

The Turkey Hatchery:

An overview of the past 25 years and the path ahead with Multi-Stage verses Single-Stage

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I would like to thank the Midwest Poultry Federation and Mike Ilburn for inviting me to share my thoughts and observations over the past 25 years of turkey incubation.

One thing I think that those of us who have been in this sector of the poultry industry can all agree on is the fact that 25 years ago we all weighed less and had more hair. I'm sure working in a hatchery has attributed to my receding hairline and figure.

25 years ago most managers were required to have general maintenance skills along with troubleshooting abilities. A class D license may have not been a requirement but helped to secure a position. We were often called upon to hatch all day and drive all night to make deliveries.

These days the hatchery manager not only has the day-to-day management of operations and people but also the implementation of HR policies. It's important that proper consideration is now given to the way managers are selected, developed and managed on an ongoing basis. Managers are spending more of their time ensuring proper people behavior and less time on incubation and hatching. I've always said "I can work with turkeys it's the people I have problems with".

There are many topics that can be discussed that have changed the past 25 years. I have selected the following five items since they have had the most impact on our jobs and the way we conduct our business. These are Bio-Security, Animal Welfare, Technology, Servicing and Incubation/Hatching.

Bio-Security

With the outbreaks of Avian Influenza in the mid 90's and early 2000 along with other diseases, turkey hatcheries have included procedures for preventing the introduction of disease into their facilities. Some of these have included change of clothing, showering in and out, documentation of travel, and traffic within the hatchery. Since A.I. is associated with wild birds and their migration, hunting or contact with other birds can require several days away from the hatchery before returning to work. Owning pet birds or backyard flocks can also disqualify potential new hires. As further protection employees and visitors are required to sign a Bio-Security statement before entering the hatchery.

Animal Welfare

Consumers are increasingly aware of, and concerned about, how animals raised for food are treated. Most commercial outlets and restaurants now have animal welfare statements. Many of these companies have trained staff to conduct welfare audits from their suppliers. With the required servicing of turkey poults, this has necessitated a mountain of documentation needed for employee training and Standard Operating Procedures produced for all handling of birds. Proper training must be documented for handling, euthanizing, and waste disposal. The loss of a setter or hatcher (although we hope this never happens) is starting to also raise some eyebrows.

Servicing

Poult servicing has come a long way the past 25 years. The following is an evolution in the various methods that have been used to Beak Trim. Beak trimming is a preventive measure to reduce damage caused by injurious pecking, such as cannibalism. A hot blade was once used to partially "CUT" and cauterized the tip of the beak. Next came the Bio-Beaker or "Laser" de-beaker. The poults beak was pushed into a head holder that contained two electrodes. When both touched the beak an electrical arc was produced and burned a hole straight through. The tip of beak would later fall off at the rearing farm after a few days. Both of these methods were extremely time consuming and relied on skilled application/operator. The introduction of robotics has revolutionized the procedure, application, and personnel. Custom masks hold the poults head precisely directing a high intensity light on the beak tip. This allows the beak to "wear" away. Mortality has been significantly reduced and there is substantial cost saving.

Another servicing procedure that has also seen the benefits of robotics and engineering is claw (toenail) conditioning. Claw removal prevents birds from injuring other birds during high activity. This procedure was once done with a hot blade that cut and cauterized. Modern technology now uses microwaves to remove the nail with minimal tissue damage. Turkey hatcheries have adapted to new, more humane technologies and methods for performing these services.

Technology

"When you can measure what you are speaking about, and express it in numbers, you know something about it" - Lord Kelvin.

"In God we trust, all others must bring data" - W. Edwards Deming

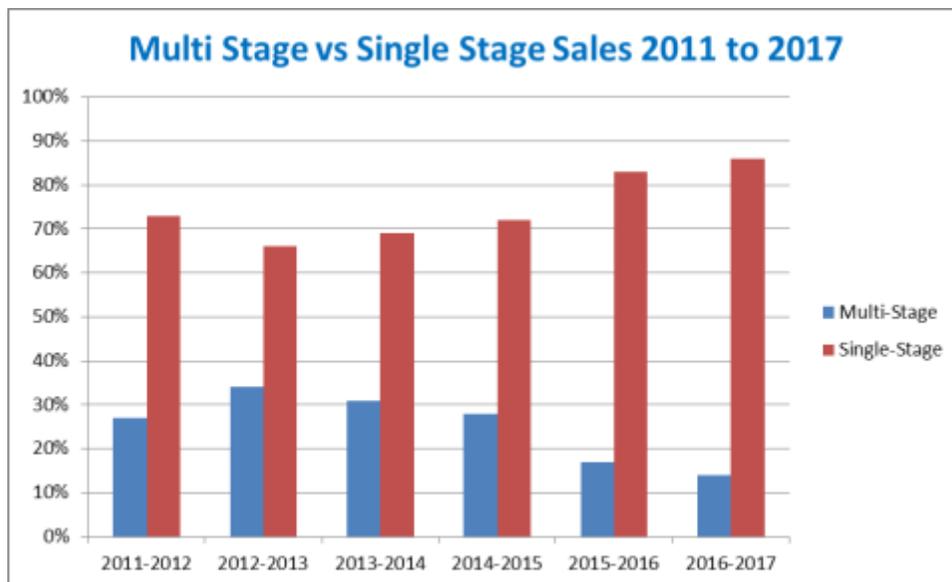
Technology has changed the way we work. Take a quick look around the hatchery. What you'll see, somewhere, is a computer, maybe several of them. They tell equipment how to operate and tell us what we need to do to get the job done correctly. Technology is now available that allows embryos to control their temperature and hatching needs. Even though we are dealing with a live product, we collect data and analyze our results. A "quality hatch" is determined by the data. Hatchability, Hatch of Fertile, Hatch Spread, Moisture loss, Poult Yield, Cull Poults, and Livability. Data can be compared to national statistics and rankings. We rely on technology although it's supposed to make work more efficient, we work harder than ever. Greater efficiency means shorter deadlines and so we have to put in a lot more time.

With all this technology and data available, the subjective view of a “Quality Hatch” has become less and less viable as it once was used. Observation – bright yellow, bright eyes, legs, hatch debris, meconium on tray, culls on trays, heavy panting. Noise – calm, noisy or agitated. Touch – soft, mushy, or hard. Managers spend less time viewing their hatches because they don’t have the time.

“There are a dozen views about everything until you know the answer.... Then there is never more than one”

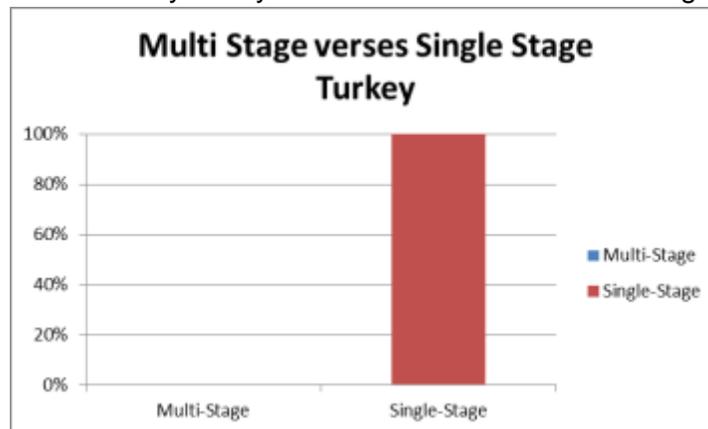
- C.S. Lewis

The second part of this document, “The path ahead with Multi-Stage verses Single-Stage”, begins by looking at industry trends:



This graph shows all Jamesway sales (including chicken and duck) moving forward to single stage.

If we take a look at the Jamesway turkey incubator sales since 1994 the graph looks like this:



Since Jamesway inception of the Single-Stage in 1993 with the ACI machine, the turkey industry has taken hold of the concept. Jamesway has not sold a turkey Multi-Stage machine since 1994, although there are still many Multi-Stage hatcheries in operation which continue to produce good results.

Here are some of the comparisons of Multi-Stage verses Single-Stage:

Multi-Stage

- Multi-Stage Incubation Success is dependent on what you do and how you do it.
- Requires more intense scheduling of set time, transfer, cleaning and etc.
- Maintenance is more intense due to continual going in and out of machines performing the needed functions involved.
- Set time is critical for proper cycle to begin
- Operates on averages to the various stages of development
- Requires more from management

Single-Stage

- ✓ Single-Stage Incubation Success is dependent on what it does.
- ✓ Requires simple guidelines and procedures and let the machine do its thing.
- ✓ Once the incubation starts and you shut the door you are finished until transfer.
- ✓ Can hold under egg room conditions for setting in future
- ✓ Operates on Specifics to the developing embryo needs
- ✓ Easily tuned to changing needs. "Worry Free"

Just from an operation - labor standpoint the Single-Stage has all the benefits. We have always assumed the needs of the developing embryo but what if we let the embryo control its own environment? Jamesway's Single-Stage machines allow this and have been very successful in these technological advancements with turkeys. Temperature, CO2, Air Velocity and in the hatcher, maturity, have all been incorporated and produce excellent quality poults.

The turkey industry has already chosen its path for incubation future beginning with the introduction of single-stage.

For over 100 years Jamesway has been setting the standard for the global poultry industry. We plan, design, install, and maintain incubation and ventilation systems for hatcheries, offering the most reliable products and customer services on the market.and when we look at the data.....The top 3 U.S Turkey Processors use Jamesway equipment for their hatching needs.