

Iowans' Perspectives on Targeted Approaches for Multiple-Benefit Agriculture

Measuring Support for a Paradigm Shift in Agri-Environmental Policy

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The survey summarized in this report was conducted as part of the STRIPS project. STRIPS stands for Science-based Trials of Rowcrops Integrated with Prairie Strips. Since 2007, the long-term project has been measuring the impacts of strategically planting prairie strips in crop fields at the Neal Smith National Wildlife Refuge in Prairie City, Iowa. Results have shown that small amounts of prairie can yield disproportionate, multi-functional benefits to soils, watersheds, wildlife habitat and biodiversity.

Find more information about the STRIPS project online at www.prairiestrips.org.

Learn more about the Neal Smith National Wildlife Refuge at www.fws.gov/refuge/neal_smith.

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Abstract

More than 1,000 Iowans were surveyed to learn about their expectations for the state’s agricultural sector, their concerns about environmental quality, and their willingness to support greater public investment in policies and programs that work toward more resilient, productive agricultural landscapes that provide a range of benefits in addition to food, feed, and energy. Survey respondents placed high priority on improved soil and water quality, better wildlife habitat, and enhanced recreation opportunities. They privileged improvements in these outcomes over increases in crop and livestock production. While agriculture’s impacts on soil and water quality rose to the top of the list of Iowans’ environmental concerns, survey respondents also generally supported efforts to help farmers to address those issues. Two-thirds of Iowans indicated that they would support a shift to a holistic, targeted conservation approach that would minimize the negative impacts of agriculture while enhancing multiple benefits from agricultural landscapes. Importantly, they would be willing to pay an estimated \$42 million per year over ten years to support the implementation of such an effort. Overall, the survey results offer strong evidence that most Iowans want to see improved performance of agricultural landscapes and are willing to dedicate substantial resources to enhance a range of benefits while helping to reduce negative impacts. The results serve to validate recent public investments such as Iowa’s Nutrient Reduction Strategy (www.nutrientstrategy.iastate.edu) and many other ongoing activities that are focused on such goals. The data suggest that Iowans would like to see much more investment, such as full implementation of the Natural Resources and Outdoor Recreation Trust Fund, and further implementation of policies and programs that balance agricultural productivity and other, equally important benefits that agricultural landscapes can provide.

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Iowans' Perspectives on Targeted Approaches for Multiple-Benefit Agriculture: Measuring Support for a Paradigm Shift in Agri-Environmental Policy

Introduction

Iowa is a leading agricultural state. Over 90 percent of the state is farmland, and Iowa produces more corn, soybeans, hogs, and eggs than any other state. Relative to most states, the cultural and economic importance of agriculture is exceptional. Although agriculture provides many benefits, it is also the source of numerous negative impacts, such as water quality impairment, soil loss, and wildlife habitat degradation. There are many opportunities to reduce those negative impacts, while at the same time increasing long-term agricultural productivity and enhancing other benefits from agricultural landscapes such as clean water, wildlife habitat, and recreational opportunities. However, significant progress toward such goals would require substantial changes in agricultural and rural policies and programs and the ways that soil and water conservation approaches are implemented.

This report summarizes the findings from a state-wide survey of Iowa residents that assessed the public's perspectives on agricultural and environmental issues and potential pathways toward agricultural landscapes that produce more benefits in addition to food, feed, and fuel. Because broad-based public backing is necessary for any major change in the way society approaches problems and solutions, this survey was designed to learn about Iowans' expectations for the state's agricultural sector, their concerns about environmental quality, and their willingness to support greater public investment in policies and programs that work toward more resilient, productive agricultural landscapes.

The survey was conducted about a year after the historic passing of Iowa's Natural Resources and Outdoor Recreation Trust Fund amendment. In November 2010, the people of Iowa voted to amend Iowa's Constitution (Senate File 2310, Iowa Code Chapter 461) to dedicate three-eighths of one percent of any future sales tax increase to create a stable, statutory funding source that would help Iowa address natural resource needs. Because there has not been a sales tax increase since the referendum, the Trust Fund does not have a dedicated source of funding. A central

objective of the survey was to measure Iowans' willingness to pay into such a fund.

The survey was conducted as part of a long-term project called the Science-based Trials of Rowcrops Integrated with Prairie Strips, or STRIPS project. Since 2007, the STRIPS project has measured the impacts of a conservation practice that plants strips of native prairie vegetation into corn and soybean fields. The research conducted at the Neal Smith National Wildlife Refuge has shown that strategic conversion of small proportions of crop fields into prairie can have disproportionately large beneficial impacts. When applied in small watersheds, the prairie strips reduced soil loss by 95 percent and substantially reduced losses of nitrogen (85 percent) and phosphorus (90 percent) into waterways, while having minimal impact on crop yields. At the same time, the prairie strips introduce landscape habitat diversity that can support all manner of wildlife, especially birds and pollinators. In summary, the research suggests that strategic incorporation of prairie strips into agricultural landscapes can play an important role in broad-based efforts to maintain or improve the long-term productivity of agriculture while providing numerous other benefits such as improved water quality and wildlife habitat.

The survey was carried out by Iowa State University's Survey and Behavioral Research Services (SBRS) unit. The survey was mailed in late 2011 and early 2012 to a random sample of 2,272 Iowa residents. It was accompanied by a letter that explained the objectives of the survey and asked that the survey be completed by the adult household member who had the most recent birthday. A total of 1,060 completed surveys were returned, for a response rate of 47 percent.

This report presents data on Iowans' priorities for agricultural policies and programs, attitudes and concerns regarding agriculture and the environment, support for potential changes in the way conservation programs are implemented, willingness to pay for such a paradigm shift, and participation in recreation and conservation activities.

Multiple benefits from Iowa agriculture

Agricultural landscapes can provide many benefits in addition to food, fuel, and fiber. Benefits that agricultural landscapes can provide or enhance include clean water, flood control, wildlife habitat, carbon sequestration, and outdoor recreational opportunities. Efforts to balance such benefits with food, fuel, and fiber can be referred to as “multi-functional,” “multi-purpose,” or “multiple-benefit” agriculture. Iowa’s agriculture has relatively untapped potential to develop such benefits, and the survey sought to understand the general public’s opinions about what benefits should be emphasized or supported through agricultural policies and programs.

The survey provided a list of 15 items and asked respondents to rank each on a five-point scale ranging from “no priority” to “very high priority.” The items focused primarily on management for four types of benefits: food production, water quality and quantity, terrestrial habitat, and recreation, tourism, and economic development. A single item asked about greenhouse gas reduction through carbon sequestration. The items were preceded by the following text that introduced the concept of multi-purpose agriculture:

Close to 90 percent of Iowa’s land area is farmland. It is increasingly recognized that farmland can be managed for both food production and a variety of recreational, environmental, and economic purposes that benefit both farmers and the general public. This is known as “Multi-Purpose Agriculture.” Each of the items on the following list are areas that could be promoted through agricultural policy and programs. Please indicate how much priority you think should be placed on each of these items.

Iowans rated water-related benefits as their highest priorities. The top priority, by a wide margin, was protection of drinking water quality (figure 1, table 1). Ninety-one percent of Iowa residents ranked the item as a high or very high priority. Protection of water quality for aquatic life was second, with 74 percent rating it as a high or very high priority. Improving flood control was fourth overall, at 73 percent. Protecting water quality for swimming/boating was fifth overall, with 59 percent of respondents indicating that it should be a high or very high priority.

The terrestrial habitat-related items were also rated highly. More than half of the public placed high or very high priority on improving game wildlife habitat (table 1). Approximately 45 percent of

respondents placed high or very high priority on improving non-game wildlife habitat, restoring wetlands, and restoring native prairie, respectively.

The single climate change-related item asked Iowans to rate the priority they place on “reducing greenhouse gases (carbon sequestration)” as a potential benefit from agriculture. Fifty-two percent rated the item as a high or very high priority (table 1). The item was ranked seventh out of the 15 (figure 1).

Among the recreation/tourism/economic development items, the highest rated was rural job opportunities. Seventy-one percent of respondents indicated that rural jobs should be a high or very high priority for agricultural policy and programs (table 1). About half (49 percent) of the public placed high or very high priority on increasing tourism opportunities. Somewhat lower emphasis was placed on landscape aesthetics and increasing access to natural areas for recreation, with 38 and 37 percent of respondents placing high or very high priority on these items, respectively.



Figure 1. Iowans’ ranked priorities for agricultural policy and programs.

Increasing crop production and livestock production were ranked 9th and 13th, respectively, out of the 15 items (figure 1). Fifty percent of

Iowans placed high or very high priority on crop production (table 1). Forty-five percent indicated the same about livestock production.

Table 1. Ranking of multifunctional benefits: Priorities for agricultural policy and programs¹

	No Priority	Slight Priority	Moderate Priority	High Priority	Very High Priority
	— Percentage —				
Water quality and quantity					
Protecting drinking water quality.....	1	2	6	27	65
Protecting water quality for aquatic life.....	2	4	19	35	40
Improving flood control.....	3	6	18	37	36
Protecting water quality for swimming/boating.....	4	10	27	35	24
Habitat					
Improving game wildlife habitat.....	5	12	30	31	22
Improving non-game wildlife habitat.....	8	15	33	27	17
Restoring wetlands.....	8	17	31	28	17
Restoring native prairie.....	8	15	35	27	16
Climate change mitigation					
Reducing greenhouse gases (carbon sequestration).....	9	12	26	26	26
Recreation/tourism/economic development					
Increasing rural job opportunities.....	1	6	22	35	36
Increasing tourism opportunities.....	6	11	34	31	19
Beautification of the landscape.....	7	18	37	29	9
Increasing public access to natural areas for recreation (hiking, biking, swimming, fishing, hunting, etc.).....	9	15	40	26	11
Food and fiber					
Increasing crop production.....	8	13	28	33	18
Increasing livestock production.....	11	15	30	31	15

Public perspectives on Iowa agriculture

A major section of the survey examined the public’s attitudes toward current and potential agriculture-related actions and policies. The section contained 12 items that were rated on a five-point scale ranging from “strongly disagree” to “strongly agree.” Two items sought to gauge respondents’ opinions about agriculture’s current environmental impact. The balance of items examined respondents’ opinions regarding actions

that farmers and public agencies could take to help lighten agriculture’s environmental footprint.

Two items that evaluated agriculture’s environmental performance produced mixed results. On one hand, a majority (55 percent) of the public agreed that Iowa agriculture has some negative impact on the environment (table 2).

At the same time, 49 percent agreed that Iowa farmers are doing a good job of minimizing the environmental impacts of farming. These results suggest that although many people perceived that agriculture does have some negative environmental impacts, many also agreed that farmers are working to minimize those impacts.

Responses on the “action items,” however, indicate that much of the public believes that farmers and others should do more to reduce impacts. Forty-nine percent of respondents agreed or strongly agreed that farmers should do more to address agriculture’s environmental impacts, compared to

just 13 percent who disagreed (table 2). Likewise, 49 percent agreed that state and federal agencies should do more to help farmers with that task.

Several items focused on the balance between public and private interests in land management. Forty-nine percent of the public agreed or strongly agreed that farmland use should be regulated to ensure that agricultural activities do not result in negative impacts. Forty-eight percent agreed that Iowa farmland should be managed with the general public’s interest in mind. Two additional items focused on interests but were phrased from a landowner-interest perspective.

Table 2. Attitudes toward Iowa agriculture: Assessment and potential action					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<i>— Percentage —</i>					
Evaluation of current environmental performance					
Iowa agriculture has some negative impacts on the environment.....	4	11	30	45	10
Iowa farmers are doing a good job of minimizing the environmental impacts of farming.....	3	10	37	41	8
Opinions on potential actions					
State and federal agencies should support and promote multi-purpose agriculture.....	4	6	29	48	12
Iowa farmers should do more to decrease the environmental impact of farming	3	10	38	40	9
State and federal agencies should do more to help farmers decrease the environmental impact of farming.....	6	13	32	39	10
State and federal agencies should do more to help farmers increase wildlife habitat on their land	7	14	33	34	13
Iowa farmland should be managed with the interests of the general public in mind.....	5	16	31	40	8
Farmland use should be regulated to ensure that it does not negatively impact the general public.....	8	17	27	37	12
Farmland owners have a responsibility to maintain some native habitat such as prairie	6	16	30	38	9
State agencies cannot be trusted to efficiently address environmental issues related to agriculture .	4	18	46	22	10
Iowa farmland is private property and owners should be free to manage it however they want.....	10	31	29	20	10
Farmland owners should not have to consider the interests of the general public when making management decisions.....	18	42	22	13	5

Thirty percent of respondents agreed that landowners should be free to manage their private property as they see fit, while 41 percent disagreed with that statement. Just 18 percent agreed with the statement, “Farmland owners should not have to consider the interests of the general public when making management decisions,” compared to 60 percent who disagreed.

The two items related to habitat garnered substantial support. Forty-eight percent of the public agreed that farmland owners should maintain some native habitat (e.g., prairie) on their land (table 2). Further, 46 percent agreed

that public agencies should do more to help farmers increase wildlife habitat on their land.

The highest-rated action item (and the highest rated item overall) was, “State and federal agencies should support and promote multi-purpose agriculture.” Sixty percent of the public agreed or strongly agreed with the statement (table 2). It is interesting to consider that most of the respondents had likely never heard of “multi-purpose agriculture” prior to the question set that preceded this one. That this item was rated highest—and by a substantial margin—suggests that the concept resonated with many respondents.

Concerns about environmental issues

Iowa faces a number of environmental issues. The survey sought to measure the public’s concern about five types of environmental problems: habitat loss, water quality, soil quality, air quality, and climate change. Under each of these five headings (which were provided in the order above) was a list of sub-dimensions. Survey participants were asked to indicate their level of concern on a four-point scale ranging from “not concerned” to “very concerned.”

Iowans were most concerned about *water quality*. Water pollution from industry was the highest-rated issue, with 82 percent of Iowans being either concerned or very concerned (table 3). This was followed closely by water pollution from livestock production; about 79 percent of respondents selected concerned or very concerned. Water pollution from crop production, water pollution from municipal wastewater systems, and nutrient overload in Iowa lakes and streams were all rated highly, with 74 percent of participants either concerned or very concerned about each of these issues. Pollution from septic systems received a concerned or very concerned rating from 69 percent of respondents. While Iowans were highly concerned about nutrient overload in the state’s waters, they were less worried about Iowa’s impact on hypoxia in the Gulf of Mexico. Nevertheless, a majority (56 percent) were concerned or very concerned about Iowa’s contribution to the “dead zone” in the Gulf of Mexico.

Iowans were also greatly concerned about *soil quality* issues. Loss of soil fertility was one of highest-rated concerns, with 76 percent expressing that they were concerned or very

concerned about this issue (table 3). Concern about soil erosion was also very high, with 75 percent concerned or very concerned.

Air pollution from industry and power plants were also among the top-rated concerns.

Seventy-five percent of Iowans indicated that they were concerned or very concerned about air pollution from industry, and a slightly lower proportion (70 percent) felt the same about power plants (table 3). Air pollution from agriculture was much less of a concern in general: 54 percent were concerned or very concerned about air pollution from livestock production and 43 percent expressed the same about crop production.

Concerns about the impacts of *climate change* were lower relative to concerns about soil and water quality, but strong majorities selected “concerned” or “very concerned” for all three items. Sixty-seven percent of Iowans were concerned or very concerned about increased flood risks (table 3). Drought was rated similarly by 60 percent of respondents. Fifty-six percent were concerned or very concerned that extreme rain events would become more common.

Substantial numbers of Iowans expressed high levels of concern about *habitat loss*. Sixty-seven percent indicated that they were concerned or very concerned about “loss of wildlife habitat in general.” Fifty-one percent expressed the same about the loss of native prairie, and 48 percent were concerned about loss of wetlands. Lower levels of concern about the loss of these types of habitat is not necessarily surprising, however, as most of Iowa’s prairie and wetlands were lost long ago.

Table 3. Concerns about environmental issues

	Not Concerned	Slightly Concerned	Very Concerned	
— Percentage —				
Water Quality				
Water pollution from industry	3	15	34	48
Water pollution from livestock production	4	18	39	40
Water pollution from municipal wastewater systems	7	19	39	36
Nutrient overload in Iowa lakes and streams	5	21	40	34
Water pollution from crop production	6	20	43	32
Water pollution from septic systems	9	22	37	32
Iowa's contribution to the "dead zone" in the Gulf of Mexico	17	27	35	20
Soil Quality				
Loss of soil fertility	6	19	45	31
Soil erosion	5	20	44	31
Air Pollution				
Air pollution from industry	5	21	37	38
Air pollution from livestock production	18	28	32	22
Air pollution from power plants	7	23	34	37
Air pollution from crop production	27	30	28	14
Habitat Quality				
Loss of wildlife habitat in general	10	24	42	25
Loss of native prairie	17	33	38	13
Wetland loss	18	34	37	12
Climate Change				
Increased risk of flooding	13	20	39	28
Increased risk of drought	15	25	38	23
Extreme rain events becoming more common	18	26	38	18

Willingness to pay for targeted agricultural conservation approaches

On November 2, 2010, 63 percent of Iowa voters passed an amendment to the Iowa Constitution that created a Natural Resources and Outdoor Recreation Trust Fund.² The trust fund was envisioned to be a sustainable funding source for “the purposes of protecting and enhancing water quality and natural areas in this State including parks, trails, and fish and wildlife habitat, and conserving agricultural soils in this State.”³ The amendment further stated that constitutionally protected revenue for the trust fund would be generated through a three-eighths of one percent sales tax, if and

when the sales tax rate were raised from its current level of six percent. It was estimated that the sales tax would raise approximately \$150 million for the trust fund annually.

This section of the survey was inspired by an interest in further measuring public support for the potential implementation of the Natural Resources and Outdoor Recreation Trust Fund. Although the constitutional amendment was passed, the language on the ballot provided few details about what actual implementation might entail. In reality, if funded, the trust fund model

would represent a major shift in the way that Iowans fund conservation of natural resources and a substantial increase in magnitude of funding.

Our survey sought to measure public support for such a paradigm shift. In particular, it attempted to measure the public’s willingness to pay for major changes in conservation policy and action. The survey employed a multi-part question consisting of (1) a detailed explanation of an innovative targeted conservation approach and how it would differ from the predominant conservation approach, (2) a series of statements outlining a hypothetical environmental improvement scenario that could be attained if a targeted approach were employed comprehensively and over the long term, (3) a referendum on whether or not the respondent would support a shift to a targeted conservation approach, and (4) a choice of amount of money that respondents would be willing to pay each year to support the approach (figure 2). The survey provided the following introductory explanation of the shift scenario:

We are interested in your opinions about a potential shift in agricultural conservation policy that could have an impact on the environmental performance of Iowa agriculture.

Current Conservation Policy: The current agricultural conservation approach uses federal/state funds to help agricultural landowners address conservation issues on their land. It is a voluntary approach in which landowners identify their own problems and seek assistance if they choose. As a result, many potentially vulnerable agricultural areas currently have no conservation practices in place.

Targeted Conservation Policy: The new targeted agricultural conservation approach uses technologies such as satellite imagery and mapping technology to identify areas likely to have problems, such as erosion and impaired water quality. Funding can then be targeted to those areas that are particularly in need of assistance.

Targeted conservation is still a voluntary approach. Landowners who have particularly vulnerable land and/or potentially serious conservation issues will be contacted by conservation professionals who offer financial and technical assistance to evaluate and address potential problems. Vulnerable areas might be treated through planted riparian buffers, perennial buffer strips, wetlands restoration, and other practices.

A second section of the introduction laid out assumptions about the hypothetical program. It read as follows:

IF YES, please circle the amount you would be willing to pay each year to targeted conservation funding through methods like taxes (sales, income, property), license plate fees, or voluntary contributions. *The table shows the percentage of the goal that would be met in 10 years at different levels of contribution.*

Amount of Annual Contribution	Percent of goal met in 10 years
\$0 (Should use existing conservation funding)	0%
\$5	7%
\$10	13%
\$20	27%
\$30	40%
\$40	53%
\$50	67%
\$60	80%
\$70	93%
\$75	100%

Figure 2. “Willingness to pay” survey question.

Suppose that the state of Iowa were proposing a conservation strategy that would use targeted conservation approaches to ensure that within 10 years:

1. Soil erosion and runoff of nutrients and chemicals from Iowa’s agricultural lands are reduced to the point that agriculture is no longer a significant contributor to water quality impairment.
2. Outdoor recreational opportunities are enhanced through improvement of water quality in lakes and streams.
3. Hunting, bird watching, and other wildlife-related activities are enhanced by incorporating native perennial vegetation into agricultural fields through buffers, wetlands, and other wildlife habitat.
4. The risk of flooding is greatly reduced through restoration or establishment of wetlands.

Meeting these objectives within 10 years would depend on the availability of financial resources beyond current conservation funding. These resources could be obtained through taxes or voluntary contributions.

Thus, the explanation defined targeted conservation and differentiated the approach from the approach that is currently the norm. In addition, it outlined in some detail the multiple public and private benefits that the shift could be expected to deliver.

In response to the hypothetical referendum, 63 percent of Iowans “voted” for implementation of the proposed shift in conservation approach, while 37 percent did not support such a change (table 4).

Respondents who voted “yes” on the referendum were then asked to indicate how much money they would be willing to pay each year to fund the new conservation model through various means, such as “taxes (sales, income, property), license plate fees, or voluntary contributions.” The survey provided 10 amount categories ranging from \$0 to \$75 and also provided an estimate of the degree to which the conservation goals would be met at each level of contribution (figure 2). The maximum level and goal attainment percentage estimates were derived from (1) an assumption that \$150 million per year over ten years would be sufficient to reach the goals outlined in the scenario and (2) the estimate that Iowa has approximately 2 million taxpayers.⁴

Eleven percent of those who voted yes on the referendum signaled that existing funding should be used. However, most of the 63 percent of Iowans who supported the approach were willing to pay some amount of money on an annual basis to fund a shift to a comprehensive targeted conservation approach. About 40 percent of supporters indicated that they would be willing to pay up to \$20 per year. Of these, 13 percent selected \$5 per year, 12 percent chose \$10, and 14 percent designated \$20 as the amount that they would be willing to pay annually.

Half of the respondents who approved the referendum were willing to pay \$30 or more per year (table 4). Among that group, most selected either \$50 or \$75 per year. In fact, at 21 percent, \$75 was the most commonly selected amount. The plurality—more than one-fifth of “voters”—selected the highest category. This suggests that the maximum annual payment was set too low, and some respondents might have selected a higher value if offered.

The statistics reported above can be used to calculate a rough estimate of Iowans’ overall willingness to pay for a shift to a comprehensive targeted conservation approach. If it is assumed that the sample is representative of Iowa taxpayers and that there are 2 million taxpayers in Iowa, the number of taxpayers who would fall into each willingness-to-pay category can be estimated. That number can then be multiplied by the dollar amount in the category (e.g., \$5, \$10, etc.). Results indicate that Iowa taxpayers would be willing to pay an additional \$42.1 million per year over 10 years to implement a comprehensive targeted conservation approach (table 4).

As noted above, because the highest dollar category was likely set too low to measure the upper annual limit of willingness to pay, \$42.1 million is probably a conservative estimate. Overall, the results show that Iowans would be willing to pay well over \$400 million over a 10-year period to address soil erosion and nutrient runoff, enhance outdoor recreation opportunities, and reduce the risk of flooding.

Table 4. Iowans’ willingness to pay for a comprehensive targeted conservation approach

Individual Annual Contribution	Overall Percentage	“Yes” Votes Percentage	Number of taxpayers	Total annual contribution
Voted “No”	36.9	-	0	\$0
\$0 (Should use existing funding)	6.9	11.0	138,000	\$0
\$5.....	8.3	13.2	166,000	\$830,000
\$10.....	7.7	12.2	154,000	\$1,540,000
\$20.....	8.9	14.0	178,000	\$3,560,000
\$30.....	3.6	5.7	72,000	\$2,160,000
\$40.....	3.3	5.3	66,000	\$2,640,000
\$50.....	9.6	15.2	192,000	\$9,600,000
\$60.....	1.4	2.2	28,000	\$1,680,000
\$70.....	0.1	0.2	2,000	\$140,000
\$75.....	13.3	21.1	266,000	\$19,950,000
TOTAL	100	100	2,000,000	\$42,100,000

Note: Calculations based on an Iowa taxpayer population of 2 million (www.iowa.gov/tax/educate/11incprep.pdf).

Attitudes toward targeted agricultural conservation approaches

Because the comprehensive targeted conservation strategy outlined in the survey represents a major break from the current conservation paradigm, the survey also sought to understand attitudes regarding targeted conservation, and public and private funding of agricultural conservation activities. An eight-item question set was provided, and respondents were asked to rate their agreement on a five-point scale ranging from “strongly disagree” to “strongly agree.” Three of the items focused specifically on targeted conservation. Five items focused on other dimensions of conservation funding.

Iowans’ attitudes toward targeted conservation were generally positive. Almost 70 percent of respondents agreed that targeted conservation is a good idea because resources are limited and should be spent where they have the most impact (table 5). About two-thirds agreed that conservation funding should be higher for land that is most vulnerable to soil and water quality

problems. Thirty-nine percent indicated that they favor targeted conservation but believe that current funding should be redirected for this purpose (nearly half were neutral).

Iowans were less committal regarding aspects of financial support for conservation activities. Approximately 35 percent agreed that there are more pressing priorities for tax dollars (table 5). However, only 22 percent indicated that they did not believe that tax dollars should be used for conservation, compared to 52 percent in favor and 27 percent neutral. In addition, only 14 percent of Iowans think that current conservation programs are sufficient. One item focused on farmers’ role in funding conservation on their land. Most Iowans were in favor of government conservation assistance for farmers. Nearly half of participants (46 percent) disagreed or strongly disagreed that farmland owners should be “wholly responsible” for funding conservation action on their land, compared to just 22 percent who agreed.

Table 5. Conservation measures and various funding options

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
— Percentage —					
Targeted conservation is a good idea because resources are limited and should be spent where they have the most impact	4	4	24	52	17
Conservation funding should be higher for land that is most vulnerable to soil and water quality problems.....	3	5	27	50	15
I favor targeted conservation but believe that current funding should be redirected for this purpose	4	10	48	34	5
There are more pressing priorities for our tax dollars.....	3	18	43	24	11
Farmland owners should be wholly responsible for paying for conservation on their land.....	8	38	34	16	6
I do not believe that tax dollars should be used for conservation	15	37	27	15	7
Current conservation programs are sufficient.....	9	28	48	11	3

Recreation and rural tourism

Outdoor recreation and tourism are major contributors to Iowa’s rural economy. A recent study estimated that recreation in Iowa’s state parks, county parks, lakes, rivers, streams, and

trails annually generates some \$3 billion of spending and supports 31,000 jobs.⁵ Recreation-related revenue for the state totals over \$700 million.

Two question sets focused on Iowans' participation in a wide range of outdoor recreation and rural and agriculture-related tourism. A first set of six items focused primarily on tourism. The introductory text include the following note—"How often do you do the following activities? If you tend to participate in a particular activity on a seasonal basis (for example, in warmer or cooler months), please indicate how often you do that activity during that time period"—because some items (e.g., farmers market shopping) could be seasonal activities for some people. It asked respondents to estimate how often they did each activity on a four-point scale ranging from "never" to "frequently." A second question set provided a list of common outdoor activities and asked respondents to estimate how many times they had participated in each activity over the course of the past year.

Among the tourism-related items, visiting state or county parks, recreation areas, or preserves was the most popular category, with 64 percent of respondents indicating that they do that either occasionally or frequently (table 6). Tourism to small towns for shopping, dining, sightseeing, or similar activities was also common, with 63 percent indicating that they do this on an occasional or frequent basis. A similar percentage (61 percent) reported that they occasionally or frequently travel to a rural areas to visit friends or relatives. Fifty-seven percent of respondents take recreational drives through the countryside either occasionally or frequently. Fifty-three percent of

respondents indicated that they shop at farmers markets with some regularity. About half of respondents indicated that they frequently or occasionally travel to rural areas for outdoor recreation such as walking/hiking, biking, fishing, hunting, and similar activities. Lastly, about 18 percent of respondents visit a farm for shopping or recreation at least occasionally.

The survey asked participants to estimate the number of times in the past year they participated in any of 10 outdoor recreation activities. The most common activity was hiking/walking in natural areas. Sixty-three percent of Iowans indicated that they participated in this activity and they estimated that they did so an average of 17 times in the previous year (table 7).

Viewing/photographing birds and other wildlife was the second most common recreational pursuit, with 42 percent of respondents reporting that they did this an average of 28 times (table 7). Forty-one percent reported that they had fished, and they averaged about 12 fishing trips in the prior year. Approximately 36 percent of respondents reported boating, and averaged about eight boating trips the previous year. Hunting mushrooms, berries, and other wild edibles was reported by 33 percent of respondents and they averaged about six of such outings. About 31 percent of respondents went camping an average of seven times. Twenty-nine percent had bicycled on a trail and estimated that they did that about 13 times. The same proportion indicated that they swam

	Never	Seldom	Occasionally	Frequently
	— Percentage —			
Visit state or county parks, recreation areas, or preserves ...	8	28	44	20
Visit small towns (other than your own) for shopping, dining, sightseeing, or similar activities.....	7	30	48	15
Go to a rural area (other than your own) to visit friends or relatives.....	11	29	43	18
Take recreational drives through the countryside.....	11	32	41	16
Shop at farmers markets.....	15	32	39	14
Go to a rural area (other than your own) for outdoor recreation such as walking/hiking, biking, fishing, hunting, etc.....	17	33	35	14
Visit a farm for shopping or recreation.....	42	40	16	2

in lakes, streams, or ponds (9 times on average). About 18 percent reported hunting, and they did so an average of 10 times. Lastly, 15 percent of respondents participated in off-road recreational

vehicle use with vehicles such as ATVs and snowmobiles, and they averaged 14 instances of that activity per year.

Table 7. Participation in outdoor recreation activities

	Percent participating	Average Number of times per year (participants only)
Hiking/walking in natural areas.....	63	17.3
Viewing/photographing birds and other wildlife	42	28.4
Fishing	41	11.6
Boating	36	7.7
Hunting mushrooms, berries, or other wild edibles	33	5.6
Camping	31	6.9
Bicycling on a trail.....	29	13.0
Swimming in lakes, streams, ponds, etc.	29	9.0
Hunting	18	10.3
Off-road recreational vehicle use (ATV, snowmobile, etc.).....	15	14.0

Involvement in conservation activities

Another objective of the survey was to measure Iowans’ involvement in conservation and environmental activities. Twenty-four percent reported that they had participated in environmental improvement projects (e.g., stream clean-up) over the past five years (table 8). Eleven percent were members of state or national

conservation or environmental organizations. Seven percent belonged to at least one local conservation or environmental organization, such as a watershed group. Six percent reported that they considered themselves to be “actively involved” in such groups.

Table 8. Involvement in conservation activities

	Yes	No
	— Percentage —	
Have you participated in any environmental improvement projects, such as stream clean-up, roadside litter removal, or similar activities in the past 5 years?.....	24	76
Do you belong to any state or national conservation or environmental organizations (for example, Iowa Natural Heritage Foundation, Pheasants Forever, The Nature Conservancy)?	11	89
Do you belong to any local conservation or environmental organizations (for example, county conservation board, soil and water conservation district, watershed group)?	7	93
Do you consider yourself to be actively involved in any local conservation or environmental organizations (for example, county conservation board, soil and water conservation district, a watershed group)?	6	94

Connection to agriculture and rural life

Because it is possible that strength of connection to farming could influence attitudes about farming and agriculture-related issues, the survey asked several questions to ascertain participants' ties to agriculture and rural life. About 13 percent indicated they live on a farm, and 20 percent were either currently farming or had farmed as an occupation (table 9). Slightly more than half (54 percent) had lived on a farm at some point in their life. About 73 percent visited a farm regularly during their childhood. Approximately 64 percent had close family members or friends that currently farm. About 47 percent shop at a farmers market on a regular basis during the warmer months. Lastly, about seven percent reported they are members of a community supported agriculture (CSA) group.

We also asked respondents to indicate what percent of their total net household income came from farming or farmland rental. Nearly all (85 percent) of respondents reported that they did not derive any income from farming or farmland rental (table 10). Six percent of respondents indicated that they earned between one and 10 percent of net household income from farming or farmland rental. Only about five percent reported more than 50 percent of income from farming, and three percent depended almost wholly on farming or farmland rental income.

Table 9. Connection to agriculture and rural life		
	Yes	No
	— Percentage —	
Do you currently live on a farm?.....	13	87
Have you ever farmed as an occupation?.....	20	80
Have you ever lived on a farm, either as a child or adult?.....	54	46
Do any of your close family members or friends currently farm?	64	36
Did you visit a farm regularly during your childhood?.....	73	27
Do you shop at farmers markets on a regular basis during the warmer months?	47	54
Are you a member of a community supported agriculture (CSA) group?.....	7	93

Table 10. Percentage of total net household income from farming or farmland rental	
	— Percentage —
None.....	85
1 to 10%	6
11% to 25%	2
26% to 50%.....	2
51% to 75%.....	2
76% to 100% from farming or farmland rental.....	3

Demographics

The survey collected some limited demographic data. About 58 percent of the respondents were male and 42 percent were female. The average age of those who participated in the survey was 55. About 24 percent of respondents had graduated from high school, and 36 percent had completed some college and/or technical training but had not attained a Bachelor's degree. About 22 percent of participants had earned a Bachelor's degree. Twelve percent had a graduate or professional degree. The balance had either some graduate school (4 percent) or had not graduated high school (3 percent).

A plurality of respondents—26 percent—reported that they lived in a metropolitan area of 50,000 people or more. Approximately 22 percent indicated they resided in a city of between 10,000 and 50,000 people. About 14 percent of respondents specified they lived in a town with between 5,000 and 10,000 residents. Sixteen percent of respondents indicated that they lived in a town of less than 5,000 people. Twenty-one percent reported that they lived on a farm or acreage.

Conclusion

The results of this survey indicate that Iowans want the state's agricultural landscapes to provide more private and public benefits and cause fewer public harms. Iowans are concerned about the environment and agriculture's ecological impacts. They support actions that would lead to greater benefits and reduced negative impacts. Importantly, they are willing to pay to help meet those objectives.

The data points to several key conclusions.

Iowans support the implementation of programs and policies that promote multiple benefits from agricultural landscapes in addition to crop and livestock production.

Survey respondents placed high priority on improved soil and water quality, better wildlife habitat, and enhanced recreation opportunities. They privileged improvements in these outcomes over increases in crop and livestock production.

Iowans are concerned about agriculture's ecological impacts, and want to help farmers to reduce those impacts. While agriculture's impacts on soil and water quality rose to the top of the list of Iowans' environmental concerns, survey respondents also generally supported efforts to help farmers address those issues. At the same time, however, almost half of Iowans agreed that farmland should be managed with the general public's interests in mind, and similar proportion agreed that farmland use should be regulated to protect the public's interests.

Iowans are willing to pay to make substantial progress toward those goals.

Sixty-three percent of survey respondents—the same proportion that voted in 2010 to amend the Iowa constitution to establish the Natural Resources and Outdoor Recreation Trust Fund—indicated that they would support a shift to a holistic, targeted conservation approach that would minimize the negative impacts of agriculture while enhancing multiple benefits from agricultural landscapes. Importantly, they would be willing to pay an estimated \$42 million per year over ten years to support the implementation of such an effort.

Overall, the survey results offer strong evidence that most Iowans want to see improved performance of agricultural landscapes and are willing to dedicate substantial resources to enhance a range of benefits while helping to reduce negative impacts. The results serve to validate recent public investments such as Iowa's Nutrient Reduction Strategy and many other ongoing activities that are focused on such goals.⁶ The data suggest that Iowans would like to see much more investment, such as full implementation of the Natural Resources and Outdoor Recreation Trust Fund, and further implementation in policies and programs that balance agricultural productivity with other important benefits that agricultural landscapes can provide.

Notes

1. The items in the tables presented in this document are usually sorted from highest to lowest to make it easier for the reader to ascertain how the response scores on individual question items compare to each other. However, this was not necessarily the order in which they were presented in the actual survey. For the survey, an effort was made to balance and intersperse positively and negatively worded items and otherwise arrange the questions to avoid bias stemming from order effects.
2. See www.iowadnr.gov/InsideDNR/GrantsOtherFunding/NaturalResourcesRecTrust.aspx for more information on the Natural Resources and Outdoor Recreation Trust Fund.
3. Iowa Department of Natural Resources, *2014 Natural Resources and Outdoor Recreation Trust Fund Report*, page 5.
4. See the Iowa Department of Revenue at www.iowa.gov/tax/educate/11inprep.pdf. Married separate taxpayers filing separately on a combined return are counted as two taxpayers. Taxpayers of all other filing statuses (including married joint taxpayers) are counted as one taxpayer.
5. Otto, D., K. Tylka, and S. Erickson, *Economic Value of Outdoor Recreation Activities in Iowa*. Available online at www.card.iastate.edu/environment/items/DNR-AmenityRevised_9-25-12.pdf.
6. Learn more about the Iowa Nutrient Reduction Strategy at www.nutrientstrategy.iastate.edu.



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