

HISTORY

Celebrated since the dawn of time, the egg is a symbol of fertility, creation, and new life. It is now an essential ingredient in many of our culinary traditions.

The ancient Persian and Celtic cultures celebrated the spring equinox with the gift of red-dyed eggs. Afterwards, the shells were carefully crushed in a ritual to drive away winter.

In the 9th century, the church banned eating eggs during the 46 days of Lent. Once the fasting was over, eggs that had been collected and saved during Lent were distributed to servants and children, who enjoyed them in a huge Easter omelette. Later, the nobility got into the act, decorating the eggs as a gift for their beloved, master, or King. By the 16th century, these springtime eggs were all the rage in the French royal court, where some were decorated by the great artists of the day. The popularity of the Easter egg peaked at the court of the Czar of Russia. By the end of the 19th century, the court jeweller, Carl Fabergé, was making fabulous eggs of gold, crystal, and porcelain.

Today, hand-decorated eggs are exchanged as springtime gifts in many cultures and play an important role in religious ceremonies on Easter morning. The decorated egg – be it cooked or raw, full or hollow, made of wood, clay, silver, sugar, or chocolate – remains an undeniable token of friendship and love.

PRODUCTION

The egg production cycle lasts about one year. Farmers select fertilized eggs from the egg-laying flocks. These eggs are hatched in *hatcheries*. Once hatched, day-old chicks are transported to a *pullet farm*, where they will grow until reaching 19 weeks of age and are ready to begin laying eggs. A *pullet* means a young laying hen who is not yet mature enough to lay

eggs.

At 19 weeks, the pullets are moved from the *growing barn* into the *laying barn*. Young hens are more likely to lay *double-yolked* eggs. As hens get older, they lay larger eggs.

Indoor housing is necessary to properly care for hens in Canada's variable and often harsh climate, and to protect them from the disease pathogens like avian influenza that is carried and spread by migrating birds.

Most eggs produced in North America come from hens housed in cages.

The cage system:

- Birds have ready access to *feed troughs* and water directly in front of their cages.
- Ensures the highest possible food safety and egg quality standards
- Protects hens from predators such as foxes, wolves, hawks, and weasels.
- Supports the hens' instinct to cluster together for security and social interaction, while helping producers maintain an appropriate group size
- Helps keep the eggs safe from the bacteria that can be found in chicken manure by allowing manure to fall outside of the cage, away from the hens and from the egg

In today's modern egg production, the eggs roll from the cages onto a conveyor belt leading to a central gathering area. After they are packed onto trays, eggs are stored in a temperature-controlled cooler, where they wait to be transported to grading stations. To maintain freshness, eggs are gathered daily, and sometimes more than once per day. Eggs are placed, large end up, on 2.5-dozen sanitized plastic trays called a *flat*. Eggs are



DID YOU KNOW?

The type of food a hen eats influences the colour of the yolk of the egg she produces. A hen that eats a wheat-based diet produces a pale-yellow yolk, while a hen that eats a corn- or alfalfa-based diet produces a dark yellow yolk. Yolk colour does not affect the nutritional value of the egg.

cooled after collection to keep them fresh and prevent bacteria from growing. The temperature must remain between 10° to 13°C, and humidity levels must stay below 85 per cent.

Other housing systems, such as enriched cage, free-range, or free run, are also available at some farms:

- An **enriched cage system** provides hens with a nest, perches, and the opportunity to forage in a small space, combining the food safety benefits of conventional housing with the animal welfare benefits of open housing
- A **free-run production system** allows hens to roam inside a laying barn
- A **free-range system** is like a free-run system, but gives the hens access to the outdoors in a fenced-off pasture, weather permitting

These production systems offer consumers choice – and are reasonable alternatives, provided the eggs are kept away from manure and the hens are protected from bad weather, predators, and disease-carrying wild birds.

PROCESSING

From the production unit, the eggs move to the *grading station* in a refrigerated truck. Eggs at the grading station are held in large coolers.

There are three major egg graders in Manitoba:

- Burnbrae Farms
- Countryside Farms
- Ackron Egg Farms

An additional 17 registered *shell egg stations* are approved to grade eggs by the Canadian Food Inspection Agency (CFIA). Eggs at the grading station are held in large coolers.

Large, computerized *grading machines* are capable of grading 600 boxes of 15 dozen eggs per hour (108,000 eggs per hour) – a whole lot of eggs! These machines unload the flats, then wash, candle, size, and pack the eggs in one continuous operation:

1. First, the flats are placed on the *loader*.
2. Then, a suction device removes the eggs from the plastic flat and places them on the *wash line*.
3. Next, the eggs travel through a series of brushes that wash and sanitize them.
4. The eggs then move over a *candler*, which shines a very strong light up through the egg to make the interior visible. The candler operator checks the condition of the egg white, yolk, and air cells. Eggs with cracks, blood spots, and dirt are removed from the production line.
5. From the candler, the eggs then pass over a series of electronic scales. Each egg is weighed and separated into extra-large, large, medium, small, and under grades.
6. From there, each egg size is conveyed to its own packing station. At this point, the eggs are a *Canada Grade A* product. The eggs are packed, by hand or automatically, into the flats or into one-dozen cartons. The grade is shown on the carton in a Canada maple leaf symbol, with the size indicated beside it. This symbol tells the consumer that the eggs in the carton have met Canadian grading standards set by the *Canadian Food Inspection Agency*.

The eggs in the smaller cartons are sold to grocery stores for consumers to buy. Larger cartons are sold to hotels, restaurants, and institutions. All these eggs go to what is known as the *table market*, which accounts for 70 per cent of Grade A egg consumption in Canada.

At the end of each week, any unsold eggs at the grading station are declared to the Provincial Egg Marketing Board as *industrial product*. The Egg Board removes these from the grading station and directs them to the *egg breaker*. By removing the excess



eggs, Manitoba consumers are guaranteed a fresh supply of quality product each week.

Once the eggs are at the breaker, they are broken and processed into:

- liquid whole eggs
- liquid yolk
- liquid egg whites (albumen)
- dried whole eggs
- dried yolk
- dried egg white powder

Liquid egg product is sold to large institutions, and used in muffin mixes, TV dinners, noodles, and mayonnaise. Some processors are involved in the boiling, peeling, and chopping of eggs which are then sold to the food industry.

Dried egg product is used in cake mixes and other packaged foods. A larger per cent of dried product is exported to other countries that value its nutritional content. Dried egg product does not require refrigeration, and because it lacks water, it's lighter and cheaper to ship.

One Canadian company extracts enzymes from eggs for biochemical and other high-tech industries.

DIET

An average hen will produce an egg almost every day. In order to maintain her body weight, the hen consumes around 100 grams of feed per day.

Hen feed contains wheat or corn for energy. Corn also provides some protein. Other protein sources include locally grown soy or canola meal. Omega eggs come from hens that have been fed flax, which is high in Omega-3 fatty acids. Hen feed also contains important vitamins and minerals, including calcium, which forms and strengthens the shell of the egg.

The *layer ration* of feed changes slightly from the *growing ration* to include slightly more protein and calcium. The calcium comes from oyster shells and/or limestone.

ANIMAL WELFARE

An egg farmer's top priority is the care and well-being of their hens. Technology helps farmers maintain the health and productivity of their hens by monitoring the amount of food and water consumed by the hens, as well as barn temperature, humidity and ventilation.

Strict rules are in place to ensure people don't bring diseases or germs into the barn that could harm the hens. These rules are called *biosecurity*, and include measures such as:

- wearing coveralls
- putting on clean shoes or wearing booties over your shoes
- wearing a mask and a hairnet
- logging who has visited the barn and where they visited before they came into the barn

Barn cleanliness is also extremely important. Every barn is washed and disinfected before pullets are moved in. The feed system, water lines, and egg-gathering equipment are monitored frequently.

Egg farmers are members of the Egg Farmers of Canada's national *Animal Care Program*. Through this program, field inspectors visit each farm to make sure the hens have a nutritious and well-balanced diet, fresh water, and a clean and comfortable environment to live in.

NUTRITION

Eggs are one of nature's most nutritious foods. One large egg contains only 70 calories and an incredible amount of nutrition, including six grams of highest-quality protein and 14 key nutrients. Eggs provide all the energy you need to keep going, making them the natural choice for a healthy, active lifestyle.

Eggs are a complete protein because they contain all nine essential amino acids. *Amino acids* are considered the building blocks for the body because they help form protein.

In addition to giving you energy, the protein found in eggs helps you:

- Build and repair body tissue and cells
- Grow strong hair and nails
- Build and maintain healthy muscles
- Fight infections
- Keep your body fluids in balance

INDUSTRY IN MANITOBA

Production: About 76 million dozen (2021)

Number of Producers: 170 (2019)

Value to Economy: \$127.5 million in farm cash receipts (2019)

Manitoba produces 10% of the total eggs in Canada!

INDUSTRY IN CANADA

Production: 762.3 million dozen (2019)

Number of Producers: 1,172 (2019)



FARMER PROFILE



ABE LOEWEN Fisher Branch, Manitoba

“I love what we do. As Manitoba egg farmers, we get to produce a food that is healthy and that people want. It’s such a joy to provide something the public also enjoys.”

CAREERS

- » Poultry farmer
- » Agricultural economist
- » Nutritionist
- » Candler
- » Field inspector
- » Marketing specialist
- » Egg grader
- » Veterinarian



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