ICE-CREAM & FROZEN DESSERTS

Module 1. History, development and status of ice cream Industry

Lesson 1
ORIGIN AND PROGRESS IN DEVELOPMENT OF ICE CREAM AND FROZEN DESSERTS INDUSTRY

1.1 Introduction

Ice cream evolved from the iced beverages and water ices that were popular in the early medieval period. Alexander - the Great enjoyed snow and ice flavored with honey and nectar. Biblical references also show that King Solomon was fond of iced drinks during harvesting. During the Roman Empire, Nero Claudius Caesar (A.D. 54-86) frequently sent runners into the mountains for snow, which was then flavored with fruits and juices. Centuries later, the Italian Marco Polo returned from his famous journey to the Far East with a recipe for making water ices resembling modern day sherbets. Over a thousand years later, Marco Polo returned to Italy from the Far East with a recipe that closely resembled what is now called ‘sherbet’. Historians estimate that this recipe evolved into ice cream sometime in the 16th century. England seems to have discovered ice cream at the same time, or perhaps even earlier than the Italians. ‘Cream Ice’ as it was called, appeared regularly at the table of Charles I during the 17th century.

France was introduced to similar frozen desserts in 1553 by the Italian Catherine de Medici when she became the wife of Henry II – Duc d’Orleans of France. It wasn't until 1660 that ice cream was made available to the general public. The Sicilian Procopio introduced a recipe blending milk, cream, butter and eggs at *Café Procope*, the first café in Paris.

The earliest reports of people enjoying flavored ice desserts come from the Romans and the Chinese. Marco Polo returned from his famous expedition with fruit-flavored ices, reporting that Asians had been making them for thousands of years. These delicacies became popular in France in the 1500s, but only among royalty. Over the next few centuries, the process of making them evolved from hauling mountain ice to salt/ice freezing methods. Cream was introduced as an ingredient, and by the 1700s, people were enjoying a dessert that was very similar to today's ice cream.

The history of ice cream is closely associated with the development of refrigeration techniques and can thus be traced in several stages:

1. Cooling food and drink it after mixing it with snow or ice.

2. The discovery that dissolving salts in water produces cooling.

3. The discovery that mixing salts and snow or ice cools even further -in mid to late 17th century; the inclusion of cream in the water ices also evolved around this time.

4. The invention of the ice cream maker in the mid 19th century.

5. The development of mechanical refrigeration in the later 19th and early 20th centuries, led to the development of the modern ice cream industry.

According to popular accounts, Marco Polo (1254-1324) saw ice creams being made during his trip to China, and on his return, introduced them to Italy.

Iced sweetmeats and other frozen dainties had their origin in Egypt or Babylon.

Ice cream making was revolutionized in 1851, when Jacob Fussel started the first wholesale ice cream manufacturing operation in Baltimore, Maryland. Fussel's dairy business had excess cream and was in dilemma as to what to do with it. He tried using it to make ice cream, and before long his ice cream business outsold the rest of the dairy.

Mix processing in 1941 was carried out by batch pasteurization (Sommer, 1944). While that is still common today in many dairy operations, most large installations have moved to continuous (HTST) pasteurization.

The hand-cranked ice cream freezer was first developed by Nancy Johnson in 1846. The earliest electrical freezers were batch style and either salt and ice or brine cooled, but the design was based on the principles of a scraped surface freezer.

Manufacturing methods and ingredients improved, while refrigeration technology became cheaper and more efficient. By the 1920s, home refrigerators and frieezers became more common, which gave the ice cream industry another boost. The rise of the giant supermarket created demand for cheaper, mass-produced ice cream, but quality suffered.The 1960s saw a resurgence in ‘premium ice cream’, while the following decades saw the market fragment into low-fat varieties for the health-conscious, including frozen yogurt, fruit bars, ice milk, fat-free ice cream, etc.However, ice cream still makes up ~ 60 % of the market share among frozen desserts.

The development of industrial refrigeration by German engineer Carl von Linde during the 1870seliminated the need to cut and store natural ice and when the continuous-process freezer was perfected in 1926, it allowed commercial mass production of ice cream and the birth of the modern ice cream industry.

Table 1.1 Developments in ice-cream and frozen desserts

1800	Insulated ice houses were developed.
1843	Hand cranked ice cream freezer patented by Nancy Johnson of Philadephia.
1874	Invention of ice cream soda by Robert Green.
1890s & Late 19th century	In response to religious criticism for eating "sinfully" rich ice cream sodas on Sundays, ice cream merchants left out the carbonated water and invented the ice cream 'Sunday'. The name was eventually changed to 'Sundae' to remove any connection with the Sabbath. Ice cream sundae originated.
1900	Development of condensed and dried milks took place. Pasteurizer and homogenizer were introduced; improved freezers and other processing equipments were developed.
1904	Several food vendors claimed to have invented ice cream cone at World's Fair in St. Louis, Missouri.
1921	The value of ice cream as an essential food was recognized.
1970s	Prepackaged ice cream sold through supermarkets, specially ice cream stores.
Early 20th century	Ice cream cone and Banana split became popular. Ice cream soda was popular treat at soda shop, the soda fountain and the ice cream parlor.
20th century	Introduction of soft ice cream, stabilizing agent gluten to which some people have intolerance; 'Gluten free ice cream'.
1980s	Return of older, thicker ice creams sold as 'premium' and 'super-premium' varieties under brands Ben & Jerry's and Haggen-Dazs.

1.2 Development of Continuous Ice Cream Freezers

1.2.1 Vogt Freezer

The principle of operation of Vogt freezer is same as that of the disk type freezer, but direct cooling system is used here and a tube shaped freezing cylinder which causes extremely fast freezing mixture. Metered amount of air and mix is forced into the freezing tube and emulsified there.

1.2.2 Creamery Package Continuous Freezer

Compressed air is passed through a filter, a pressure gauge and check valve which are provided in the line. Ice cream mix is pumped with the help of mix pump and enters the freezing cylinder along with air. Ice cream after freezing is pumped out with the help of discharge pump.

Currently the manufacturers have come up with low temperature continuous freezers which can draw ice cream at -15°C, yielding extremely small sized ice crystals making the ice cream very smooth and preventing coarseness since more percentage of water in ice cream mix is frozen.

1.3 Ice Cream Cone

The first ice cream cone was produced in 1896 by Italo Marchiony. Marchiony, who emigrated from Italy in the late 1800s, invented his ice cream cone in New York City. He was granted a patent in December 1903.

A similar creation was independently introduced at the 1904 St. Louis World's Fair by Ernest A.

Hamwi, a Syrian concessionaire. Hamwi was selling a crisp,waffle-like pastry - zalabis - in a booth right next to an ice cream vendor. The vendor ran out of dishes and to solve the situation he quickly rolled one of his wafer-like waffles in the shape of a cone, or cornucopia, and gave it to the ice cream vendor. The cone cooled in a few seconds, the vendor put some ice cream in it, the customers were happy.

As the modern ice cream cone developed, two distinct types of cones emerged. The rolled cone was a waffle, baked in a round shape and rolled as soon as it came off the griddle. In a few seconds, it hardened in the form of a crisp cone. The second type of cone was molded either by pouring batter into a shell, inserting a core on which the cone was baked, and then removing the core; or pouring the batter into a mold, baking it and then splitting the mold so the cone could be removed. Now, millions of rolled cones are turned out on machines that are capable of producing about 150,000 cones every 24 hours.

Modern era – Ice cream cakes, pies, stick items, novelties and many other items have been introduced from time to time.

The ice cream cone made its mark at the Louisiana Purchase Exposition in St. Louis, Missouri (St. Louis Fair) in 1904. There are conflicting legends about various waffle makers who started selling waffles folded into cones to ice cream vendors who ran out of plates.

Howard Johnson's restaurants advertised "a world of 28 flavours." Baskin-Robbins made its 31 flavours (one for each day of the month). The company now boasts that it has developed over 1000 varieties. Based on ice cream consumption figures, the top five individual flavors in terms of share of segment in the US are: vanilla (30%), chocolate (10%), butter pecan (4%), strawberry (3.7%) and chocolate chip mint (3.2%) (NPD Group's National Eating Trends Services).

Ice cream flavors are only limited by the imagination. Manufacturers, scoop shops and chefs constantly come up with new and exciting flavors for their customers.To keep consumers looking to see what's next in the freezer case, individual processors often release limited time ‘seasonal’ flavors, such as gingerbread, peppermint or caramel ice cream for the November/December holidays.

In the United States, Dairy Queen , Carvel , and Tastee-Freez pioneered in establishing chains of soft-serve ice cream outlets.