

Choices in Automated Watering: Environmental and Financial Impact



Susan McDaniel
Pat Pieters

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Agenda

Items to consider that have environmental and financial implications

- Research needs
- Geography
- Operating costs
- Sustainability
- Choices

Research Needs

- What are the needs of your facility and research?
 - Type of Research Studies
 - What type of animals will you be watering?
 - Biosafety Level (BSL)
 - Biological Growth

Geography

- Water Source
- Water availability
- Energy Costs



Automated Watering Systems



System Definitions

- Flushing
 - A flushing system replenishes the distribution pipes with fresh clean water. The water is flushed either into a drain or reclaimed for another use.
- Recirculating
 - A recirculating system continually circulates water through the distribution piping from the storage tank.

Regional Utility Rates

Location	Combined Water & Sewer Rate	Electrical Rate
Charleston, South Carolina	\$6.42	\$0.10
San Diego, California	\$6.89	\$0.10
Cambridge Massachusetts	\$8.39	\$0.15
Madison, Wisconsin	\$3.24	\$0.10

Cost of Operating (10 Rooms: 6 Racks / Room: 140 Cages / Room: 42,000 Mice)

Recirculating Rack Level Cost / Year

Electricity	14102 kWh / Yr	0.10 Cost / kWh	\$1,479
Water Use	20,258 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$130
RO Rejection	20,258 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$130

Total

\$1,739

Flushing Rack Level Cost / Year

Electricity	215 kWh / Yr	0.10 Cost / kWh	\$1,556
Water Use	51,100 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$328
RO Rejection	51,100 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$328

Total

\$2,212

Cost of Operating (10 Rooms: 6 Racks / Room: 140 Cages / Room: 42,000 Mice)

Recirculating Room Level Cost / Year

Electricity	14102 kWh / Yr	0.10 Cost / kWh	\$1,479
Water Use	20,258 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$130
RO Rejection	20,258 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$130

Total

\$1,739

Flushing Room Level Cost / Year

Electricity	215 kWh / Yr	0.10 Cost / kWh	\$22
Water Use	15,330 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$99
RO Rejection	15,330 Gal / Yr	\$6.42 Cost / Thousand Gallons	\$99

Total

\$220

Sustainability

- Protecting our natural resources to the best of our ability when building or running a facility.



Choices in Automated Watering Solutions

Flushing

- Room or Rack level
- Reclaim the water for other use
 - Cage wash pre-rinse
 - Landscaping
- Back to tank to put through RO for reuse

Recirculating

- Room or Rack Level
- Optional Flush

One Style Does Not Fit All.

- Balance your research needs with the availability of resources in your area.
- Weigh the financial implications operating costs.
- The important thing is that you receive a solution that is sustainable and fits your research needs.

If You Would Like Further Information

Susan McDaniel

Product Manager

Susan.mcdaniel@edstrom.com

Pat Pieters

Manager of Sales North America

Pat.pieters@edstrom.com

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