Alberta Chicken Industry's

Broiler chick augusty Manual



Developed by and for Alberta's Chicken Industry

Collaborators: Alberta Hatching Egg Producers Alberta Hatchery Association Alberta Chicken Producers Alberta Chicken Processors: Maple Leaf Foods Sofina Foods Sunrise Farms

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VISION:

Continuous improvement in broiler livability.

MISSION:

To support the Alberta poultry industry in producing and brooding a high quality chick by providing tools, best practices, and a forum for open dialogue that support a culture of trust and accountability.

BACKGROUND

The Alberta chicken industry has identified a need to develop Industry Standards and Best Management Practices to improve the quality of broiler chicks in the Province of Alberta. A Broiler Chick Quality Committee was struck in June 2013, with an initial Goal of developing a Broiler Chick Quality Manual for Alberta's chicken industry.

The Committee's objectives in developing the manual were as follows:

- To identify and prioritize quality issues.
- To define the scope of the quality standards manual in addressing the issues identified.
- To identify the roles, responsibilities, and accountabilities of broiler hatching egg producers, hatcheries, transporters, and broiler producers.
- To establish standardized quality targets for broiler chicks based on credible, objective, and verifiable metrics.
- To define best management practices for broiler hatching egg producers, hatcheries and broiler producers.
- To develop a governance structure and accountability mechanism for addressing quality issues.

In 2016, the Broiler Chick Quality Committee transitioned into the Supply Chain Committee, which meets semiannually to discuss matters impacting the chicken supply chain in Alberta. This Committee maintains the Broiler Chick Quality Manual as a living document for Alberta's chicken industry.

EXECUTIVE SUMMARY

The current genetics of the broiler chicken provide for rapid growth with exceptional feed efficiency. This genetic progress, while remarkable, has also added increased challenges to all sectors involved in the production chain: hatching egg industry, incubation and hatch, chick transportation and broiler chick brooding. Each sector now finds there is less tolerance for deviation from recommended best management practices and targets without consequence in 7-day mortality rates in the broiler barn. Therefore, it is imperative that each sector understand the current genetic factors that affect chick quality and evaluate the best management practices that positively influence these factors.

DEFINITION OF CHICK QUALITY

Chick quality is affected by management of the eggs at the breeder farm, of eggs and chicks during incubation at the hatchery, and of brooding conditions at the broiler farm. Good management at each of these stages should produce uniform chicks with a 7 day mortality of 1% or less. A healthy chick will grow to a 7 day body weight of 4 to 5 times its' placement body weight.

Chick Quality is defined along the 4 pillars of chick health:

- Physical clean & dry, bright eyed and free from deformities
- Serological optimal maternal antibody transfer
- Microbiological free from pathogenic organisms
- Nutritional comes from a well-nourished laying hen; yolk sac contains optimum nutrition and the yolk sac has been reabsorbed by the chick

These quality parameters are used to characterize the condition of a broiler chick for up to 72 hours posthatch. They are affected by a combination of successive and related steps:

- Laying and handling of the eggs
- Incubation and hatching of the eggs
- Handling and transport of the hatched chicks
- Handling of the chicks at the farm (Optimal brooding to maintain chick quality)



DOCUMENTED MEASURES OF CHICK QUALITY SCORING

Subjective Visual Scoring:

- Clean and dry
- Bright eyed
- Free from deformities
- Healed navels
- Healthy hocks
- Homogeneous

Chick Weight

Yolk Free Body Mass (yolk sac should not be more than 10% of body mass)

Chick Length (19 to 22cm, depending on breeder flock age)

PARAMETERS THAT AFFECT CHICK QUALITY

- 1. Laying and handling of the eggs
 - Breeder uniformity
 - Breeder nutrition
 - Breeder immunity
 - Breeder age
 - Breeder health
 - Fertility
 - Egg Quality/Handling/Storage
- 2. Incubation and hatching of the eggs
 - Egg transport
 - Egg storage/handling
 - Incubator type (single vs. multi-stage)
 - Incubator/ hatcher temperature
 - Incubator/hatcher humidity
 - CO₂ concentration
 - Air flow
 - Egg temperature
 - Chick vent temperature

3. Handling and transport of broiler chicks

- Chick handling room
- Truck temperature
- Truck humidity
- Air movement
- Distance
- 4. Handling of broiler chicks at the farm
 - Brooding: Broiler chicks provided optimal environment as per parent company recommendation
 - Nutrition (feed composition and form)
 - Supplemental feed and water
- 5. Communication and information exchange throughout the broiler production value-chain

INDUSTRY STANDARDS FOR BROILER CHICK QUALITY

1. LAYING AND HANDLING OF EGGS

Breeder Immunity: Vaccinations are a mandatory requirement for broiler breeders in Alberta.

Industry Standards for Alberta Hatching Egg Producers:

- Support and comply with hatchery-specific vaccination programs
- Administer vaccines properly as per vaccination administration and storage protocols
- Store vaccines in refrigerators equipped with a thermometer, at temperatures between 2 and 7 °C (36 and 45 °F)
- Regularly monitor storage temperature

Industry Standards for Alberta Registered Hatcheries:

- Develop and maintain veterinary-prescribed, company specific vaccination programs

Industry Standards for Truck Drivers:

- Ensure vaccines are stored and transported at a temperature between min. 2 °C and max. 7 °C
- Regularly monitor temperatures

Food Safety & Biosecurity:

Industry Standards for Alberta Hatching Egg Producers:

- All registered broiler breeder producers are certified under the CHEQ¹ program
- Comply with the Provincial Salmonella Enteriditis (SE) Policy¹

Fertility: 80% Fertility

Industry Standards for Alberta Hatching Egg Producers:

Achieve a minimum fertility of 80%

Egg Quality/Handling/Storage

Industry Standards for Alberta Hatching Egg Producers:

- Endorse and follow Aviagen's, "What is a good quality hatching egg?"²
- Ship only eggs that meet the 52 gram minimum target and meet the Alberta Hatchery Association (AHA) egg standards
- Support the AHA Egg Standard for Egg Washing by avoiding egg washing whenever possible
- When washing has occurred, identify washed eggs as per individual hatchery request
- Consistently monitor egg room temperatures to maintain egg temperatures between 18 and 20 °C (65 to 68 °F)

Industry Standards for Alberta Hatcheries:

- Only set eggs that meet AHA Standards
- Follow Hatchery SOPs for egg handling
- Monitor temperatures on truck, egg storage room on-farm and in hatchery

Industry Standards for Alberta Chicken Producers:

Measure vent temperature at placement. Target = between 39.5 and 40.5 °C (103-105 °F) at placement, rising to between 40.5 and 41.5 °C (105-107 °F) by 5 d of age.





2. INCUBATION AND HATCHING OF EGGS

Food Safety & Biosecurity:

Industry Standards for Alberta Registered Hatcheries:

- All registered hatcheries implement HACCP-based SOPs that are audited by CFIA¹
- Comply with the Provincial SE Policy¹

Egg Pack Evaluation:

Industry Standards for Alberta Registered Hatcheries:

- Monitor first shipments of eggs against AHA Egg Standards¹ upon arrival at the Hatchery, as per HACCP Standard Operating Procedures¹
- Imported eggs are held to the same AHA Egg Standards¹ and SE Standards¹ as domestic hatching eggs

Hatchability:

Industry Standards for Alberta Registered Hatcheries:

- Maintain a minimum hatchability of 70%

Quality Assessment of Chicks:

Industry Standards for Alberta Registered Hatcheries:

 Remove as many cull chicks (those with red hocks, unhealed navels, clubbed down, omphalitis ["mushy"], small, or poor chicks) as possible at the hatchery

3. HANDLING AND TRANSPORT OF BROILER CHICKS

Truck Temperature:

Industry Standards for Transporters:

 Temperature of Hatchery Delivery Truck is maintained between 25.5 and 28 °C (78 to 82 °F)



¹Appendix 1: Best Management Practices Reference Table









4. HANDLING OF CHICKS AT THE FARM

Food Safety & Biosecurity:

Industry Standards for Alberta Broiler Producers:

- All registered broiler producers are certified under the OFFSAP¹ program
- Comply with the Provincial SE Policy¹

Brooding:

Industry Standards for Broiler Producers:

- Broiler chicks are provided with optimal environment as per Parent Company recommendation¹
- Recommended to supply at least 65g feed/chick on chick paper that covers at least 50% of the brooding area.
- Brooding measurements: Assess chick quality/performance as follows*: <u>Crop Fill</u>:
 - o 8 hours: 85% of chicks with feed in crop
 - o 24 hours: Minimum 95% with feed in crop
 - \circ If lower, re-assess brooding setup and supplemental feed placement

<u>7 Day Body Weight</u>: Target = 4 to 5 times placement weight (based on 0 and 7 day measurements)

<u>Uniformity</u>: Target = 90% of birds within ±15% of average body weight (measured at 7 days)

Vent Temperature:

- Chick-based measure of success of brooding temperature and humidity control
- \circ Target = 39.5 to 40.5°C (103 to 105°F), measured at 24 hours
- \circ Target = 40.5 to 41.5°C (105 to 107°F), measured at 5 days

* These measures are less subjective than visual assessment and directly or indirectly address the 4 pillars of chick health. Use these measures to monitor brooding success as well as to diagnose brooding issues.





¹ Appendix 1: Best Management Practices Reference Table

5. COMMUNICATION & INFORMATION EXCHANGE THROUGHOUT THE INDUSTRY VALUE-CHAIN Breed:

Industry Standard for Alberta Registered Hatcheries:

- Inform Producers when other breeds are shipped as follows:
 - Ad-hoc breed changes:

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 Phone individual producers to provide information on the breed and assess whether there will be an impact on days to market

Large-scale breed changes:

- Provide written communication to broiler breeder and broiler producers in advance of the changes to provide time for transition and planning.
- Conduct workshops / meetings with producers to discuss and prepare for transition

Reporting from Broiler Breeder Producers to Hatcheries:

- Hatchery Egg Receiving Checklist:

| Egg Storage Temperature | | |
|--|--|--|
| Humidity of Egg Storage | | |
| Number of Eggs Shipped | | |
| Date of Pickup | | |
| Farm Name | | |
| Flock Number | | |
| Age of Flock | | |
| Did anything occur on farm that affected Production / Mortality? | | |
| No | | |
| Yes | | |
| Notes: | | |

Reporting from Hatcheries to Broiler Breeder Producers:

- Communicate vaccine program to Broiler Breeder Producers and Broiler Producers
- Hatch report provided to Broiler Breeder Producer on a weekly basis, including:

| Performance Relative to the AHA Egg Standards |
|---|
| Date Eggs Received, Set, Hatched |
| Fertility or Transfer (%) |
| Raw Hatch (%) |
| # of Exploders |
| # of Cull Chicks |
| # Paid Chicks |

- Personal Call from Hatchery Personnel to Broiler Breeder Producer to communicate one or more of the following:

| Results of any inspection related to Egg Standards | |
|---|--|
| Timely feedback on performance of eggs identified as washed | |
| Abnormal number of culls | |
| Significant deviations in hatch percentage | |

Reporting from Hatcheries to Broiler Producers:

- Standard Report is provided to broiler producers prior to or at time of placement:

| | Breed |
|-----------|--|
| | Domestic or Import |
| | Size of chick (S/M/L) |
| | Vaccines administered |
| \square | Confirmation that hatchery delivery truck temperature in range |
| | (25.5 to 28 °C) (78 to 82 °F) |
| | Identification of problems at hatch or in transport |
| | Confirmation of appropriate chick vent temperature at delivery |

Reporting from Broiler Producer to Hatchery:

| Placement Checklist: completed every flock by broiler producer and submitted to hatchery at time of placement | | |
|---|---|--|
| Information collected on-farm at time of placement by batchery delivery | | |
| normation concetted | on rann at time of placement by natchery derivery | |
| person: | | |
| | Surface temperature | |
| | Floor temperature | |
| | C0 ₂ | |
| | Feed / Water Availability | |
| | Feed/bird spread on paper | |
| Flock Information Sheet provide to processor 7 days after placement, | | |
| including: | | |
| | Daily #Culls vs. Mortality | |
| | Daily Total Mortality | |
| | 7 Day Body Weight | |

Reporting from Broiler Breeder and Broiler Producers to Respective Board Offices:

- Broiler breeder producers submit Chick Mortality Report and the Chick Placement Checklist to the hatchery, Aviagen and the AHEP board office
- Broiler producers submit 3 and 7 day performance data to ACP board office (collected through the antimicrobial use [AMU] survey)

QUALITY TARGETS*

| Measure of Broiler Chick Quality | Methodology | Targets* |
|----------------------------------|---|---|
| 7 Day Mortality | Broiler producer measures and reports culls and mortalities each day for first seven days on the flock sheet remitted to the producer's processor. | 15% year over year improvement: < or = 1.26% |
| | | 95% of barns reporting <2% 7d mortality |

*Updated annually as per ACP's Strategic Plan

ACCOUNTABILITY

- The Alberta chicken industry maintains a culture of transparency and open communication, with shared responsibility and accountability
- Each sector is responsible for the accountability of its respective members
- Each sector reports back to the Supply Chain Committee on the progress within its sector

EVALUATION

The Supply Chain Committee will meet regularly to:

- Streamline implementation of Broiler Chick Quality Manual throughout the value chain
- Review and update the Broiler Chick Quality Manual as required
- Evaluate and monitor the progress of the industry in achieving its quality target(s)
- Identify producer education, technical transfer, and service delivery opportunities for industry-wide matters

| Resource | Sector / Organization Responsible | BMP Source |
|--|--|---|
| CHEQ Broiler Breeder Producers | | http://chep-poic.ca/cheq.html |
| OFFSAP | Broiler Producers | http://www.chicken.ab.ca/images/stories/pdf/offsap-manual- 2011.pdf |
| Animal Care | Broiler Producers | http://www.chicken.ab.ca/images/stories/pdf/offsap-manual- 2011.pdf |
| Alberta Chicken Industry Catching Manual | Broiler Producers | http://www.chicken.ab.ca/images/stories/pdf/2012-catching- industry-manual-and-pricing-grid.pdf |
| Alberta Broiler Quality Manual | Broiler Producers | http://www.chicken.ab.ca/images/stories/pdf/newsletters/quality- expectations-document.pdf |
| НАССР | Hatcheries (specific programs) | Generic HACCP program (CHF document) |
| CFIA Hatchery Manual of Procedures | Owned by CFIA Implemented by Hatcheries | http://www.inspection.gc.ca/food/safe-food-production- systems/food-safety-enhancement-program/program- manual/eng/1345821469459/1345821716482?chap=0 |
| AHA Egg Standards | Alberta Hatchery Association | http://www.chicken.ab.ca/industry/industry-best-practices/ |
| "What is a good quality hatching egg" | Aviagen | http://en.aviagen.com/assets/Tech_Center/BB_Resources_Tools/Pock et_Guides/Ross-Eggshell-Quality-Booklet2013EN.pdf |
| Codes of Practice | National | http://www.agr.ca/poultry/pub1757e.pdf |
| Field Guide to Broiler Chick Quality | Proprietary resource | http://www.chicken.ab.ca/images/stories/pdf/a_field_guide_to_broil er_chick_quality.pdf |
| Ross Broiler Manual Proprietary resource (Aviagen) | | http://en.aviagen.com/ross-308/ |
| Cobb Broiler Management Guide Proprietary | | http://www.cobb-vantress.com/products/guide- library/general/broiler-management-guide |
| Platinum Brooding | Proprietary (Poultry Consultants) | Available via Platinum Brooding Course |
| Provincial SE Policy | Provincial Government | Link to be included (Finalized in 2014) |
| Industry Forms | | Sector / Organization Responsible |
| Chick Placement Checklist | | http://albertahatchingeggs.ca/Aviagen%20Brooding%20checklist.pdf |
| Processor Flock Sheets | | Broiler Producers |
| Hatchery Reporting Forms | | Broiler Producers |
| Broiler Breeder Vaccination Procedure Audit | | Broiler Breeder Producers |
| Intervet Drinking Water Vaccination Checklist | | Broiler Breeder Producers |



What is a good quality hatching egg?





Appendix 4: Dr. Hofacre's Chick Quality Evaluation Poster



Appendix 5: Carney/Schneider (AAF) Egg Washing Project Poster

