

## Commercial Egg Production Demonstration - Abridged Report

### Industry Overview



The international Egg industry is experiencing a significant growth curve. In the USA alone, the number of laying hens in 1991 was reported at 273 million producing 68.4 billion eggs annually. In 2011, total US production had risen to 91.4 billion eggs representing \$7.4 billion in sales. Vertical consolidation in this industry has occurred with current estimates of 56 companies with 1 million plus layers in production. In fact, there are approximately 178 egg-producing companies in the USA that represent 95% of the total production. To augment the domestic supply, Canada and China were the top two suppliers of eggs and egg products imported into the USA in 2011 with a total value of \$41.8 million.

The Egg industry has developed precise science based management systems for their facilities with a focus on the health, welfare and optimal productive life of the laying hens. As part of that effort, TE AquAlign™ Systems offers a solution which delivers multiple level benefits: a stronger, more robust hen; a better quality egg; a higher/longer production; and options for increased ancillary revenues with positive environmental bonuses.

### Demonstration Background

Predicated on TE AquAlign™'s small scale study of the positive deliverables (egg quality) achieved by aligning the water to laying hens, Canada's largest vertically integrated egg production company (providing eggs, egg products and associated services to Consumer, Food Service and Industrial markets nationally across Canada & regionally in the USA) engaged with TE AquAlign™ as our Demonstration Partner. A 42,000 bird flock of ISA Browns was made available for this demo, and with the assistance of their personnel and a professional plumbing service, an AquAlign™ system was installed on the water supply to these birds.



### Tracking & Measurement Criteria

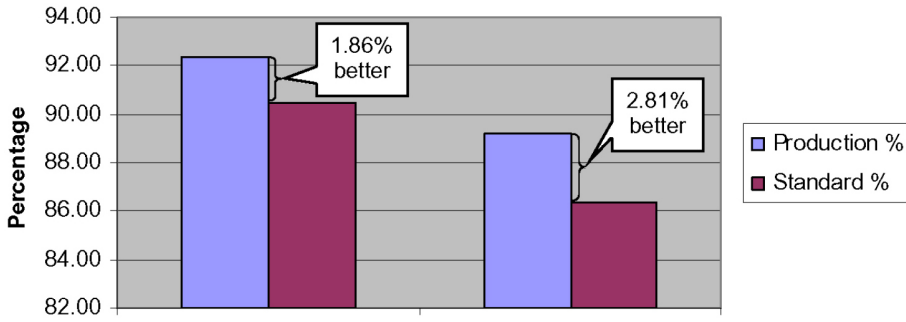
Consistent with successful organizations in this sector, our Partner uses state of the art tracking systems to monitor, measure and record a broad spectrum of key performance indicators (KPI's) daily, summarized weekly. Our Science team received these detailed reports weekly and utilized the data to track the KPI's and analyze the deliverables of the TE AquAlign™ system.

### Comparison Periods

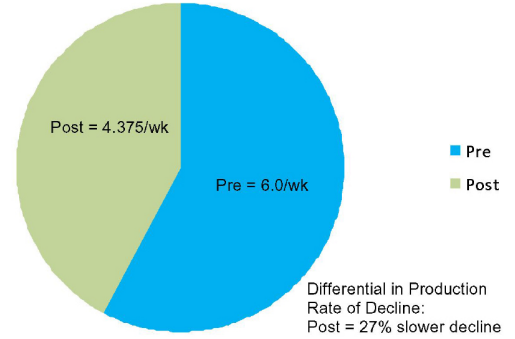
Originally the 6 week comparison periods were planned to run end-to-end: Pre-installation Weeks 46 to 51 & Post-installation Weeks 52 to 57. Due to an unfortunate mechanical failure unrelated to our system causing a dehydration incident to a part of flock, the plan was revised. The comparison period was extended to 8 weeks, plus a time gap of 4 weeks in between to allow for recovery; although A.W. Adams et al (1973) suggest recovery from dehydration can take up to 10 weeks, it was necessary to minimize this recovery time to avoid skewing the data with the inevitable issues associated with an aging flock (etc). Therefore, the demonstration's "Pre-installation" data was taken from Weeks 44 to 51 inclusive and the "Post-installation" data gathered in Weeks 56 to 63.

**Graphed Representative Results as follows:**

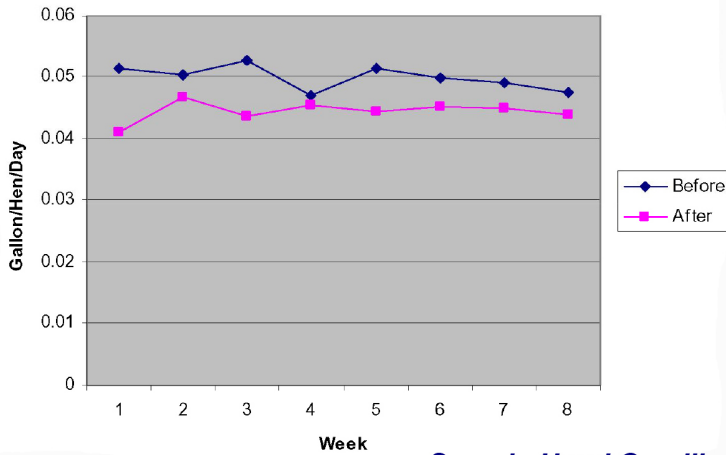
**Production Performance to Standard**



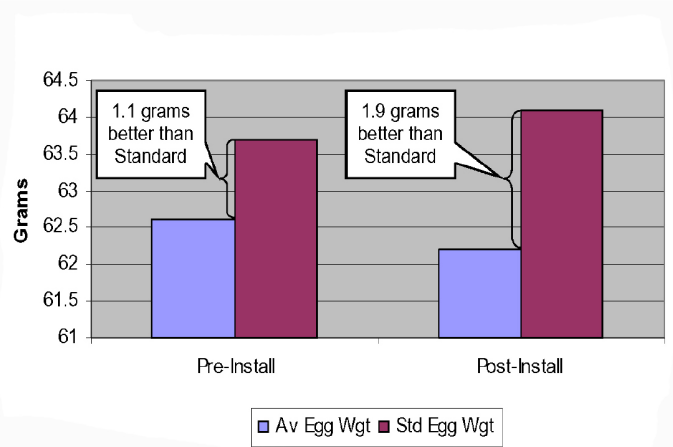
**Production Rate of Decline Comparison**



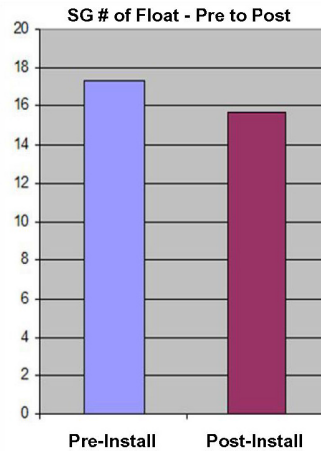
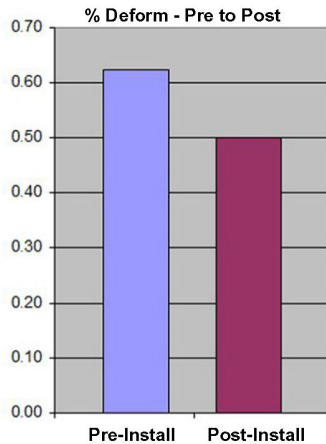
**Water Consumption Comparison**



**Egg Weight Comparison**

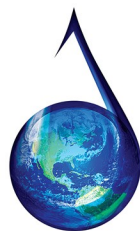


**Sample Hand Candling Comparisons**



**Conclusion**

In measureable and quantifiable terms, this demonstration illustrated TE AquAlign™ Systems' positive deliverables providing aggregate economic benefits for Commercial Egg Production companies. In fact, not only has our Demonstration Partner become a Customer, but they also provided an unsolicited reference to one of their Joint Venture Partners, an organization who has since purchased their own AquAlign™ systems! For further information, we can be reached by phone at: (905) 833.0163 (Canada) and (480) 336.2782 (USA) or by email at: [insights@te-aqualign.com](mailto:insights@te-aqualign.com).



**TE AquAlign™ Systems**

the perfect expression of water...