# WATER QUALITY ISSUES INVESTIGATION

*Use* Agricultural Issues Where We Live: Water Quality *from the Iowa Agriculture Awareness Coalition and other resources—including people in your community or state, research based publications and websites, personal observations and experiences, to investigate water quality where you live.*

## SECTION 1

*Please write your responses in the spaces provided.*

1. Explain the importance of water quality in your life.

2. According to *Agricultural Issues Where We Live: Water Quality*, summarize why water quality is important to everyone, including farmers.

3. Compare similarities and differences in your responses to questions one and two. Then describe any changes you might want to make to your response to the first question.

4. Describe any sources of pollution that you think make the most impact in keeping your water safe to drink. Include descriptions of how these sources of pollution might enter your water supply.

5. What sources of water pollution does *Agricultural Issues Where We Live: Water Quality* say have the biggest impact on water quality in an agricultural state such as Iowa? Describe how these sources of water pollution can enter your water supply.

6. What evidence would you need in order to analyze if your water is safe to drink? How would you gather the evidence?

## SECTION 2

Use *Agricultural Issues Where We Live: Water Quality* and other water quality or agricultural resources to complete the crossword puzzle.

### WATER QUALITY CROSSWORD PUZZLE

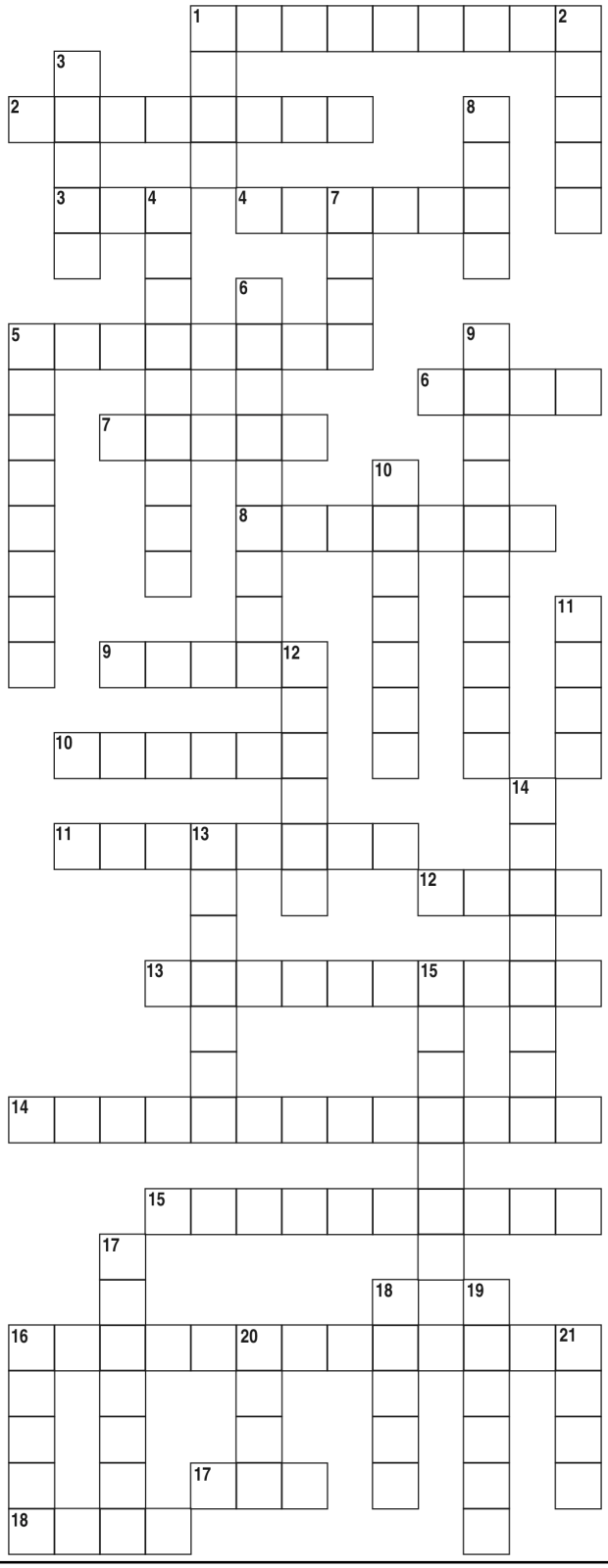
**Across**

1. An example of a chemical that people put into the water supply is _____ cleaners.
2. The single largest water pollution problem in Iowa that comes from the most valuable natural resource in Iowa.
3. A farmer utilizing a planned grazing system will rotate this type of animal from pasture to pasture to assure a good cover crop and a reduction of trampling to slow down erosion, and to distribute manure more evenly to reduce excess runoff.
4. Grass, trees, shrubs, and other plant roots do this to remove particles from the soil and water before they enter the water supply.
5. Pruning and harvesting trees, planting new trees, and removing debris in this area protect water quality.
6. Manure can be stored here until it can be used as a soil nutrient to grow healthy crops.
7. These large plants help to reduce run-off and soil erosion and they filter water.
8. A deep pit, slurry store, lagoon, earthen storage, stockpile, or compost pile are examples of manure _____ facilities.
9. Maintaining water quality in these smaller bodies of water is important to the plant and animal life that live there.
10. These living things can slow down soil erosion and protect water supplies; however, if there is too much waste from these in a body of water, they can cause problems in the water supply.
11. These nourish the soil so that it can grow healthier plants; however, too much of these, especially nitrogen and phosphorus, can threaten plant and animal life in rivers and streams.
12. Phytase is a naturally produced enzyme added to an animal's _____ to reduce the amount of phosphorous in the manure, which eventually is used as fertilizer.
13. Another word for the water cycle. This cycle is important to understand for designing water quality protection practices.
14. Too much of these kind of wastes can pollute the water and cause harmful bacteria, protozoa and viruses to grow.
15. This comes in the form of animal manure, human sewage, and commercial or manmade forms to promote the growth of plants.
16. When farmers use these kinds of crops, they don't have to apply as many chemicals to control pests that destroy crops.
17. This is an acronym regarding the use of global satellites to determine where and how much chemical to apply on a field.
18. Word used to describe a place.

**Down**

1. This is the first place you can make a difference in protecting water quality.
2. Household cleaners, medicines, paints, and solvents may pollute the water when they are discarded here.
3. Using this to keep animals from trampling the ground along rivers and streams keeps soil from eroding into the water supply.
4. A row of trees and shrubs strategically planted to protect water quality by slowing wind erosion.
5. These places such as sloughs, potholes, and marshes can be used to protect water quality in a variety of ways including sewage and animal waste treatment.
6. The entire area of land and everything on it that sheds or causes water to flow into streams, rivers, lakes, or wetlands.
7. Terracing and contour farming are examples of ways people can change this to slow erosion and run-off from entering the water supply.
8. A place where farmers manage plants, animals, and natural resources in order to make a living and conserve or improve resources for future generations.
9. How farmers control or direct what happens with land, soil nutrients, woodlands, wetlands, pests, wildlife, etc. to conserve, preserve, protect, or improve the land and the plants and animals living there.
10. The loss of soil, by wind, water, or activities by animals including people, from its original site.
11. A strategy that includes how to protect water quality from pollutants such as sediment, chemicals, plant nutrients, and biodegradable wastes.
12. Using a Global Positioning _____ to apply chemicals can reduce the amount of chemicals applied to a farm field.
13. Farmers use this waste reduction method by washing out chemical containers and returning them to the place they bought them.
14. Excessive use of herbicides to kill weeds and insecticides to kill insects are examples of this kind of potential water pollution.
15. Manure is an example of this type of natural fertilizer.
16. Spraying in this way instead of broadcast spraying over everything uses a lot less chemical.
17. This is the goal of using the best water quality practices regarding our drinking water.
18. Describes the kind of crop such as grass or clover grown in waterways and filter strips to slow wind erosion.
19. You need to determine this before you can protect water quality in a watershed from becoming polluted.
20. Soybeans replace nitrogen that corn has used which also reduces the need to apply soil nutrients and chemicals in a farming strategy called _____ rotation.
21. A major source of excess chemical use that may affect your watershed may be found right in your own back _____.

## WATER QUALITY CROSSWORD PUZZLE continued



**Answers**

Please cover before copying puzzle.

**Across**

1. household, 2. sediment,
3. cow, 4. filter, 5. woodland,
6. tank, 7. trees, 8. storage,
9. ponds, 10. plants,
11. nutrient, 12. feed, 13. hydrologic,
14. biodegradable, 15. fertilizer,
16. biotechnology, 17. GPS, 18. site

**Down**

1. home, 2. drain, 3. fence,
4. windbreak, 5. wetlands,
6. watershed, 7. land, 8. farm,
9. management, 10. erosion, 11. plan,
12. system, 13. recycle, 14. chemical,
15. organic, 16. bands, 17. protect,
18. cover, 19. source, 20. crop, 21. yard

## SECTION 3

1. Using your observation and communication skills and *Agricultural Issues Where We Live: Water Quality*, complete the following chart to show how water is protected from four potential pollution sources where you live. The term "community" includes both the urban and rural areas near where you live.

**WATER QUALITY WHERE I LIVE**

| Type of Water Pollution | Sources of pollution in your community | Strategies being used to minimize pollution in your community | Other ideas to improve water quality in your community |
|---|---|---|---|
| **Sediment** | | | |
| **Biodegradable Waste** | | | |
| **Plant Nutrients** | | | |
| **Chemicals** | | | |

2. List the resources you used to explore these potential water pollution sources in your community.

3. Describe at least one way that <u>you</u> can protect water quality from each of these potentially major pollution sources in Iowa: sediment, biodegradable waste, plant nutrient, and chemical pollutants.

4. How else in your community might want to know more about water quality issues? How could you help them learn more about water quality where you live?