

## PWT® WATER ACIDIFIER PROGRAM IMPROVES COST AND PERFORMANCE IN LARGE COMMERCIAL BROILER STUDY

A large-scale commercial study was undertaken in the winter of 2002-2003 to evaluate the impact of a PWT® Water Acidifier program on cost and broiler performance. The PWT program was applied in a week-on, week-off fashion with 5.2 million birds placed in the PWT program and 4.7 million birds placed as controls. Those birds raised on PWT had an average cost of \$0.1712 compared with a cost of \$0.1720 for the control group (fig. 1). Average weight and feed conversion improved by 1.7 and 1.2 points, respectively. PWT proved to be a tremendous value to this complex through the improvement of cost as well as performance.

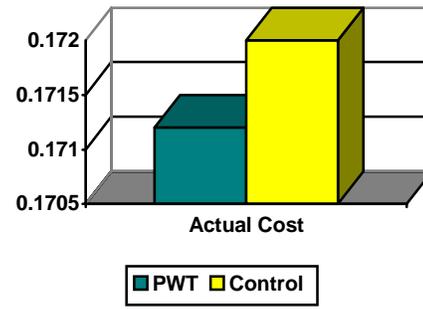


Fig. 1

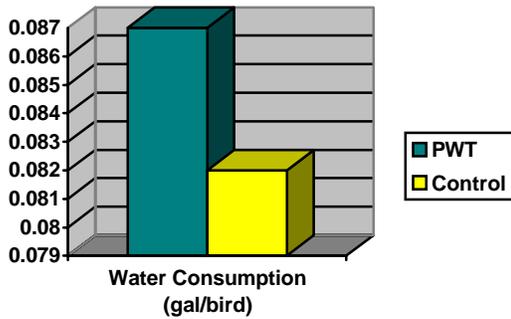
The PWT program used in this study was designed to bring the pH of the drinking water to 4.0 during critical periods in the development or maintenance of the intestinal integrity of the bird. PWT was delivered continuously for the first 7-10 days after placement, before, during, and after each feed change and during the feed withdrawal period. These are the times in a bird's life when they experience the greatest change in their normal gut flora. PWT helps the flock to weather these stressful periods more easily. This not only provides great financial advantage to the integrator but the economical pricing of PWT allows it to be accomplished with little upfront cost.



The concept of intense water acidification at bird placement is a new one. Water acidifiers have been used widely within the poultry industry for various conditions and with varying degrees of success. All of the acids currently marketed to the poultry industry are weak organic acids (citric, acetic, lactic, etc.) that have poor taste profiles and limited pH reducing capabilities. Effective crop acidification requires a water pH of 3.5-4.0 but the use of organic acids was often accompanied by a significant decrease in water consumption. This probably explains the current mixed

response to the efficacy of water acidification.

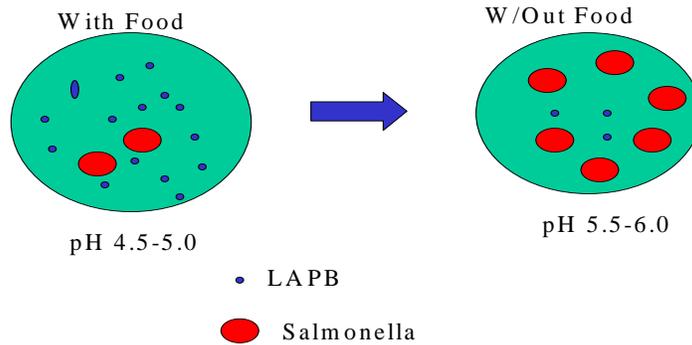
Because PWT inorganic water acidifier has a low pKa, it has a cleaner taste profile and profound acidification properties that make it superior to any of the organic acids. PWT water acidifier was shown in tests conducted by the USDA-ARS, Stephen F. Austin State University, and the University of Arkansas to achieve low water pH (below 4.0) without



hurting water consumption. The SFASU study demonstrated that the delivery of PWT at pH 3.5 for the first 7 days after chick placement did not impact water consumption or chick performance (Fig.2). This paved the way for intense water acidification at the most critical phase in a chick's life: the time when new gut flora is established.

Delivery of PWT at pH 4.0 during the grow-out phase was confirmed at the University of Arkansas as being beneficial to the bird allowing for delivery of PWT during feed changes. Water consumption in the PWT water acidifier group (pH-3.5) was identical to water consumption in the control group (pH-7.0) of a study completed by Dr. Allen Byrd, USDA-ARS looking at water acidification during feed withdrawal periods. Birds administered lactic acid (pH-3.5) drank 44% less water than the controls. The level of consumption of acidified water at the correct pH is the most critical measurement of a water acidification protocol.

*Crop Changes during Feed Withdrawal*



The success of these three pen studies became the foundation of the protocol designed for the commercial study conducted in the winter of 2002-3. Designed to cover the bird at the most critical times of gut flora establishment or disruption, the study showed a cost advantage of eight-hundredths of a cent in addition to better flock performance. This is of economic value to both the integrator and the grower.

Better cost coupled with improved maintenance and cleaning of the waterlines with this PWT program makes it a **WIN-WIN** situation.