



**BANK OR DRAIN**

## *Pollution Prevention Pays in Food Processing*

### **Liquid Assets for Your Poultry Plant**

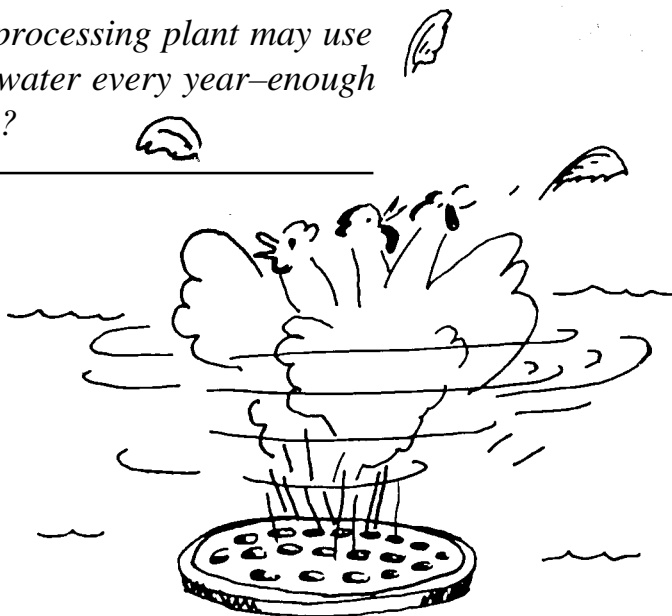
*Did you realize that your broiler processing plant may use more than 600 million gallons of water every year—enough to supply a town of 35,000 people?*

#### **Water Use and Conservation**

Water is used for many purposes in poultry processing—scalding, washing, waste fluming, chilling, and cleanup. Until recently, conserving water was not a concern for most poultry processors because water and sewer costs were usually low.

Now, uncontrolled water use combined with rapidly rising water and sewer charges has begun to cut into profits. Some municipalities providing water and sewer service to poultry processors have increased their charges ninefold over the past 25 years. By comparison, broiler prices have about doubled during that period.

In the 1970s, poultry processors were using as much as 12 gallons of water to process one broiler. Since that time, many plant managers have come to realize that water costs real money. As a result, prior to HACCP implementation in 1998, some plants were using less than 4 gallons per broiler. After the initial implementation of HACCP in 1998, average water usage increased to 9 1/2 gallons per bird.



#### **Multiple Benefits**

Cutting costs is not the only reason to take water conservation seriously. Processing plants are often located in rural communities where the water system is designed to serve a small population. Because it takes large amounts of water to process poultry, a plant can have a major effect on the local water supply even under the best of circumstances. During a drought, the impact can be disastrous.

In 1986, the southeastern states were stricken by the worst drought in nearly a century. Had the situation worsened, poultry processors would have faced water limitations, produc-

tion cutbacks, and even temporary plant closings. By reducing water consumption now, processors can increase their chances of getting through the next drought without having to curtail operations.

In almost all food processing plants, reducing water use is also accompanied by a reduction in the wastewater treatment load. Using less water results in less leaching of solubles, better screen recovery rates, and more efficient operation of dissolved air flotation cells. In designing new plants, planning for water conservation can help cut construction costs because the size and cost of the wastewater treatment system can be reduced substantially.

## Saving by Conserving: An Example

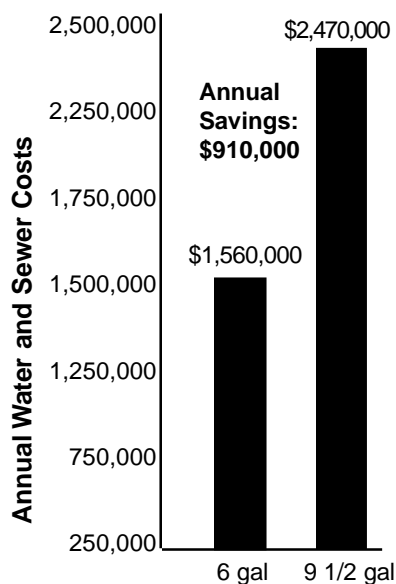
To see how much water can be saved by reducing water use, consider the case of two plants that each process 250,000 broilers a day and pay \$4.00 per thousand gallons for water and sewer charges. The table, opposite, shows the savings that can be realized by using only 6 gallons of water rather than 9 1/2 gallons per broiler.

Plant A uses 3 1/2 gallons less water per bird than plant B—and its managers can put \$3,500 more in the bank each day, a savings of \$910,000 per year. In effect, processor B is pouring that amount of money down the drain.

### Water and Sewer Costs and Savings for Two Poultry Plants Processing 250,000 Broilers per Day

	Plant A	Plant B	Savings
Water use per bird (gallons)	6	9 1/2	3 1/2
Daily water and sewer costs	6,000	9,500	3,500
Annual water and sewer costs	\$1,560,000	\$2,470,000	\$910,000
Cost per thousand broilers	\$24.00	\$38.00	\$14.00

Processor A saves \$14.00 per 1,000 broilers processed. To estimate the potential savings for your plant, determine your current water usage, cost, and the amount you think water usage could be reduced. Then enter the current and target values in the following worksheet.



### Water and Sewer Charges for Your Poultry Plant

	Current	Target
Enter <b>current</b> and <b>target</b> water usage per bird (gallons)	_____	_____
Enter number of broilers processed per day _____		
Multiply current and target water use values by daily production to determine daily water use	_____	_____
Divide daily water use by 1,000 to determine daily water use in thousands of gallons	_____	_____
Enter your combined water and sewer cost per thousand gallons \$_____		
Multiply your daily water use (in thousands of gallons) by your water and sewer cost to determine your daily cost	\$ _____	\$ _____
Enter the number of days your plant operates each year _____		
Multiply the daily water and sewer cost by the number of days your plant operates each year to determine your annual water and sewer cost	\$ _____	\$ _____
Subtract the annual cost for your target use from the annual cost for your current use to determine your potential annual savings		\$ _____

## Where Do You Start?

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Begin your water conservation program with a positive attitude. In talking with your staff, emphasize the importance of conserving water as a way of reducing water and sewer costs. The effects of your positive attitude and actions will soon spread to workers at all levels. Some proven ways to conserve water are listed in the box on this page.

### Saving Dollars Makes “Cents”

A study at a poultry processing plant conducted in the early 1970s demonstrated that making process changes to conserve water would cost about 8.6 cents per thousand gallons saved. These same changes today would probably cost about 40 cents per thousand gallons saved. When compared with water and sewer service costs of \$4.00 per thousand gallons, spending 40 cents to save \$4.00 really does make sense.

*Managers set the pace for water conservation and waste reduction. Your interest and involvement will let everyone in the plant know that reducing water use is important. There's no better time than now to take a close look at your plant and encourage your employees to work with you in conserving water and cutting waste.*

***Be considerate of others and the environment. Start conserving water now.***

### Water Conservation Hints

- Always consider water as a raw material with a real cost.
- Set water conservation goals for your plant.
- Develop a team responsible for water conservation.
- Install water meters and monitor water use.
- Train employees how to use water efficiently.
- Use a high-pressure, low-volume cleaning system.
- Use nozzles on all water sprays.
- Don't let people use water hoses as brooms.
- Don't let water run continuously unless necessary. For example, cycle the side-pan wash.
- Reuse water where permitted.
- If large amounts of water are being used to flush feathers, parts, or debris away, consider redesigning the work area to prevent these materials from collecting.



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*For further information, contact your county agent. Also check the Food Science web site at:*

*[www.ces.ncsu.edu/depts/foodsci/ext/pubs/](http://www.ces.ncsu.edu/depts/foodsci/ext/pubs/)*

*You also may want to read the following Extension publications:*

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

*Survey Shows that Poultry Processors Can Save Money by Conserving Water (CD-23)*

*Poultry CEOs: You May Have a \$162 Million Opportunity (CD-24)*

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