



Human Dimensions of Water Quality in the Deer Creek-Sugar Creek Watersheds

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I. Methods

5-wave mail and internet survey:

1. Advance letter (including web address for the online version) sent on 10/31/13.
2. Paper survey mailing sent on 11/08/13.
3. Reminder postcard sent on 11/19/13.
4. Paper survey mailing sent on 12/03/13.
5. Final paper survey with postcard (stating that this is the final mailing) sent on 12/13/13.

Response rate:

612 Surveys distributed

43 Bad addresses

269 Completed (47% response rate after accounting for bad addresses)

II. Your Water Resources

1. Of these activities, which is the most important to you? (select one) (n=219)

- 7.3% Canoeing / kayaking / other boating
- 20.1% Fishing
- 1.4% Swimming
- 16.0% Picnicking and family activities
- 55.3% Enjoying scenic beauty

2. Do you know where the rain water goes when it runs off of your property? (Yes or No) (n=244)

- 89.3% Yes
- 10.7% No

3. If you answered 'Yes' above, where does your rain water drain to?

See Appendix A

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III. Your Opinions

Please indicate your level of agreement or disagreement with the statements below.

| | | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) | Mean (n) |
|----|---|--------------------------|-----------------|---|--------------|-----------------------|---------------|
| a. | The way that I care for my lawn and yard can influence water quality in local streams. | 4.0% | 8.5% | 18.8% | 54.5% | 14.3% | 3.67 (224) |
| b. | Using recommended management practices on farms improves water quality. | 0.4% | 0.8% | 6.8% | 69.7% | 22.3% | 4.13 (251) |
| c. | It is my personal responsibility to help protect water quality. | 0.4% | 0.8% | 6.4% | 69.5% | 22.9% | 4.14 (249) |
| d. | It is important to protect water quality even if it slows economic development. | 0.8% | 3.2% | 23.0% | 57.3% | 15.7% | 3.84 (248) |
| e. | My actions have an impact on water quality. | 1.2% | 4.8% | 13.3% | 65.1% | 15.7% | 3.89 (249) |
| f. | I would be willing to pay more to improve water quality (for example: through local taxes or fees). | 15.4% | 24.3% | 38.5% | 20.2% | 1.6% | 2.68 (247) |
| g. | I would be willing to change the way I care for my lawn and yard to improve water quality. | 5.7% | 10.2% | 35.2% | 42.6% | 6.1% | 3.33 (244) |
| h. | I would be willing to change management practices to improve water quality. | 3.7% | 9.4% | 31.1% | 50.4% | 5.3% | 3.44 (244) |
| i. | The quality of life in my community depends on good water quality in local rivers and streams. | 1.6% | 5.2% | 18.1% | 62.7% | 12.4% | 3.79 (249) |

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IV. Water Impairments

Below is a list of water pollutants and conditions that are generally present in water bodies to some extent. The pollutants and conditions become a problem when present in excessive amounts. In your opinion, how much of a problem are the following water impairments in your area?

| | Not a Problem (1) | Slight Problem (2) | Moderate Problem (3) | Severe Problem (4) | Don't Know | Mean (n) |
|---|-------------------|--------------------|----------------------|--------------------|------------|------------|
| a. Sedimentation (dirt and soil) in the water | 15.7% | 30.2% | 32.3% | 6.9% | 14.9% | 2.36 (211) |
| b. Nitrogen | 23.9% | 23.9% | 17.5% | 4.8% | 29.9% | 2.05 (176) |
| c. Phosphorus | 23.9% | 24.3% | 17.9% | 3.2% | 30.7% | 2.01 (174) |
| d. Bacteria and viruses in the water (such as E. coli / coliform) | 21.6% | 22.0% | 17.6% | 6.0% | 32.8% | 2.12 (168) |
| e. Trash or debris in the water | 16.0% | 31.6% | 31.2% | 9.6% | 11.6% | 2.39 (221) |
| f. Pesticides | 22.4% | 26.4% | 15.6% | 6.0% | 29.6% | 2.07 (176) |

V. Consequences of Poor Water Quality

Poor water quality can lead to a variety of consequences for communities. In your opinion, how much of a problem are the following issues in your area?

| | Not a Problem (1) | Slight Problem (2) | Moderate Problem (3) | Severe Problem (4) | Don't Know | Mean (n) |
|---|-------------------|--------------------|----------------------|--------------------|------------|------------|
| a. Contaminated fish | 29.9% | 24.7% | 15.9% | 6.8% | 22.7% | 1.99 (194) |
| b. Reduced beauty of streams | 33.5% | 30.7% | 19.9% | 5.6% | 10.4% | 1.97 (225) |
| c. Reduced opportunities for water recreation | 40.6% | 25.3% | 12.0% | 5.2% | 16.9% | 1.78 (207) |
| d. Reduced quality of water recreation activities | 38.2% | 27.3% | 13.7% | 4.4% | 16.5% | 1.81 (208) |
| e. Excessive aquatic plants or algae | 29.8% | 29.4% | 12.1% | 5.2% | 23.4% | 1.91 (190) |
| f. Fish kills | 47.6% | 20.4% | 8.4% | 3.2% | 20.4% | 1.59 (199) |
| g. Lower property values | 53.0% | 15.1% | 6.4% | 3.2% | 22.3% | 1.48 (195) |

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VI. Sources of Water Pollution

The items listed below are sources of water quality pollution across the country. In your opinion, how much of a problem are the following sources in your area?

| | Not a Problem (1) | Slight Problem (2) | Moderate Problem (3) | Severe Problem (4) | Don't Know (3) | Mean (n) |
|---|----------------------|-----------------------|-------------------------|-----------------------|-------------------|---------------|
| a. Discharges from industry into streams | 32.2% | 28.6% | 14.5% | 4.3% | 20.4% | 1.89 (203) |
| b. Discharges from sewage treatment plants | 29.3% | 21.9% | 19.5% | 7.0% | 22.3% | 2.06 (199) |
| c. Soil erosion from farm fields | 14.6% | 44.7% | 25.7% | 5.9% | 9.1% | 2.25 (230) |
| d. Soil erosion from streambanks | 15.4% | 38.2% | 25.6% | 8.7% | 12.2% | 2.31 (223) |
| e. Improperly maintained septic systems | 24.3% | 29.8% | 14.9% | 4.7% | 26.3% | 2.00 (188) |
| f. Manure from farm animals | 42.9% | 27.0% | 13.5% | 4.4% | 12.3% | 1.76 (221) |
| g. Littering/illegal dumping of trash | 15.2% | 37.9% | 30.1% | 5.1% | 11.7% | 2.28 (226) |
| h. Excessive use of fertilizers for crop production | 38.8% | 26.7% | 13.3% | 3.9% | 17.3% | 1.79 (211) |
| i. Pasture grazing | 64.6% | 15.4% | 4.7% | 1.2% | 14.2% | 1.33 (218) |
| j. Animal feeding operations | 45.1% | 23.5% | 10.6% | 3.5% | 17.3% | 1.67 (211) |
| k. Construction of highways, roads, and bridges | 35.0% | 27.6% | 14.2% | 7.5% | 15.7% | 1.93 (214) |
| l. Urban stormwater runoff | 27.8% | 23.8% | 20.6% | 9.5% | 18.3% | 2.15 (206) |

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VII. Practices to Improve Water Quality

Please indicate which statement most accurately describes your level of experience with each practice listed below.

| | Not relevant for my property | Never Heard of It (0) | Somewhat familiar with it (1) | Know how to use it; not using it (2) | Currently Use It (3) | Mean (n) |
|--|------------------------------|-----------------------|-------------------------------|--------------------------------------|----------------------|------------|
| a. Regular servicing of septic system | 16.3% | 9.5% | 20.6% | 6.3% | 47.2% | 3.09 (211) |
| b. Using regular soil tests for pH, phosphorous, nitrogen, and potassium to determine nutrient application rates | 10.0% | 2.8% | 8.0% | 6.0% | 73.1% | 3.66 (224) |
| c. Using manure in accordance with its nutrient content | 48.0% | 1.2% | 8.4% | 4.4% | 38.0% | 3.52 (130) |
| d. Following university recommendations for fertilization rates | 13.8% | 4.9% | 14.6% | 5.7% | 61.1% | 3.43 (213) |
| e. Using variable rate application technology for more precise crop production | 16.2% | 3.2% | 8.1% | 10.1% | 62.3% | 3.57 (207) |
| f. Considering location and soil characteristics to minimize leaching or runoff | 14.7% | 2.4% | 18.4% | 4.9% | 59.6% | 3.43 (209) |
| g. Constructing a facility for composting dead animals | 71.6% | 2.4% | 5.2% | 8.8% | 12.0% | 3.07 (71) |
| h. Retaining crop residue on soil surface to reduce erosion | 12.4% | 1.2% | 10.4% | 5.6% | 70.3% | 3.66 (218) |
| i. Following an approved grazing plan to maintain grass quality and reduce erosion | 68.1% | 2.4% | 5.9% | 7.9% | 15.7% | 3.16 (81) |
| j. Using a grassed waterway to reduce erosion and soil loss | 19.3% | 1.2% | 7.5% | 4.3% | 67.7% | 3.72 (205) |
| k. Using fences to exclude livestock from streams and ditches | 73.6% | 0.8% | 2.8% | 7.9% | 15.0% | 3.40 (67) |
| l. Using conservation tillage, including no-till, strip-till and ridge till | 21.5% | 0.8% | 11.6% | 18.7% | 47.4% | 3.44 (197) |

VIII. Constraints for Specific Practices

A. Feedlot Runoff Diversion

Use of a built diversion structure, filter strips, or grassed waterways to prevent surface water from flowing through feedlots.

1. How familiar are you with this practice? (n=241)

- 72.6% Not relevant for my operation
- 2.5% Never heard of it
- 8.3% Somewhat familiar with it
- 3.7% Know how to use it; not using it
- 12.9% Currently use it

2. If the practice is not relevant, please explain why.

See Appendix B

3. Are you willing to try this practice? (n=109)

- 32.1% Yes or already do
- 27.5% Maybe
- 40.4% No

| <i>How much do the following factors limit your ability to implement this practice?</i> | Not at all (1) | A little (2) | Some (3) | A lot (4) | Don't Know | Mean (n) |
|---|----------------|--------------|----------|-----------|------------|-----------|
| a. Don't know how to do it | 39.7% | 14.0% | 12.4% | 2.5% | 31.4% | 1.67 (83) |
| b. Time required | 26.7% | 15.8% | 17.5% | 6.7% | 33.3% | 2.06 (80) |
| c. Cost | 21.7% | 12.5% | 23.3% | 9.2% | 33.3% | 2.30 (80) |
| d. The features of my property make it difficult | 32.8% | 13.4% | 11.8% | 8.4% | 33.6% | 1.94 (79) |
| e. Insufficient proof of water quality benefit | 28.6% | 19.3% | 11.8% | 4.2% | 36.1% | 1.87 (76) |
| f. Desire to keep things the way they are | 33.1% | 15.3% | 12.9% | 9.7% | 29.0% | 1.99 (88) |
| g. Hard to use with my farming system | 36.7% | 11.7% | 13.3% | 5.8% | 32.5% | 1.83 (81) |
| h. Lack of equipment | 34.5% | 16.0% | 12.6% | 5.9% | 31.1% | 1.85 (82) |

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B. Cover Crops

Planting cover crops for erosion protection and soil improvement.

1. How familiar are you with this practice? (n=243)

- 15.2% Not relevant for my operation
- 1.6% Never heard of it
- 25.9% Somewhat familiar with it
- 26.7% Know how to use it; not using it
- 30.5% Currently use it

2. If the practice is not relevant, please explain why.

See Appendix C

3. Are you willing to try this practice? (n=190)

- 31.1% Yes or already do
- 50.5% Maybe
- 18.4% No

| <i>How much do the following factors limit your ability to implement this practice?</i> | Not at all (1) | A little (2) | Some (3) | A lot (4) | Don't Know | Mean (n) |
|---|---------------------------|-------------------------|---------------------|----------------------|-------------------|---------------------|
| a. Don't know how to do it | 48.6% | 13.7% | 19.1% | 1.1% | 17.5% | 1.67 (151) |
| b. Time required | 22.8% | 17.9% | 30.4% | 10.9% | 17.9% | 2.36 (151) |
| c. Cost | 20.5% | 13.5% | 28.6% | 16.8% | 20.5% | 2.52 (147) |
| d. The features of my property make it difficult | 44.6% | 15.1% | 15.6% | 3.8% | 21.0% | 1.73 (147) |
| e. Insufficient proof of water quality benefit | 35.2% | 15.9% | 20.3% | 3.3% | 25.3% | 1.89 (136) |
| f. Desire to keep things the way they are | 37.6% | 17.2% | 14.5% | 14.0% | 16.7% | 2.06 (155) |
| g. Hard to use with my farming system | 29.9% | 16.3% | 20.1% | 13.6% | 20.1% | 2.22 (147) |
| h. Lack of equipment | 29.7% | 19.2% | 22.0% | 11.0% | 18.1% | 2.17 (149) |

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C. Two Stage Ditch

A small main channel with vegetated benches that utilize the stream flow process to create a stable ditch, which requires less maintenance.

1. How familiar are you with this practice? (n=242)

- 23.1% Not relevant for my operation
- 38.0% Never heard of it
- 20.2% Somewhat familiar with it
- 10.7% Know how to use it; not using it
- 7.9% Currently use it

2. If the practice is not relevant, please explain why.

See Appendix D

3. Are you willing to try this practice? (n=172)

- 12.2% Yes or already do
- 58.7% Maybe
- 29.1% No

| <i>How much do the following factors limit your ability to implement this practice?</i> | Not at all (1) | A little (2) | Some (3) | A lot (4) | Don't Know | Mean (n) |
|---|----------------|--------------|----------|-----------|------------|------------|
| a. Don't know how to do it | 24.6% | 8.8% | 22.8% | 11.1% | 32.7% | 2.30 (115) |
| b. Time required | 18.2% | 10.6% | 22.4% | 13.5% | 35.3% | 2.48 (110) |
| c. Cost | 12.8% | 9.3% | 19.8% | 24.4% | 33.7% | 2.84 (114) |
| d. The features of my property make it difficult | 20.8% | 12.5% | 17.3% | 10.1% | 39.3% | 2.27 (102) |
| e. Insufficient proof of water quality benefit | 26.3% | 14.4% | 18.6% | 5.4% | 35.3% | 2.05 (108) |
| f. Desire to keep things the way they are | 32.6% | 13.1% | 14.9% | 10.3% | 29.1% | 2.04 (124) |
| g. Hard to use with my farming system | 27.4% | 13.1% | 13.7% | 8.9% | 36.9% | 2.07 (106) |
| h. Lack of equipment | 22.5% | 8.9% | 17.2% | 13.0% | 38.5% | 2.34 (104) |

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D. Vegetated Riparian Buffer

Establishing vegetation to function as a buffer to ponds, wetlands, rivers, streams, and creeks.

1. How familiar are you with this practice? (n=242)

- 21.5% Not relevant for my operation
- 18.6% Never heard of it
- 20.2% Somewhat familiar with it
- 5.0% Know how to use it; not using it
- 34.7% Currently use it

2. If the practice is not relevant, please explain why.

See Appendix E

3. Are you willing to try this practice? (n=163)

- 39.9% Yes or already do
- 35.6% Maybe
- 24.5% No

| <i>How much do the following factors limit your ability to implement this practice?</i> | Not at all (1) | A little (2) | Some (3) | A lot (4) | Don't Know | Mean (n) |
|---|-----------------------|---------------------|-----------------|------------------|-------------------|-----------------|
| a. Don't know how to do it | 40.5% | 10.1% | 14.6% | 5.1% | 29.7% | 1.77 (111) |
| b. Time required | 31.2% | 17.2% | 14.6% | 9.6% | 27.4% | 2.04 (114) |
| c. Cost | 27.0% | 13.2% | 16.4% | 15.1% | 28.3% | 2.27 (114) |
| d. The features of my property make it difficult | 39.9% | 11.4% | 14.6% | 4.4% | 29.7% | 1.77 (111) |
| e. Insufficient proof of water quality benefit | 41.4% | 10.8% | 15.3% | 2.5% | 29.9% | 1.70 (110) |
| f. Desire to keep things the way they are | 40.6% | 15.0% | 13.8% | 6.3% | 24.4% | 1.81 (121) |
| g. Hard to use with my farming system | 40.8% | 10.2% | 13.4% | 7.6% | 28.0% | 1.83 (113) |
| h. Lack of equipment | 37.6% | 10.8% | 16.6% | 6.4% | 28.7% | 1.88 (112) |

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IX. Making Decisions for My Property

In general, how much does each issue limit your ability to change your management practices?

| | Not at All (1) | A little (2) | Some (3) | A lot (4) | Don't Know | Mean (n) |
|---|----------------|--------------|----------|-----------|------------|------------|
| a. Personal out-of-pocket expense | 11.2% | 13.8% | 33.2% | 31.0% | 10.8% | 2.94 (207) |
| b. Lack of government funds for cost share | 15.7% | 14.0% | 33.2% | 21.4% | 15.7% | 2.72 (193) |
| c. My own physical abilities | 32.9% | 17.3% | 26.8% | 13.4% | 9.5% | 2.23 (209) |
| d. Not having access to the equipment I need | 21.7% | 18.6% | 27.9% | 19.9% | 11.9% | 2.52 (199) |
| e. Lack of available information about a practice | 23.5% | 22.6% | 25.2% | 11.9% | 16.8% | 2.31 (188) |
| f. No one else I know is implementing the practice | 31.1% | 19.7% | 15.8% | 7.9% | 25.4% | 2.01 (170) |
| g. Concerns about reduced yields | 26.3% | 21.5% | 20.2% | 18.9% | 13.2% | 2.36 (198) |
| h. Approval of my neighbors | 51.5% | 14.1% | 14.5% | 5.3% | 14.5% | 1.69 (194) |
| i. Don't want to participate in government programs | 40.0% | 13.5% | 20.4% | 12.2% | 13.9% | 2.06 (198) |
| j. Requirements or restrictions of government programs | 20.2% | 17.1% | 21.1% | 24.6% | 17.1% | 2.60 (189) |
| k. Possible interference with my flexibility to change land use practices as conditions warrant | 17.5% | 14.0% | 31.1% | 18.9% | 18.4% | 2.63 (186) |
| l. Don't know where to get information and/or assistance for new practices | 42.9% | 22.3% | 13.4% | 4.5% | 17.0% | 1.75 (186) |
| m. Environmental damage caused by practice | 41.2% | 17.5% | 13.2% | 5.7% | 22.4% | 1.79 (177) |
| n. Legal restrictions on my property | 34.8% | 16.3% | 16.3% | 10.6% | 22.0% | 2.03 (177) |
| o. I do not own the property | 63.9% | 5.1% | 12.5% | 8.8% | 9.7% | 1.63 (195) |
| p. Concerns about resale value | 50.9% | 13.2% | 14.0% | 6.6% | 15.4% | 1.72 (193) |
| q. Not being able to see a demonstration of the practice before I decide | 34.8% | 19.8% | 17.2% | 9.7% | 18.5% | 2.02 (185) |
| r. The need to learn new skills or techniques | 35.0% | 20.4% | 20.8% | 6.2% | 17.7% | 1.98 (186) |

X. About Your Farm Operation

1. Please select the option that best describes who generally makes management decisions for your operation. (n=248)

- 31.9% Me alone or with my spouse
- 35.5% Me with my family partners (siblings, parents, children)
- 3.6% Me with the landowner
- 16.5% Me with my tenant
- 5.6% Me and my business partners
- 4.8% Someone else makes the decisions for the operation
- 2.0% Other: _____
 - “All the answers but the last one”
 - “me and my son”
 - “N/A”
 - “Tenants”

2. Please estimate the total crop and pasture acreage (owned and/or rented) of your farming operation this year. (n=242)

Range: 0 – 6500
Mean: 571

3. This year, how many acres of pasture do you manage? If none, please enter a zero. (n=250)

Range: 0 - 3000
Mean: 25

4. How many years have you been farming? (n=235)

Range: 0 – 80
Mean: 33

5. Did any family member own and operate this farm before you did? (n=245)

28.2% No
71.8% Yes

6. If you answered ‘yes’ to the previous question, how many years has the farm been in the family? (n=180)

Range: 15 – 180
Mean: 77

7. How likely is it that any family member will continue farm operations when you retire or quit farming? (n=247)

- 9.3% Definitely will not happen
- 19.0% Probably will not happen
- 43.3% Probably will happen
- 28.3% Definitely will happen

8. Does the property you manage touch a stream, river, or wetland? (n=250)

62.0% Yes
38.0% No

9. Do you have a nutrient management plan for your farm operation? (n=237)

67.9% Yes
32.1% No

10. If you do have a nutrient management plan, does your nutrient management plan meet the NRCS technical standard 590? (n=157)

70.7% I don't know
0.0% No
29.3% Yes

11. Who developed your current nutrient management plan? (n=156)

- 10.9% My soil and water conservation district, University Extension, or NRCS office
- 61.5% A private-sector agronomist or crop consultant
- 13.5% I created my own plan
- 9.0% I don't know
- 5.1% Other: _____
 - “Cash Renter”
 - “Co-op”
 - “My tenant”
 - “Tenant”
 - “Tenant”
 - “Tenant”
 - “Tenant manages”

XI. About You

1. Do you make the home and lawn care decisions in your household? (n=248)

92.3% Yes
7.7% No

2. What is your gender? (n=250)

86.8% Male
13.2% Female

3. What is your age? (n=241)

Range: 24 -101
Mean: 64

4. What is the highest grade in school you have completed? (n=248)

6.9% Some formal schooling
39.1% High school diploma / GED
21.4% Some college
8.1% 2 year college degree
16.9% 4 year college degree
7.7% Post-graduate degree

5. What is the approximate size of your residential lot? (n=244)

3.3% ¼ acre or less
13.5% More than ¼ acre but less than 1 acre
67.6% 1 acre to less than 5 acres
15.6% 5 acres or more

6. Do you own or rent your home? (n=249)

96.0% Own
4.0% Rent

7. How long have you lived at your current residence (years)? (n=246)

Range: 1 - 90
Mean: 32

8. Which of the following best describes where you live? (n=251)

3.6% In a town, village, or city
82.5% On a farm
8.0% In an isolated, rural, non-farm residence
6.0% Rural subdivision or development

9. Do you use a professional lawn care service? (n=251)

0.4% Yes, just for mowing
0.8% Yes, for mowing and fertilizing
6.4% Yes, just for fertilizing and pest control
0.4% Yes, for mowing, fertilizing, and pest control
92.0% No

10. Where are you likely to seek information about soil and water conservation issues? (check all that apply) (n=267)

46.1% Newsletters / brochures / fact sheets
24.7% Internet
3.7% Radio
28.8% Workshops / demonstrations / meetings
37.1% Conversations with others
27.7% Trade publications / magazines
15.4% None of the above

11. Where are you likely to seek information about water quality issues? (check all that apply) (n=267)

44.9% Newsletters / brochures / fact sheets
26.6% Internet
4.1% Radio
28.1% Newspapers / magazines
26.2% Workshops / demonstrations / meetings
33.7% Conversations with others
12.4% None of the above

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XII. Information Sources

People get information about water quality from a number of different sources. To what extent do you trust those listed below as a source of information about soil and water?

| | Not at all (1) | Slightly (2) | Moderately (3) | Very much (4) | Am not familiar | Mean (n) |
|---|----------------|--------------|----------------|---------------|-----------------|------------|
| a. Soil and Water Conservation District | 2.9% | 4.9% | 29.2% | 58.8% | 4.1% | 3.50 (233) |
| b. Natural Resources Conservation Service | 3.8% | 10.0% | 30.8% | 47.1% | 8.3% | 3.32 (220) |
| c. Purdue Extension | 2.9% | 11.3% | 29.2% | 52.5% | 4.2% | 3.37 (230) |
| d. Indiana State Department of Agriculture | 6.6% | 15.4% | 34.9% | 36.1% | 7.1% | 3.08 (224) |
| e. Indiana Department of Environmental Management | 14.6% | 21.3% | 32.1% | 22.9% | 9.2% | 2.70 (218) |
| f. Indiana Department of Natural Resources | 7.1% | 18.4% | 35.6% | 31.4% | 7.5% | 2.99 (221) |
| g. Fertilizer representatives | 13.0% | 20.2% | 34.9% | 26.1% | 5.9% | 2.79 (224) |
| h. Crop consultants | 8.8% | 16.4% | 35.7% | 31.5% | 7.6% | 2.97 (220) |
| i. Wabash River Enhancement Corporation | 15.9% | 13.8% | 17.2% | 10.9% | 42.3% | 2.40 (138) |
| j. NICHES Land Trust | 18.8% | 9.2% | 9.6% | 4.2% | 58.2% | 1.98 (100) |
| k. Other landowners / friends | 8.0% | 24.4% | 44.5% | 18.1% | 5.0% | 2.77 (226) |
| l. Hoosier Environmental Council | 19.8% | 15.2% | 5.5% | 5.5% | 54.0% | 1.93 (109) |
| m. U.S. Environmental Protection Agency | 30.8% | 24.9% | 16.0% | 8.4% | 19.8% | 2.03 (190) |
| n. Local government | 18.1% | 34.9% | 28.2% | 8.8% | 10.1% | 2.31 (214) |
| o. Farm Bureau | 11.2% | 23.2% | 36.9% | 18.7% | 10.0% | 2.70 (217) |
| p. Farm Service Agency | 5.4% | 14.5% | 38.6% | 36.1% | 5.4% | 3.11 (228) |

Deer Creek-Sugar Creek Watershed

XIII. Your Septic System

1. Do you have a septic system? (n=257)

- 7.0% No – (Thank you, survey complete. Please enter any comments below.)
- 1.6% Don't know
- 91.4% Yes

2. If you answered 'yes' to the previous question, in what year was it installed? (n=156)

Range: 1910 - 2013

Mean: 1982

3. Within the last five years, have you had any of the following problems? (check all that apply) (n=235)

- 6.8% Slow drains
- 1.7% Sewage backup in house
- 0.4% Bad smells near tank or drain field
- 0.9% Sewage on the surface
- 0.0% Sewage flowing to ditch
- 0.0% Frozen septic
- 1.3% Other: _____
 - "It's alright"
 - "None"
 - "Septic tank full"
- 84.7% None
- 3.0% Don't know

4. Does your septic system have an absorption field (finger system)? (n=229)

- 76.0% Yes
- 12.2% No
- 11.8% Don't know

5. How would you know if your septic system was NOT working properly? (check all that apply) (n=235)

- 67.2% Slow drains
- 58.7% Sewage backup in house
- 43.8% Bad smells
- 66.0% Toilet backs up
- 46.8% Wet spots in lawn
- 29.4% Pumping tank monthly or more
- 7.7% Straight pipe to ditch
- 8.9% Frozen septic
- 7.7% Don't know
- 5.5% Other: _____
 - "Alert system"
 - "All"
 - "Any of the above. We have no problem!"
 - "Color of grass over fingers"
 - "Don't have problems"
 - "Have not had a problem"

Deer Creek-Sugar Creek Watershed

- "I have it checked and maintained every other year"
- "If it don't work"
- "Inspections every 3-5 years + pumping tank"
- "Never had a problem"
- "No problem"
- "None"

Deer Creek-Sugar Creek Watershed

Appendix A

3. If you answered 'Yes" above, where does your rain water drain to?

| | Frequency |
|--|-----------|
| | 50 |
| Most of are water goes to the Dehaven ditch then goes N to the Deer Creek | 1 |
| A Branch of the Bachelor Run Ditch, eventually drains to Deer Creek & Wabash River | 1 |
| A COUNTY DRAIN LINE AND IT EMPTIES INTO DEER CREEK | 1 |
| an open ditch | 1 |
| Bachelor River | 1 |
| Bachelor Run | 3 |
| BACHELOR RUN | 1 |
| bachelor run creek | 1 |
| Bachelor Run Ditch | 1 |
| Bachelor Run then Big Deer Creek | 1 |
| Bachelor Run to Deer Creek | 1 |
| BACHLOR RUN C | 1 |
| Back ditch that flows into Deer Creek | 1 |
| Batchlor Run Creek | 1 |
| Valid Bear Creek, Pipe Creek & Wabash River | 1 |
| BECHELOR RUN | 1 |
| Bracher Run | 1 |
| BRIDGE CREEK | 1 |
| BRIDGE CREEK, DEER CREEK, ROBINSON RUN | 1 |
| Brown's Ditch | 1 |
| Buck Creek | 1 |
| Buck Creek Ditch then to the Wabash River | 1 |
| COUNTY DITCH | 2 |
| county drainage ditch | 1 |
| COUNTY DRAINS | 1 |
| creek | 2 |
| Creek | 2 |
| CREEK | 4 |
| CREEKS AND RIVERS | 1 |
| Creeks and streams | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|----|
| Deer | 1 |
| deer creek | 1 |
| Deer creek | 1 |
| Deer Creek | 18 |
| DEER CREEK | 21 |
| Deer Creek and Paint Creek | 1 |
| DEER CREEK WATERSHED | 1 |
| DEER CREEK-SUGAR CREEK WATERSHED | 1 |
| deer creek-wabash | 1 |
| Deer Creek-Wild Cat | 1 |
| Deer creek, big and little | 1 |
| derr creek | 1 |
| DIRECTLY TO WABASH RIVER VIA BRIDGE CREEK | 1 |
| ditch | 4 |
| DITCH | 1 |
| ditch just north of our property | 1 |
| DITCHES AND THEN ? | 1 |
| down hill or street sewer | 1 |
| DOWN IN THE GROUND | 1 |
| drainage ditch | 1 |
| Drainage ditch | 1 |
| Drainage ditch south 3/4 mile | 1 |
| DRAINAGE TILE | 1 |
| Drains in the ground and out in towel | 1 |
| drains into ditches then into rivers | 1 |
| FIELD | 1 |
| field tile | 1 |
| Field tile | 1 |
| FIELD TILE | 1 |
| field tile and open ditch | 1 |
| field tile to Deer Creek | 1 |
| Fields | 1 |
| FIELDS AND DITCH-THOMPSON DRAIN | 1 |
| Filter Strips to Open ditch | 1 |
| Finger System/Field | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|---|
| Gilbert Ditch | 1 |
| GROUND | 1 |
| Gulf of Mexico | 1 |
| Hyman ditch through drain tile | 1 |
| If not absorbed, it goes to tile ditches which drain into Deer Creek or Bachelor Run (depending on the direction) | 1 |
| IN AN OPEN DITCH | 1 |
| In little Deer Creek | 1 |
| in the bachelor run | 1 |
| IN THE SOIL OR IN THE DITCH | 1 |
| INTO A FIELD TILE AND INTO AN OPEN DITCH | 1 |
| into an open ditch | 1 |
| into deer creek | 1 |
| Into Deer Creek | 1 |
| INTO DEER CREEK | 1 |
| into deer creek then into the wabash | 1 |
| Into drainage tile, tile empties into open ditches, open ditches empties into creeks and streams, then to rivers, and into the gulf of Mexico | 1 |
| Into our local creeks , then to our rivers then to the Gulf of Mexico | 1 |
| Into the ground | 1 |
| IT DRAINS INTO CREEKS AND OPEN DITCHES | 1 |
| Johns Ditch | 1 |
| KOKOMO RESORVOIR | 1 |
| Little Deer Creek | 1 |
| LITTLE DEER CREEK | 1 |
| LITTLE DEER CREEK OR IN THE GROUND | 1 |
| McKay dredge and eventually the Wabash | 1 |
| McKay Dredge Ditch | 1 |
| MISSISNAWA RESIVOIR | 1 |
| Mississippi River | 1 |
| MOST OF IT DRAINS INTO THE MCKAY DITCH | 1 |
| Munson ditch-Deer Creek-Wabash | 1 |
| NEAR BY STREAM | 1 |
| NORTH TO MIAMI COUNTY, THEN WEST TO THE WABASH RIVER. INTO OUR CREEK | 1 |
| THEN | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|--|---|
| Oceans | 1 |
| Open ditch | 1 |
| OPEN DITCH | 1 |
| OPEN DITCH THAT FEEDS INTO DEER CREEK | 1 |
| open ditch then to bachelor run to deer creek-etc | 1 |
| open ditches field tile then to small rivers | 1 |
| OPEN DITCHES, THEN CREEK, POINT CREEK OR DEER CREEK | 1 |
| Paint Creek | 2 |
| Paint Creek to Deer Creek | 1 |
| Paint Creek/Deer Creek | 1 |
| Pond on property and the Wildcat Creek | 1 |
| Ponds-creek | 1 |
| Really two places, down into the earth and to a drainage ditch on west side of property... | 1 |
| Rice Bell Drain | 1 |
| Ridenour Ditch & Deer Creek | 1 |
| Ridenour Ditch & to Little Deer Creek & then to Big Deer Creek | 1 |
| rivers | 1 |
| Rock Creek | 1 |
| ROCK CREEK | 2 |
| Si FK Deer Creek | 1 |
| SMALL CREEK ON FARM | 1 |
| Small ditches that end up in time in the Wildcat creek | 1 |
| small streams that eventually drains into Deer Creek | 1 |
| soil, field tile, creek. | 1 |
| SOME IN SUGAR CREEK, OTHER IN OTHER OPEN DITCHES | 1 |
| STORM SEWER | 1 |
| Sugar Creek | 2 |
| SUGAR CREEK | 2 |
| Sugar Creek + Wabash River | 1 |
| SUGAR CREEK AND OPEN DITCH THAT RUNS TO SUGAR CREEK | 1 |
| Sugar Creek and to the Wildcat Creek | 1 |
| SUGAR CREEK DEER CREEK | 1 |
| SUGAR CREEK THEN TO WABASH RIVER | 1 |
| suger creek | 1 |
| THE CREEK! | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|-----|
| the Gulf of Mexico | 1 |
| THE OPEN DITCH THAT RUNS THROUGH THE FARM | 1 |
| the Wabash | 1 |
| the Wabash River | 1 |
| THE WATER DRAINS INTO A NEARBY DITCH | 1 |
| Tiles-open ditches-wildcat-wabash | 1 |
| tiles, creeks, rivers | 1 |
| Tippecanoe, Wabash, Deer Creek | 1 |
| TO BATCHELOR RUN THEN TO LITTLE DEER CREEK | 1 |
| to deer creek | 1 |
| TO DEER CREEK | 1 |
| to open ditch | 1 |
| TO THE CREEK | 1 |
| TO THE DEER CREEK WATERSHED BY OPEN DITCH AND SUBSTRATE TILE | 1 |
| to the ditch, Deer Creek, Wildcat, Wabash, Miss, Cal | 1 |
| to the river | 1 |
| turley ditch on state road 18 | 1 |
| underground ditches | 1 |
| Wabash | 1 |
| WABASH | 1 |
| Wabash River | 1 |
| WABASH RIVER | 2 |
| walbash river | 1 |
| water runs toward the creek within one mile of property | 1 |
| WATERWAY | 1 |
| WE HAVE INVESTED IN WATERWAYS THRU SOIL CONSERVATION SERVICES | 1 |
| Wild Cat Creek | 1 |
| wildcat | 1 |
| Wildcat + Rockcreek | 1 |
| WILDCAT CREEK | 2 |
| WILDCAT CREEK, WABASH RIVER GULF OF MEXICO | 1 |
| Total | 267 |

Deer Creek-Sugar Creek Watershed

Appendix B

2. If the practice is not relevant, please explain why:

| | Frequency |
|---|-----------|
| | 111 |
| no livestock | 1 |
| 4 acre pasture with 2 horses | 1 |
| ANIMALS ARE ALL IN A BUILDING | 1 |
| another person does my farming for me | 1 |
| CAFO | 1 |
| confined buildings around us | 1 |
| DO NOT FEED CATTLE OR HOSS | 1 |
| do not have a feedlot | 1 |
| do not have a food operation | 1 |
| Do not have any animals. | 1 |
| do not have feed lot | 1 |
| DO NOT HAVE FEED LOTS | 1 |
| DO NOT HAVE FEEDLOT | 1 |
| DO NOT HAVE FEEDLOTS | 1 |
| Do not have feedlots, all water off of buildings flow thru filter strip | 1 |
| Valid DO NOT HAVE LIVESTOCK | 1 |
| do not raise livestock | 1 |
| DO NOT RAISE LIVESTOCK | 1 |
| does not apply to my situation | 1 |
| don't have | 1 |
| don't have a feed lot | 1 |
| Don't have a feed lot | 1 |
| DON'T HAVE A FEEDLOT | 1 |
| Don't have a feelot | 1 |
| don't have any feedlots close | 1 |
| DON'T HAVE ANY LIVESTOCK OR FARMLAND | 1 |
| Don't have cattle or feedlot | 1 |
| DON'T HAVE FEED LOTS | 1 |
| Don't have feedlots | 1 |
| don't have livestock | 1 |
| DON'T HAVE LIVESTOCK STRUCTURES | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|--|---|
| don't have that much livestock | 1 |
| DON'T HAVE THAT MUCH LIVESTOCK | 1 |
| Don't know | 1 |
| Don't raise livestock | 1 |
| DON'T RAISE LIVESTOCK | 1 |
| dont have feed lot | 1 |
| FEED LOTS UNDER ROOF | 1 |
| half acre, homeowner | 1 |
| have ditch area, etc | 1 |
| have no cattle | 1 |
| HAVE NO FEED LOTS | 1 |
| have no feedlots | 1 |
| HAVE NO FEEDLOTS | 1 |
| have no livestock | 1 |
| HAVE NO LIVESTOCK | 1 |
| I do not have a feedlot | 1 |
| I DO NOT HAVE LIVESTOCK | 1 |
| I DON'T HAVE A FEEDLOT | 1 |
| I don't have any livestock | 1 |
| I don't own farmland in Carroll County | 1 |
| I have no animals on my ground except for wild animals | 1 |
| I HAVE NO LIVESTOCK | 1 |
| I live in a rural residential home, no livestock | 1 |
| JUST GRAIN FARM NOT LIVESTOCK | 1 |
| maybe | 1 |
| MY WATER DOESN'T GO IN A STREAM | 1 |
| no animals | 3 |
| No animals | 1 |
| No Animals | 1 |
| NO ANIMALS | 2 |
| NO CATTLE, NO FEEDLOT!! | 1 |
| no feed lot | 1 |
| NO FEED LOT | 2 |
| NO FEED LOT OR ANIMALS | 1 |
| NO FEED LOT, NO ANIMALS | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|----|
| no feed lots | 2 |
| No feed lots | 1 |
| No Feed lots | 1 |
| NO FEED LOTS | 3 |
| no feedlot | 3 |
| No Feedlot | 2 |
| NO Feedlot | 1 |
| NO FEEDLOT | 5 |
| no feedlot on property | 1 |
| No feedlot present | 1 |
| no feedlots | 3 |
| No feedlots | 1 |
| No Feedlots | 2 |
| NO FEEDLOTS | 5 |
| no feedlots have or running of [illegible] | 1 |
| NO FEEDLOTS ON PROPERTY | 1 |
| NO FEEDLOTS OR LIVESTOCK | 1 |
| No feedlots. | 1 |
| no livestock | 9 |
| No livestock | 3 |
| No Livestock | 2 |
| NO LIVESTOCK | 12 |
| No livestock - no feelots | 1 |
| No livestock and tillable acreage is fallow | 1 |
| NO LIVESTOCK ON LAND | 1 |
| NO LIVESTOCK ON PROPERTY | 1 |
| NO LIVESTOCK ON PROPERTY; NOT RELEVANT | 1 |
| NO LIVESTOCK OR LIVESTOCK FACILITIES | 1 |
| No livestock outside | 1 |
| No open feedlot on my property | 1 |
| no outside feed lots | 1 |
| NO STEILSE | 1 |
| not a farmer | 1 |
| NOT FEEDING ANYTHING IN A FEDLOT | 1 |
| OUR CATTLE DO NOT HAVE ACCESS TO A STREAM | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|-----|
| PROPERTY 1 ACRE LOT | 1 |
| property planted CRP program | 1 |
| RAISE CORN AND SOYBEANS ONLY | 1 |
| Surface water does not flow through feedlot | 1 |
| THERE ARE NO ANIMALS ON PROPERTY | 1 |
| THERE ARE NO FEEDLOTS IN THIS AREA | 1 |
| WE DO NOT HAVE FEEDLOTS | 1 |
| we don't have any cattle and we don't have a feed lot | 1 |
| WE DON'T HAVE LIVESTOCK | 1 |
| WE HAVE FLAT SOIL | 1 |
| we have no feed lot | 1 |
| WE HAVE NO FEEDLOTS | 1 |
| Total | 267 |

Deer Creek-Sugar Creek Watershed

Appendix C

2. If the practice is not relevant, please explain why:

| | Frequency |
|---|-----------|
| | 228 |
| 0-2% SCOPES | 1 |
| 0-2% SLOPE/ | 1 |
| 1 ACRE LOT | 1 |
| All tillable acreage is fallow/CRP | 1 |
| already using minimum tillage | 1 |
| another person does my farming for me | 1 |
| CRP program field planted w/ cold weather grasses | 1 |
| Don't know | 1 |
| DON'T NEED | 1 |
| Don't own farmland in Carroll County | 1 |
| dont farm with cover crop | 1 |
| flat ground | 1 |
| FLAT LAND | 1 |
| half acre homeowner | 1 |
| Valid I DO NOT FARM | 1 |
| I DO NOT FARM MY GROUND | 1 |
| I do not farm our land but the tenant does rotate and does nice job of workong the land and plants winter wheat | 1 |
| I do not farm. | 1 |
| I DON'T HAVE ANY EROSION PROBLEMS | 1 |
| I live in a rural residential home, Only have a garden | 1 |
| I LIVE IN TOWN | 1 |
| I rent out fhe farm ground | 1 |
| I rent out the farm land. He uses rotation. | 1 |
| JUST NOT USING IT RIGHT NOW | 1 |
| NO ALL TILLAGE | 1 |
| NO COVER CROPS | 1 |
| No crop land | 1 |
| NO EROSION | 1 |
| NO EROSION!! | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|-----------------------------|-----|
| No Farm land, 3 acre of CRP | 1 |
| no flat land | 1 |
| no till | 1 |
| not farming | 1 |
| NOT NEEDED | 1 |
| NOT RB0PANG | 1 |
| rotation | 1 |
| tenant does not practise it | 1 |
| time and cost | 1 |
| USED WHERE NEEDED | 1 |
| Total | 267 |

Deer Creek-Sugar Creek Watershed

Appendix D

2. If the practice is not relevant, please explain why:

| | Frequency |
|---|-----------|
| | 228 |
| ? | 1 |
| all field tile | 1 |
| CATTLE DO NOT HAVE ACCESS TO A STREAM | 1 |
| CRP Program | 1 |
| DO NOT NEED | 1 |
| DON'T HAVE | 1 |
| don't have any open ditching | 1 |
| DON'T KNOW | 1 |
| Don't own farmland in Carroll County | 1 |
| FLAT GROUND | 1 |
| half acre homeowner | 1 |
| HAS FLAT SOIL | 1 |
| I do not farm the land but we have very few ditches | 1 |
| I GUESS OUR COUNTY ELECTED NOT TO USE IT WHEN CLEANING OUR DITCH THIS | 1 |
| Valid SUMMER | |
| I have no ditches | 1 |
| I live in a rural residential home, not farming | 1 |
| IN SIRTURUT | 1 |
| Just have the main ditch running through the property. | 1 |
| LIVE IN TOWN | 1 |
| NEVER TRIED IT | 1 |
| no ditch | 1 |
| no ditching | 1 |
| NO OPEN DITCH | 1 |
| NO OPEN DITCHES | 1 |
| no small main channel | 1 |
| NO SMALL MAIN CHANNEL | 1 |
| no stream | 1 |
| NO STREAMS AROUND PROPERTY | 1 |
| No two stage ditch | 1 |

Deer Creek-Sugar Creek Watershed

| | |
|---|-----|
| takes more space | 1 |
| that is a county practice. they maintain regulated drains | 1 |
| The land is not that steep | 1 |
| The Land is not that steep | 1 |
| THERE IS NO DITCH ON THIS PROPERTY | 1 |
| THIS WAS VOTED AGAINST, IF I REMEMBER | 1 |
| Too small operation | 1 |
| water drains through woods and CRP ground | 1 |
| we don't have an open ditch on our property | 1 |
| we have no open ditches going thru any ground we farms | 1 |
| Total | 267 |

Deer Creek-Sugar Creek Watershed

Appendix E

2. If the practice is not relevant, please explain why:

| | | Frequency |
|-------|---|-----------|
| | | 240 |
| | 95% OF MY DITCH BANK SLOPE TOWARD THE FIELD | 1 |
| | am not located near any of the above | 1 |
| | DO NOT FARM NEAR MAJOR STREAMS-CREEKS | 1 |
| | DON'T KNOW ABOUT IT | 1 |
| | Don't own farmland in Carroll County | 1 |
| | FLAT GROUND | 1 |
| | half acre homeowner | 1 |
| | have woods for buffers | 1 |
| | i do not farm the land we do have a wet land that we do not farm | 1 |
| | I live in a rural residential home, I don't have property on a water body in this watershed | 1 |
| | LIVE IN TOWN | 1 |
| | no ditch or streams run by farms we farms | 1 |
| | NO PONDS | 1 |
| Valid | no ponds on property | 1 |
| | no ponds R.S.C. | 1 |
| | No ponds, streams, etc. | 1 |
| | no water | 1 |
| | none of above | 1 |
| | Not a farmer | 1 |
| | not close to any | 1 |
| | not farming | 1 |
| | NOT NEEDED | 1 |
| | security in case of accident | 1 |
| | SEE ABOVE | 1 |
| | water runs in tiles | 1 |
| | we don't have any ponds and streams on our property | 1 |
| | WE HAVE FLAT GROUND | 1 |
| | Total | 267 |