



BANK OR DRAIN

Pollution Prevention Pays in Food Processing

Survey Shows That Poultry Processors Can Save Money by Conserving Water



Many poultry processors can save an average of 5 cents per broiler—just by practicing water conservation!

To find out how much water poultry processors are using, individuals from chicken processing plants were interviewed. If you're responsible for managing a poultry plant, you'll find the results interesting. Comparing your plant's water and sewer costs to those of other processors may suggest ways you can cut water use and save money.

Water Use and Cost

Chicken plants surveyed use from 5.5 to 17 gallons of water per bird and an average of 9 gallons per bird. This information was combined with national data and potential savings were determined. The plants surveyed process 500,000 to 2,000,000 pounds of birds per day (live weight). Water use per day averaged 1,200,000 gallons with some plants using in excess of 2,500,000 gallons per day.

Water costs ranged from \$0.96 to \$4.30 per thousand gallons. The average cost was estimated to be \$1.50 cents per thousand gallons (Table 1). Water obtained from public systems cost more than water from private sources.

Sewer Costs

The cost for sewer services ranged from \$1.20 to \$5.22 per thousand gallons, with the average being \$2.20 (Table 1). In a previous survey conducted a decade ago, the cost for public sewer systems was about \$1.00 per thousand gallons *less* than for private systems. Costs were affected by the age of system and the level of treatment. Many plants reduce these costs by using screening and pretreatment. Screening and pretreatment costs for the plants may not be included in these costs.

Table 1. Cost of Water and Sewer Service for Poultry Plants

	Cost Range per Thousand Gallons	Average Cost per Thousand Gallons
Water	\$0.90 - 4.30	\$1.50
Sewer service	\$1.20 - 5.22	\$2.20

Costs Per Bird and Per Year

Cost Per Pound. The total cost of water and sewer service for chicken processors averaged 3.5 cents per bird (live weight), ranging from a low of 1.9 cents to a high of 8.6 cents per chicken.

Cost Per Year. Annual water and sewer service costs ranged from \$700,000 to \$3,750,000 per year. The average annual cost for plants surveyed was \$1,200,000.

Energy Costs

A factor often overlooked in poultry plants is the price tag of energy. As use of cooled water and hot water increases, so does the energy bill. To illustrate, the costs of water, chilled water, and hot water were calculated (Table 2).

Table 2. Cost of Water* at Three Different Temperatures

Water Temperature	Cost Per Thousand Gallons	Annual Cost of 100,000 Gallons per Day
As supplied at 60°F	\$3.70	\$ 96,200
Heated from 60° to 130°F	\$7.85	\$204,100
Chilled from 60° to 35°F	\$4.70	\$122,200

*Water costs and sewer discharge

Compare Your Plant's Water and Sewer Costs

How do your plant's water use and your water and sewer costs compare to the national averages? If you're near the low end of the range, you can be pretty sure that you're using water efficiently. If not, this would be a good time to start conserving. Saving water could cut your water, sewer, and energy costs and help keep production costs down.

Start Conserving Now to Protect Future Profits

Average costs for water and sewer service have increased steadily since the 1970s and probably will continue to move upward. These costs can have a real effect on profitability. How much would your annual operating costs go up if your water and sewer bill reached \$10.00 per thousand gallons?

Prior to HACCP implementation, managers of some broiler processing plants have reduced water use to less than 4 gallons per bird. During the initial HACCP implementation in 1998, HACCP-related water use increases to about 9 1/2 gallons per bird. In a 240,000-bird-per-day plant, reducing water use by 3 1/2 gallons per bird would result in a savings of \$800,000 a year.

Saving water could cut your water, sewer, and energy costs and help keep production costs down. It's easier than you think. Some helpful hints are given in the box in the first column of this page.

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For further information, contact your county agent, and check the Food Science web site at www.ces.ncsu.edu/depts/foodsci/ext/pubs.

You also may want to read the following Extension publications:

Liquid Assets for Your Poultry Plant (CD-20)

Poultry Processors: You Can Reduce Waste Load and Cut Sewer Charges (CD-22)

Poultry CEOs: You May Have a \$148 Million Opportunity (CD-24).

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