

# Farm Management Update



Ohio State University Extension  
Department of Agricultural, Environmental, and Development Economics

Quarterly Publication of Ohio State University Extension

Spring 2002

## Effects of Farming Practices and Land Use on Community Water Treatment Costs

Agriculture is a source of surface water pollution in intensely farmed watersheds. Besides having ecological impacts, some farming practices may have direct economic effects on downstream communities. Our recent research investigated the impact of farming practices and land use on drinking water treatment costs for a sample of communities in the Maumee River basin in northwestern Ohio. Data from each treatment plant were collected for the 1995 to 1999 period. Also, data were collected concerning farming

practices and land use in the watershed upstream from each community. Some highlights of our analyses of these data are reported here.

Land use in the basin is primarily agricultural; 88% of the 4.2 million acre basin is used for this purpose, but land use is changing near some communities due to commercial and residential development. Many communities use water from nearby rivers and are required to treat their water.

Eleven water treatment plants in

the basin were selected for this analysis. The average population served by each plant is about 20,000, but ranges from 850 in McClure to 74,000 in Lima. Our survey of plant managers suggests that chemical costs are a large portion of the variable costs and most affected by water quality. Chemicals such as alum, chlorine, activated carbon, and polymers are



By D. Lynn Forster

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## New Calf and Cattle Marketing Opportunities for Ohio Beef Producers



By Brian Roe

Ohio has lots of corn, easy access to many consumers and a strong tradition of quality production in the cow-calf and feedlot sectors. However, marketing options

for Ohio beef producers are limited by the long trucking distance to most major packing plants. How can beef producers make the most of marketing options or even create a

few of their own? Two initiatives are currently in progress in Ohio that broaden the possibilities and can potentially increase beef producers' profits.

The first is the Great Lakes Family Farm (GLFF) producers cooperative. The efforts of this cooperative focus on producing quality beef that earns above average prices by meeting the unique needs of Ohio consumers. Initial efforts of this group focused on carefully marketing cattle to

outlets that best suited the animals' inherent quality traits. These efforts have paid off. During the summer and fall of 2001, 300 cattle were evaluated for carcass quality using ultrasound technology allowing producers to better sort animals by quality and choose among marketing outlets that valued these quality traits. These additional sorting and targeting efforts earned producers an extra \$30 per animal. Future efforts

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used to clarify and balance the pH of the water. It is during this stage of water treatment that turbidity and agricultural chemicals are removed from the water. The annual total variable costs for each community average about \$50 per capita. Chemical costs are about one-eighth of these variable costs. Several factors, most importantly land use in upstream watersheds and community size, cause these costs to vary from one community to another.

- Water turbidity and treatment costs are affected by tillage practices in the watersheds upstream from communities. For example, a 10% decrease in the amount of conventional tillage (0 to 15% crop residue on the soil surface) is estimated to lessen water turbidity by 13% and to reduce chemical costs by \$6,750 annually at the average treatment plant.

- Communities' water treatment costs are affected by pesticide use in upstream watersheds. A 10% reduction in pesticide application

rates decreases water treatment costs by about \$4,500 at the average treatment plant.

- Land not in farms, which is mostly developed land, has more of an impact on turbidity and water treatment costs than does farmland. A 10% increase in non-farmland in a watershed causes an estimated 20% increase in turbidity, and increases water treatment costs by \$10,000 at the average plant. The increase is most likely caused by the channeling of urban runoff to storm sewer overflows and into streams and by accelerating flow from road and highway drainage systems into streams.

- Residents of smaller communities pay more for water treatment. As treatment plant volume and storage capacity increase, economies of scale occur and average variable costs per million gallons decrease. For example, annual average total variable costs are about \$100 per capita in Swanton (population served, 4000), about \$40 per capita in

Findlay (population served, 40,000), and about \$24 per capita in Lima (population served, 74,000). We estimate that 1% increase in volume treated causes a 0.41% decrease in average variable costs other than chemical costs, holding all other variables constant. Also, a 1% increase in volume treated causes a 0.17% decrease in average chemical costs.

- The larger a community's upstream watershed, the more likely there is to be additional turbidity and higher water treatment costs. A 1% increase in the area of the watershed causes an estimated 0.35% increase in the average turbidity.

- Water storage prior to treatment helps reduce turbidity. A 1% increase in the storage capacity would cause an estimated 0.04% decrease in the turbidity of the water. Storage of the water prior to intake allows many of the suspended particles to settle resulting in clearer water.

Our evidence indicates that farming practices directly affect community water treatment costs. The economic magnitude of these costs is modest. For example, if farmers were to reduce their use of conventional tillage by 10%, annual water treatment costs in downstream communities would decrease by about \$0.35 per person served. A 10% reduction in pesticide use would decrease water treatment costs by \$0.25 per person served. In addition, farming may contribute less to water treatment costs than do other land uses such as commercial and residential development. ■

## **"Computerized Farm Record Keeping with Quicken 2002" Publication Available**

If you are a farm record keeper who has been thinking about using Quicken for your farm records, the new publication "Computerized Farm Record Keeping with Quicken 2002" will help you get started. OSU Extension Bulletin 897-AE shows you how to set up the program, how to create accounts and categories to use for farm records, how to make data entries and how to retrieve the information in various reports. This self-study manual can also benefit record keepers who are upgrading to Quicken 2002. Whatever your experience level, this manual can help you do a better job of keeping farm records and help make the job more enjoyable. "Computerized Farm Record Keeping with Quicken 2002" is available at your local OSU Extension office.

will focus on both increasing the flow of information concerning individual animal feedlot and carcass performance back to the cow-calf operator and on identifying Ohio consumers' demands for beef characteristics. This information can then be used to target sales to local consumers who are willing to pay more for these characteristics. For more information concerning the efforts and opportunities available through GLFF contact Dan Frobose at (419) 354-6916.

The second opportunity is through the Five State Beef Initiative (FSBI, [www.5statebeef.org](http://www.5statebeef.org)). The FSBI is a partnership between beef cattle associations, land grant universities, state departments of agriculture, Farm Bureaus and United Producers Incorporated in Illinois, Indiana, Kentucky, Michigan and Ohio. Their goal is to help small to medium-sized beef produc-

ers in the Eastern Corn Belt capture more value from their cattle by meeting consumer expectations through a responsive production, marketing and information sharing system. Five thousand animals entered the

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call Dan Frobose at  
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**For more information on FSBI  
in Ohio call (614) 873-6736.**

FSBI system in 2000 and were harvested in 2001. These animals served as a test to determine hurdles and roadblocks for the vertically coordinated system. In the fall of 2001, FSBI signed a six-month trial agreement with eMerge Interactive to serve as an

online database warehouse. Records are currently being entered into that database to evaluate the system and to evaluate how easily producers can access their lifetime animal information using the Internet. The data system has the benefit of allowing producers to benchmark their data against average data from other producers in the system. It also allows beef marketers to validate that a particular producer took additional steps with respect to animal health, animal handling/well-being practices, environmental stewardship or animal genetics, which allows the animal or resulting beef cuts to enter certain value-added marketing channels and gain additional profits. Producer training/certification programs for the FSBI will be offered locally beginning in early 2002 across all five states. For more information concerning FSBI opportunities in Ohio call (614) 873-6736. ■

## Wu Joins AED Department



Steven Y. Wu

Steven Y. Wu joined the Department of Agricultural, Environmental, and Development Economics on Oct. 1, 2001, as assistant professor after completing his Ph.D. in Agricultural and Resource Economics at the University of California, Berkeley.

Professor Wu's primary focus will be on the economics of contracts and policy analysis. Specifically, he will examine how government policies and regulations will affect contractual relationships between farmers and integrators. He will also conduct analysis of alternative policy options that may facilitate trading relationships between farmers and buyers.

In addition, he will study how contract design might affect pay and performance in trading relationships, and how alternative forms of industrial organization (e.g., vertical integration, production contracting, or spot markets) might affect the welfare of farmers and integrators.

## *"Grain Marketing Outlook"* *continued from page 4*

In sum, the outlook for corn prices is not favorable. Although domestic demand has been robust, the weak export markets have kept price movements contained. However, the current stocks to use ratio is low enough that weather worries will be very significant going forward, both for the remainder of the South American crop and the early stages of the U.S. crop. And while nearby prices are the primary beneficiaries of the Argentinian situation, the real attention should be toward new crop futures prices, which fell from \$2.48 to \$2.32 in December. For the time being, the biggest factor in corn prices is likely to be the strength in nearby soybean prices. ■

# Grain Marketing Outlook



By Matthew Roberts

The newest USDA reports and continued South American weather worries have provided rationale for the continued rally in soybean prices. While the USDA reports are clearly positive for soybean prices and exports have continued at a record pace, many market watchers remain suspicious of the emphasis on the continued dryness in southern Brazil. Nearby prices should remain strong for the coming months, and continued exports should provide support to local basis prices, at least until the South American harvest.

January's USDA reports provided positive news to the soybean market. Harvested acres and yields were both revised, the net effect is a 30 million bushel decrease in last year's harvest. Exports, though weaker recently, are still at record levels. The large transactions in December prompted a 10 million bushel increase in projected exports for this year. These two factors combine to reduce the domestic stocks to use ratios to 10% from 11.6% in December.

In November and December, soybean prices remained under pressure from the threat of a record South American harvest. These worries offset much of the effects of the record export pace. Reports of continued dryness in the Rio

Grande de Sul (RGS) have begun to mitigate these concerns. Recent reports by the RGS state agricultural agency are signaling that drought related losses may occur in the state, but their current harvest estimates are 5.85-7.56 million bushels vs. 7.1 million bushels last year. Also note that these reports do nothing to endanger the projections of a record Brazilian harvest this spring—the January USDA report revised the estimates of the Brazilian crop upwards by 1 million tonnes from the December report, for a 10% increase over last year.

Argentina's default on its foreign debt has also provided support to the soybean market. The continuing uncertainty about the future among Argentine citizens has sharply reduced trade, both domestic and international, as local currency is shunned for the safety of physical stores of value. There is little reason to believe that these conditions will be long-lived. Argentina needs foreign currency desperately and agricultural exports are that country's most reliable export good. Further, any support offered by the withdrawal of Argentinian supplies will end with the new South American harvest.

Although the news for soybean prices has been more encouraging since New Year's

Day, the overall outlook is still questionable. The best evidence for this viewpoint is that the U.S. soybean carryout is projected to be 10%, which is somewhat below average. The U.S. carryout has been revised downwards by 3% since the November reports. American soybean exports have enjoyed a record year. Argentina, a major exporter, has temporarily left the market. But prices are still in the \$4.35-\$4.55 range and new crop futures are only a dime higher.

As with soybeans, the USDA report revised harvested acres and yields, decreasing the estimated harvest from 9.546 billion bushels to 9.507 billion bushels. While the new reports also reflect the weak exports thus far, increases in feed, ethanol and HFCS demand combine to leave the total domestic use only slightly lower. The projected carryout is now 30 million bushels lower than in December.

As in soybeans, corn prices have also been helped by the dry weather in RGS. Although RGS is relatively less important in the global corn market than in soybeans, the dry weather has already begun to affect the corn crop. The Argentine economic crisis has also been supportive of nearby corn prices, as exporters hold stocks as long as possible to avoid owning local currency. Further, the January USDA report also revises the Argentine crop down by one million tonnes.

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