

Social Predictors of Conservation Practice Adoption in Iowa

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Why did this fail after 6 months?

We have a nutrient problem, but we have solutions.

Iowa Nutrient Reduction Strategy

Studies conducted on individual practices (Arbuckle and Roesch-McNally 2015; Baumgart-Getz et al. 2012; Prokopy et al. 2008; Sundermeier et al. 2009)

- Cover crops
- Conservation tillage
- Fertilizer reduction
- Etc.

But we still have more problems

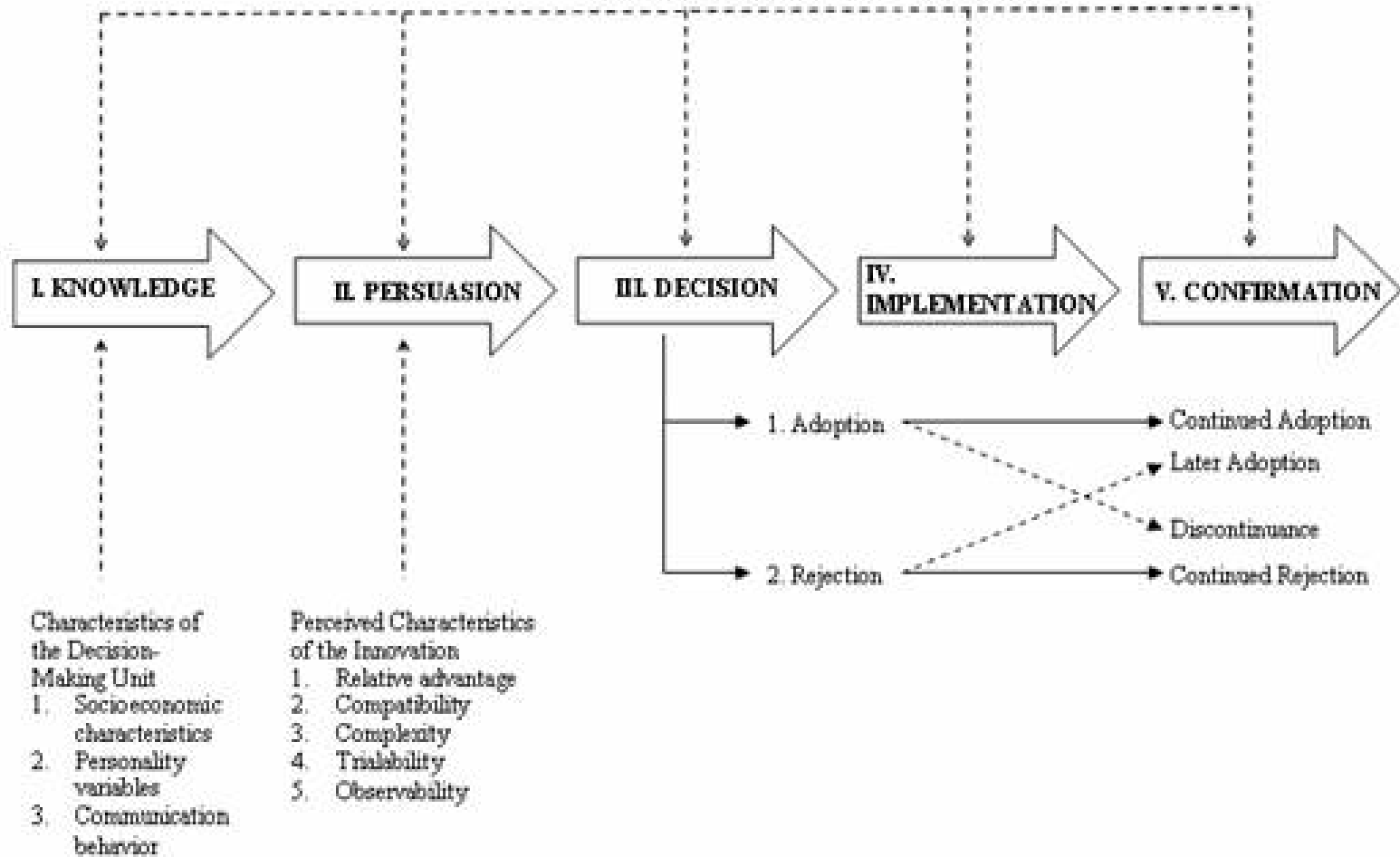
- Diverse range of practices must be employed (Helmets et al 2009)
- Farmer adoption of conservation practices is stagnant compared to need

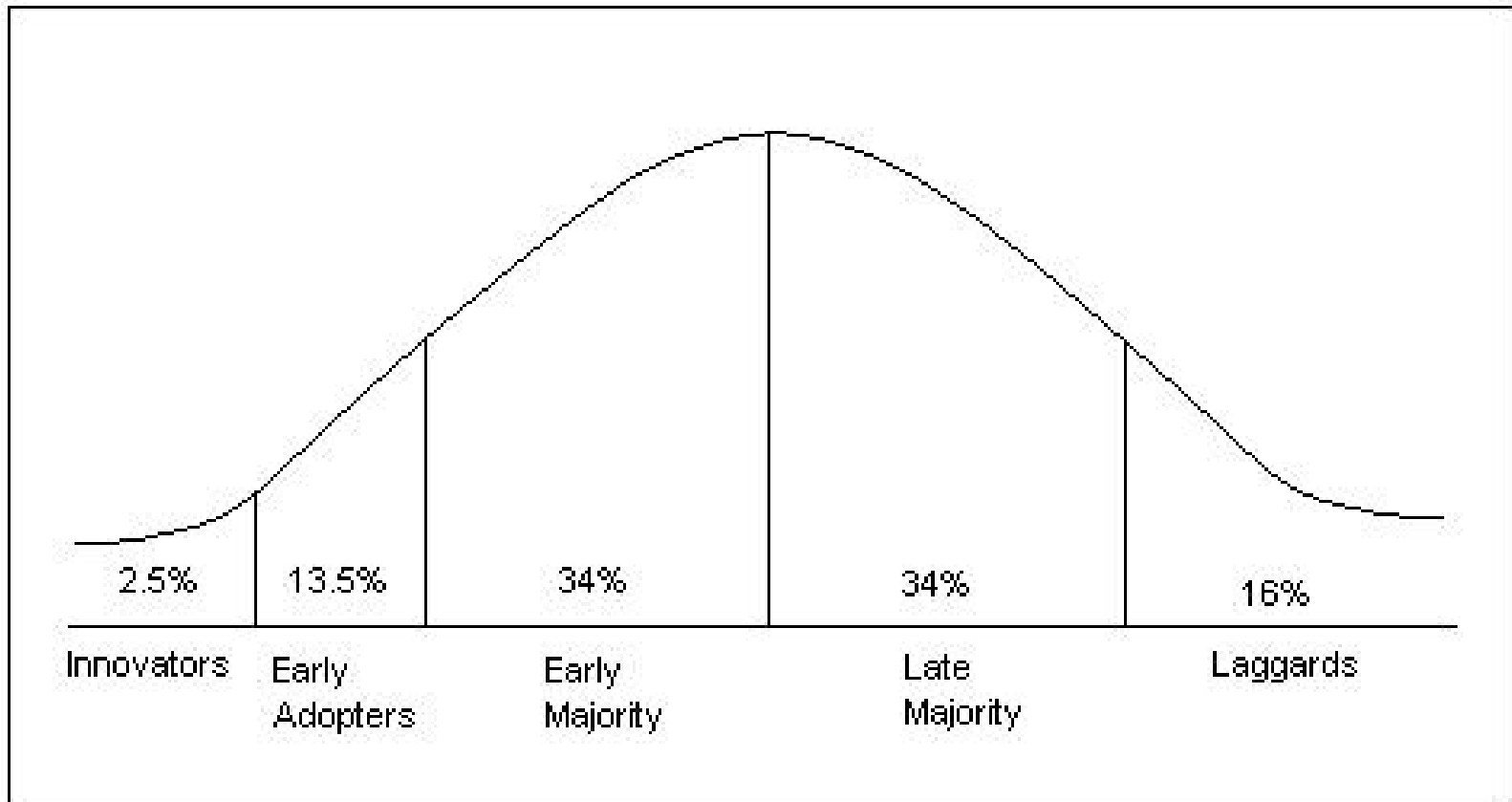
Iowa Farm and Rural Life Poll

- Established in 1982
- Measures quality of life, farm management practices, policy perspectives, etc.
- 2012 Iowa Farm Poll anticipating the Iowa Nutrient Reduction Strategy
 - NM practices use
 - Opinion leadership
 - Information sources
- What did we do with the data?
 - Select social variables supported by the literature (Diffusion of Innovations Theory)
 - OLS Regression Model
 - See how different social factors related to diverse conservation practice adoption

COMMUNICATION CHANNELS

PRIOR CONDITIONS
1. Previous practice
2. Felt needs/problems
3. Innovativeness
4. Norms of the social systems





Dependent Variable: NM Practice Use

Nitrogen management practice	Do Not Use	Limited Use	Moderate Use	Heavy Use
Crop Rotations	4.6	9.7	35.4	50.4
Yield goals	10.4	16.7	43.8	29.2
Soil Testing	13.5	20.3	39.5	26.7
Animal Manure	39.1	21.6	23.2	16.1
Variable fertilizer rate	40.8	23.2	22.5	13.4
Soil Temperatures	37.5	26.8	25.2	10.6
Plant Legumes	44.3	25	21	9.7
Nitrification Inhibitor (e.g., N-Serve)	60.5	15.2	13.8	10.6
Integrated Crop Management	59.8	22.8	13.4	3.9
Test Strips	61.2	24.2	9.7	4.9
Cover Crops	71.1	18.4	8.1	2.4
Stalk N Tests	72.1	17.5	6.2	4.1
Late spring nitrogen test	70.2	19.9	6.8	3.1
Corn N Rate Calculator (MRTN)	78.1	12	7.6	2.3
Aerial photos or remote sensing	75.3	14.8	7.6	2.2
Urease Inhibitor (e.g., Agrotain)	81.1	9.9	5.5	3.5
Coated Urea (e.g.s, ESN)	83.1	10.4	4.6	1.9
Canopy sensors for nitrogen deficiency	92.8	4.8	2.1	0.3

Independent variable 1: Communication format

	Field Days	Workshops, Trainings, Meetings	Online Videos, Webcasts	Downloaded Publications	“Apps” for a smartphone or tablet	Would probably not use Extension
	<i>--Percentage--</i>					
Nutrient Management	24.5	40.7	13.3	20.1	2.9	12.9
Fertilizer Application Rate	24.3	35	10	20.9	2.5	16.6

Independent variable 2 and 3: Public/Private Sector Sources

	Private Source First	Public Source First
	--Percentage--	
Zero	10.9	77.9
One	17.3	15.2
Two	71.8	6.9

Zero = Neither NM or fertilizer application rate

1 = one or the other

2 = both

Independent Variable 4: Organization Involvement

	Agriculture and natural resource conservation organization	Have Never Been a Member	Was a Member, But Not Now	Member, not Active Participant	Active	Very Active
1	Iowa Farm Bureau Federation	18.8	17.5	49.6	11.0	3.1
	Iowa Farmers Union	94.4	2.7	2.4	0.3	0.2
3	Iowa Corn Growers Association	50.9	13.3	30.1	5.0	0.6
2	Iowa Soybean Association	46.2	13.0	35.3	4.9	0.6
	Iowa Pork Producers Association	63.4	26.4	7.1	2.4	0.7
	Iowa Cattlemen's Association	66.6	18.4	9.5	4.2	1.2
	Practical Farmers of Iowa	94.5	3.1	1.5	0.5	0.3
	Iowa Organic Association	97.5	1.4	0.5	0.3	0.2
	Iowa Natural Heritage Foundation	94.6	2.8	2.3	0.3	0.1
	Iowa Environmental Council	97.7	1.1	0.8	0.2	0.1

Independent Variable 5: Opinion Leadership

Opinion leadership statement	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
It is important to me to keep up with the latest farm management practices and strategies	1.3	6.5	12.4	62.4	17.4	80
Other farmers tend to look to me for advice	7.3	33.2	42.1	15.9	1.5	
I consider myself to be a role model for other farmers	7.4	32.9	41.9	16.6	1.1	
Extension staff, crop advisers, and others involved in agriculture tend to look to me for advice	18.0	51.6	25.4	4.8	0.2	
I take a leadership role in local agricultural matters	15.8	49.9	22.4	11.0	0.8	
Compared to other farmers, I tend to use more innovative management practices and strategies	8.7	33.3	33.4	21.5	3.2	24.7
My opinions matter in the local agricultural community	13.6	30.2	37.9	17.1	1.2	18.3

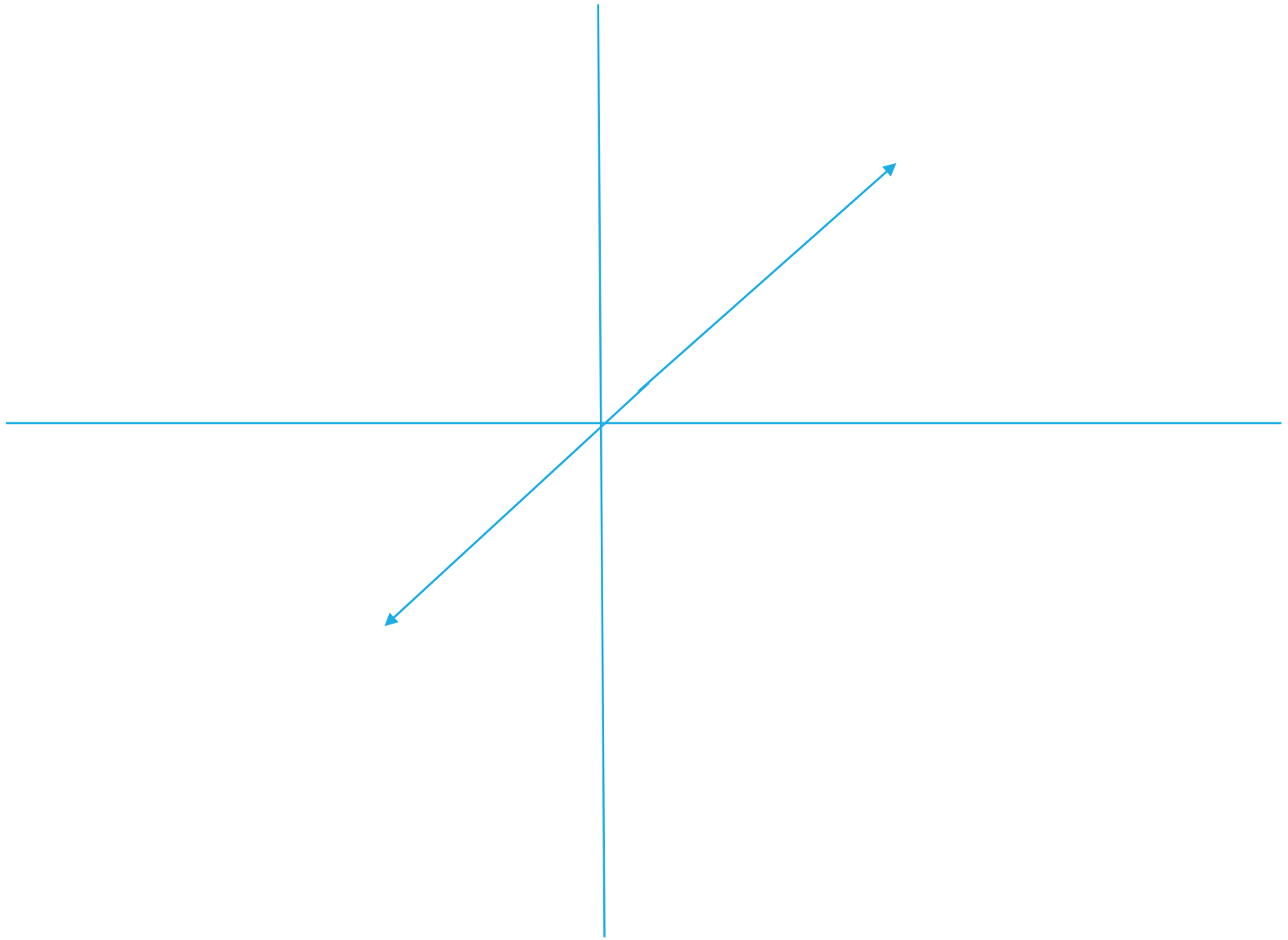
The Results

	Model 1				Model 2				Model 3			
	B	Std. Error	Std. Beta	Sig.	B	Std. Error	Std. Beta	Sig.	B	Std. Error	Std. Beta	Sig.
Constant	1.21	.091		.000	.822	.092		.000	.876	.092		.000
Face2Face	.072	.026	.091	.005	.041	.024	.051	.093	.050	.024	.062	.040
PubFirstNM	.066	.045	.097	.142	.041	.042	.060	.32	.034	.042	.050	.415
PrivFirstNM	.002	.041	.003	.967	.007	.038	.011	.857	.001	.038	.002	.978
AllOrgInlv	.036	.004	.327	.000	.022	.004	.198	.000	.019	.004	.175	.000
OpinLeader					.032	.003	.369	.000	.029	.003	.337	.000
CornSoyTotalAc									.000	.000	.124	.000
Adjusted R Square (cumulative)	.133				.247				.265			
F	33.90***				57.05***				50.91***			
N	855				855				855			

What does this mean...

1. Farmers who prefer to receive nutrient management information in face-to-face settings will use more diverse nutrient management practices.
- ~~2. Farmers who indicate that they go to extension/public sources first for nutrient management information will use more diverse nutrient management practices.~~
- ~~3. Farmers who indicate that they go to private sector sources first for nutrient management information will use more diverse nutrient management practices.~~
4. Farmers who are more involved in agriculture and natural resource conservation organizations will use more diverse nutrient management practices.
5. Farmers who rank themselves high on the opinion leadership index will use more diverse nutrient management practices.

What's the big
issue with this
conclusion?





Where do we go from here?

- Non traditional approaches to conservation adoption
- Face-to-face approaches may be effective for programming
- We need to learn more about leaders and their impacts
- Farm organizations play a very strong role in engagement
- We have to be in their community, not just be a service-provider
- Those who may need services the most, may be hard to reach

Questions?

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