit all*

*cover crops is a great conservation strategy BUT does not fit every field, crop, climate, or specific current conditions

Take Home Points

1. Farmer decisions always involve both facts & values

2. Human-agriculture-environmental relationships are systems with multi-directional feedback loops; farmers bring personal experience with these feedback loops; and implicitly if not explicitly use that information in their own operation.

3. Farmer identities are reinforced or revised based on social and environmental contexts, which create mental feedback loops that influence social learning with beneficial or mal-adaptive outcomes

4. Linking science with values in small group and public deliberation can accelerate social learning and beneficial adaptation

5. Encourage farmers to select a few indicators that will help them monitor over time whether their conservation practices are making a difference
   eg. N in tile lines, soil organic matter, water holding capacity of their soil, stalk nitrate tests, robel pole, track butterfly abundance and diversity, fish diversity,etc.

6. Leverage farmer confidence and knowledge when you introduce new science and technologies to encourage experimentation and learning

Selected Social Science Publications

Morton, L.W. and S. Brown, (2011). *Pathways for Getting to Better Water Quality: The Citizen Effect.* New York, NY: Springer Science+Business. 273 pages

* McGuire, J., L.W. Morton, A. Cast and J.G. Arbuckle. (2015) Farmer identities and responses to the social-biophysical environment. *Rural Studies* 39:145-155.

* Morton, L.W., J. Hobbs, J. Arbuckle, and A. Loy. (2015) Upper Midwest Climate Variations: Farmer Responses to Excess Water Risks. *Journal Environmental Quality.* 44:810-822 doi:10.2134/jeq2014.08.0352

*Harr, R. N., L. Wright Morton, S. R. Rusk, D. M. Engle, J. R. Miller and D. Debinski. (2014). Landowners' perceptions of risk in grassland management: woody plant encroachment and prescribed fire. *Ecology and Society* 19 (2):41 doi.org/10.5751/ES-06404-190241

*Arbuckle, J., L.W. Morton, and J. Hobbs, (2015). Trust, beliefs, and perceived risk as determinants of farmer support for adaptive and mitigative responses to climate change. *Environment and Behavior*. 47(2):205-234. DOI: 10.1177/0013916513503832

*McGuire, J., L.W. Morton, A. Cast, (2013). Reconstructing the Good Farmer Identity: Changing Attitudes and Behaviors through Environmental Performance-based Management. *Agriculture & Human Values,* June 20 published online 30 (1), 57-69. doi: 10.1007/s10460-012-9381-y

*Morton, L.W., Jon Hobbs, J. Gordon Arbuckle, (2013). Shifts in Farmer Uncertainty Over Time About Sustainable Farming Practices and Modern Farming Reliance on Commercial Fertilizers, Insecticides and Herbicides. *Journal Soil & Water Conservation,* 68 (1), 1-12.

*Miller, J. R., L.W. Morton, D.M. Engle, D.M. Debinski, and R.N. Harr, (2012). Nature Reserves as Catalysts for Landscape Change, (April) *Frontiers,* 10 (3), 144-152.

Morton, L.W., E. Regan, D. Engle, J. Miller, R. Harr, (2010). "Perceptions of Landowners Concerning Conservation, Grazing, Fire, and Eastern Redcedar Management in Tallgrass Prairie." *Rangeland Ecology & Management,* 63 (6), 645-654.

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