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Big Ag Talks Going Green: Public Opinion Research on Large Scale Farmer Attitudes and Activities on Conservation Practices on Illinois Farms

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Abstract

This research looks at farmers' opinions toward conservation measures, specifically those related to the environmental movement. Two versions of a mail survey, altered slightly to determine language preferences, were distributed to a randomly selected group of Illinois farmers. Participants were asked whether they agree with certain statements about environmental management. Results of the study suggest that farmers are sensitive to word choice such as "sustainable," which is traditionally associated with the environmental movement. Additional differences were found due to demographic preferences, such as political affiliation. Farmers also demonstrated an awareness of scientific vocabulary and concepts, seeing no difference between the terms "global warming" and "climate change," and preferring terms such as "ecosystem" to equivalent layman terminology. Results indicate that conservationists working with farmers should strongly consider word choice and issue framing.

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Introduction

While a great deal of research has been done regarding general public opinion towards American agricultural practices, comparatively little research directly explores farmer opinions. Most existing research concerns scientific advancements like biofuels, GMOs, and organic farming (Rossi 2011, Guehlstorf 2008, Duram 2000). The research presented here is an overview of the currently available public opinion research as it relates to large scale, industrial farmers and their attitudes and opinions toward environmentalism and water quality conservation initiatives. This review will address the main research findings, focusing on farmers' perspectives of economic incentives, environmental stewardship and policy, along with noted demographic trends.

Economic Incentives

Economic incentives for farming are frequently assumed to be a determining factor for implementation of conservation initiatives (Heilman and D.S. Yakowitz 1997), and some research supports this. Federal funding programs have been shown to jumpstart conservation practices, though little is known about farmer attitudes toward the initiatives (Trout, Francis, and Jr. 2005), and such conservation efforts may begin and end with the availability of funding. A study on Michigan farmers found that subsidies alone could not account for farmer motivations to engage in conservation practices (Ryan, Erickson, and DeYoung 2003).

While economic incentives are a high priority for farmers, and necessary to stay in business, there are instances that suggest that these are not the sole motivation for enactment of such measures. Ahnstrom et al.'s review found farms with higher incomes used more pesticides than low-income farms although high-income farms were also more likely to enroll in more conservation programs (Ahnstrom et al. 2009). This finding suggests that motivations besides income could account for conservation efforts.

Environmental Stewardship

There is a great deal of agricultural marketing that portrays the American farmer as a steward of her or his environment (Hanson 2001). Some research supports this idea, though it is often more complex than a simple desire to be a good steward of the land. One hypothesis on farmers' values for their land looks at understanding farmers within their social network, by theorizing that farmers are more likely to engage in conservation work if they believe it will impress their neighbors. Ryan et al. (2003) showed that Michigan farmers were more likely to join conservation programs that emphasized tidy conservation management practices, rather than the less kept wildlife habitats, leading the researchers to speculate that the physical appearance of their land was an important component in farmer decision making (Ryan, Erickson, and DeYoung 2003). A small scale interview project found that when farmers were posed with questions about environmental stewardship, they frequently pointed out neighbors who failed to engage in such initiatives (Yakatan 2008). Should further research find similar phenomena in Midwestern farmers, this could have significant implications for the sort of conservation practices that are most likely to appeal to farmers, particularly those conservation practices which are visually appealing.

Research on Midwest farmers indicates that should the appropriate conservation strategies be developed, agricultural producers do not require a great deal of convincing that they are worthwhile. Around 94 percent of survey respondents agreed that water quality in Kansas needed to be protected, in a 2007 survey of 136 Kansas agricultural producers, and few disagreed with the statement that Kansas waters were polluted (Smith, Peterson, and Leatherman 2007). A study of Michigan farmers found that farmers rated soil conservation extremely highly (average of 4.41 on a five point scale) and believe that it makes economic sense for their farms (Ryan, Erickson, and DeYoung 2003). When asked about hypoxia (oxygen depletion caused by fertilizers) in the Gulf of Mexico, farmers in a small-scale interview study emphasized that they do everything they can to prevent run-off, since it does not make economic sense for them to waste fertilizer (Yakatan 2008).

Policy

Some themes have been found regarding farmer support for general types of policies. Interviews with Midwestern farmers along the Mississippi River from Iowa, Illinois, Missouri, Arkansas, and Indiana, found support for the “free market with a safety net” mentality towards subsidies, with displeasure over the bureaucracy farmers must go through to get such subsidies (Yakatan 2008). “Being over-regulated” was cited by 80 percent of ranchers in one California survey as one of the most likely reasons they would quit ranching (Liffman, Huntsinger, and Forero 2000).

Of the 15 farmers that were interviewed in the Mississippi research project, few expressed support of President Obama, but the majority appreciated his increased funding for ethanol production (Yakatan 2008), indicating that these farmers would be unlikely to support reductions in economic incentives for this production.

Some research shows a general distrust of conservationists, with a Michigan based study finding 56 percent of farmers refusing to have their land surveyed for fear of being subjected to regulations, with responders specifically stating a mistrust of government regulators and conservation biologists (Brook, Zint, and DeYoung 2003). In the study of Mississippi farmers, the interviewer describes “viscerally negative reactions” towards environmentalists and conservation initiatives (Yakatan 2008). A survey of Kansas farmers found that slightly over half of producers believed that environmental legislation in general is unfair to agricultural producers (Featherstone and Goodwin 1993).

Farmer Demographics and Values

Research has indicated that willingness to engage in conservation practices depends on some general demographics. Although the majority of this research was done prior to 2005 and exact percentages may have changed, the general trends served as part of the basis for this research. The difficulty in finding recent research emphasizes the need for updated work in the area.

Farm Size. New York farmers were shown to favor the use of conservation practices if they owned smaller farms, rather than larger farms (Buttel and G.W. Gillespie 1988). However, further research on Kansas farmers showed an anomaly in the trend of smaller farms using more conservation practices if the larger farms *also* had larger households. Researchers speculated that perhaps farmers feel more attachment to land if they see it being passed on to their children

(assuming larger households means a higher likelihood of an heir) (Featherstone and Goodwin 1993). An alternative explanation is that these larger families have more hands to do work around the farm, making conservation practices more affordable.

Family Tradition. A similar, family emphasis was strongly observed in British farmers, with the desire to look after the farm for future generations being rated more highly than any other value in explaining their farming practices. In addition, farmers living on old, family farms were more likely to adopt conservation measures than relative newcomers to the field (Wilson 1996). This same factor was found to be the highest rated reason for joining nature conservancies in a study of Michigan farmers (Ryan, Erickson, and DeYoung 2003). Although not statistically significant, a similar study in North Dakota revealed that all farmers surveyed using conservation practices believed that they would be farming in the future, as compared to 92 percent of conventional farmers and 95.8 percent of mixed-type farmers (Jacobsen, et al. 1991).

Age. Younger farmers were more likely than older farmers to engage in conservation activities. Results were shown across the United States, with farmers in Kansas (Featherstone and Goodwin 1993), North Dakota (Jacobsen, et al. 1991), and Iowa (Bultena and P. Nowak 1981).

Education. Farmers with more education are more likely to adopt new technologies or join conservation efforts (Gould, Saupe, and Klemme 1989).

A General Note about the Reliability of Available Research

All research contained in this report is based on peer reviewed reports, and/or information from research organizations. However, much of the data is becoming increasingly outdated. Prior to 2005, U.S. agricultural policies had created a farming culture that is significantly different than the culture today. Market prices for corn were kept extremely low due to large subsidies being granted to farmers. Because of these low corn prices, farmers were forced to produce as much corn as possible in order to get some return on investment, forcing many small farmers to expand or sell their farms. In 2005, new policies such as the New Renewable Fuel Standard, which encouraged using corn for ethanol, dramatically increased demand for corn, raising corn prices. Farmers were suddenly incentivized to continue producing as much corn as possible, changing their motivations from a desire to simply stay in business to a desire to make a large profit. An acre of land set aside for conservation, even with the existence of economic incentives for sustainability initiatives, was suddenly much more costly to farmers than it had been before the 2005 fuel standards were passed.

It is likely that with this change in farmer motivation, farmer attitudes and opinions will change as well. Much of the public opinion research available was done prior to 2005 and may no longer reflect farmer opinion. In addition, research done on farmers outside of the United States, who were not subject to changing subsidies and requirements, may be equally unreflective of Mississippi River Basin farmers. This underscores the need for current research on this demographic.

Methodology

Bluestem Communications (formally Biodiversity Project), an environmental outreach organization based in Chicago, is the nonprofit organization that instigated this research. The organization recently completed similar research with the general public, looking at what values people generally hold with regards to the Mississippi River, in the hopes that an outreach campaign geared towards meeting public interests would be more effective than a campaign geared to meet the needs of a subset of environmentalists.

This first round of research was not complete, however, due to a lack of farmer input. Frequently cited by environmentalists as being responsible for the bulk of what is currently creating the Dead Zone or oxygen depletion in the Gulf of Mexico, farmers are an indispensable part of both the problem and the solution. In the present study, the original Bluestem Communications survey was modified from a telephone survey to a paper survey with questions that pertained directly to farmers, to determine why farmers make the conservation choices they do and how they value the land and waterways.

300 addresses were randomly selected to receive a paper copy of the survey from a list of 600 farmers in the Illinois region who participated in the Conservation Stewardship Program, which was obtained from an environmental organization that was part of Bluestem Communications's Mississippi River Network. Of these, 102 surveys were returned either fully or partially completed, with two returned as incorrect addresses. This was a response rate of 34 percent, a high response rate for mail surveys, especially for a general population with no incentives and no follow.¹ The information was collected by a University of Michigan graduate student, in association with Bluestem Communications and their Mississippi River Network.

The variables in the dataset include a listing of conservation activities and basic demographics, as well as a set of responses meant to measure certain viewpoints with regards to the environment. These include questions about agreement with certain statements and environmental arguments, as well as their support for potential conservation initiatives, and how threatening they perceive certain activities to be to the Mississippi River.

Data was collected in six parts: 1.) Conservation information, 2.) Reasons for conservation choices, 3.) Opinions about the Mississippi River, 4.) Beliefs about possible threats to the Mississippi River, 5.) Support for proposed corrective measures with regards to Mississippi River maintenance, and 6.) Judgments about reasons for valuing the river in a particular way. All data was collected using Likert scales, with the exception of demographic information and the conservation choices section, which was collected using a binomial, yes or no, system.

The data was collected using two different surveys, called Survey A (46 percent of respondents) and Survey B (54 percent of respondents). While these surveys had many of the same questions, 20 of 63 questions were altered slightly to determine if the use of certain language affects farmer agreement with environmental sentiments. With one exception (discussed in results), there was no statistical difference between the responses to identical questions between the surveys.

¹ For comparison works, see up (Kaplowitz, Hadlock, and Levine 2004), (Cobanoglu, Warde, and Moreo 2001), (Greenlaw and Brown-Welty 2009), (Church 1993), (Kephart and Bressler 1958)

Many of the variables in the survey are categorical variables (i.e. religious affiliation), which means Chi-squared tests were used. Because a great deal of the data was collected using a Likert scale, Chi-squared tests were especially useful when comparing Likert scale results with categorical responses, such as looking at whether the strength of certain values is associated with political affiliation. Although the direction of relationship cannot be empirically determined using Chi-squared tests, statistical independence can be determined.

T-tests were used to determine whether associations exist between the different variables. Some of the data (total number of conservation measures, for example) is continuous, but many variables are dichotomous (i.e. “Do you use no-till or minimal till farming? Yes or no.”), which means that this research focuses on proportion data. T-tests were conducted to examine the reliability of the differences between Survey A and Survey B.

Descriptive Statistics

One hundred and two farmers responded to the survey. Comparisons between key demographic information revealed no significant differences between the respondents of Survey A and Survey B, indicating that randomization was successful. Table 1 below shows the results, with standard errors in parentheses.

Table 1. Means for Survey A and Survey B Respondents and Associated p-values.

Variables	Survey A	Survey B	p-value	Overall
Self-Identified Church Goers (%)	70	71	0.84	71
Average Schooling (%)	3.63 (2.14)	3.16 (2.18)	0.29	3.37 (2.17)
Average Age (%)	58.8 (9.35)	57.3 (11.13)	0.47	58.0 (10.34)
Average % of Income Based on Farming	73 (28.48)	75 (30.26)	0.63	74 (29.36)
Average % of Farmed Land Owned	63 (59.82)	52 (37.80)	0.27	57 (49.19)
Average # of Years Spent Farming	33.9 (12.77)	34.2 (12.67)	0.90	34.0 (12.65)
Average # of Acres	1114 (1332)	1009 (891)	0.64	1055 (1104)
Average # of Conservation Techniques Used	5.3 (1.58)	5.0 (1.96)	0.34	5.1 (1.80)

The above data also reveals that the targeted population responded to the surveys. The respondents were primarily farmers, with an average of 74 percent of their annual income dependent on farming (84 percent of respondents reported at least 50 percent of their income dependent on farming). The farmers both owned and rented the land they worked, with the average farmer owning 57 percent of the land worked. Most respondents were also long term farmers, working the land for an average of 34 years, and they owned large tracts of land, with an average of 1055 acres, although the removal of an outlier who owned almost 5,000 acres more than the next largest landowner puts this number at approximately 980 acres (standard deviation 820.40). Finally, the farmers displayed an interest in implementing conservation measures, with the average farmer

having at least five conservation techniques employed on her or his land at the time the survey was taken.

Based on available data, the demographic data collected closely resembles the national average data in areas like age and differs in a few key characteristics. The USDA's 2012 Census of Agriculture reported the average age of Illinois farmers to be 57.8 (versus the study's finding of 57.99), and found that 82 percent of farmers had been farming for 10 years or more. The key difference is farm size: the average Illinois farmer farms 359 acres—significantly smaller than the survey average, whether determined with or without the outlier (US Department of Agriculture 2014). Because the survey creators were hoping to gather information on large scale farmers, this difference provides evidence that the target population was reached.

Many demographics measured in the questionnaire are not measured through government surveys (such as religious practices and schooling). Other traditional demographic variables, such as sex and race, were not collected, although this would be a very interesting extension of this work. In this instance, the small sample size would make it difficult to identify statistically significant differences between these demographics (which are not evenly represented in the United States large scale farming community), and with limited space, other demographic information was determined to be more important.

Data Analysis

Conservation Practices

Ninety-nine percent of farmers report using some sort of conservation practices, with a mean of five conservation practices overall. The most popular practice is No Till/Minimal Till farming, which provides not only conservation benefits in terms of water and soil retention, but also provides gains in time and labor costs from a business perspective, making it an obvious choice for many farmers. Crop rotation is also extremely popular, as it allows productive use of the land for agriculture, while also providing some environmental benefits. The least popular method of conservation is wetland restoration, which takes up a great deal of space and has few obvious economic benefits for the farmer, despite requiring a great deal of restoration work. Strip-cropping is almost equally unpopular, as the practice requires alternating different types of crops on the same land, making harvesting more difficult.

Table 2. Percent of Farmers Using Conservation Practices.

Conservation Practice	Percentage of Farmers Using
Any Conservation Practices	99
No Till/Minimal Till	90
Crop Rotation	86
Waterways	81
Buffer Strips	59
Field Borders	43
Cover Crops	39
Terracing	32
Strip-cropping	14
Wetland Restoration	13

Of the demographic characteristics measures, two displayed significant relationships, as determined through standard regression, although both were relatively small effects. Age and conservation use were positively correlated ($p = 0.043$). Each decade of farming experience is associated with an increase of 0.3 conservation practices used. In addition, another positive correlation was found for conservation use and farming-based income ($p = 0.002$). Each 10 percent increase in farming-based income is associated with an increase of 0.2 conservation practices used. There was no significant relationship between conservation usage and farm size, owning versus renting, frequency of church attendance, or schooling.

Additional analyses were conducted to determine whether demographic information played a role in total conservation measures used. A chi-squared test was run to look at the correlation between political affiliation and the total number of conservation measures used. The variable for “total conservation measures used” was broken down into two categories, “Few conservation measures used”, denoted as five practices or less, and “Many conservation measures used”, denoted as six practices or more. Political affiliation included Republicans, Democrats, and Independents. The results are displayed on Table 3 below.

Table 3. Total Implemented Conservation Practices by Political Affiliation.

Political Affiliation	0-5	6+	Total
Democrat	9	0	9
Independent	9	13	22
Republican	33	25	58
Total	51	38	89

The chi-squared test revealed that the association between party affiliation and conservation practices is significant ($p=0.0104$). This result was confirmed using the Fisher’s Exact Test for small sample size (with the category of “Independent” removed in order to achieve the two-by-two matrix

required for the test), which found the same p -value as the chi-squared test in a one-tailed variation, and a value of 0.021 in a two-tailed test, both significant values.

Conservation Measures: Farmer Decision Making

This analysis raised questions as to why farmers belonging to one political affiliation chose to implement specific conservation measures over those belonging to another. An analysis was run with a breakdown of responses by political party, as shown in Table 4 below.

Table 4. Percentage of farmers who responded with “Agree” to the following statements.

Measured Values	Political Affiliation			Overall
	Democrat	Independent	Republican	
“Participation in conservation initiatives...”				
Benefits me economically. (All)	33	86	83	79
Puts me at a competitive disadvantage relative to other farmers in the area, who aren’t implementing these measures. (All)	0	9	5	6
Is important because other farmers will look poorly on my farm if I don’t participate. (All)	0	0	5	3
Helps to maintain the quality of my land and soils, so that I can use the land for longer. (Survey A)	100	100	100	100
Improves the health of my farmland, so I can use it more sustainably. (Survey B)	75	82	89	86
Helps clean up local waterways. (Survey A)	40*	82*	68*	68
Helps clean up the Mississippi River. (Survey B)	50	45	58	55
Is part of my responsibility as a farmer. (Survey A)	100	100	91	95
Makes me a good steward of the environment. (Survey B)	100	100	100	100

*Although these appear very different, the small sample sizes for each survey prevented a significant finding.

From this data, only the first question on economic benefits displayed a significant difference, as determined by a chi-squared test ($p = 0.0021$) and corroborated by the Fischer's Exact Test ($p = 0.0025$), which indicates an interaction effect of this measure and political affiliation. While a large majority of both Republicans and Independents believed conservations measures have economic benefits, the majority of Democrats did not. The small sample size brings the significance into question, but party affiliation as it relates to conservation activities could be an area of further research, to try to understand if and why Democrats specifically are less likely to believe in the economic benefits of conservation.

Of note is that farmers were the least likely to agree with the idea that conservation measures put farmers at a competitive disadvantage (six percent) or believed that other farmers would disapprove if they chose not to implement conservation measures (three percent). As to this last question, further study may be warranted, as this finding contradicts previous research. Because this survey looked at conscious attitudes, however, it is possible that farmers do not notice the effect

of social pressures. The lack of subtlety of this question may have overshadowed underlying social forces.

Analysis of Differences Between Survey A and Survey B

In the survey, several questions were asked of only one half of the survey respondents, for two reasons: 1) to see if there were differences in reaction to slight variations in framing and 2) because the survey was short, and we needed to get as much information out of it as possible. For this reason, some comparisons between Survey A and Survey B make quite a lot of sense. In other instances, the comparison is less appropriate. For the purpose of this paper, only the questions posed differently between the surveys are analyzed.

Interchangeable Terminology

From a communication standpoint, understanding when word choice does not make a difference is just as important as understanding when it does. For this reason, a brief review of non-significant findings has been included.

In terms of language used, farmers did not readily differentiate between the terms "global warming" and "climate change," "state" and "region," or "cultural" versus "historical." In addition, farmers showed no difference in opinion when the term "steward" was used or not used, when a divine "God" was invoked versus not invoked, when the Mississippi was mentioned specifically rather than "waterways" generally, nor the mention of specific flooding events as opposed to general flooding.

Interestingly, the farmers showed equal concern for protecting wetlands as a form of flood control as they did as a form of wildlife habitat. This question was posed to determine farmer opinion changed towards wetlands when they considered it a detriment to themselves (flooding their land) versus a non-human, non-personal entity (wildlife). The farmer's unchanging concern for wetlands was demonstrated twice in the data, whether framing the issue of wetland destruction as a threat, or wetland protection as a benefit. In neither instance was the end concern shown by farmers statistically different, regardless of framing. This lack of opinion change with regards to human and nonhuman benefits was also echoed in the lack of a significant difference found between wanting to protect land beside rivers from development, versus protecting it for human use and enjoyment.

In order to increase sample size in the full analysis, the following non-significant variables have been combined into their respective single variables for the purpose of the full analysis:

- climate change and global warming
- historical and cultural
- region and state
- "God" mentioned versus not mentioned
- specific flooding events versus general ones

Non-Interchangeable Terminology

In several instances, farmers responded significantly differently to different phrasings. Farmers were more likely to agree with a statement that the Mississippi is "polluted," rather than "full of trash," for instance. This could be related to a sense that "trash" is a visible substance, whereas "pollution" can combine with the water to make it unsafe for human and ecosystem health without very visible signs of trash. In terms of curtailing non-visible pollution like fertilizer runoff, this distinction may be highly salient.

In addition, farmers who received Survey A unanimously agreed that conservation "improved the quality of their land," which allowed them to use it longer. However, there was less agreement as to whether these same activities resulted in "improved land health and sustainable use." These statements, which are arguably the same, received different reactions, indicating that farmers may respond more favorably to statements that do not directly use the words "sustainability" and/or "health."

Interestingly, farmers were more likely to agree that the Mississippi River is a "living ecosystem" rather than "full of life." This difference was chosen as two potential wordings for outreach materials, one representing a more scientific approach (the word "ecosystem") to river management and the other representing a more layperson language. The farmer response to the word "ecosystem" shows a familiarity with the more technical language used to describe natural environments, signaling that it might be useful to engage with farmers on a more technical level when it comes to river management. The difference in the survey results here could be because farmers were reminded in this survey that the Mississippi River is polluted, and were reluctant to say that it is "full of life" but did not have the same qualm about thinking about the river as an ecosystem. Whatever the reason, the difference is significant.

Farmers also responded differently to two different framings regarding restoration initiatives. One survey simply asked how much farmers were likely to support an "increase [in] public funding to clean up and restore the Mississippi." The second survey used exactly the same language, but with the phrase "supported by an increase in taxes" at the end. Farmers were less likely to support the statement if taxes were identified as the funding mechanism.

A difference was found between the views that the Mississippi is a "place of scenic beauty" rather than a "place to relax," with farmers rating "place of scenic beauty" more highly. One explanation for why farmer opinion seems to be slanted towards "scenic beauty" could be that farmers are more accustomed to seeing the river as a place to look at, but not necessarily interact with, as the phrase "a place to relax" implies.

There was one question which bordered on significance that should be mentioned. Farmers seemed to agree more to the statement that the Mississippi River is "vulnerable" than it being "threatened." This is an interesting differentiation, since "threatened" implies outside, aggressive forces, while "vulnerable" does not. It is possible that farmers are uncomfortable with the idea that the Mississippi River is being "threatened" as farmers themselves are often accused of doing harm to it. It is possible that "vulnerable" is more harmless, whereas "threatened" inspires defensive reactions. No variables with significant differences were aggregated.

Farmer as Residents of the Mississippi River Region

With one exception, there were no statistical differences between the surveys, indicating that in general, there were no serious interaction effects as a result of the slightly different wording. This one exception was farmer feelings about their own residency status with regards to the Mississippi River region.

The question posed was “I consider myself a resident of the Mississippi River region” with the options “Strongly Agree” to “Strongly Disagree” (1-5). Those who responded to Survey A were statistically more likely to consider themselves resident than those who responded to Survey B ($p = 0.0015$). It is possible that the assortment of questions in survey A vs. survey B may have inspired differences of thought around residency. It should be noted that there were no differences between the surveys on measures such as total conservation measures and it was confirmed through a regression that no linear relationship exists between the implementation of conservation measures and feelings about residency status. An association was uncovered between feelings of residency status and feelings of responsibility towards maintaining the Mississippi, although the link is tenuous due to an insufficient number of farmers rating this measure as unimportant to create an effective chi-squared test, even when numbers were combined to make larger categories. While of theoretical interest, this finding is of limited importance since neither measure correlates with increased use of conservation measures.

Limitations

While a random selection of all farmers would have been better than a random sample of farmers who are already associated with an environmental organization, this data was chosen for two reasons:

1. Farmer contact information is, quite understandably, private. An organization of some kind was required in order to gain access to farmer addresses.
2. The use of an environmental organization to gather this data had the potential to skew the data in favor of farmers that have already shown an interest in the environmental movement. However, analysis of survey respondent demographics indicated a wide range of responses, from those implementing one conservation measure to those implementing ten, and a wide range of environmental perspectives. Indeed, far more Republicans responded to the survey than Democrats, who are conventionally seen as more environmentally minded. While it is always possible that a population skew occurred, as well as potential for a nonresponse bias, the data analysis makes this unlikely.

The most obvious drawback of the data is that only 102 observations are available for analysis. Although the return rate for surveys was high, this may make it difficult to find more subtle difference between populations. The data collection was a relatively low budget operation and only 300 surveys were sent out initially. Further research in this area should focus on collecting information with more participants, to ensure that small effects (which are implied by the several instances in which effects approaching significance are found) are properly accounted for.

In addition, it should be made clear that the population is sampled from the Illinois region only. While Illinois is a big player in agricultural states and is traditionally considered to have a typical Midwestern culture, personal judgment (and hopefully further research) will need to determine whether the state is representative of the Midwest region or the country as a whole.

Discussion

Language

The analysis offers interesting insight into the values and thought processes of farmers. Many of the reasons that farmers put forth for why they make the decisions that they do are remarkably consistent with environmentalist thinking, despite not using environmentalist terminology. In some instances, use of classic environmentalist words such as “sustainability” seem to have reduced support for the idea (85 percent approval) while the concept itself, expressed as an issue of longevity and land quality, was unanimously accepted (100 percent approval).

The appreciation of the word “vulnerable” instead of “threatened” may be another example of farmers being extremely conscious of where they stand with regard to the Mississippi River’s health. This research seems to indicate that the tension that exists between the two groups, farmers and environmentalists, has spilled over into the language used to communicate ideas and concepts or vice versa.

In other instances, language seemed to play a much smaller role. Farmers overall had no change in response when the word environmental “steward” was used or omitted. Nor were farmers interested in “global warming” versus “climate change.” It seems likely that the subtle distinction between these terms and the concepts that they respectively represent may not be of great importance to farmers, whereas terminology frequently used by environmentalists, such as “sustainability,” or that seems to assign blame, such as “threatened,” may be seen as more meaningful.

Demographics

Often the demographic results raised more questions than it provided answers. Although the chi-squared tests are slightly suspect due to the limited number of Democrats in the subject pool, the statistically significant findings raise questions about what a large dataset might reveal given further study. As it stands, the data implies that Democratic farmers in Illinois engage in less conservation activities than Republicans or Independents, and that they are less likely than these other political affiliations to believe that such engagement in these measures will benefit them economically. These findings are counter to current intuition on the subject, but if true, would indicate a necessary change in communication patterns towards farmers, with more emphasis on environmental measures as sound business decisions and targeting Democratic farmers. More research with larger subject pools should be conducted before final conclusions are made.

Conclusion

In a great deal of conversations about American farming practices, large scale farmers are characterized as being uncommitted to conservation reform. Farmers who use conventional methods, as opposed to organic farming, are considered less environmentally conscious than those who do. This research provides evidence that when working with farmers directly, a strong commitment to sustainable land management is revealed as well as many values that mirror those of environmentalists. There is also a degree of sensitivity to words that take on an accusing tone, such as “threatened” instead of “vulnerable.” This suggests that the historic tensions between farmers and conservationists may have left an impact on farmer perception of river ecosystems, which should be acknowledged when working with the industry.

This research provides strong evidence that negative environmental perceptions about large scale farmers are not only wrong, but harmful to the cause of conservation. The farmers surveyed were reluctant to say that they engaged in conservation measures in order to use the land “more sustainably,” but they unanimously agreed that they wanted to use their land in a way that maintained the quality and longevity of the land and soil. These are arguably the same thing, and yet an environmentalist hoping to work with farmers to improve conservation could unintentionally alienate an audience through word choice. In the same conversation, environmentalists may feel a farmer is disagreeing with them if the farmer were to respond negatively to the word, even though the farmer may agree with sustainability in principle. Avoiding this sort of misunderstanding could help farmers and environmentalists be allies in their work. Farmers express a strong interest in implementing conservation measures that fit with their land, as well as an appreciation for sustainability that mirrors the views of environmentalists.

One of the most interesting findings of the research is the prevalence of farmers who see conservation work as a good business decision. Future research should look into why farmers see conservation practices as a business investment—and why some farmers do not. The difference between the business realities of daily farm work and the large scale implications of sustainable farming are often considered to be incompatible, but this work suggests that many farmers, who have been successfully running their farming business for an average of 34 years, have been able to strike a balance between the two. This is extremely valuable knowledge in the work towards more sustainable large scale farming and an area that requires a great deal more study and understanding.

Finally, it should also be noted that farm culture in America is changing. The farm size of the survey participants may seem large to those more used to urban gardens or community farms, but the reality is that a great deal of these “large” farms are being bought out by even larger farm owners, who then rent out the land to actual farmers and receive government price supports. Unfortunately, the predictions that this survey can make about the effects of this large scale farm “buy out” are limited. This survey included mainly farmers who worked the land personally, a very different demographic than a detached business owner. While this study found no significant relationship between farm size and use of conservation measures, this relationship may change when farm size increases drastically. More research should be done to determine what impact this large-scale buy out is having on conservation practices on Midwest farms.

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