

CHAPTER I

INTRODUCTION

I.1. Historical Background

The origin of sugar candy dates all the way back to the caveman. They satisfied their craving for sweets by gathering honey from beehives. During ancient times the Egyptian, Arabs, and Chinese added to the sweet taste of the honey by mixing it with different fruits and nuts.

During the Middle Ages candy moved from a honey to a sugar base. People discovered that if they added water to the sugar, they were able to make a sweet concoction. Unfortunately, due to the high cost of sugar, this delicacy was only consumed by the very wealthy.

During the 17th-century in England boiled sugar candies were enjoyed throughout the land. This delicacy traveled overseas with the English to the new world. It was then discovered that one could make different types of candies simply by changing the temperature of the sugar and water concoction. If you wanted hard candies, you would use high heat, and if you wanted chewy candies, you would use low heat. For soft candies, you would use a medium heat.

In 19th century America there were over 300 factories producing "penny candies" that were sold loose from glass jars in

general stores. These factories were not like the factories we know today; they were small areas found mainly in the rear of a general or neighborhood store. This revolution of factories was driven by two discoveries, sweet beet juice, which was lower in cost than sugar, and the invention of mechanical appliances to make the candy.

In 1917 World War I began and shortly thereafter prices of candy soared as Americans rationed sugar, milk, and butter, among other raw materials. Once again, candy became a treat only for the wealthy. During the roaring 20's America became prosperous again. However, this was all halted on Black Tuesday in October, 1929, when the stock market crashed. This was the beginning of the Great Depression, and, as a result, the candy business found itself in a state of turmoil.

In the late 30s, as Americans were still battling through the Great Depression, WWII broke out in Europe. America's involvement began in December of 1941 after the bombing of Pearl Harbor. Candy prices soared as we once again began rationing raw materials.

In the 1960's more novelty candies were invented and marketed much to the delight of the growing population of young children and teens. In the early 1980's inflation was running at an all-time high and home mortgage rates were in the 15 to 17 percent range. As a result of this economic downturn, generic products became the rage in many categories. However, in the confection

category this was not a factor. People did not give up on their favorite brands of candy - this was one of the indulgences they chose to continue spending their money on. The conversion from the gas stations to convenience stores expanded the number of outlets where consumers could purchase their favorite candies.

(www.Brachs.com)

Before the use of hydrochlorate of phthalein of diethyl-*meta*-amidophenol to make pink, sodium salt of tetraido fluoresceine for cherry red and chlorophyll of spinach to obtain green colored candy became popular, the confections would use extracts of chromium, copper, mercury, and even arsenic to color the candy—until this practice was declared dangerous by an article in “The Lancet” in 1850.

I.2. Ingredients

Sucrose, which can be extracted from either beet sugar or sugar cane, is acknowledged as the main ingredient of candy. It is a non-reducing disaccharide with dextrose and fructose as its elemental monosaccharide. But as the issues such as diabetes, obesity, and quest for healthier diets continues; the use of sucrose has been slowly replaced by sugar substitutes or polyols, which are sorbitol, maltitol, lactitol, and hydrogenated glucose syrup—the derivations from hydrogenated enzyme-converted glucose syrups.

Acids play an important role in the making of confections, for it affects the flavors of fruit, cocoa and peppermint flavored confections. Tartaric acid $[\text{HOOC}-\text{CH}(\text{OH})-\text{CH}(\text{OH})-\text{COOH}]$ which are prepared from potassium hydrogen tartrate, used to be the only acid used in sugar confectionery, but today it has been replaced by citric acid $[\text{HOOC}-\text{CH}_2-\text{C}(\text{OH})(\text{COOH})-\text{CH}_2-\text{COOH}]$ which can now be produced by fermentation through the action of certain molds and sugar syrups or molasses.

Another important component in candy making is synthetic flavors. This ingredient is an exceedingly intricate blend of substances which is generated through many years of hard work only to find a compound that produce a particular flavor that are chemically stable.

I.3. Economical Prespect

Some say the way to one's heart is through the stomach, which explains why it has never been wrong or impolite for us to offer a bar of candy or chocolates to even a perfect stranger. Consumed in almost all regions in the world—both to the poor and to the rich—candy has become one of an international food agent which reaches the corners of the world. Candy has been used in countless places as a tool of bribery to tokens of love; thus with the many roles it plays in the daily life, candy has surely made its own way through the demanding market as a consumption trend which

kept on rising. Even in our current national economy condition, the candy industry is thriving; since it is not something that people necessarily cut out of their lives when they're watching their money. Nicholas Whittaker in his book "Sweet Talk: The Secret History of Confectionery" stated:

"Sweets, if not a first gift a child receives, are certainly the first things they buy for themselves. Exchanging coins for candy is Lesson One in the Child's Guide to Consumerism."

Hard candy is a standard type of sweet which has the widest range of consumer. Taste variations in hard candies can easily made by molding different kinds of essences, spices, etc into the primary dissolved sugar dough, while variations in appearance can be arranged by simply varying the food coloring used. Hard candy is also considered as a more luxurious type of candy, thus may act as gifts and tokens in the same way as the chocolates, but it has the 'long-lasting' nature that gives more to it; while the operations are quite simple.

(McDowell & Willis, 2001)

I.4. Production Capacity

According to Fraunhofer (2002); in year 2001, hard candy production in Indonesia (56,878 ton) reached 57.8% of total candy marketed (98,404 ton). The brand with the highest production rate is Relaxa with a total production of 9,100 ton in 2001, and followed with Kopiko(7,679), Hexos(1,422), Fox(1,365), etc; while total

consumption on candy showed a 12.6% increase from 1998 (51.236) to 1999, 7.4% from 1999 (57.685) to 2000, and 9.3% from 2000 (61.961) to 2001 (67.705) with the average increase of 9.5% per year.

From the paragraph above, a prediction in total candy consumption for 2006 can be made:

$$2002 : 67,705 \text{ ton} \times 109.5\% = 74,137 \text{ ton}$$

$$2003 : 74,137 \text{ ton} \times 109.5\% = 81,180 \text{ ton}$$

$$2004 : 81,180 \text{ ton} \times 109.5\% = 88,892 \text{ ton}$$

$$2005 : 88,892 \text{ ton} \times 109.5\% = 97,337 \text{ ton}$$

$$2006 : 97,337 \text{ ton} \times 109.5\% = 106,584 \text{ ton}$$

From this total candy consumption, we assume that 57.8% are hard candies, which made a total of 61,605 ton. Since there is quite a selection in hard candy, as a starter we shall work out at least 1% of the market which is 616 ton per year. Since the high market growth rate, we shall take the 616 ton per year as about 70% of the initial capacity. Thus the initial capacity would be 900 ton per year and since 1 year is 300 days, daily production will be 3 ton per day.