

December 2010, North American Prairies

**The Issue:** A Hutterite colony located in the North American Prairies was having difficulty with their water supply for the livestock, including the broiler barn. Specifically in the broiler barn, the waterers were plugging, mortality was as high as 11% and it was taking 42 days for the broilers to grow to a minimum market weight of 2.3 kg (5 Lb). Chlorination, hydrogen peroxide, antibiotics, and improved sanitation were all tried with little to no success.

A local water treatment specialist, Eco-Farm Water Products Ltd., recommended using chlorine dioxide. However, many sources of chlorine dioxide were deemed unsuitable for the application. One consideration was to use an expensive two-part packet system, but this method required manual chemical mixing, which exposed the person doing the mixing to high levels of chlorine dioxide gas. Also, the solution is not ready to apply immediately as it must rest overnight to develop. Further, the solution off-gases which results in a solution of decreased strength and a pungent odor near where the solution is stored. Other two-part and three-part industrial chlorine dioxide generators were considered, but these generators were designed for large industrial applications and were not appropriate for the small agricultural application in the broiler barn. Ultimately, the CLO<sub>2</sub>IX<sup>®</sup> system was chosen for its efficiency, reliability, purity, and ability to meet the needs of the small agricultural application.

**The Solution:** A CLO<sub>2</sub>IX<sup>®</sup> 1.0 Lb/day Chlorine Dioxide System was placed on site and installed such that all of the water feeding the 35,000 bird broiler barn contained 1.5 mg/l - 2.0 mg/l chlorine dioxide. After the initial two week period, which was required to clean the watering system, mortality dropped from an average of 8.8% to 6.3%. As the flock grew, it consumed more water than previous flocks consumed during the same points in the growth cycle, and the waterers no longer plugged. The birds thrived reaching market weight in 38 days, a full 4 days sooner than previous flocks. Even with the decrease in days to market, the bird's weights were 10% higher than previous flocks. All of the improvements have remained consistent in each subsequent flock. In fact, these birds are now consistently 10% heavier than all of the other farms in this zone.

The CLO<sub>2</sub>IX<sup>®</sup> Chlorine Dioxide System increased profitability in several ways. The birds are heavier, so they bring more money when sold. There are more birds to sell, because the mortality rate is lower. And because the birds are shipped sooner, total feed consumption decreases. When these things are combined, the overall cost of operation is lowered, and margins increase.

### Water Treatment Company:

Eco-Farm Water Products Ltd.

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### Historic Test Results and Case Study Results

Based on 5 Flocks of 35,000 Birds each	Chlorine 1 ppm	Chlorine Dioxide 1.5 ppm	% Change
Average Daily Water Consumed (L)	5,380	5,890	9.48%
Average Mortality %	8.8%	6.3%	-28.00%
Growing Days	42	38	-9.52%
Average Shipping Weight (kg)	2.4	2.63	9.58%
Feed Conversion Ratio (FCR)	1.84	1.78	-3.49%

# CASE STUDY

## Using CLO<sub>2</sub>IX<sup>®</sup> Chlorine Dioxide to Increase Production in a Broiler Barn

### Why did Eco-Farm Water Products Ltd. recommend CLO<sub>2</sub>IX<sup>®</sup>?

"Just about two years ago, we installed our first CLO<sub>2</sub>IX<sup>®</sup> system from Dripping Wet Water in a greenhouse and quickly had great results. Approximately three months later, we installed our second system in this Colony farm.

The water source is surface water, and this Colony had tried Anolyte, hydrogen peroxide, and chlorine with little improvement in the livestock.

Once the CLO<sub>2</sub>IX<sup>®</sup> system was installed, it took about two weeks of treatment to see results. 'We started to see good things happening with the water system' was the feedback we got from the Colony. It was evident that this was the way to go, especially with the results of that first flock.

The gains in all of the livestock operations have paid for the overall cost of installing a CLO<sub>2</sub>IX<sup>®</sup> system and its operating costs."

### Conclusions:

- Mortality rates greatly improve with the use of chlorine dioxide.
- Chlorine dioxide usage decreases or eliminates the use of antibiotics in broiler barns.
- There are no taste issues with chlorine dioxide. The birds want to drink more.
- Chlorine dioxide removes and prevents biofilm formation, so water lines no longer plug. Also, shock treatment cleanings of water lines are no longer required between flocks, because there is no biofilm to remove.
- Barn bedding is less contaminated with microorganisms, because the birds are healthier.
- Chlorine dioxide dramatically improves the Feed Conversion Ratio which means greater profits.

