

# Eggs



## History

Celebrated since the dawn of time, the egg is a symbol of fertility, creation, and new life. Though long considered a springtime food, it has now become 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. The eggs were shared at a meal, and afterwards the shells were carefully crushed; a ritual to drive away winter.

Eggs are very popular at Easter. In the 9<sup>th</sup> century, a ban on eating eggs during the 46 days of Lent was established. The eggs were collected and saved during Lent. Once the fasting was over, they were distributed to the servants and children, who generally enjoyed them in a huge Easter omelette.

As the practice became more refined, the nobility got into the act, using the last days of winter to decorate eggs to give to their beloved, their master, or the King. By the 16<sup>th</sup> century, these springtime eggs were all the rage at the court of France, with some being decorated by a few of the greatest artists of the day.



The popularity of the Easter egg reached untold heights at the court of the Czar of Russia. By the end of the 19<sup>th</sup> 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 a very important role in religious ceremonies on Easter morning. Some families carefully save their egg collection, passing them on from generation to generation.

Whether straight out of ancient tradition, brought from Rome on the sound of church bells, or mysteriously laid by the Easter Bunny, the decorated egg, be it cooked or raw, full or hollow, made of wood, clay, silver, sugar, or chocolate, will no doubt remain an undeniable token of friendship and love.

## Production

The egg production cycle lasts about one year. Day-old chicks are purchased from hatcheries that specialize in hatching egg-production pullets (a hen that is less than a year old). Pullets are reared to 19 weeks of age by egg producers or pullet growers until they are ready to begin laying eggs.

At 19 weeks, the pullets are moved from the growing barn into the laying barn. Young hens are more likely to lay double-yoked eggs. As the hen gets older she lays larger eggs.

The cage system is the preferred housing system for today's egg production and ensures the highest possible food safety and egg quality standards. Since Canada's climate is so variable and frequently harsh, indoor housing is necessary if hens are to be properly cared for.

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Cages provide a safe, healthy environment for hens by maintaining an appropriate group size and keeping them protected from predators, such as foxes, wolves, hawks, and weasels. Cages also support the hens' natural instinct to cluster together for security and social interaction.

Most of the eggs produced in North America come from hens housed in cages. Birds have ready access to the feed troughs directly in front of their cages, and water is easily accessible from each cage.

Cage systems also help keep the eggs safe from the bacteria that can be found in chicken manure. They are designed to allow manure to fall outside of the cage, away from the hens and from the eggs. In today's modern egg production, the eggs roll from the cages onto a conveyor belt leading to a temperature-controlled central packing area. To maintain freshness, eggs are gathered two or three times each day. Eggs are placed, large end up, on a 2.5 dozen sanitized plastic tray, called flats. Eggs are cooled after collection to keep them fresh and prevent the growth of bacteria. The temperature must be between 10 to 13°C and humidity levels between 75% and 85%.

Other housing systems such as free-range or free-run are also available at some farms. Free-run refers to a production system where hens can roam inside a laying barn. A free-range system is similar to a free-run system, except the hens have access to the outdoors in a fenced-off pasture. These production systems offer consumers choice and are reasonable alternatives, provided that 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. The large, computerized grading machines are capable of doing 600 boxes of 15 dozen eggs per hour (108,000 eggs per hour). They unload the flats, wash, candle, size, and pack the eggs in one continuous operation. Two and a half dozen flats are placed on the loader. A suction device removes the eggs from the plastic flat and places them on the wash line. The eggs go through a series of brushes that wash and sanitize the eggs. The eggs then move over a candler.

The candler has a very strong light that shines up through the egg. This makes the interior of the egg visible. It is at this point that the candler operator checks the condition of the egg white, the yolk, and the air cells. Eggs with cracks, blood spots, and dirt are removed from the production line.

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. Each egg size is conveyed to its own packing station.



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At this point the eggs are Canada Grade A product, and the packaging conveys the symbol of a maple leaf with *Canada A* written inside. The eggs are packed by hand or automatically, into two and a half dozen flats or 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. The 15 dozen boxes are sold to hotels, restaurants, and institutions. All of these eggs go to what is known as the “table market.” The table market accounts for 70% of Grade A egg consumption in Canada.

At the end of each week, the unsold eggs at the grading station that are in excess of the table demand are declared by the grading station to the Provincial Egg Marketing Board as “industrial product.” The Egg Board then removes these industrial product eggs from the grading station and they are directed to the egg breaker. By removing the excess eggs, Saskatchewan consumers are guaranteed a fresh supply of quality product each week.

Once the eggs are at the breaker, they are broken and further processed into liquid whole eggs, liquid yolk, liquid egg whites (albumin), dried whole eggs, dried yolk, and dried egg white powder. Liquid product is sold to large institutions, and also used in muffin mixes, TV dinners, noodles, and mayonnaise. To a lesser extent, 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 that use eggs. A larger percent of the dried product is exported to other countries where it is valued for its nutritional content. Dried

egg product is ideal for these uses because it does not require refrigeration, and without the added weight of water it is cheaper to ship.

One Canadian company is involved in the extraction of enzymes from eggs for use in the biochemical and other high technology industries.



## Diet

An average hen will produce an egg almost every day. In order to maintain her body weight, the hen will consume 16 grams of feed, of which 75% of the ration is Saskatchewan wheat. Some producers will blend the wheat with barley.

The layer ration is changed slightly from the growing ration; protein and calcium are increased slightly. The calcium source is oyster shell and or limestone. The nutritional balance of the layer ration is adjusted to balance the increase in protein and calcium.

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A hen's feed determines the colour of the egg yolk. A hen that eats a wheat-based diet (more common in the Western provinces) produces a pale yellow yolk, while a hen consuming a corn- or alfalfa-based diet produces a yolk that is dark yellow. Yolk colour does not affect nutritional value of the egg.

## Animal Welfare

The care and well-being of their hens are egg farmers' top priority. Technology helps farmers have healthy, productive hens. The amount that the hens eat and drink is watched closely, barn temperatures are monitored, and there are very strict rules that must be followed by people coming into the barns so that they do not bring diseases or germs to the hens. Cleanliness is very important and the barn is washed and disinfected before the pullets are moved in. The feed system, water lines, egg-gathering equipment, and ventilation are monitored frequently.

Egg farmers are also part of a 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

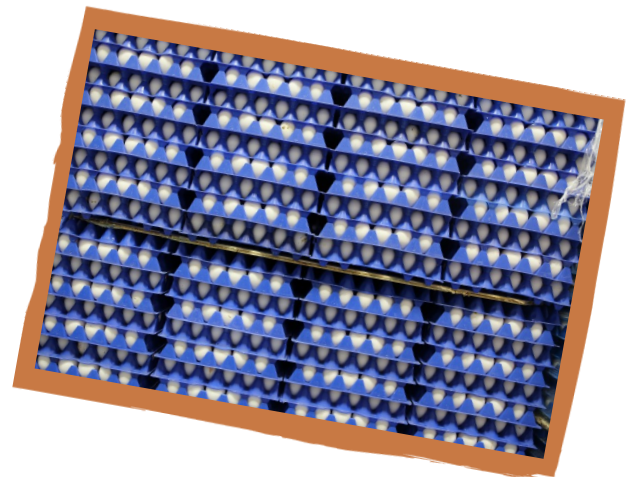
Eggs are one of nature's most nutritious foods. One large egg contains only 70 calories and an incredible

amount of nutrition. With 6 grams of the highest quality protein and 14 key nutrients, eggs provide the energy needed to keep you going. They are a natural choice for a healthy, active lifestyle.

Eggs are one of the few foods considered to be 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, your body uses the protein found in eggs to:

- Build and repair body tissue and cells.
- Grow strong hair and nails.
- Build and maintain healthy muscles.
- Help fight infections.
- Help keep your body fluids in balance.



## Industry in Saskatchewan

Production: 34,288,095 dozen (2019)

Number of Producers: 72 (2019)

## Industry in Canada

Production: 762,316,007 dozen (2019)

Number of Producers: 1,172 (2019)