

The Alberta Broiler Chicken Industry

Who are the players in the broiler industry?

Alberta Chicken Producers

The Alberta Chicken Producers manage production of broiler chickens in Alberta. The Alberta Chicken Producers operate under the provincial Marketing of Agricultural Products Act, the Alberta Chicken Producers Plan ([AR 70/93](#)), the Alberta Chicken Producers Authorization regulation ([AR 80/93](#)), the Alberta Chicken Producers Marketing regulation ([AR 3/2000](#)), and the Alberta Chicken Producers Federal Authorization Order regulation ([AR 230/99](#)).

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Chicken Farmers of Canada

The role of the [Chicken Farmers of Canada](#) (CFC) is to ensure that farmers produce enough chicken to meet the needs of the market place. To accomplish this goal, the ten provincial marketing Boards, processors (CPEPC), further processors (FPAC) and restaurateurs (CFRA) meet approximately six times a year to determine the needs of the market and to set provincial allocation for the next eight week period. The CFC also represents the interests of Canadian chicken farmers on the national and international level.

CFC also monitors compliance with quota allocations, for example, they audit production and marketing by producers and processors, participate in import permits, and issue market development licenses to processors for the chicken that is produced to meet market development opportunities.¹

Chicken Farmers of Canada also promote chicken consumption in Canada. The CFC is funded entirely by levies paid by producers based on the amount of chicken marketed.²

The National Operating Agreement (NOA) establishes the basis upon which provincial allocation is determined. The national allocation is established on rolling 8-week periods, there are six and one half allocation periods per year. For convenience, the basic premises of the NOA as published in the *Snapshot of the Canadian Chicken Industry*³ are presented here:

- it is a bottom-up approach whereby individual processors determine their market needs and filter their requirements upward through the system to establish the national allocation.
- notwithstanding the previous point, there are “safeguards” in place to protect the market from over-production.
 - provincial allocation requests must be within a cap of 8% over the adjusted base.
The adjusted base is the proven allocation in the previous years plus or minus any specific period adjustments deemed necessary to meet market demand. The sum of all adjustments must equal zero.
There is also a regional cap of 5% over the adjusted base. By agreement the regional cap may be changed to suit the current market conditions.
 - Canada is broken down into three regions; West, Central and East.
 - the Operating Agreement provides for a market responsiveness pool which will allow one region to surpass the regional cap by an additional 1.5% if necessary to meet unique market demand.
 - there are several triggers that cause CFC to review the national or regional cap; such as storage stock levels, acceptable producer prices, and level of imports.

Market Development Policy: The CFC established a Market Development policy so that processors within a province could request and receive domestically raised chicken to meet the white meat demand. The dark meat surplus that results from both domestic and Market Development production may be exported or used to off-set imported chicken used in non-ICL products. The CFC Export Policy is an “umbrella” policy which established the parameters under which provincial export policies must operate.

The basic principles of the Market Development Policy are:

- quota allocation is limited to 14% of a province’s domestic allocation.
- processors agree, as part of their Market Development license, that an amount equivalent to their Market Development allocation will be exported or used in Non-ICL products.

Any amount approved under the Market Development Policy that remains on the domestic market is subject to a levy of \$1.00 per kg.⁴

Registered Producers

There are 290 registered chicken producers with quota in Alberta. The average farm produced 442690 kg (live weight) in 2004. The amount of chicken a producer may market every 8 weeks is determined using the following formula:

$$P = Q * D * C * U$$

Where P is live production (kg live/wk)
Q is the number of quota units
D is the conversion factor (0.40 kg/quota unit/week)
C is the length of the cycle (wk)
U is the percent utilization of each quota unit

Example: For the marketing cycle commencing March 6, 2005, quota utilization is 93.1% and conversion factor is 0.40 kg/quota unit/week. For a producer with 10,000 quota units, the live production they would be able to market in an 8-wk cycle would be:

$$P = 10,000 * 0.40 * 8 \text{ wk/cycle} * 93.1\%$$
$$P = 29792 \text{ kg/cycle}$$

The percent utilization of quota units is determined by dividing the provincial allocation by the number of available quota units in that period. This will bring to market the amount of chicken equal to the anticipated demand. [Current market conditions](#) are posted on the Alberta Chicken Producers website.

Unregistered Producer Individuals may produce and market up to 2000 birds annually without quota. Quota can be purchased or leased from current quota holders.

Communal farms may produce and market up to 6000 birds annually without quota. The [Meat Inspection Act](#) governing the inspection and sale of meat applies to all animals produced for food. The act states that it is an offense to sell or offer for sale any meat or meat products which have not been inspected either in an abattoir or in an establishment by provincial or federal authorities. Animals may be slaughtered on-farm for consumption by the producer and members of their household. However, the meat cannot be sold. Processors

There are, three provincially inspected processing plants, numerous colonies with provincial meat inspection and one further processing facility located throughout the province. Value-added processing has the largest growth potential in the poultry processing industry in Alberta.

Consumption

Consumer consumption of poultry meat has increased steadily from 16.9 kg per capita in 1982 to 31 kg per capita in 2004. The year 2002 was the first year that Canadians consumed more chicken than any other meat. Demand for chicken is usually higher during the summer months (BBQ season) and lower around the traditional holidays where turkey is eaten.

Current Issues in the Alberta Broiler Chicken Industry

Genetic Change

Genetic progress in the poultry industry is quite rapid compared to other species. You may ask yourself, "Why is this so?" Well, the answer is quite simple. Generation time is short (birds mature from chicks into hens in about six months) and each hen produces many chicks (over 120 chicks per hen) in about 40 weeks of production. Breeder companies select birds from their pedigree flocks that meet their requirements for growth, feed conversion efficiency, meat yield, reproduction or other production traits of interest. These birds become the great-grandparents of commercial broiler chickens.

The selection process of the primary breeder companies is so advanced that genetic improvement in growth rate of up to 3 percent per year is attainable. However, genetic change of such a magnitude has an impact on all aspects of the birds' physiology. As a result, the way the birds are managed has to be updated to fully realize the benefits of the increased genetic potential. Producers must change the way they feed and manage broilers as the birds change.

Welfare

Chicken Farmers of Canada, in consultation with various stakeholders developed a Code of practice for the production and handling of poultry. In addition, an Animal welfare program is in the final development phases. Together, combined with the On Farm Food Safety Program producers will be able to demonstrate that chickens are well cared for and are humanely treated. [Alberta Farm Animal Care](#) (AFAC) was formed by Alberta's major livestock groups in 1993. AFAC's goal is to improve animal handling and promote responsible animal care in Alberta.

Fast food chains play a role in the broiler chicken industry in animal welfare. Organizations like [KFC](#)⁵, [Burger King](#)⁶, [McDonald's](#)⁷ and [Wendy's](#)⁸ have animal welfare codes and third party auditing systems in place that are requirements for all of their suppliers in Canada and the US. The Food Marketing Institute (FMI) and the National Council of Chain Restaurants (NCCR) have created Animal Welfare Guidelines and auditing processes for their member companies in consultation with the agriculture industry. While this program has not been implemented in Canada yet, both Burger King and McDonald's are participants and will likely require compliance from their Canadian suppliers in the future.

Product Differentiation

Processors have also begun supplying poultry products that were fed no animal proteins or fats. Maple Leaf has given their version of this product a special brand: Maple Leaf Prime Naturally™ to build consumer loyalty.

Confined Feeding Operations

Alberta's Agricultural Operation Practice Act came into effect on January 1, 2002. AOPA introduced standards for environmental management by Alberta's livestock industry. Confined Feeding Operations (CFOs) are subject to siting requirements that will reduce the CFOs impact on neighbors. The act also requires that CFOs be environmentally sustainable.

The Natural Resources Conservation Board (NRCB) is responsible for CFO applications and approval, and also for compliance. The NRCB can be contacted via the website: <http://www.nrcb.gov.ab.ca/web/home/index.cfm>

This site contains the required application forms for expanding or constructing a CFO.

On-Farm Food Safety Assurance Program (OFFSAP)

The Alberta Chicken Producers have shown themselves to be leaders in the food safety area by making compliance mandatory for all of their producers. Alberta Chicken Producers passed a regulation at their 2003 Annual General Meeting that requires compliance with the On-Farm Food Safety Assurance Program. Alberta is the first province in Canada and Alberta Chicken Producers is the first commodity group to achieve 100 percent compliance with the CFIA recognized program.

Hormone Usage

Contrary to some popular belief, commercial broilers are not fed hormones. In fact, there are no hormones approved for feeding to chickens by the Canadian Food Inspection Agency in over 20 years.

How is chicken produced in Alberta?

Recommended Code of Practice

The Canadian Agri-Food Research Council has produced a Recommended Code of Practice for the Care and Handling of Farm Animals – Chickens, Turkeys and Breeders from Hatchery to Processing Plant. The code of practice promotes acceptable standards of animal husbandry and handling. It is always a challenge to balance the best interests of the animals with the demands of the poultry industry. Following the code of practice is voluntary. The CFC animal care program is based on the Code of Practice. This program will become an auditable program.

Beneficial Management Practices

The Alberta Chicken Producers, Alberta Egg Producers, Alberta Hatching Egg Producers, the Alberta Turkey Producers and Alberta Agriculture, Food and Rural Development have also developed a manual for environmental management for poultry producers. The purpose of the *Guidelines to Beneficial Management Practices: Environmental Manual for Poultry Producers in Alberta* is to document, for producers and society, management options that are environmentally sound, comply with existing regulations and are economically

feasible. The practices outlined in the manual are intended to reduce the nuisance effects of livestock production.

Housing

In Alberta, the most common broiler barn is a single storey building of stud-wall type construction. Broiler chickens are exclusively raised in open floor systems in Alberta. Barns should be designed so that they can be easily cleaned and disinfected between flocks. The [Technical Services Division](#) of Alberta Agriculture can provide expertise in facility development. The [Canada Plan Service](#) also provides designs for poultry facilities and equipment.

Stocking Density: Stocking density recommended in the Code of Practice is up to 31 kg/m² and up to 38 kg/m² if certain conditions are met. In Alberta, some high-tech operations are producing chicken at rates in excess of 40 kg/m². Performance may be reduced in high stocking densities, but returns per square foot can be higher if the flock is managed very carefully. For both animal welfare and economic reasons feed and water space and adequate ventilation are critically important when higher stocking densities are considered. Extra space per bird is recommended during hot summer months. Recent research points to the value of high pressure misting systems for improved performance and carcass quality.

Feeding systems: Auger-fed pan feeder systems have become an industry standard. Feed systems must completely circuit the barn and be arranged so that birds need not walk more than 3 m to access feed. During the first days of life it is a good idea to provide supplementary feed sources so the chicks are more likely to find feed easily. For example growers will place some feed on the paper that lined the chick boxes, which can be removed once the feed has been consumed. The code of practice recommends at least 5 cm of feeder space per bird. Most feed systems are hung from the ceiling of the barn using a winch system. This allows the system to be easily raised as the birds grow. The system can also be raised to the ceiling when the birds are loaded and for cleaning.

Watering systems: Watering systems should be arranged so that birds do not have to travel more than 3 m for water. During the first days of life supplementary watering systems can be used to ensure that chicks will have an ample supply of water. Watering systems, like feed systems are typically hung using a winch system. There are three types of watering systems commonly used in broiler production. Space requirements for each type of watering system recommended in the code of practice⁹ are below:

Table 1. Recommended Feed and Water Space

Type	Recommended Bird Density
Troughs/cups	2.5 cm per bird
Bell drinkers	1 per 120 birds
Nipples	5-20 birds/nipple

Lighting: The code of practice recommends a brighter light intensity for the first 3 days of life (no less than 20 lux or 2 foot candles) to assist the chicks in locating feed and water. To reduce aggression and hyperactivity light intensity may be lowered to 5 lux (0.5 foot candles) for the remainder of the cycle. There should be a period of darkness in each 24 hour cycle to avoid panic and pileup during power failures.

Heating: Bird behavior is a very reliable (the best) indicator of thermal comfort. Crowding on the perimeter of a heating zone indicates too high a temperature. Other signs that temperatures are too high are: panting, frequent wing flapping, frequent spreading of the wings, and pasty excreta on the cloacal area. Crowding in the area of the heat source or huddling indicate that the temperature is too low. Other signs that the temperature is too low are: feather ruffling, rigid posture, trembling, huddling, distress vocalization and birds piling on top of each other. When the birds are evenly distributed throughout the area the temperature can be considered optimal.¹⁰

Brooding temperature on the first day of life should be 28°C-32°C *at the height of the birds*, and lowered 2°-3°C every week until 21°C.¹¹ Early control of temperature is vital in minimizing mortality and condemnation rates, and maximizing bird potential.

Ventilation: Barns need to be managed so that birds can live in an ideal microclimate in spite of fluctuations in the outside environment.¹² Ammonia concentration should not exceed 25 ppm. Heating and ventilation equipment should be fitted with alarms and fail safe systems that are tested regularly.

Litter: Two types of litter are commonly used: wheat straw and coarse wood shavings. Dry litter is critical for the prevention of molds and mycotoxins which increase mortality and decrease performance. Litter should be placed in the barn and the brooding temperature established 2-3 days before chicks are to be placed in order to allow enough time for the litter to dry out and warm up before the birds arrive. Preheating litter improves performance, especially during the first week of life.

Cleanout: Barns should be thoroughly cleaned and disinfected before a new flock is placed in the barn. Failure to clean and disinfect properly could allow

harmful microorganisms to remain in the barn and cause problems in the new set of birds.

Common Problems and Risks

The primary problems in meat-type chickens are high condemnation and/or mortality rates due to ascites, cyanosis and cellulitis. Ascites is a metabolic disorder. It is a condition in which excess amounts of ascitic fluids (a combination of lymph and blood plasma which has leaked from the liver) accumulate in the body cavity.¹³

Cellulitis is an inflammation of subcutaneous tissue and is typically seen in the lower abdomen and thigh of broilers. E. coli is the predominant bacteria isolated from cellulitis lesions although other types of bacteria may be found.¹⁴

Condemnations: As provided for in Alberta Regulation 3/2000 s(12) processors pay for freight, dead on arrival birds and the first 2% of condemned parts (trim). Ascites and cellulitis have a significant impact on profits in the broiler industry. The following table summarizes the economic losses associated with these conditions. It should be noted that the economic losses shown here only account for the value of the birds. It does not account for plant losses associated with processing carcasses that are subsequently condemned, which could be considerable.

Table 2. Losses Associated with Ascites and Cellulitis in Alberta

Year	Total Condemns ¹		Ascites ¹		Ascites cost	Cellulitis ¹		Cellulitis cost
	AB	CAN	AB	CAN		AB	CAN	
1999	247.0	235.8	55.7	38.0	\$573,032	71.8	88.3	\$738,666
2000	199.7	222.9	50.3	32.3	\$578,912	57.5	90.0	\$661,7786
2001	177.1	191.5	40.8	26.0	\$454,086	58.2	87.1	\$647,740
2002	164.4	178.2	38.2	21.2	\$427,238	67.5	84.11	\$754,937
2003 ²	151.3	160.4	35.9	16.0	\$364,169	62.9	75.7	\$638,056

¹ Per 10,000 birds slaughtered (source: Agriculture and Agri-food Canada)

² January 2003 – November 2003 only

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- ¹ Chicken Farmers of Canada website: http://www.chicken.ca/E_who.htm
- ² Snapshot of the Canadian Chicken Industry, Agriculture and Agri-Food Canada. http://www.agr.gc.ca/misb/aisd/poultry/snap_chi.pdf
- ³ Snapshot of the Canadian Chicken Industry, Agriculture and Agri-Food Canada. http://www.agr.gc.ca/misb/aisd/poultry/snap_chi.pdf
- ⁴ Snapshot of the Canadian Chicken Industry, Agriculture and Agri-Food Canada. http://www.agr.gc.ca/misb/aisd/poultry/snap_chi.pdf
- ⁵ <http://www.kfc.com/about/animalwelfare.htm>
- ⁶ http://www.burgerking.com/CompanyInfo/public_policies/animal_handling_policy.aspx
- ⁷ <http://www.mcdonalds.ca/en/community/animal.aspx>
- ⁸ <http://www.wendys.com/w-6-3-1.shtml>
- ⁹ Recommended Code of Practice for the Care and Handling of Farm Animals – Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Agriculture and Agri-Food Canada, 2003.
- ¹⁰ Recommended Code of Practice for the Care and Handling of Farm Animals – Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Agriculture and Agri-Food Canada, 2003.
- ¹¹ Recommended Code of Practice for the Care and Handling of Farm Animals – Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Agriculture and Agri-Food Canada, 2003.
- ¹² Recommended Code of Practice for the Care and Handling of Farm Animals – Chickens, Turkeys and Breeders from Hatchery to Processing Plant. Agriculture and Agri-Food Canada, 2003.
- ¹³ Ascites, Alberta Agriculture, Food and Rural Development, 1999. [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/pou3546?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/pou3546?opendocument)
- ¹⁴ Cellulitis: It's Microbiology. Brenda Allen, 1996. [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/pou3642?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/pou3642?opendocument)