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Minnesota River Decision Cases

The Falke Farm

The Hugel Farm

The Wilder Farm

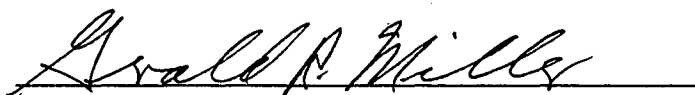
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A handwritten signature in cursive script, reading "Gerald R. Miller", is written over a solid horizontal line.

Gerald R. Miller  
Associate Dean and  
Collegiate Program Leader  
College of Agricultural, Food, and Environmental Sciences  
Minnesota Extension Service



EP-6679  
1996

## Minnesota River Decision Cases: The Falke Farm<sup>1</sup>

### Introduction: Emotions Run High

- ¶1 *"The Falkes are predators when it comes to livestock!"*
- ¶2 *"The flag of the Falkes should be the dollar bill, not the American flag!"*
- ¶3 Kari Falke and her husband, Kurt, were both exhausted after the County Commissioner's Board meeting. Angry comments made against them, such as those above, had been emotionally draining. The Falkes were planning to build a hog finishing facility on land they owned about eight miles east of the small southern Minnesota town where they lived and farmed. The conditional use permit they needed to begin work on the site had been approved at the Commissioner's meeting, but only after a highly charged hearing at which some neighbors voiced strong opposition. Still, fall was approaching, and the Falkes were eager to get started on construction before winter.
- ¶4 In the larger scheme of things, Kari knew the neighbors and others opposed to their expansion would not stop the project, although they would continue to try. As long as the Falkes followed the permitting process to the letter, the project would continue to go forward. But Kari did have to shop at the store, attend church, and work with some of these same people who opposed the finishing operation. Their comments still hurt her, even if they were not effective at halting the project.

- ¶5 At the hearing, a neighbor near the proposed site had jumped to his feet and shouted, *"These 5 buildings Falke is asking for now will become 10 and then 20. He is only 100 feet away from a drainage ditch. Why isn't he building on his own home farm? He says it is because he doesn't want to have to haul manure, but he is going to have to haul feed to the feedlot. What's the difference?"* The Falke's proposal did include five finishing buildings with a capacity for 960 head in each building. The population of each building was expected to turn over 2.5 times per year, so 12,000 animals would be raised each year. The hogs would be brought in young, at around 40 lbs. each, and grown to full size. The Falkes planned to use the services of an integrator who would actually own the animals. Integrators typically provided the animals to the finisher and sold them when grown, giving the finisher a guaranteed fee for raising the hogs. One of the Falke's goals was to own their own animals someday.

### How Big Is Too Big?

- ¶6 Several people were upset by the size of the operation. Kari remembered the statements made at the hearing.
- ¶7 *"Do we really need more pork? It just lowers the price so exporters can export more. It is a low paying, hazardous industry. I have lung problems just from working in my own barn. We also have to ask ourselves if we really want more large, corporate farms versus small, independent farms."*

<sup>1</sup> While this case represents an actual situation, all names have been changed.

- ¶8 Another resident of the township also spoke up: *“There are more important issues here than economic development. These mammoth facilities are putting small farmers out of business. Plus, small farmers buy locally. I don’t know that Falke would do this.”*
- ¶9 *“It’s not where we raise the food that’s the problem, it’s how we raise the food,”* said yet another resident.
- ¶10 Even some hog farmers had opposed the expansion, implying that the Falke’s operation would drive them out of business. *“There are 18 hog farmers in [our] township. They average about 1,000 hogs per site per year. The Falke’s site can produce 14,000 to 18,000 hogs per year. It will double the hog production of the township.”*
- ¶11 Kari thought back to their rationale when they decided to expand their hog operation. She and Kurt had four children and wanted to use the income from the facility to help put them through college in a few years. This operation was also intended to provide Kurt and Kari’s retirement income. It was difficult in today’s economy to be successful, full-time farmers and Kari was proud of their success. She wanted to be able to work full-time on the farm. The expansion would allow her to do that since she was to be the principal manager for the new facility. Kurt’s main job would remain with their 1,500 head beef cattle and 3,000-acre corn/soybean operations in partnership with other members of Kurt’s family.

### **Too Much Manure?**

- ¶12 At the hearing, some people expressed concern about the amount of manure projected to be produced by the Falke’s operation. They worried that too much would be produced to be handled effectively. One person addressed the issue at length. *“Eleven parcels have committed to accepting manure from the proposed site,”* he said. *“Only two of the owners actually live on the land. Falke’s agreement with these owners states, ‘this agreement is good until canceled.’ He could get canceled at any time. Then what does he do with that manure?”* He pointed out

that people might cancel due to a number of reasons, including pressure from their neighbors; a realization that they didn’t know what they were doing when they signed; and concern about increased compaction on their fields that might result from manure-spreading operations. He went on to propose what would happen if the Falkes lost some of their manure contracts, *“Falke is paying \$5 per load and bidding wars will occur when people cancel. Their options will be to buy or rent more land to spread manure. He can buy mine for \$10,000/acre, just what any other corporation, like a shopping mall, would pay to come in there. The agreement should be for the life of the feedlot and should attach a 30-year easement to the abstract of the properties in question.”*

- ¶13 Later in the hearing, Kurt addressed this issue. He said, *“The spreading agreements I have with the 11 parcels are worded according to what is required by the county and the MPCA (Minnesota Pollution Control Agency). Land in [this] county doesn’t turn over rapidly. I think these owners will be around for a while.”*
- ¶14 *“Also,”* Kurt continued, *“crop farmers want the manure as a way to lower their cost and increase profits. The fertilizer value of the manure is worth twice what the spreading cost of the manure is.”*
- ¶15 Kari felt that they were well prepared for the amount of manure the proposed site would generate. Each of the five proposed finishing barns would have a concrete manure pit that had the capacity to hold 13 months’ worth of manure. The contracts with nearby farmers allowed them to spread manure on 1,060 acres (**Exhibit A**), twice the 529 acres needed for the amount of manure they would produce. The soils of the area were mostly deep loam and clay loam with good infiltration. Kari thought the manure was better for the soil than chemical fertilizer.

### **Not in My Backyard!**

- ¶16 The site under consideration hadn’t even been the Falke’s first choice, a fact that Kari thought showed they had gone out of their way to accommodate their neighbors’ concerns. The

first site chosen was not prime farmland, not near running water, and had paved roads on two sides. Also, it was located on a hill with vegetation that could serve as a visual and odor buffer zone. After they filed for their permit with the MPCA, Kurt and Kari met with the neighbors. The neighbors strongly objected to use of this original site. They felt it was too close to other houses and that odor would be a problem. Also, they expressed concern over the effects of the feedlot on the water quality of a nearby marsh. Because of these concerns, Kari and Kurt pulled the application and selected a second site one mile farther east. The Falke's neighbors said they would not object to the alternative site. However, some of the neighbors subsequently filed for an Environmental Assessment Worksheet (EAW) (**Exhibit B**) on the second site. An EAW would investigate the potential impact the site could have on the environment, including water quality.

¶17 The Falke farm had been identified as a "river-friendly" farm by the Minnesota Alliance for Crop Residue Management, a coalition of government agencies, agricultural organizations, and private firms to promote crop resource management practices that protect soil and water (**Exhibit C**). Located in the Minnesota River Basin, the site under consideration and the contracted manure-spreading land were within a few miles of two different rivers and a small lake (**Exhibit B**). Kari was certain there was nothing debatable about the second site with respect to its effect on water quality. Water from the marsh near the first site didn't flow near the new location. Furthermore, the MPCA, the Department of Natural Resources (DNR), naturalists, and others all looked at the second site and found it wasn't necessary to conduct an EAW.

¶18 Although the second site was still accessible to good manure-spreading land, it had been their second choice for several reasons. It was classed as prime farmland and would have to be taken out of production, plus it didn't have the paved road access. Only gravel roads served the second location, and they would require maintenance and construction to accommodate

extensive truck traffic. One Township Board member at the county hearing said, "*We shouldn't expect taxpayers to foot the bill on the road to this site. It costs \$600-700 per mile for gravel and blading to maintain and improve that road. Just building this site is going to destroy that road.*"

¶19 Kurt had several ideas for handling manure that could help reduce the amount of wear and tear on the road. Also, he had offered to pay a \$2,500 bond to the township for current and future road improvements. The township felt this wouldn't be enough and asked that he pay an additional amount to cover road maintenance. Kurt reminded the board at the hearing that the road is public and used by others. A County Commissioner said, "*How would the township's rules apply to other farmers? You can't treat one road user different from another. Is it a public road or not? If I have to pay to maintain it, do I have special privileges on it?*"

¶20 In the long run, Kurt and Kari felt the township and the county would benefit financially from their operation. They would hire a full-time employee to help with the operation, and would provide business for the local veterinarian and feed companies. They also felt they were producing a local "value-added" product (pork) and a market for corn and soybean farmers in their area. At the hearing, another hog farmer had come to the Falke's defense by stating, "*The Falke's buildings will bring in \$1,504 to the county, \$364 to the township, and \$2,230 to the school district in taxes each year.*"

### **Who Regulates the Air?**

¶21 The most emotional comments at the hearing came from people who talked about the odor that they felt would be generated from the proposed site.

¶22 "*The people who live next to this site need to breathe!*" said one man. "*This feedlot will take away their lifestyle. They will have to move because of the odor.*"

¶23 Another woman jumped to her feet and declared, *“I live 600 feet from a feedlot and the odor is there! Big operations don’t smell like small ones. I’ve lived next to a small hog farmer and never smelled anything. The residents of the township were here first and have the right to determine use of the land!”*

¶24 A local activist pitched in, *“Who regulates the air? MPCA does not look at air quality issues. It is the county’s responsibility to ensure air quality for its citizens.”*

¶25 In reality, Kurt and Kari’s operation would be located almost six times farther from the nearest neighbor than the 500 feet required by the county feedlot ordinance. *“How far is far enough?”* Kurt had asked aloud at the hearing. *“We’re building in A-1 prime ag land,”* thought Kari. *“Where else would you put a feedlot like this? Our current operation gets phone calls whenever it smells in town, whether it’s blowing from our direction or not. When Kurt was growing up this was unheard of. Fewer and fewer farms are out there. . . . The airport is in Richfield. If you move to Richfield, you can’t ask them to move the airport because you don’t like it. The airport is there. It’s the same with prime ag land. This is the place where food is raised.”*

¶26 A member of the Township Board had commented at the hearing, *“A 500-foot setback from the next residence is not enough. Ninety percent of the people in the township are against feedlots in general. There are currently no confinement feedlots in the township. The density of the hog population is what concerns people now.”* Total livestock numbers in the township had been in a steady decline for decades.

¶27 Kari and Kurt were frustrated with the leadership in their township. The Township Board appeared to be giving in to pressure from the neighbors. When Kurt met with the Township Board in August, they said they needed some time to consider doing their own zoning because the residents wanted it. The Township Board then passed a moratorium on all new livestock operations with more than 300 animal units. Kari felt that although the Township Board had tried to disguise the moratorium by adding other

restrictions on things like junkyards, it did appear to be aimed at stopping expansion of their operation. Kurt and Kari had filed for a temporary restraining order against the moratorium. Based on the Illegal Access law, which prevented zoning regulations being made against a single individual or operation, they felt the township could be stopped from halting their operation. Now neither the Falkes nor the township could do anything until the situation had been resolved through mediation.

¶28 Kurt felt that the trends in raising livestock were moving toward operations of the type and size that they planned. He said, *“It seems that livestock operations in the area are struggling to maintain a steady industry, while feedstuff production steadily increases. Does the public want a livestock and diversified family farm industry in the Minnesota River Basin where we can monitor environmental concerns? Or will we ‘wash our hands’ and have the industry move to areas that are less regulated?”*

### *Is It Worth It?*

¶29 Kari reflected on what an ordeal it had been trying to get this expansion project approved. She wondered how much more public opposition she and Kurt would face now that the county had granted them a conditional use permit. In making their decision, the County Commissioner had said, *“If you remove emotion from this issue, the Falkes meet or exceed all the requirements of the feedlot ordinance.”* He commented that the current county feedlot ordinance might not be perfect, but it was *“all we’ve got to go by.”*

¶30 It was an emotional issue for many people. While she had little doubt that they would go ahead with their plans, Kari wondered if it was really worth the emotional and social costs she and her family were paying in the process. *“When I get home,”* Kari thought, *“I’d better take down the American flag in our front yard — just in case.”*

## **Exhibits:**

- A. Plot map of proposed site and contracted manure spreading sites
- B. About the EAW
- C. The River-Friendly Farmer Program

Find more Minnesota Extension Service educational information at <http://www.mes.umn.edu/> on the World Wide Web.

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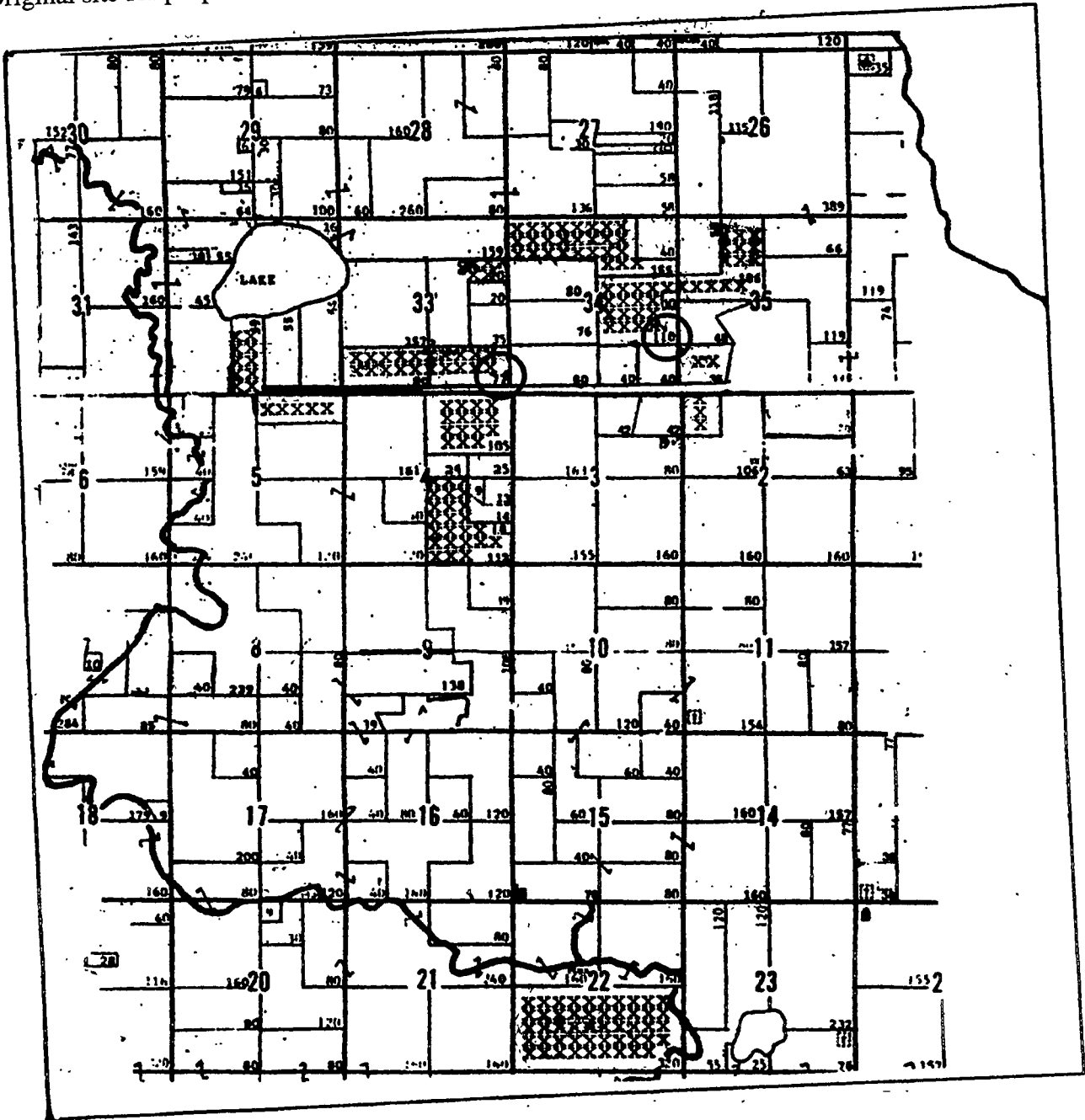
# Exhibit A: Plot Map

## *Minnesota River Decision Cases:* **The Falke Farm**

Circled:

#77: Current site for proposed hog operation

#110: Original site for proposed hog operation



## Exhibit B:

# *Minnesota River Decision Cases:* **The Falke Farm**

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### About the EAW

An EAW (Environmental Assessment Worksheet) is a questionnaire used to help a local government or state agency decide if a proposed project has the "potential for significant environmental effects." The EAW is used to determine if an Environmental Impact Statement (EIS) must be prepared.

The EIS is part of the formal process established by the Minnesota Environmental Policy Act of 1973 for reviewing environmental impacts of major development projects such as airports, animal feedlots, commercial or residential developments, hazardous waste facilities, highway projects, marinas, sewage systems, and solid waste facilities. Examples of "environmental" impacts are water quality, air quality, effects on wildlife or wildlife habitat, ecologically sensitive areas, parklands, historic sites, increased noise levels, and odors.

Some projects, based on their size and location, are automatically required to have an EAW and EIS

completed. Others may have an EAW requested by citizen petition. The petition process is not a means for resolving a disagreement about whether a project should be built. The petition requires the signatures and mailing addresses of at least 25 people and "material evidence" showing that the nature or location of the proposed project has potential for significant environmental effects. The EAW process can delay construction on a project for several months.

The Responsible Governmental Unit (RGU), which has responsibility for the approval or disapproval of the project, is responsible for making case-by-case decisions on the need for an EIS or EAW. The request for environmental review is only approved when the RGU determines there may be the potential for **significant** environmental effects.

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Information taken from Environmental Quality Board brochure titled "The Environmental Review Process."

## How to Get Involved

The River-Friendly Farmer program needs your help as a farmer, member of an organization, or as a concerned private citizen. You can help by nominating a farmer, getting a local organization involved, sponsoring activities such as tours and recognition ceremonies, or preparing publicity materials such as brochures, posters, and signs. To find out more details, contact the Minnesota Extension Service or Natural Resources Conservation Service. Locally, contact your county extension educator or district conservationist. At the state level, contact:

- Don Olson  
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## The River-Friendly Farmer Program

### Lead Organization:

- Minnesota Alliance for Crop Residue Management\*

### Contributing Organizations

- Minnesota Extension Service
- Minnesota Pollution Control Agency
- GENEX/Land O' Lakes
- Natural Resources Conservation Service
- Minnesota Department of Agriculture
- Pioneer Hi-Bred International, Inc.
- Minnesota Association of Soil and Water Conservation Districts
- Minnesota Farm Bureau Federation
- Board of Water and Soil Resources
- Minnesota Department of Natural Resources

\* The Minnesota Alliance for Crop Residue Management is a coalition of government agencies, agricultural organizations and private firms whose purpose is to promote crop resource management practices that protect soil and water while maintaining the profitability of farming.



# The River-Friendly Farmer Program

Giving public recognition to farmers who are doing their part to clean up Minnesota's Rivers



## Program Goals

- To publicize and promote farming practices that benefit Minnesota river water quality while maintaining the profitability of farming
- To inform non-farm publics about farmer's positive contributions to the cleanup of Minnesota's rivers

## How it Works

To accomplish these goals, the Minnesota Alliance for Crop Residue Management and contributing organizations have developed a farmer recognition program. Any farmer in the Minnesota River basin who satisfies the 10 criteria listed opposite may be designated as River-Friendly Farmer. This designation will be accomplished by public recognition through a variety of methods, such as the issuing of a certificate at a public ceremony, the placement of a sign on the farmer's property, and other publicity yet to be determined.

## Program Criteria

Farmers who satisfy all of the following criteria applicable to their operations may be designated River-Friendly Farmers:

1. All crop land has 30 percent surface residue coverage after planting, as a rotation average. *(Alternatively, equivalent sediment control can be provided from measures such as conservation structures, contour farming, and including hay in the crop rotation).*
2. Soil loss on highly erodible land is at or below the tolerable (T) level.
3. Fertilizer application rates are based on soil testing, manure testing, realistic yield goals, and credits from previous legume crops and manure applications.
4. Statewide and applicable regional best management practices for nitrogen, as recommended by the University of Minnesota, are observed.
5. Phosphorus is banded below the surface or incorporated right after surface application.
6. Manure storage facilities are adequate and permitted by the MPCA.
7. Liquid manure is injected, or incorporated within 24 to 48 hours of surface application.
8. Within 300 feet of surface waters, drainage ditches, tile intakes, and other areas needing special protection, manure is applied in a manner that minimizes contamination (use MPCA guidelines).
9. Pesticides are used together with cultural pest-control practices, at no higher than labeled rates, observing guidelines for water quality protection (atrazine setback distances, for example). Containers are stored, handled, and disposed of in ways that minimize contamination.
10. Crop yields are close to area average, adjusted for soil productivity, or farm is profitable despite somewhat below-normal yields.

# Teaching Note:

## *Minnesota River Decision Cases:*

# The Falke Farm

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### Case Objectives:

Through deliberation of this case, participants will:

- Gain understanding of rural issues surrounding large finishing and feedlot operations.
- Gain understanding of how agricultural policy affects rural development.
- Gain awareness of the impact that agriculture and specific agricultural systems in watersheds can have on rivers.
- Gain understanding of how to manage or reconcile differences among viewpoints.
- Learn to seek cooperative and constructive solutions to complex problems.

### Use of the Case:

This case was developed for use by extension educators, university and high school teachers, state agency personnel, policy makers, and others interested in enhancing understanding of Minnesota River water quality and in discussing strategies to overcome the problem. It can also be used in discussions surrounding agricultural policy and rural development.

### Materials Needed:

- Copies of the case and exhibits
- Blackboard, flip chart, overhead projector or other means of displaying participants' comments
- A "U" or horseshoe-shaped seating arrangement for maximum participation among participants and the facilitator

### Dealing with Controversy:

Often in the discussion of a decision case, participants will disagree about certain issues. While this is a mark of an effective case, the facilitator should keep the discussion from becoming argumentative and unproductive. Participants should be reminded that there are many points of view and that you would like the atmosphere to be constructive and nonthreatening. If desired, techniques such as role-playing or role reversal can help participants discuss the issues in a less personal way.

Following are strategies to keep in mind to facilitate a productive, healthy discussion where controversy may be involved:

- Establish ground rules. These may include: allowing only one person at a time to speak; no one should speak twice before everyone has had a chance to speak once; no criticizing of others' comments, etc.
- Encourage participants to use "I" messages when stating their viewpoint. Avoid using "you" or blaming statements.
- Ask clarifying questions such as, "Why do you think that?" A major communication problem is misunderstanding what was said.
- Ask participants to try to imagine the situation from the other person's point of view. (Role-playing can also help with this.)
- Encourage participants to focus on what they want to have happen in the future or where they would like to go rather than where they have come from or what has happened in the past.

## **Lesson Outline:**

Discussion of this case can last from 30 to 90 minutes, depending on the degree of preparation by the participants and the desired depth of the discussion. In general, a decision case discussion is a forum where students talk to each other in addition to the facilitator. The format described here is useful when advanced preparation of the participants is not possible. If desired, the facilitator can include additional information on local water quality as well as the Minnesota River to enhance discussion and create a broader understanding of those topics. Minnesota River information is available in **Exhibit C** of *The Wilder Farm* or in the Minnesota River Assessment Project report. The outline below is one example of the way a facilitator might structure the discussion.

### ***I. Introduction***

- A. Facilitator introduces the decision case and describes its goals and approaches to be used.
  1. Focuses on a real situation.
  2. Practices problem solving.
  3. No single right answer—each person and situation is unique.

### ***II. The Case Activity***

- A. Participants read or reread the narrative of the decision case.
- B. Facilitator divides the participants into small groups of 2-4 people and asks them to discuss question #1.
- C. Participants return to large group and share key points of their discussion.
- D. Facilitator guides a group discussion on the remaining questions.

### ***III. Conclusion***

- A. Group members may select a preferred option, or facilitator may have participants individually write a response describing their decision and rationale.
- B. Closing comments.

## **Discussion Questions:**

Below are examples of the kinds of questions the case facilitator can use to stimulate discussion of the issues in this case. Participants may discuss some of these questions in groups of two or three and others as a large group. The questions used can vary depending on your time limit and the issues you wish to discuss. Other questions may be added.

### ***1. What is Kari and Kurt's dilemma?***

Kari is struggling against peer and public pressure to build the hog finishing facility she and Kurt want. Her dilemma is whether she is willing to pay emotional and social costs to gain approval (§30). Kari and Kurt feel as though they have gone “above and beyond” the letter of the law in planning their facility and accommodating their neighbors’ concerns, yet they still face opposition. The Falkes may have to fight a long battle with the Township Board to get their facility built. Even after the facility is completed, they may still face opposition or resentment in their community. Is it worth it?

On a larger scale, the dilemma stated by Kurt in §28 is not the Falke’s but the public’s. Participants may discuss whether animal feedlots “belong” in rural Minnesota.

### ***2. Why are the neighbors opposed to the Falke's proposed operation?***

Following are just some of the issues participants may discuss.

- Negative public perception of large farming operations—large vs. small farms
- Potential odor problems
- Increased wear on a public road
- Concern over the large amount of manure to be spread and the stability of the manure-spreading contracts
- Their opinion that the Falkes do not practice good stewardship
- Environmental concerns
- A negative opinion of the business arrangement Falkes will have with an integrator

3. ***What are the Falke's reasons for wanting to build the finishing facility?***

- Kari's desire to work full-time on the farm
- Kari and Kurt's desire for more income to pay their children's college expenses
- Their desire to generate income for retirement
- Their desire to expand and improve an already successful business

Questions 4 through 13 can help initiate discussion of the issues in the case and help participants discover assumptions underlying their opinions about these issues. The questions the facilitator actually asks depends on which issues the facilitator wishes to cover and the amount of time available for discussion of the case.

4. ***How do you respond to the opening statement, "The Falkes are predators when it comes to livestock"?*** (§1)
5. ***In §10 a local hog farmer states that the Falke's operation will double the hog production of the township. In §5, the Falke's proposal is shown to project 12,000 hogs per year. What effects would increasing the hog population of the township have on other hog farmers?***
6. ***What environmental impacts might an expanded hog operation such as that planned by the Falkes have?***
7. ***Why are feedlots such a volatile issue?***
8. ***Why are the people concerned about the manure the site will produce? Are these concerns valid? Why or why not?***
9. ***Should the Falkes, the neighbors, or the county be concerned about the effect of the proposed operation on the water quality of the nearby rivers and lakes? Why or why not?***

This question can be used when the facilitator wants issues of water quality to be part of the discussion. While water quality is not the central issue presented, this case can be used to discuss water quality issues.

Over 90% of the farmland in the area of the Falke's proposed site is drained by subsurface tiles. The site and the manure-spreading lands

shown in **Exhibit A** are located in the watersheds of two rivers in the Minnesota River Basin. The Minnesota River is one of the state's most polluted rivers.

The MPCA and DNR both looked at the site and deemed that an EAW was not necessary. Participants may discuss whether the acreage under contract to receive manure should be looked at, too. Also, this question can lead to discussion about producers' and the general public's attitudes and understanding of watershed systems and issues.

10. ***What value will the proposed facility add to the community?***
11. ***How would you have responded to the neighbor's comment that the township residents "have the right to determine the use of the land" (§23)? What about Kari's comment that prime ag land is the "place where food is raised" (§25)?***
12. ***Do you agree with the decision of the County Commissioner's Board to grant the Falke's permit? Why or why not?***
13. ***Was the Township Board correct to place a moratorium on expansion of large hog feedlots in the township? Why or why not?***
14. ***What are Kari and Kurt's options in this situation?***

This question allows participants to discuss the need for communication and information exchange between farmers, non-farmers, and policy makers. It also allows for discussion of how participants view Kari and Kurt's options. Some options include, but are not limited to:

- **Respond to public opinion by discontinuing their plans to expand on the site.** This option may go against Kari's sense of personal fairness.
- **Find another location.** Kari and Kurt might seek a third site option, perhaps in another township. This option would pacify the current neighbors, but the Falkes might face new opposition elsewhere. Also they would lose the time and money they have spent planning and litigating for the current site.

- **Implement a strategy to swing public opinion in the township to favor their cause.** Kari could work to influence public opinion through the local media and personal contact with key people in her community. This option would require a lot of effort on Kari's part. Also, she might not see this as necessary because the Falkes have already complied with all the requirements needed for approval.
- **Ignore public opinion and forge ahead.** This may not be possible if the township moratorium is upheld in mediation.

**15. What should Kari and Kurt do?**

You may or may not wish to try to reach consensus regarding a preferred decision.

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**Developed by:**

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EP-6679  
1996

## *Minnesota River Decision Cases:* **The Hugel Farm<sup>1</sup>**

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- ¶1 The early fall view was splendid. As Bill Hugel stood at the top of the hill where his home overlooked his farmland, he could see the large expanse of sky over the rolling hills to the west. He had farmed these corn and soybean fields below him for the past 28 years. It was still a bit early to know what the corn crop would be like this year, and his soybeans were a little weedy, but Bill was optimistic that he would have a successful crop.
- ¶2 Bill had no reason to doubt his prowess as a farmer. Last year he had received the top conservation farmer award in his county. Over the last fifteen years, he had constructed 12 terraces on the hilly cropland of his 250-acre farm. The terraces cut across the slopes of the fields, slowing the eroding flow of water down the hills when it rained. In addition to the land he owned, Bill also rented another 400 acres nearby.
- ¶3 In the valley below him were the sediment basins that Bill had constructed as an additional conservation measure. The two basins were intended to catch sediment washed from the 50 acres of highly erodible land (HEL) and prevent it from moving into a small creek that ultimately fed into the Minnesota River about three miles downstream. Thus, runoff from the steeply sloped land around the Hugel's home was slowed by the terraces and had to pass through the sediment basins before entering the creek.
- ¶4 Bill could see the trees in the distance outlining the creek that led to the river. He knew there were concerns about the quality of the water in the river. Personally, he was more concerned with area lakes and what was being done locally to improve their water quality. Bill felt his conservation practices did a good job of keeping sediment and chemicals from his farm out of the river.
- ¶5 However, Bill had been told that his terraces and sediment basins were not enough. To conform to the government's conservation compliance program, Bill was required to maintain at least 30-35% residue cover on the soil surface of his highly erodible land. Beginning in 1995, the government Feed Grain Program required that farmers comply with the conservation requirements in order to be eligible for the program payments. Bill had participated in the Feed Grain Program in 1995 and knew he needed to comply with the conservation requirements if he was to continue in the program.
- ¶6 So in 1995, Bill had decided to use a no-till planting system to achieve the required amount of residue coverage. He no-till planted corn into soybean stubble from the previous crop on about half his 250 acres of HEL.

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<sup>1</sup>While this case represents an actual situation, all names have been changed.

- ¶7 There had been problems, however. Although his no-till fields had more than the required surface residue in some places, the soybean stubble had washed away in other areas because it was not anchored to the soil. The problem seemed to be the type of soil on the Hugel's farm. Some said that the clay and clay loam soils in the area were just not suited for the practice. Upon wetting, the clay particles packed tightly together, reducing the capacity of water to infiltrate the soil. This increased the amount of runoff, which washed away the soybean residue. Also, the no-till corn seemed to take longer to emerge, possibly because of slower soil warming under soybean residue. Bill wondered how this would affect yield compared with his previous practice of chisel plowing. Over the years, yields on his HEL had been going up and he wanted that trend to continue.
- ¶8 Although many farmers in Bill's area were using reduced tillage methods to increase their surface residue, not many of them were using no-till. Based on his experience in 1995, he had begun to question whether no-till was his best option for preventing soil runoff on his farm's HEL. He felt it would be better if he could partially till the residue into the top layer of soil to help hold it in place. He could see where unincorporated soybean residue on his no-till fields had simply washed away and clogged the terrace drains, likely taking soil with it.
- ¶9 Bill didn't know what the specific features of the Feed Grain Program would be next year, or if it would be worth enrolling, especially if it meant he had to comply with the residue requirements again. Although he had until March to make his decision regarding participation in the program, Bill needed to decide whether he was going to chisel plow or field cultivate his highly erodible soybean ground this fall.
- ¶10 Bill resented having the Feed Grain Program tell him how to farm his land and conserve the soil. He felt that the "one size fits all" residue standards didn't serve his land and soils well. The people developing these standards didn't seem to understand that it was critical to anchor the surface soybean residue on his soils, even if it meant less total percent coverage on the soil surface.
- ¶12 There was another issue. Any field with over 30% of its area in highly erodible land was classified as HEL. Some of Bill's fields were fairly flat but were still classified as HEL because one part of the field was sloping. This seemed arbitrary to Bill and he knew of neighbors who had areas in their fields that were steeper than his land but weren't classified as HEL because their fields were bigger overall and the sloping area made up less than 30% of the total. That didn't seem fair.
- ¶11 Bill had enrolled in the Feed Grain Program most of the 28 years he'd been farming. Much of the time it made sense economically. His decision of whether to enroll next year should be based on the financial incentives of the program and the prospects for commodity prices, not on the conservation regulations.
- ¶13 Was there another way, besides no-till, that would allow him to maintain the residue amounts required for compliance with the conservation program? Bill had tried several different tillage and production approaches on his HEL over the past 10 years but none resulted in residue coverage as high as no-till. He also liked the time that no-till saved him in the field. However, he had needed to put a lot of herbicide on his no-till ground this year. How environmentally and economically sound was that?
- ¶14 The sun was dipping behind the hills as Bill turned away from his fields and walked back toward the house. The pros and cons of his dilemma continued to play on his mind. Should he give no-till another try? Was there a better way to comply with the residue requirements of conservation compliance? Or should he just drop out of the farm program next year and farm the way he felt he should—the way he should for *his* soil type and landscape? But what if he needed the price safety net next season that the Feed Grain Program provided? The time was fast approaching when he would have to decide whether to chisel plow or field cultivate his bean ground to "anchor" the residue. *What should I do?* thought Bill.

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# Teaching Note:

## *Minnesota River Decision Cases:*

# The Hugel Farm

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### Case Objectives:

Through deliberation of this case, participants will:

- Gain awareness of the degraded quality of the Minnesota River and the impact that agriculture and specific agricultural systems have on the river.
- Gain understanding of the strengths and limitations of agricultural practices advocated to enhance river quality.
- Gain understanding of the options available to farmers with regard to enhancing water quality.
- Gain understanding of how to manage or reconcile differences among viewpoints.
- Learn to seek cooperation and constructive solutions to complex problems.

### Use of the Case:

This case was developed for use by extension educators, university and high school teachers, state agency personnel, policy makers, and others interested in enhancing understanding of Minnesota River pollution and its causes and in discussing strategies to overcome the problem.

### Materials Needed:

- Copies of the case and accompanying slides
- A slide projector and screen (optional)
- Blackboard, flip chart, overhead projector or other means of displaying participants' comments.
- A "U" or horseshoe-shaped seating arrangement for maximum participation among participants and the facilitator

### Dealing with Controversy:

Often in the discussion of a decision case, participants will disagree about certain issues. While this is a mark of an effective case, the facilitator should keep the discussion from becoming argumentative and unproductive. Participants should be reminded that there are many points of view and that you would like the atmosphere to be constructive and nonthreatening. If desired, techniques such as role-playing or role reversal can help participants discuss the issues in a less personal way.

Following are strategies to keep in mind to facilitate a productive, healthy discussion where controversy may be involved:

- Establish ground rules. These may include: allowing only one person at a time to speak; no one should speak twice before everyone has had a chance to speak once; no criticizing of others' comments, etc.
- Encourage participants to use "I" messages when stating their viewpoint. Avoid using "you" or blaming statements.
- Ask clarifying questions such as, "Why do you think that?" A major communication problem is misunderstanding what was said.
- Ask participants to try to imagine the situation from the other person's point of view. (Role-playing can also help with this.)
- Encourage participants to focus on what they want to have happen in the future or where they would like to go rather than where they have come from or what has happened in the past.

## **Lesson Outline:**

Discussion of this case can last from 20 to 60 minutes, depending on the degree of preparation by the participants and the desired depth of the discussion. The outline below is one example of the way a facilitator might structure the discussion. In general, a decision case discussion is a forum where students talk to each other in addition to the facilitator. The format described here is useful when advanced preparation of the participants is not possible. If desired, the facilitator can include additional information on local water quality as well as the Minnesota River to enhance discussion and create a broader understanding of those topics. Minnesota River information is available in **Exhibit C** of *The Wilder Farm* or in the Minnesota River Assessment Project report.

### ***I. Introduction***

- A. Facilitator introduces the activity and describes goals and approach to be used.
  1. Focus on a real situation
  2. Practice problem solving
  3. No single right answer—each person and situation is unique

### ***II. The Case Activity***

- A. Facilitator introduces the activity and shows the slides of the Hugel farm. (See slide attachment for narrative.)
- B. Participants read or reread the narrative of the decision case.
- C. Facilitator divides the participants into small groups of 2-4 people and asks them to discuss question #1.
- D. Participants return to large group and share key points of their discussion.
- E. Facilitator guides a group discussion on the remaining questions.

### ***III. Conclusion***

- A. Group members may select a preferred option, or facilitator may have participants write individually and describe their decision in response to the dilemma and the rationale for the response.
- B. Closing comments.

## **Discussion Questions:**

Below are examples of the kinds of questions the case facilitator can use to stimulate discussion of the issues in this case. Participants may discuss some of these questions in groups of two or three and others as a large group. The questions used can vary depending on your time limit and the issues you wish to discuss. Other questions may be added.

### ***1. What is Bill Hugel's dilemma?***

Bill has many related decisions to make. The question of whether or not to continue using a no-till planting system on his HEL is the immediate decision. This decision could affect whether he enrolls in the government's Feed Grain Program in the next year. There is also the deeper dilemma of Bill's growing dissatisfaction with government-mandated conservation programs that take options away from the local manager.

### ***2. Is Bill Hugel a conservation farmer? Why or why not?***

Bill was chosen as the "Conservation Farmer of the Year" for his county because of the many conservation methods he implemented on his farm over time. However, Bill was willing to apply "a lot" of herbicides or fertilizers to his HEL to maintain yield. Participants may discuss whether applying extra herbicides was necessary. Participants may also discuss Bill's attitudes toward soil conservation, river quality versus lake quality, and the environment.

### ***3. What are the community and peer issues Bill faces as he considers continuing no-till?***

Bill is not aware of any support group that may exist in his area to help him overcome constraints and answer questions about no-till. Because most farmers in his area are using other methods of reduced tillage rather than no-till, Bill may also face a lack of acceptance from his neighbors. Bill feels the soils in his area are not suited for no-till. However, if he were able to successfully integrate no-till into his operation, Bill might be seen as an innovator in his area. He would also capture other benefits, such as saving time in the field.

**4. What other issues do you think are important in affecting Bill's decision?**

Issues introduced in the case include:

- Bill's sense of pride as a farmer
- The uniqueness of his soils and landscape
- His distrust of a "formula" approach determining what constitutes conservation farming
- His history of enrolling in the Feed Grain Program for economic reasons
- Uncertainty about specific features next year's Feed Grain Program will have
- His desire to maintain or increase yield and profitability on his HEL
- His farm's proximity to the Minnesota River
- Bill's perception of the need for increased herbicide use on his no-till fields
- Field operation time savings when using no-till
- The classification methods used to define HEL

**5. What are Bill's options for managing his HEL?**

Below are just some of the possible options participants may discuss:

- Continue using no-till. Infiltration may improve on his soil after a few years without tillage. He can maintain the required residue coverage and save time on tillage operations.
- Consider other reduced tillage methods to attain the 30-35% residue requirement.
- Return to his previous method of chisel plowing. This option will likely prohibit Bill from enrolling in the Feed Grain Program.
- Utilize his anhydrous knife applicators in the fall to help incorporate soybean residue slightly, yet leave more surface residue than either the chisel plow or field cultivator.
- Try to attain 30-35% residue cover by means other than no-till. Bill could change to a soybean-soybean-corn or soybean-corn-small grain rotation.

**6. Are the conservation compliance regulations Bill faces "fair"? Why or why not?**

This question gives participants the opportunity to discuss difficulties defining agricultural policies for large numbers of farmers with greatly differing conditions. It can also lead to discussion about the ability of farmers to "regulate" themselves and their farms responsibly without government interaction.

Only surface vegetative residue is considered in the conservation requirements that Bill satisfies for the Feed Grain Program. His terraces and sediment basins are not considered. The nature of soils specific to his farm is not considered. Bill also feels that the measures used to determine HEL classification are not fair.

**7. To what extent do Bill's farming methods affect the Minnesota River?**

Water from the Hugel farm drains directly to the river through a ditch and a creek. Bill feels his farm has little negative impact on the river because of the conservation methods he has in place. The facilitator may choose to probe the soundness of this conclusion with the participants.

**8. What responsibility do farmers have toward water quality of the river? What role do communities play in reducing river pollution?**

The Minnesota River is polluted. This question provides an opportunity to discuss the roles of producers and community members in the improvement of river water quality.

**9. What should Bill do?**

You may or may not wish to try to reach consensus regarding a preferred decision.

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## Slide Narrative:

### *Minnesota River Decision Cases:*

## **The Hugel Farm**

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- Slide 1: View of the Minnesota River near Bill Hugel's farm.
- Slide 2: View of HEL from top of hill in August. Trees in background indicate the stream that leads to the Minnesota River.
- Slide 3: Tractor and tillage equipment Hugel used in previous years on his HEL.
- Slide 4: Side view of HEL in October. Upper right shows a terrace. Upper left shows L-shaped ditch that leads to the stream.
- Slide 5: Side view again. Another view of terraces.
- Slide 6: View from bottom of hill looking up at terraces. The ditch runs horizontally through the center of this slide. Although they are not visible, the settlement basins are located along the ditch in this area.
- Slide 7: View from the end of the L-shaped ditch in August.
- Slide 8: Same view of ditch in October.
- Slide 9: L-shaped ditch showing tile drain outlet at bottom center.
- Slide 10: Stream at point where ditch enters—August.
- Slide 11: Stream at point where ditch enters—October.
- Slide 12: Photo of Minnesota River near the Hugel farm.





## Minnesota River Decision Cases: The Wilder Farm<sup>1</sup>

### Part One - The Situation:

¶1 *“Personally, I feel there is little problem with the Minnesota River until it hits the metropolitan area. I think she comes in in pretty good shape and comes out a mess. The main problem is not coming out of the agricultural communities. I know there is talk of fertilizers and pesticides going into the river—well, economically speaking, you can’t afford to let those pesticides and fertilizers go into the river, because you can’t afford to put them on the fields, much less in the river!”*

¶2 These statements displayed the exasperation Jay Wilder felt about his situation. His daughter, Jennifer, had recently come to him with some information obtained through her local Future Farmers of America (FFA) chapter. She had been told that farmers were encouraged to adopt alternative practices to reduce agricultural pollution of the Minnesota River. One of the practices she learned about was promoted through an educational conservation program called “Operation Green Stripe” (**Exhibit A**). This project promoted the establishment of filter strips, which were supposed to reduce sediment and agricultural chemical movement into streams and rivers. If she helped her dad design and install filter strips on their farm, and wrote about it, she would help her local FFA chapter to receive educational grants. As an FFA member, Jennifer was eligible for these grants. Jay needed to decide whether to put filter strips on his farm as Jennifer had proposed.

¶3 But Jay wondered if filter strips were needed or would be effective on his sugar beet farm. He was not convinced that responsible farmers like himself were entirely to blame for the condition of the Minnesota River further downstream. His 1,100-acre farm was bisected by a branch of the Chippewa River, a tributary of the Minnesota River (**Exhibit B**). Jay and others he talked to felt the Chippewa was in good condition, at least as far as Montevideo. And besides, what difference would installing filter strips on his farm make? When he considered the vastness of the Minnesota River Basin, was it really worth the bother?

¶4 In West Central Minnesota, where Jay lived, 1995 had been a wet year. The corn, soybeans, and sugar beets were stunted or dead in low-lying areas of fields where water had formed a pond. A total of 15 inches of rain had fallen in two torrential rainstorms during the first week of July. That was almost two-thirds of the precipitation normally received in an entire year.

¶5 But Jay’s situation was better than some. Most of his tillable acreage was artificially drained by subsurface and open intake drains. The drainage water from his fields was diverted into either the Chippewa or into a ditch that ran through his property and ultimately into the river. The best news was that, despite the rains, the sugar beet crop looked good. About 70% of his gross income was realized each year from sugar beets.

<sup>1</sup> While this case represents an actual situation, all names have been changed.

Although the Wilders also raised corn and beef cattle on their farm, sugar beets were the most important to them. *"The only reason I even grow corn,"* commented Jay, *"is because I can't grow sugar beets year after year."*

¶6 Sugar beet farmers like Jay also had other considerations—such as surface residue-free fields in the winter and spring. *"When we harvest a field of beets, any ridges, any no-till is history. We tear it up to the point where there is nothing left. We physically dig a trench and remove the beets. Following the harvest, there is absolutely nothing [residue] out there whatsoever. And there is no way to prevent that."*

¶7 *"Concerning the river, we would like to go with more of a reduced tillage method for beet production. Because of the timing of the harvest (late fall), we can't get a cover crop seeded. And no matter what you do as far as reduced tillage is concerned, it costs tonnage—it costs sugar. We tried ridge-till—it does not work very well. You get the beet seedlings up and in a ten, fifteen mile an hour wind the cotyledon leaves act just like helicopter blades. You go out there the next day and they're gone, just plain gone."* Jay also knew that maintaining surface vegetative residues, as with reduced-tillage systems, would be more difficult in sugar beets because of their narrow row spacings (22 inches) and the complications that residue posed when cultivating.

¶8 Growing sugar beets also meant using pesticides. The spindly, slow-emerging beet seedlings are poor competitors with weeds in the spring and sensitive to injury by many herbicides. *"We kind of tickle the weeds to death,"* Jay noted. *"We put on 1/2 to 1/3 herbicide rates and just keep putting them on. Herbicides are applied approximately every five days during the growing season until full rates are achieved, plus the field is cultivated two or three times."* After the crop canopy closes, it becomes important to fight fungal diseases such as *Cercospora*, a potentially devastating disease for sugar beets. Since no reliable systemic fungicides (fungicides that work internally through the plant) were available, Jay had to rely on protectant-type fungicides (fungicides

that protect from infection on the surface of the plant) that needed to be applied every 14 days until 21 days prior to harvest. Genetic resistance to the disease was only partially effective at best, so fungicides were the best defense for beet producers.

### Part Two - Further Considerations:

¶9 Despite the potential for soil erosion and chemical runoff with sugar beets, Jay didn't feel that water erosion was a serious problem on his fields. He generally planted across the slopes, where they occurred, and the tile drains helped reduce potential for forming ponds and runoff. His open intake drains stood a little above the field surface. He didn't think much suspended particle matter entered these (**Exhibit C**). He did feel that there was potential for wind erosion on some of his land, but he cut ridges with his sugar beet planter to help protect the young beets and to retard soil movement by wind. Still, Jay knew there were times, such as during the winds of spring or intense rainstorms, when even the best drainage and tillage practices couldn't keep some soil from blowing or washing away.

¶10 Throughout the history of Jay's farm, the Chippewa flooded regularly. Usually it was in the spring, but sometimes it happened at other heavy-rainfall times of the year. Although the river was bordered on the south by permanent pasture and by a high bank on the north, it sometimes came up into his crop fields. Jay knew that floodwater could eat away at the topsoil in those fields, but he felt there wasn't much he could do about it. The river had been flooding before farmers settled the land and it would be flooding long after he was gone—it was part of the natural cycle of things.

¶11 The Department of Natural Resources (DNR) and the Fish and Wildlife Service had considered putting dams along the Chippewa to create wetlands for wildlife and waterfowl and to moderate flooding downstream, but Jay didn't care much for the proposal. *"They have a map drawn where they are going to put a dam 500 feet east of the bridge here (near the Wilder's home). That would go across our property."*

*There would be another dam two miles farther east, and another dam three miles west of here on some DNR land. We absolutely do not want to see the dams go in. We would lose all of our pasture (along the river), and we would lose all of our drainage (outlets). It would not be a lake—it would just be a slough. It would be a nesting ground for some wildlife, but would contain too much water for duck habitat. Fish would not survive in it. It would devalue our property something fierce.”*

¶12 In considering other approaches to river enhancement, Jay knew he had 15 acres of alfalfa that needed replanting. He felt he could put them in as three or four smaller fields to act more or less as filter strips in accordance with his daughter’s proposal. They would be planted along the edges of fields that came right up to the river. *“At first the filter strip idea seemed kind of Mickey Mouse, but after thinking about it, I realized it might work for us in some places,”* said Jay. Although he didn’t believe the strips would protect his cropland from flood erosion, Jay did think the alfalfa might help against the seasonal runoff that came with snow melt and heavy rains.

¶13 However, he was reluctant to sacrifice any hope of gain from the land. *“The bottom line is I’ve got to be able to use it. Perennial grasses might give me one cutting at about a quarter ton per acre. That is not good enough. I need alfalfa for my [cattle].”* Jay was considering an alfalfa/brome mixture, with a tentative option to let some of it go to grass as a permanent buffer if productivity could be maintained. *“We’re looking at a couple of strips along the ditch and another along the far river bank, where the cropland comes right to the edge. We would want to make them 60 or 80 feet wide to make them worthwhile to hay, and they would also provide end rows for our cropland for turning our equipment.”*

¶14 Fall was coming and Jay was eager to begin harvesting beets. He knew there would be the usual labor shortages to contend with during

harvest, and he had a nagging concern about *Cercospora*. If it got out of hand, it could cut into the quality of his crop in the last few weeks before harvest. He also knew that he needed to make a decision soon whether to go forward with Jennifer’s filter strip project. *“If we’re going to move on that, this may be the best time,”* Jay commented. *“Our alfalfa is about ready to come out anyway and if my daughter can get credit for the project, all the better.”*

**Exhibits:**

- A. Details of Operation Green Stripe (filter strips)
- B. Background on the farm
- C. Water and River Quality

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## DETAILS OF OPERATION GREEN STRIPE

### What's expected of farmers:

Farmers who enroll in "Operation Green Stripe" will agree to establish a streamside buffer stripe and maintain it as such for at least three years. Grazing and herbicide use will not be permitted on the green stripe. Pre-existing green stripes are not eligible for consideration in this program. Here are some definitions:

**GREEN STRIPE:** A green stripe is a grassy buffer between a field and a stream bank (other water sources may be eligible; see Other Water Sources). Grassy waterways (grass lined drainage ditches in the interior of fields) do not qualify as green stripes. If an existing buffer stripe is 16ft. or more, the field will not qualify for a new green stripe.

**WIDTH:** The green stripe must be at least 16 1/2 feet wide (1 rod). Farmers with steeper slopes may want to work with FFA to tailor a program. The ASCS set-aside program requires buffer stripes to be 33 feet wide, and farmers who want to put streamside land into set-aside are advised to contact ASCS for confirmation of requirements. Green stripes must be planted on soil formerly used for crops; stream banks do not count toward the width requirement.

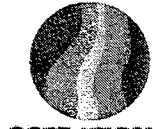
**LENGTH:** The green stripe must run the full length of the field or fields selected by the farmer. The selected field must have a stream border of at least 150 yards. If the field's stream border is longer than 150 yards, the entire length must be planted in a green stripe. A farmer who owns both sides of a stream will not be required to buffer both sides but may want to do so. **Buffering both sides will qualify as two enrollments for the chapter.**

**STREAM:** A stream is defined as having flowing water year round. (Includes ice cover in winter.)

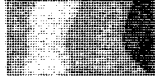
**OTHER WATER SOURCES:** Farm fields may qualify for green stripes if they border recreational lakes (1 square mile or more) or lakes used for human drinking water supplies. Farm ponds do not qualify. The width and length requirements are the same as stated above.

**SINKHOLES:** Farm fields pocked with sinkholes may also qualify if the sinkholes are a threat to groundwater. The green stripe around a sinkhole must begin at the crater edge and move into the field, forming a 16 1/2-foot-wide ring around the sinkhole. Grass from the hole opening to the edge of the crater does not qualify.

**VEGETATION:** At a minimum, the farmer must use seed provided by the cooperating ag retailer or a perennial conservation mixture. Farmers are encouraged to work with FFA to develop more advanced plans for enhancing wildlife habitat.



OPERATION  
GREEN  
STRIPES



## What's expected of FFA chapters?

FFA chapters selected to participate in Operation Green Stripe are expected to adhere to all minimum requirements. In addition, chapters are encouraged to work with farmers and other agriculture and conservation professionals to develop innovative programs that go beyond the basic requirements. This extra effort will qualify some chapter as best in the state and maybe even best in the nation.

### BASIC REQUIREMENTS:

- Fill out an on-site survey form for each potential site before qualifying any site. This will ensure that all sites meet program definitions.
- Ensure that planted green stripes adhere to width, length and vegetation rules.
- Follow this procedure to receive payment: If the on-site survey shows the site is eligible, have the farmer sign a Green Stripe Agreement. When the stripe is mature, take a photo of it (include farmer in picture if possible). Attach the photo to the agreement and on-site survey, include a Chapter Summary Form and mail all to:

Operation Green Stripe  
5610 Waterbury Circle  
Des Moines, Iowa 50312

- Submit to local media any press releases provided by Operation Green Stripe.

### BEYOND BASIC — IDEAS FOR “BEST CHAPTER” PROGRAMS:

When you submit your documents for payment, you may also submit an entry explaining why you should be named “Best Chapter.” The state’s best chapter will receive an additional \$200 and a chance to win a trip to National FFA Convention as Best Chapter in the nation.

Chapters are limited only by their creativity. Work with farmers and other



**OPERATION  
GREEN  
STRIPES**



professionals to get the most out of Operation Green Stripe. Here are some ideas that might impress judges:

- Plant more stripes than are eligible for funding.
- Custom design your green stripes to suit each farm; make special efforts to solve unique problems (haul in rock to fill ruts, make the stripe wider in vulnerable areas, etc.)
- Take good pictures (before and after).
- Make your green stripes “nature areas.”
- Maximize public relations (develop local news stories, host a field day, invite government officials, etc.)
- Do research papers on soil erosion and water quality.
- Document what you did so judges can understand why your program was special.
- Involve other non-ag classes (Biology, science, etc.) in your project.

#### **What’s expected of sponsors?**

- Cooperating ag retailers will donate at least one acre of free grass seed for each farmer who agrees to establish a green stripe (up to five farmers).
- Monsanto will give grants to participating chapters equal to \$100 for each green stripe established (up to \$500).
- Monsanto will give an additional \$200 to the best chapter in each state and will contribute \$3,000 towards sending the best chapter in the nation to the National FFA Convention to receive its award.

This exhibit reprinted with permission from Monsanto.

## Exhibit B:

# *Background on the Farm*

## *Minnesota River Decision Cases:*

### **The Wilder Farm**

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In the 1890s, Hickory Wilder bought a section of land from the railroad and established a farmstead on the north side of a branch of the Chippewa River. Twenty years later he hired a carpenter to build a new house on the south side of the river, where Jay Wilder would later reside. Hickory's son Leif, while helping in the construction of the new house, fell in love with the carpenter's daughter, Cora. Later, the two were married and moved into the new house.

Leif and Cora grew flax, corn, and oats in the beginning years. Leif also raised and sold hogs, cattle, sheep, and draft horses. The low-lying land on both sides of the river was maintained as pasture. It flooded seasonally and was considered unsuitable for cropping.

In their later years, Leif and Cora raised corn and soybeans. Meanwhile their grandson, Jay, attended college, where he studied animal science and agricultural economics. Upon earning his degree in 1976, Jay bought the farm from his grandfather. The next year he married Laura.

In 1976, drought brought hard times to the corn/soybean farmers of Jay's region. The section of river running diagonally through 300 acres of the Wilder farm became dry enough to "get in a pickup and drive the river bed to [town]." But to Jay Wilder, this was also a time of optimism and new possibility. The Southern Minnesota Beet Sugar Cooperative had opened for business in 1975. Jay saw the possibilities and began acquiring shares. "The potential was there economically speaking, and the challenge attracted me," Jay said. Today sugar beet farmers in Jay's region are some of the most prosperous in the state. The Wilders also raise 40 head of beef cattle on their farm.

Currently, Jay rotates a year of beets with two years of corn to break pest cycles on his 1,100 cultivated acres. This provides the 350 acres of sugar beets per year that Jay is permitted to produce for the Cooperative. His cultural practices for the beets and corn are geared to maximize beet yields, and the corn, like

the beets, is planted into clean cultivated fields. Jay harvests about 18 tons of beets per acre with a sugar concentration of 16 to 17%. Both tonnage and sugar content factor into his beet revenue. Average profit above all costs for sugar beets during the period 1990 to 1994 in West Central Minnesota was \$243 per acre. This compares with a \$19.00 per-acre profit for corn. (Source: 1994 Farm Business Management Annual Report, Hutchinson-Willmar Technical College.)

The Wilder farm is drained with tilelines, combining subsurface and surface intakes. The tiles run under the soil surface, draining water away from the fields into the river and into a ditch that flows into the river. The cropland is mostly flat with mild hills and depressions. One field is cultivated to the edge of a low bluff on the north side of the river. In other places, the cropland is periodically flooded.

In the fall, next year's sugar beet fields are moldboard plowed. In the spring, this is tilled to prepare what Jay considers an ideal seedbed for beets, firm and free of surface residue. Plants are planted to stand 5 inches apart in 22-inch rows to ensure maximum sugar production. The beets are not rotated with crops such as soybeans because of herbicide carry-over concerns. Jay applies frequent but low rates of herbicides and applies protectant fungicides to the legal limit. He uses nitrogen sparingly to keep sugar content in the beets high.

Following is Jay's description of the sugar beet harvesting procedure: "First we run a defoliator over them and take all the tops off. At that point you have a black field full of beets. Then you have a sugar beet harvester that will pull the beets out of the ground, clean the dirt off them, and elevate them into a truck." The harvest takes about 10 working days spread out over September and October. After the harvest, Jay chisel plows and lets the field sit until the following spring.



## Exhibit C:

# *Water and River Quality*

## *Minnesota River Decision Cases:*

### **The Wilder Farm**

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#### **The Minnesota River:**

The Minnesota River is one of the state's most polluted waterways. In 1992 Governor Arne Carlson set a fishable, swimmable Minnesota River as a public policy goal. After extensive research, the Minnesota Pollution Control Agency (MPCA) decided that reducing suspended solids in the river by 40% was a necessary step toward achieving those ends.

The more than 350 miles of the Minnesota River drains over 17,000 square miles of watershed before emptying into the Mississippi River. Ninety-two percent of land use in the watershed is related to agricultural activity.

Water quality problems of the Minnesota River are particularly associated with sediment transport. It is interesting to note that the river may have naturally carried appreciable amounts of sediment prior to settlement. For example, early explorers occasionally described the river as looking as if "whitish clay had been dissolved in it" or that it was "a little whitish, without transparency in the water." The Native American word from which "Minnesota" is derived means "water the color of a cloudy sky." However, it is generally concluded that the river was cleaner prior to settlement and supported a more diverse biotic community.

The MPCA has concluded that the degraded conditions in the lower river stem from nonpoint source pollutants entering from upstream areas. Nonpoint source pollution comes from broad land areas rather than specific sources, such as factories or chemical tanks. Streams in the upper basin often lack permanently vegetated stream-side buffer zones. The U. S. Geological Survey estimates that the river at Mankato carries a sediment equal to a 10-ton dump truck load every five and one-half minutes.

Excess sediment damages the river by filling reservoirs and increasing water treatment costs. It affects the ecology of the river in a number of ways. The sediment itself blocks or absorbs light. This kills the plants that grow on the bottom of the river and raises the temperature of the water. Both of these effects can damage other aquatic life. When the sediment settles, it coats the river bottom and fills cracks and crevices. This eliminates habitat for many bottom-dwelling organisms and interferes with the spawning of fish. This condition is found throughout the Minnesota River and its tributaries.

Inorganic sediment from agricultural fields is usually associated with other materials, such as organic matter, phosphorus compounds, and nitrogen compounds, as well as some toxins. Much of this material has the effect of reducing oxygen levels near the bottom of the river, where fish and invertebrates live. Phosphorus and nitrogen, for example, are nutrients that allow free-floating algae to multiply profusely. When these algae die, bacteria and other decomposers draw heavily on the oxygen reserves of the river, effectively suffocating bottom-dwelling organisms. Excessive soil organic matter entering the river can also tie up oxygen. Oxygen levels, pollutants, and the various life forms in the river can all be studied to give researchers an idea of how severely a river or stream is impacted.

#### **The Chippewa River:**

The Chippewa River drains one of ten major watersheds that comprise the Minnesota River Basin. The environment of the Chippewa River has been altered significantly by government and private drainage projects over the past 40 years. Many areas were drained using open intake tiles so crops could be grown on the land.

Controversy surrounds the use of surface intake drainage as it relates to water quality in the river. Surface intakes are drains at or slightly above the surface of the field. They are placed in low areas where water ponds. In presettlement times, runoff water entering these depressions almost never made it to the river. Today, ponded waters, which are sometimes laden with suspended solids, can flow directly from agricultural fields into ditches and ultimately into the river through open intake drains. Increased flow in waterways during times of snow melt and heavy rainfall can also lead to stream bed and bank erosion.

The water quality of the Chippewa River has only been tested near where it joins the Minnesota River at Montevideo. Pollution levels there were high, based on low numbers and absence of certain invertebrates. Habitat quality of the Chippewa was well below average for the major Minnesota River tributaries. It should be noted that a flood control project of the Army Corps of Engineers sometimes routes water from the Minnesota River into the Chippewa upstream from Montevideo. Also, the city of

Montevideo itself can contribute to pollution of the Chippewa.

A Natural Resource Conservation Service (NRCS) land use study partially answered the question of whether agricultural land use has a significant impact on the Minnesota River System. They studied ten minor watersheds in the Blue Earth, Le Sueur, and Watonwan watersheds. As is typical in the Minnesota River Basin at large, erosion levels in these watersheds were below five tons per acre per year, which is considered the tolerable level based on soil formation rates. Still, 38,000 tons of soil washed out of these watersheds into the river system yearly. This shows that even a small amount of pollution per acre multiplied by the millions of acres within the Minnesota River Basin can adversely affect water quality. This study also showed that significant reductions in sediment and nutrients could be achieved using existing technology for residue and tillage management. Models predicted that if one-sixth of the land was managed to retain 30 to 40% residue on the soil surface after planting, a 25% reduction in deliverable sediment could be achieved.

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Information for this exhibit obtained from *Minnesota River Assessment Project Report: Report to the Legislative Commission on Minnesota Resources. Volumes I, III, IV & the Executive Report.* Published by the Minnesota Pollution Control Agency. 1994.

## Slide Narrative:

### *Minnesota River Decision Cases:* **The Wilder Farm**

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- Slide 1: This slide shows a view of the branch of the Chippewa River that runs through the Wilder farm. The foreground is cattle pasture. The background shows one of Wilder's fields, currently in corn, that runs up to a steep bank. This is one of the areas where Wilder is considering installing filter strips.
- Slide 2: Another shot of the river bank, closer up.
- Slide 3: One of the ditches that drains from Wilder's fields into the Chippewa. As is the case here, this ditch does not always contain water.
- Slide 4: A typical sugar beet field in Western Minnesota.

# Teaching Note:

## *Minnesota River Decision Cases:* **The Wilder Farm**

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### **Overview:**

Most Minnesotans are aware that the Minnesota River is polluted. Fewer are familiar with the nature of that pollution: where it comes from, how it affects the animals and plants in the river, and how it affects people in the state. This case provides a basis for an informed discussion among people who are involved at all levels with the Minnesota River and the issues surrounding river quality and how it can be improved.

This case explains the dilemma of Jay Wilder, a sugar beet farmer on a tributary of the Minnesota River. Should Jay install vegetated filter strips between his cropland and the river? This question is important in the arena of water quality improvement. It also provides a bridge for discussing other issues of importance to improving river quality. These include the effectiveness and practicality of approaches to soil conservation, the equity of the economic costs of carrying out conservation measures, and the relationship of agro-ecosystem features for river quality.

### **Case Objectives:**

Through deliberation of this case, participants will:

- Gain awareness of the degraded quality of the Minnesota River and the impact that agriculture and specific agricultural systems have on the river.
- Gain an understanding of the strengths and limitations of practices advocated to enhance river quality.

- Gain an understanding of the options available to farmers with regard to enhancing water quality.
- Gain understanding of how to understand or reconcile differences among viewpoints.
- Learn to seek cooperation and constructive solutions to complex problems.

### **Use of the Case:**

This case was developed for use by extension educators, university and high school teachers, state agency personnel, policy makers, and others interested in enhancing understanding of Minnesota River pollution and its causes and in discussing strategies to overcome the problem.

### **Materials Needed:**

- Copies of the written portion of the case, exhibits, and accompanying slides
- A slide projector and screen
- Blackboard, flip chart, overhead projector or other means of displaying participants' comments
- A "U" or horseshoe-shaped seating arrangement is suggested for maximum participation among participants and the facilitator

### **Dealing with Controversy:**

Often in the discussion of a decision case, participants will disagree about certain issues. While this is a mark of an effective case, the facilitator should keep the discussion from becoming argumentative and unproductive. Participants should be reminded that there are many points of

view and that you would like the atmosphere to be constructive and nonthreatening. If desired, techniques such as role-playing or role reversal can help participants discuss the issues in a less personal way.

Following are strategies to keep in mind to facilitate a productive, healthy discussion where controversy may be involved:

- Establish ground rules. These may include: allowing only one person at a time to speak; no one should speak twice before everyone has had a chance to speak once; no criticizing of others' comments, etc.
- Encourage participants to use "I" messages when stating their viewpoint. Avoid using "you" or blaming statements.
- Ask clarifying questions such as, "Why do you think that?" A major communication problem is misunderstanding what was said.
- Ask participants to try to imagine the situation from the other person's point of view. (Role-playing can also help with this.)
- Encourage participants to focus on what they want to have happen in the future or where they would like to go rather than where they have come from or what has happened in the past.

### **Notes to the Facilitator:**

Debate between producers and environmental advocates in the Minnesota River basin has frequently been divisive. Antagonism between different interest groups makes it difficult for people to work jointly toward shared objectives such as soil conservation and clean, safe water. Exercises like this case can foster cooperation and mutual understanding between traditionally antagonistic groups. Here, discussion of practices that would reduce environmental impact should be tempered with economic realities. Comments that place all farmers in a group should be challenged. The discussion should focus on the specific qualities of the decision maker portrayed in the case. All of us depend on farmers like Jay Wilder for our food. If there are cookies or donuts at the meeting, you might point out that about 40% of the sugar consumed in this country is refined from sugar beets.

### **Lesson Outline:**

Discussion of this case can last from 30 to 90 minutes, depending on the degree of preparation by the participants and the desired depth of the discussion. The outline below is one example of the way a facilitator could structure the discussion. In general, a decision case discussion is a forum where students talk to each other in addition to the facilitator.

#### ***I. Introduction***

- A. Facilitator introduces the decision case and describes goals and approaches to be used.
  1. Focus on a real situation.
  2. Practice problem solving.
  3. No single right answer—each person and situation is unique.

#### ***II. The Case Activity***

- A. Facilitator introduces the activity and shows slides of the Wilder farm. (See slide attachment for narrative.)
- B. Participants read or reread Part I of the decision case narrative and study exhibits.
- C. Facilitator divides the participants into small groups of 2-4 people and asks them to discuss question #1.
- D. Participants return to large group and share key points of their discussion.
- E. Facilitator poses question #2 for participants to discuss as a whole group.
- F. Facilitator poses question #3 for participants to discuss as a whole group and any additional issues raised in the small groups.
- G. Participants read Part II of the decision case and study exhibit.
- H. Repeat step C and ask them to discuss question #4.
- I. Facilitator divides large group into small groups and poses one or more additional questions using question #5 or #6. Participants share ideas of small group with whole group.

#### ***III. Conclusion***

- A. Facilitator poses question:  
***What should Jay Wilder do?***

Participants volunteer answers specific to the filter strip dilemma and discuss as a whole group.

- B. Group members may select a preferred option or facilitator may have participants write individually and describe their decision in response to the dilemma and the rationale for the purpose.
- C. Closing comments.

### **Notes on Selected Questions:**

#### **1. *What is Jay Wilder's dilemma?***

The obvious question is whether Jay Wilder should install approximately 15 acres of vegetated filter strips between some of his fields and the river. However, participants may see other related dilemmas and issues such as defining who is responsible for the problem and its solution, the agro-ecological nature of the corn-sugar beet cropping system and its inherent effect on river quality, and the single-focus profit incentive.

#### **2. *Why is Jay considering filter strips? What are the factors that might cause Jay to discount the practice?***

Jay is interested in helping his daughter get credit for her FFA chapter. This could mean scholarship dollars for Jennifer in the future. In addition, Jay is interested in developing a positive image as an environmentally concerned farmer. Also, Jay has legitimate concerns about runoff from his clean-tilled fields. Filter strips could slow surface runoff.

There are several reasons for Jay's hesitation to install the filter strips. The alfalfa strips he favors may not be as effective as grass strips in preventing pollutants from entering the river. They also may not comply with the restrictions of the FFA Green Stripe Program. Runoff from the open-intake drains will bypass the filter strips. The 15 acres of filter strips will be more spread out and therefore more complicated to plant and harvest.

#### **3. *What features of the Wilder's sugar beet-corn cropping system have the potential to contribute to lowered quality of the Minnesota River and its tributaries?***

Because he must have weed-free fields, Wilder must use chemical herbicides. He applies these frequently, but at low rates. His operation's biggest potential threat to the river is not from chemicals, but from soil. Bare fields are more susceptible to wind or water erosion than fields with plant or residue cover. As mentioned in **Exhibit C**, excess sediment can damage the river in many ways and is the primary concern of the Minnesota Pollution Control Agency's (MPCA) river initiative.

#### **4. *What are Jay Wilder's other options for enhancing quality of the Chippewa and Minnesota Rivers?***

Jay's options include the installation of various combinations of filter strips such as alfalfa/hay or mixed grass. Vegetated filters can remove significant amounts of sediment and nutrients from runoff water. The MPCA notes that vegetated filter strips can play a strong supporting role in reducing soil loss.

Another option is to discard the idea of installing the filter strips. The benefits to Jay's operation are not clear, especially since his fields include open intake drains and tiles that would bypass the filter strip system. Also, the filtering effects of Jay's preferred choice of tap-rooted alfalfa are not as effective as the fibrous root system of a mixed grass strip.

Some additional options to reduce soil loss and improve water quality that Wilder could consider include:

- ***Adopt conservation tillage, such as ridge till planting***, which is practiced by some beet producers. Crop residue in planted fields would protect the soil from wind and water erosion. The surface residue helps protect seedlings from wind damage. This form of ridge till does not place beet plants on the tops of ridges. However, after the harvest, bare beet fields are still susceptible to wind erosion.
- ***Install wind breaks***. These are highly effective but expensive. Also, they remove land from production and can complicate field operations.

- **Replace open intake drains** with patterned subsurface tiles. This is also an expensive alternative. It is not practical to treat water that flows from tile outlets with vegetated filters due to the concentrated nature of its flow. Some scientists believe that open intake tiles contribute much sediment to the river.
  - **Plant vegetative cover around the surface intakes** to help reduce sediment loss through these drains. This would require that more land be taken out of production, and machinery operation and tillage could also become more complicated. This could be the option that would most reduce sediment movement from Jay's fields into the river.
  - **Install sediment basins at the tile outlet** to help reduce sediment loss through these drains. Again, Wilder would need to consider the costs and acreage used in this alternative.
  - **Practice conservation tillage and residue management**, the number one recommendation by the MPCA to prevent water erosion. However, high surface residue can delay soil warming in the spring, ultimately reducing beet yields. Following the beet harvest, surface residues are inevitably low but can be maximized with a field cultivator.
- 5. What governmental measures might be implemented that would make it easier for the Wilders to adopt conservation measures such as filter strips?**

Certain practices are known to reduce wind and water erosion. Wind erosion accounts for more than twice as much soil loss as water erosion. Crops that have low residue such as beets, dry beans, and potatoes are more susceptible to wind erosion than crops that leave more residue.

Conservation practices including the installation of wind breaks and filter strips, reduced tillage, and other methods that reduce the

amount of sediment moving into the river could be legislated by the government. This approach would not likely be supported by farmers. As an alternative, economic incentives would encourage the installation and maintenance of practices such as filter strips and conservation tillage. Participants may discuss whether the sugar beet industry should provide such incentives rather than the government.

**6. What additional information would be helpful to Jay Wilder in making his decision?**

Jay needs more information on filter strips and how effective they would be on his farm.

In addition, Jay needs information about the effectiveness of implementing conservation methods on his farm besides filter strips that might benefit river quality. The participants might also discuss Jay's attitudes toward the DNR proposal of installing dams along the Chippewa to enhance wildlife habitat and its potential effects on river quality.

Also, Jay did not believe his drainage systems, open intake or subsurface, contributed much sediment to the river. No monitoring had been done on the Chippewa River above Benson to suggest otherwise. Jay believed that urban areas were largely responsible for pollution of the Minnesota. The Minnesota River Assessment Project (MRAP) report suggests otherwise. However, the discussion leader might remind participants of the evidence for sediment in the Minnesota River even in its pristine, pre-agriculture state. Participants may discuss how information regarding environmental issues might be distributed without exacerbating the rift between farmers and clean river activists.

Find more Minnesota Extension Service educational information at <http://www.mes.umn.edu/> on the World Wide Web.

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