

# History and evolution of food preservation



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## **Abstract**

Food starts to deteriorate as soon as they are harvested, this spoiling is caused by microorganisms such as chemical changes, physical changes or bacteria. The constant interest in sustainable agriculture suggests that we are in the middle of a major food revolution. In general, every step of food processing, handling, storage and distribution affects the characteristics of food either positively or negatively. This is why understanding what affects food preservation positively is very important.

Slowing down the spoilage of food involves understanding what affects food positive, this became a necessity because sometimes humans cannot eat everything they harvest before it spoils. Food preservation helped ancient men to make roots, live in one place and build a community as they no longer had to consume food immediately. Different cultures or regions preserved their foods differently before a common way of preserving food was discovered. The Food preservation journey started from the ancient art of sun drying and advanced to curing, chilling, fermenting, preservatives, freezing and so much more.

This reports involves discovering how food preservation started in the early days and how it has evolved over the years. It will also highlight the key events in the evolution of food preservation. The goal is to show the importance of innovation management to a food preservation company. This has been done by examining one of the food preservation companies and highlighting the major management factors that made the company successful.

## What is Innovation Management?

Innovation is the act or process of changing or transforming. Innovation management is the process of managing the changes in the organisations procedures from it planning to the implementation.

Preserving food in eastern countries proved difficult due to the extreme levels heat and humidity. Methods such as wrapping food in dried leaves and burying it to dry further was used to combat the food preservation issues. Roughly two centuries ago, people living in very cold regions used freezing to preserve the meat they hunted. So, different regions have used different methods to preserve food at different points in time and different seasons.

## Brief History of Home Canning Jars

### Early Canning

In the 19<sup>th</sup> Century, Soldiers and Seamen at war in Napoleons army were surviving on salt- preserved meats. These foods had low nutritional value because they were poorly cured and this developed an outbreak of scurvy. This epidemic provided motivation to procure new methods of storage or preservation to the extent that a large sum was offered to any person who could discover a better method to preserve their foods so the soldiers are strong enough to fight. 12, 000 franc pieces was offered to the person that could discover a safer and healthier method to preserve food. The French government knew that offering a reward will motivate scientist to research extensively and come up with a solution.

Nicolas Appert, a French chemist was able to win the reward. He discovered that hot food was preserved in sealed containers as long as the container remained closed without any leaks. This is how canning was first discovered.

### Mason Jars

In 1858, John L. Mason a tin smith in New York City invented the next stage of canning which is a mason jar. He did an observation which showed that it is possible to manufacture a reusable jar with a screw-on lid. After his observation he proceeded to invent a machine that cuts threads into lids. He stood out from his predecessors because of the sealing mechanism: a glass container with a thread moulded into its top and a zinc lid with a rubber ring. The rubber around the lid made a seal and the thread made sure the lid stayed in place. " Masons Patent November 30<sup>th</sup> . 1858."

Mason jars made food preservation at easier and it was relatively cheap, it spread quickly to farmers, businesses, families and so on. Unfortunately, Mason didn't have the resources to turn his invention to a company or make it a brand, he sold his right to people and died around 1900.

### Lighting Jars

A fruit jar was invented by Henry Willian Putnam of Bennington in 1882. The jar had a glass lid and a metal clamp was used to keep the lid in place. This invention became popular because the food wasn't contaminated by the metal as it didn't come in contact with it. These jars where called " Lighting Jars" because the metal clamp made it easy to remove and seal lids.

### Kerr Jars

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The next breakthrough in canning methods was invented by Alexander H. Kerr. He was the founder of the Hermetic Fruit Jar Company in 1903, his products included the Economy and Self-sealing jars. The first wide-mouth jars which are a lot easier to fill were the Economy jars. He used aspects from Julius Landsberger which was a metal lid with a permanently attached gasket. This aspect made the lids cheap and the lids easier to use.

In 1915 he created a smaller, flat metal disk using the Julius Landsberger aspect. The lid he invented was used to lock the top of the mason jars (a threaded metal ring was used to hold the lid down during hot water processing). This made it possible to re-use old canning jars and also made the lids cheaper and disposable. Alexander's invention is what gave birth to the two-part lid preservation method used today.

Over the years science has been used to discover advanced techniques of preserving food, this timeline can be seen in the table below.

#### Historical Timeline of Canning

1795 Napoleon offers a reward of 12 thousand francs for the invention of a new food preservation method

1809 Nicolas Appert wins Napoleon's reward

1810 Peter Durand creates the "tin canister"

1811 Robert Ayars opens the first American cannery

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John L. Mason patents the Mason jar

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The Ball Corporation starts manufacturing glass jars for home canning

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Alexander H. Kerr and the Kerr Glass Manufacturing Corporation create a home supply business

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Alexander H. Kerr is granted patent for his two-piece disposable metal canning

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The U. S. Department of Agriculture determines that pressure canning is the one way to process low-acid foods

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Peak in home canning in the United States, with more than four billion cans and jars processed

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Aluminium was introduced in metal can making

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Two piece can developed. Found to use less metal than the traditional three-piece

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Retained ring pull ends for the beverage industry are introduced.

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Today's Canning

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The modern techniques of canning fill jars with foodstuffs such as tomatoes, berries, cucumbers etc. cover it with lids and heating them up until a seal forms under the lid. This forces air out of the food and the jar, a vacuum is created in an acidic environment so bacteria can't grow.

Using this techniques companies are able to store food for as long as a year and even more.

#### A Successful Canning Company: Heinz

Heinz is an American food processing company based in Pittsburgh, Pennsylvania. It was founded by Henry John Heinz in 1869.

This company has succeeded for over 140 years because of its quality, variety of products and Marketing.

Quality: When Henry John Heinz started selling the bottled horseradish sauce in Pittsburgh from 1869, which was his first product. He aimed for high standard and great packaging. He demonstrated his standards by using clear glass bottles for packing to show that he had nothing to hide. The fact that his consumers could see what they were purchasing through the glass made the quality of the products very important.

Most companies reduce in the quality of the goods they produce as they get bigger. Heinz is ranked first in ketchup worldwide, they been able to maintain that position for over 20 years. They have been able to maintain this position by continuously producing the same quality of products over the years.

Accessibility: The best way for a company to grow is by making its products accessible worldwide. This will expand its customer base and attract more as well.

In 1886 Heinz Tomato Ketchup was launched in the UK. UK is a tourist place and it is diverse so it has people from different backgrounds and cultures. This is a very smart business idea because people that come on vacation will get introduced to the brand therefore spreading the brand name further. This was also a good way to explore the market in the UK and see if it is a good idea to expand there.

Heinz started exporting spaghetti, baked beans and tomato ketchup from America to the UK and Canada in the 1920s. The people in the UK were already aware and as we all know people usually buy from brands that they are familiar with. Therefore, when Henry further expanded and started a production in the UK, 10,000 tonnes are produced in the first year.

In the 1990s Heinz starts distributing in Russia and China. Most business owners purchase their products from China as it is known as the mother of inventions. This gives most small businesses the opportunity to purchase Heinz products from China and sell in other countries. Heinz started from distributing in 60 countries in 1990, now Heinz markets its products in more than 200 countries. It is almost impossible not to find a Heinz product in every supermarket worldwide.

Variety: Variety is very important in every aspect of life and that includes food. Giving customers a good range of options can have a huge impact on how they are attracted and built their customer base.

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In 1896, Henry saw a poster of a shoe company that had 21 styles of shoe. This gave him the idea of variety and giving his customers options. Henry then decided to think about how many products he could provide for his consumers and that is what gave birth to the “ Heinz 57” varieties.

In 1931 Henry's son adds more to the Heinz range of products by adding ready-to-serve soups and baby food. This gave the customers the option of a fast and easy meal. It also catered for mothers that liked the brand as they could get Heinz baby food.

A good management approach when dealing with food is to consider most or all diet requirements of the costumers. This was one of the approaches that Heinz used to become as successful as they are now. Over the years more products have been added to the brand to give the customers more variety.

Marketing: Determining the best way to reach customers to make them aware of products and persuade them to buy can be a challenge.

In the 1930s Heinz used sales men for marketing, the men had to be 6ft tall, well dressed and very fluent at speaking. They also had vacuum flasks, pickle forks and olive spears. This is a very good way to represent the brand and grab the attention of customers. A tall well-dressed man will be easily noticed and people are more likely to listen because of his presentation. Like the saying goes “ the way you are dressed is the way you will be addressed”. Also the equipment's they were given could be used as accessories for the food stuffs sold. For example the flask could be used to keep the soup warm just to be prepared if customers asked to taste one of the products.

In 1955, Heinz was advertised on ITV channel, this was a new channel. They used colourful posters to attract the attention of people watching the advert. They also made sure the advert was catered to their target market which was families. They did this by making a chant on the advert which said

“ Heinz 57, Heinz 57. You’ve a family to feed. Heinz have everything you need. Ready when you are, yes indeed. That’s Heinz 57!”

### Conclusions

In conclusion, food preservation has been very useful to the society we see today. It has come from not being able to store food to the simple process such as salting to more complex and long lasting preserving methods. Looking into the future, scientist are still searching for an uncontaminated, cheap and healthy methods to preserve food.

Henry Heinz was able to start a canning company from his mum’s farm, manage it properly and slowly make the changes necessary for it to be successful today. Heinz isn’t the first or only canning company but it has managed to stay relevant for 140 years. The management team were able to administer the plans that helped the company improve and to move forward. They have been able to respond to the market changes and customer needs over the years, this is what made Heinz brand to stand out and retain loyal customers.

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