Ice Cream

Making ice cream is a creative process. The components of the mix and the complexity of the manufacturing process result in finished products that can vary in both obvious and subtle ways.

Ice Cream is essentially foam, which means that it is largely air. The air is introduced in the ice cream during the manufacturing process and is referred to as overrun. The overrun content of the finished product affects the appearance, texture, consistency, and mouthfeel of the ice cream.

Like orange juice and pancake syrup, ice cream in is a government-regulated product. By definition ice cream must contain 10% milk fat and 20% total milk solids. One gallon must weigh at least 4.5 pounds and contain not less than 1.6 pounds of food solids.

The basic ingredients of ice cream are milk products, sweeteners, stabilizers, flavors, and, or egg products. Since milk and cream do not contribute enough solids for commercial ice cream, they must be supplemented with condensed or non-fat dry milk. As the fat content increases, the percentage of air decreases, resulting in a higher the grade of ice cream.

Ice Cream Definitions

10% butterfat (min.) = Ice Cream
5% butterfat (min.) = Low Fat Ice Cream
3% butterfat (min.) = Light Ice Cream
0.5% butterfat (min.) = Non Fat Ice Cream

Ice Cream Manufacturing

The first step in manufacturing ice cream is blending the ingredients to create what is referred to as the “ice cream mix”. This mix of ingredients is then pasteurized. As with juice, the

primary purpose of this pasteurization process is to eliminate pathogenic organisms from the mix. Pasteurization also reduces organisms that can affect the shelf life of the ice cream. Both batch pasteurization and continuous HTST (High Temperature Short Time) processes are used.

After the mix is pasteurized it is homogenized. Homogenization of the ice cream mix reduces the clumping and clustering of the fat found in milk and cream, thereby producing a thinner more rapidly whipped mix. This results in a smoother finished product with greater richness. This also reduces the possibility of separation, which can result in a churning effect during the whipping process.

Did you know?
Sunday is the most popular day to eat ice cream.

The mix is then aged for at least four hours, and usually overnight. Aging improves the whipping qualities of the mix and the ongoing interaction of the homogenized ingredients increases the viscosity of the mix resulting in improved body and texture in the finished product.

After the mix processing, the mix enters the dynamic freezing process, which freezes a portion of the water and whips air into the mix. The barrel freezer is actually a scraped-surface heat exchanger, which is jacketed with a refrigerant.

Within the freezer are rotating blades that keep ice off the surface and dashers inside which incorporate air into the mix. The characteristic lightness of ice cream is the result of the introduction of air. Without overrun ice cream would have the consistency of an ice cube.

After about half of its water is frozen any additional inclusions such as fruits or nuts are added to the semi-frozen slurry, which has a consistency similar to soft serve. ***In fact, the only thing that differentiates ice cream from soft serve is that soft serve is served at this point and hard ice cream is packed into containers for hardening.*** The packages of ice cream are placed in a freezer at -30° to -40°F where the remainder of the water is frozen. Below –25 ice cream is stable for indefinite periods without danger of ice crystal growth. Above this temperature ice crystal growth will limit shelf life.

Ice Cream Quality

It is tempting to equate in creased butterfat (milkfat) content and decreased overrun percentage with higher quality. However, consumer preference surveys indicate that customer preference is not so narrowly defined and these characteristics though important are only two of several factors that should be taken into consideration when evaluating ice cream.

Following is a brief review of the primary factors that influence the quality of ice cream:

- Dairy – Milkfat (Butterfat) content is easily expressed and important but most experts seem to agree that the quality and freshness of the dairy products used is more important than fat content.
- Flavors – Advertisements for super-premium ice creams suggest that the use of all natural flavors is necessary for high quality. Actually, appropriately balanced flavors combined with the right sweetener system can produce superior products.
- Product consistency – There is a tendency to equate the increased density of lower overrun products directly to quality. In truth, the texture of a quality product is the result of many factors including rate of freezing, storage conditions, and balanced formulation in addition to overrun.
- Texture – An icy or coarse texture is generally considered undesirable in ice cream. A quality product should be velvety smooth and slightly “chewy” with only a modest hint of coldness.

Tasting Ice Cream

By following the steps outlined below you can effectively compare the quality of ice creams:

- Tempering - While you may tempted to dish out ice cream immediately after removing it from the freezer, it is best to let it sit for 5 minutes or so. This is called “tempering,” and helps maximize flavor release and enhances the overall taste.
- Appearance – Take a careful look at the product. Evaluate its color and texture.
- Spooning – Using a spoon, scrape a small sample off the surface. Invert the spoon and place the ice cream so that it comes it direct contact with your tongue instead of the roof of your mouth. This is the most effective way to deliver it to the 9000 taste buds in your mouth.
- Mouth Feel – Coat your tongue with the ice cream. Roll it around and smack your lips. Let the complexities of the flavor build and spread so that you can get a full sense of its taste. Don’t swallow yet!
- Aroma – Now close your mouth. Bring the ice cream’s aroma up through the nose to sense the top notes and savor the flavor’s scent.
- Finish – After you have extracted a definite impression of the product’s taste, you can let it slide away down the throat and feel the taste sensation dissipate.

Choosing the Right Ice Cream

When choosing the appropriate ice cream for a foodservice operation several factors must be taken into consideration.

Price – The cost of the ice cream must enable you to meet the food cost target you have established for the dessert segment of your menu. In a full service restaurant desserts are typically very profitable. If ice cream is the focus of your menu, you may consider sacrificing some profit margin in the interest of increased volume.

Ice Cream Comparison

In simplest terms, the butterfat content, when considered in conjunction with overrun percentage, will provide a reasonably accurate assessment of the character of the finished product. A premium hard ice cream such as Haagen Dazs will have a butterfat content of 16% with an overrun of 60% or so. A product of this type will be extremely rich. A more typical hard ice cream will probably have a butterfat content of 10 – 12% and an overrun of 100 – 120%. When consumed in small quantities, the very rich premium products can be a wonderful culinary experience but the more typical formulation is probably more in line with mainstream consumer preferences.

Customer Base – Super premium ice creams are extremely rich and are generally best appreciated

in small quantities. If you intend to serve shakes and other traditional fountain preparations in a variety of sizes you will probably want to choose a more mainstream product with 10 – 12% butterfat and 100 – 120% overrun.

Menu Strategy – Adding ice cream to your menu can be as simple as purchasing hard vanilla ice cream and an appropriate variety of Lyons syrups and toppings. If you are adopting a traditional soda fountain theme you will probably want to inventory a variety of hard ice cream flavors If your ice cream service is an extension of a QSR theme or if you operate a high volume drive-in type operation, you may want to invest in a soft serve freezer to simplify the process of accommodating high volume with limited staff.

Dipping Ice Cream – Keep it Level

Although it may seem like an easy thing to do, it takes practice and planning to dip ice cream properly. This is important because when ice cream is scooped, it is compressed, which decreases its volume, reducing yield for the operator. Proper dipping technique will minimize this effect.

Using a sharp edged dipper, the operator should cut a ribbon of ice cream in a circular pattern around the outside of the container. This pattern should continue until the top layer of ice cream is removed from the container. The operator should continue this pattern, keeping the surface of the ice cream level to the bottom of the container. If the ice cream is maintained at the optimum dipping temperature of approximately 8° Fahrenheit, only moderate pressure should be necessary.

Dipper Size	Dips per Gal.	Wt. Of Dip
10	19	3 3/4 oz.
12	23	3 1/8 oz.
16	29	2 1/2 oz.
20	38	1 7/8 oz.
24	44	1 5/8 oz.
30	60	1 3/16 oz.

Costing Hard Ice Cream

Costing hard ice cream is a straightforward proposition. The operator must first determine the weight of each tub of product. The weight of the tub in pounds times 16 oz. per pound equals the weight of the tub in ounces. The cost per tub divided by total ounces equals product cost per ounce. Weight of the serving size in ounces times the cost of product per ounce equals the cost per serving.

Portion Control of Ice Cream

Because portion control of ice cream is essential to the profitability of every retail ice cream operation and because accurate portioning is based on product weight, successful operators generally have their staff practice portioning on a regular basis. This is accomplished by having staff members portion and weigh different sizes of basic fountain items. With hard ice cream proper dipping technique contributes to the accuracy of portions and maximum product yield. ***Remember that appearances can be deceiving the only true measure of accurate portioning is weight.***

Soft Serve

The demand for soft-frozen dairy desserts has increased steadily with the evolution of the QSR segment in American foodservice. The introduction of soft-frozen yogurt has contributed to this pattern of growth as well. Quite often consumers refer to refer to all frozen dessert products as ice cream though that is often not the case.

As with hard ice cream, soft serve mix must contain 10% milkfat to meet the definition of ice cream. However soft serve mix with a milk fat content of 3% to 5% is most common in the industry. Soft serve yogurt is a cultured product that is low in fat (usually 2% or less) and sugar. In non-fat yogurt the fats are removed and replaced stabilizers and carbohydrates. Quality soft serve products are best when served at 18° F and 45% - 60% overrun.

EQUIPMENT STRATEGY

Soft Serve Dispensers

There have been few significant design changes to soft-serve freezers since they were first introduced. Advances in technology have enabled manufacturers to make the dispensers smaller, but they still function in essentially the same way. A cold liquid mix is introduced from an integrated or remote storage vessel. The mix is fed into a refrigerated cylinder and frozen as revolving blades beat in air while scraping a thin layer of product from the cylinder wall. The introduction of air into the mix is essential to developing the light and smooth product consistency preferred by consumers.

Soft Serve Freezers are designed specifically to produce either hard frozen soft serve desserts or direct draw milk shakes. The different consistencies of the finished products are the result of the temperature at which the products are frozen. Direct Draw milk shakes and other frozen beverage products are frozen to a temperature of 28° F, while hard frozen soft serve desserts are frozen to approximately 19°.

Did you know?
The country's first ice cream shop opened in 1786 in New York City.

Costing Mix – Soft Serve

Operators must recognize that all product costs must be determined by ***weight***. Volume of liquid mix put into the soft serve freezer results in a higher volume of frozen product from the machine, because air is incorporated into the product in the form of overrun. As a result the finished cost in ounces times the mix cost in ounces is the ice cream or product cost. Operators should determine from their mix supplier what the weight of mix is per gallon. This figure, converted to ounces, divided into the mix cost per gallon yields the mix cost per ounce.

Examples of Mix Cost

Mix	Wt./Gal.	Wt. /Gal.	Cost/Gal.	Cost/Oz.
10% Vanilla	9.1 lbs.	145 oz.	$4.64	$.032
3.5% Vanilla	9.2 lbs.	147 oz.	3.70	.025
Fat Free Yogurt	9.2 lbs.	147 oz.	6.90	.047

Ice Cream Sundaes

By the simplest definition, an ice cream sundae is a combination of ice cream with a flavored sundae topping. In reality the term sundae can be applied to a staggering variety of combinations of ice cream and, fruit toppings, chocolate syrups and fudges, specialty toppings ranging from caramel and butterscotch to marshmallow and peanut butter. Traditional sundaes typically include whipped topping, a cherry, and often, chopped nuts. In addition to fountain toppings, contemporary sundaes may include fresh fruit, cookie and candy pieces, and baked treats such as brownies.

This section of the Fountaineers guide is dedicated to providing you with ideas for creating successful sundae concepts and information that can help you to do this profitably. As with other soda fountain preparations portion control is essential for providing your customers with consistent products and your business with the profit margins you should expect from the dessert category.

EQUIPMENT STRATEGY

The only specialized equipment you absolutely need to create sundaes using hard ice cream is an ice cream scoop. However, as your business grows you may want to take advantage of some our suggestions regarding modest investments you can make to improve the productivity of your staff.

Menu Strategy

Your approach to ice cream sundaes can be as simple as including them as the dessert component of your children's menu or as elaborate as becoming a major attraction of your establishment. On the ice cream side vanilla ice cream is your only real necessity. As for toppings, you will want to start with Chocolate syrup and or Hot Fudge, Strawberry Topping, and probably Caramel topping. With these basics you can prepare the most popular traditional sundaes and many contemporary presentations as well. Keep your menu simple initially. ***It is more important for your staff to prepare a few items consistently and well, than it is to offer an extensive menu.***

Did you know?

Ice cream sundaes in all their wonderful variations are an American Soda Fountain tradition. However the origin of the ice cream sundae is apparently the result of a clever legal maneuver on the part of an ingenious soda fountain operator in the late 19th century. At that time strict local laws forbade serving ice cream sodas on Sunday. On the Sabbath, a clever drugstore owner began serving non-carbonated sodas on ice cream and called it a "Sunday Soda". Fearing that it might be sacrilegious to use the name of the holy day across the counter, the term sundae soon evolved. In no time, sundaes challenged the popularity of the ice cream soda.

Once you have established a reputation for great ice cream desserts, you may want to expand into signature items, which include other topping products, or you may choose to adopt the strategy of supplementing your standard menu by serving limited time specialties with themes tied to holidays or seasonally available popular fruits such as berries and peaches. Lyons can provide you with

the products you need to implement any menu strategy.

When developing signature concepts, explore the possibility of including other dessert items such as cakes, cookies and brownies in your ice cream presentations. Fresh fruit can be combined effectively with Lyons dessert sauces as a compliment to the sauce or as a garnish.

A dramatic presentation of your dessert and fountain items can significantly increase your dessert sales. Sundaes are often shared and should be a visual treat for your customers. Dessert is the final impression that a customer has of their meal. *Make it a memorable one!*

Traditional Banana Split

1. Peel a fresh banana and split in two the long way.
2. Line up the halves at the bottom of a banana split dish.
3. Add one #20 scoop each of vanilla, chocolate, and strawberry ice cream.
4. Top chocolate ice cream with 1oz. of Lyons Fountain Supreme, top strawberry ice cream with 1oz. of Lyons Sliced Strawberry Topping, and top vanilla ice cream with 1oz. of Lyons Pineapple Topping.
5. Put a big burst of whipped cream on each scoop.
6. Sprinkle with chopped nuts and chocolate decoretes.
7. Top with three stemmed maraschino cherries.

SUNDAE TOPPINGS

Lyons dessert sauces and sundae toppings are made carefully with handpicked fruits and the highest quality ingredients available. In addition to topping sundaes, each of these products can be used to flavor shakes, and compliment dramatic dessert presentations of all types.

Butterscotch #2359: "Scotching" butter is the process of heating butter and corn syrup at a very high temperature, which gives Lyons butterscotch its unique flavor.
Caramel #2360: By heating milk and cream with corn syrup over high heat, the milk and cream are "caramelized". This gives our caramel sauce its sweet taste and creamy texture.
Crushed Pineapple #030: Whole, crushed pineapple and sugar blend harmoniously to give a sweet and tangy flavor.
Strawberry #2373: California's cool coast is home to beautiful, ruby red strawberries, which are carefully picked for the main ingredient in this sundae topping.
Mixed Berry #2374: A medley of strawberries, blueberries and red raspberries make this topping a full experience for the senses.
Crushed Maraschino Cherries #2377: Maraschino cherries are no longer lonely at the top!
Red Raspberries #2380: Incredible texture and flavor is found in this sundae topping by carefully crushing raspberries to release optimal flavor.
Mountain Blackberry #2181: Cool evening temperatures combined with warm days create a balance in flavor, which is showcased in Lyons Mountain Blackberry sundae topping.
Peach #2384: Quality, golden peaches grown in the San Joaquin Valley harvested from the orchard give beautiful color as the main ingredient in Lyons tempting sundae topping.
Wild Cherries ##2443: Cherries are picked the height of ruby red sweetness and contribute deep, full-bodied flavor to Lyons sundae topping.
Crème de Menthe #2493: Crisp, clean mint lends itself to a beautiful flavor when leaves are crushed to extract pure mint that cools the mouth.
Marshmallow #027: Made with creamy marshmallow, this topping is whipped for airy softness.
Mallo Crème #2027: Lyons Mallo Crème is formulated for silky smooth perfection with a light, heavenly flavor, found only in marshmallow. Ready to Use.
Blueberry #2056: Vibrant blue color combined with tangy berry flavor make Blueberry an outstanding choice for a dessert topping.

Spiced Apple #2441: California apples and fresh, ground cinnamon combines to make a classic flavor combination.
Peanut butter #387: Everyone enjoys the taste of great peanut butter! This nutty topping is a fantastic choice for satisfying the peanut butter lover in all of us.
Raspberry sauce #2361: With its full, red color, raspberry sauce turns an ordinary dessert into a treat for eyes as well as the palate.

Product Handling Suggestions – After opening, we suggest that you remove Lyons Sundae Toppings and Dessert Sauces from the can and transfer to a food-safe container. For overnight storage, cover loosely and store at ambient temperature. For extended periods of time, Lyons fruit toppings will benefit from refrigerated storage.

Syrup Rails

Syrup rails or serving bars are counter top or built in units designed to accommodate fountain syrups and toppings for serving. Syrup rails can be outfitted with stainless steel portioning pumps for syrups and ladles for fruit toppings. These units typically have stainless steel exterior surfaces and washable plastic inserts to hold the products. Since health departments generally require the transfer of products to secondary containers from opened cans they are a logical solution for efficient portion controlled serving of fountain products.

Did you know?
Starting in the 1920's, immigrants detained at Ellis Island were served ice cream as part of their first American meal.

Estimated Costs of Common Fountain Ingredients

Item	Cost Per Unit	Net weight in oz. or Net volume in oz.	Cost / Oz.
Hard Ice Cream 10% BF	$ 14.00 per tub	230 oz. – tub	$0.06
Soft Serve 3. 5% BF	$ 3.70 per gallon	192 oz. – gal.	$0.02
Fat Free Frozen Yogurt	$ 6.50 per gallon	147 oz. – gal.	$0.04
Soft Serve Shake Mix	$ 3.20 – gal.	192oz. – gal.	$ 0.02
Mellow Hot Fudge	$ 58.00 – 6/#10	96oz. - #10	$ 0.10
Sliced Strawberry Topping	$ 37.00 – 6/#5	46oz. - #5	$ 0.13
Fountain Supreme Chocolate Syrup	$ 41.00 – 6/#10	96oz. - #10	$ 0.07
Candy Mix Ins (Branded)	$ 82.00 – 25lbs.	400oz. – carton	$ 0.21
Lg. Stem Cherries	$ 49.75 – 4/1gal.	400ct. – gal.	$ 0.03 ea
Milk	$ 1.40 – ½ gal.	64oz. – ½ gal.	$ 0.02

Sundae Costing

Type	Size	Wt. Ice Cream	Cost Ice Cream	Wt. Topping	Cost Topping	Container Cost	Cherry	Whipped Cream	Other	Total Cost
Hot Fudge	Small	4oz.	4x$.032 = .128	1.5oz.	$0.17	$0.04	$0.03	$0.07		$ 0.44
Hot Fudge	Medium	6oz	6x$.032 = .192	2.0oz.	$0.22	$0.07	$0.03	$0.07		$0.58
Hot Fudge	Large	8oz.	8x$.032 = .256	3.0oz.	$0.33	$0.09	$0.03	$0.09		$0.85

Costing Hard Ice Cream

Weight of tub (lbs.) X 16 (oz. per lb.) = oz. per tub

Cost per tub ÷oz. per tub = cost per oz.

Costing Soft Ice Cream

Weight of mix per gallon (lbs.) ÷ 16 (oz. per lb.) = oz. per gallon

Cost per gallon ÷ oz. per gallon = cost per oz.

LYONS CHOCOLATES

Your customers love chocolate. A recent survey of American adults found that chocolate was ranked as their favorite flavor for desserts and sweet snacks by a three-to-one margin. If you only choose one sundae or shake to serve it should probably be chocolate. With 10 different chocolate syrups and 9 different chocolate fudges, Lyons Magnus is well equipped to satisfy the cravings of your customers.

CHOCOLATE SYRUPS

Typically, Lyons chocolate syrups are all purpose products, which means that they are well suited to preparing sundaes, shakes and malts, topping other dessert items, and flavoring coffee drinks. Lyons Hot Fudges are much richer and are formulated to be served warm and held at warm temperatures for extended periods of time without separating. Chocolates syrups are more flexible but you cannot have a true soda fountain without hot fudge.

When choosing chocolate syrups for your operation don't sample the product straight from the can or sample jar. Taste chocolates as you intend to use them, with ice cream, on a dessert, or in a shake.

The flavor profile of Lyons Chocolate Syrups and Hot Fudges is largely determined by the type and quantity of cocoa used in the production formula. Dutch process cocoa is treated with an alkalai, making it milder yet richer tasting. Natural cocoa is more acidic than Dutched cocoa but more subtle in it's effect. Chocolate products which emphasize Dutched cocoas are often described as "European" in character while the most popular retail brands of chocolate syrup sold in the US are made exclusively with Natural cocoas. Milk chocolate is sweetened chocolate with milk added.

From a practical standpoint, the richer flavor of Dutch processed cocoas means that lower concentrations of them can be used to achieve great chocolate flavors. As a result the most economical chocolate syrups for an operator will generally be those formulated with dutched cocoas.

Syrups of this type are often very effective as flavorings for beverages and shakes because of their penetrating flavor.

The type of cocoa used is important but it is only one factor that affects the character of chocolate syrups and fudges. The quality and quantity of the cocoa in the formula are key elements as well. A perfect example of this is Lyons Fountain Supreme Chocolate Syrup. Lyons Fountain Supreme was created to compete successfully against the leading retail product. For this reason it has been formulated using exclusively natural cocoas. However, Fountain Supreme has such a high concentration of cocoa that it clearly out cuts the well-known retail brand.

Did you know?
The top ice cream producing states are California, Indiana, Ohio, Illinois, and Michigan.

Fountain Supreme Chocolate #3020: Excellent for topping all types of desserts, Fountain supreme contains heavy amounts of All Natural cocoa and is sweetened with a blend of corn syrup and dry sugar which imparts a sweetened cocoa flavor.
Old Dutch Chocolate #183: With increased amounts of All Dutch processed cocoa, this syrup imparts a stronger cocoa flavor and has a smooth texture that makes it suitable for use as a sundae topping.
Premium Blend Chocolate #182: Premium Blend Chocolate Syrup is ideal for creating great sundaes. It relies on a blend of two parts Natural cocoa and one part Dutch cocoa for balanced flavor and thicker viscosity.
Rich and Ready Chocolate #2421: Fantastic consistency makes Rich and Ready perfect for presentation when paired with a dessert. Dutch cocoa is the only cocoa variety used in this formula, which lends a strong cocoa flavor.
Safari Chocolate #455: Known best for its versatility, Safari Chocolate Syrup works well as a sundae topping and is a premium choice for flavoring shakes. It is made with 100% Dutch Processed cocoa.

Sundae Bar Chocolate #3421: Just as the name suggests, this chocolate syrup can be found topping ice cream sundaes with expertise. The consistency and strong cocoa flavor make it a star at the sundae bar.

Product Handling Suggestions- Once opened, Lyons chocolate syrups should be covered loosely and stored at room temperature. We don't suggest storing Lyons chocolate syrups under refrigeration.

HOT FUDGE

The single most popular sundae is undoubtedly the Hot Fudge Sundae. A simple combination of vanilla ice cream topped with thick rich hot chocolate fudge topping, crowned with just enough whipped cream and a cherry is very close to heaven for many people. Certainly there are many variations on this theme and the fact that Lyons manufacturers 9 different Hot Fudges illustrates the fact that there is no one best way to prepare this item.

FUDGE TOPPINGS

Rich N Lite #355: Rich N Lite is a fat free option for those who wish to enjoy milky, rich chocolate flavor while watching their waistlines.
Sweet Temptation #340: The ultimate indulgence for the health conscious! Lyons removes all of the sugar and all of the fat, but none of the enjoyment. Sweet temptation is made with two parts Dutch Processed cocoa and one part natural cocoa.
Velvet Crème Fudge #057: Lyons blends plenty of dry sugar and milk to create a equal combination of flavor and texture in their Velvet Crème Fudge. With five parts All Dutch processed cocoa and one part Natural, this is a favorite even among the most discriminating palates.
Mellow Hot Fudge #019: Mellow Hot Fudge is a unique blend of All Dutch Processed cocoa and All Natural Cocoa, teamed with milk and heavy whipping cream to provide excellent mouth feel and beautiful consistency.
Coco Plus Hot Fudge #486: Ideal for use in conventional fudge warmer, Coco Plus Fudge maintains its quality and dark color, which is derived from use of Dutch Processed cocoa grown on the Ivory Coast.
Double Dutch Hot Fudge #356: In addition to its a potent, gratifying cocoa flavor, Double Dutch Hot Fudge is extra sweet, making it the ultimate choice for satisfying a chocolate craving!

EQUIPMENT STRATEGY

Fudge Warmers

Fudge Warmers have adjustable thermostats to maintain Fudges at the appropriate temperature to prevent scorching. Typically these simple devices operate as double boilers. A small amount of water is added to the warmer, the can of fudge is lowered into the warmer and the fountain pump lowered into the can covering the warmer and keeping the water from evaporating. The fountain pump generates consistent portions and completely evacuates the product from the can. This is the most cost effective method of serving fudges. Fudge Warmers are also available with lighted display panels.

Product Handling Suggestions- As with chocolate syrups, Lyons suggests that once opened hot fudges should be loosely covered and stored at room temperature. If opened and in a fudge warmer, the product can be left in the warmer overnight. You may want to reduce the heat for overnight storage to minimize evaporation. *All Lyons Hot Fudges have recommended heating temperatures for fudge warmer use printed clearly on the label of each can.*

Milk Shakes

Milk Shakes are probably the most enduring category of traditional soda fountain items. Shakes are an integral menu component in several different market segments ranging from independent local drive ins to upscale casual dining concepts, from fast food chains to coffee bars. The original frozen beverage can also be perceived as a dessert or as a stand-alone treat for families visiting a fast food drive through.

Lyons manufactures two distinct product lines specifically for flavoring shakes. Each features great flavor and great color. With a little bit of research you can determine which product line is most appropriate for your needs. Following is a brief description of Lyons Shake Syrup products with some suggestions regarding their application:

STREAMLINE SHAKE SYRUPS –

Lyons offers 7 different flavors in our most popular shake syrup line. Typically an operator will use one ounce of Streamline Syrup to flavor a 16oz. shake. These products are also appropriate for flavoring traditional fountain sodas. Extremely user friendly, they work equally well in a blender, a milkshake spindle, or an automatic shake machine. At approximately $ 0.07* per serving Streamline Syrups are very cost effective.

Item #	Description	Pack
497	Coffee	4/gal.
004	Chocolate	6/#10
193	Strawberry	4/gal.
194	Vanilla	4/gal.
195	Cherry	4/gal.

LYONS PREMIUM DOUBLE STRENGTH SYRUPS–

If milkshakes are a major focus of your customers' business you will probably want to consider Lyons Double Strength Line. Highly concentrated; these products are characterized by a higher percentage of fruit purees and flavors which produce milk shakes with exceptional flavor and vibrant color. Because they are highly concentrated you will only need to use ½ ounce of these syrups to flavor a 16oz. shake. Although Lyons Double Strength Syrups cost more on a per ounce basis the reduced portion size brings the cost to the customer down to approximately $ 0.06* per serving. These products are designed for blender and spindle preparation.

Item #	Description	Pack
324	Liquid Malt	4/gal.
2457	Chocolate	6/#5
2458	Vanilla	6/#5
2463	Strawberry(with fruit)	6/#5
2464	Wild Cherry	6/#5
2465	Pineapple	6/#5
2411	Banana	6/#5
2415	Black Raspberry	6/#5
2438	Liquid Malt	6/#5
TBD	Mocha	6/#5
TBD	Peach	6/#5
TBD	Tropical	6/#5
TBD	Egg Nog	6/#5

ULTIMATE SHAKES–

For the ultimate milkshake we suggest combining 1oz. of the appropriate Lyons Topping with our Original Soda Fountain Shake Base. The addition of a fruited Lyons Topping will produce a shake with great fruit identity and dramatic flavor.

Specialty Flavors- Of course it is not at all unusual for a customer to use Lyons Butterscotch or Caramel Toppings in a signature shake. Many of Lyons Chocolate Syrups also make great shakes as well. Mallow Crème, Peanut Butter, and Spiced Apple Topping can be used to create signature shakes. The quantity of product used will vary according to the recipe.

	16oz. Double	16oz. Ultimate	16 oz. Streamline	22oz. Double	22oz. Ultimate	22oz. Streamline
Ice Cream Shake						
Vanilla Ice Cream	7.5oz. (3 #16)	7.5oz. (3 #16)	7.5oz. (3 #16)	10oz. (4 #16)	10oz. (4 #16)	10oz. (4 #16)
Milk	5oz.	5oz.	5oz.	7oz.	7oz	7oz
Shake Syrup	0.5oz.	0.5oz.	1oz.	0.75oz.	0.75oz.	1oz.
Topping						
Soft Serve Shake						
Vanilla Soft Serve	9oz.	9oz.	9oz.	14oz.	14oz.	14oz.
Milk	3oz.	3oz.	3oz.	5oz.	5oz.	5oz.
Shake Syrup	0.5oz.	0.5oz.	1oz.	0.75oz.	0.75oz.	1oz.
Topping						

"Mix-Ins" – A very popular contemporary variation of the milk shake are the mix in type preparations which incorporate candy and cookie pieces in addition to shake syrups and toppings. Though served like
a beverage these products are typically much thicker than milk shakes because no milk is added during preparation. Lyons Premium Double Shake Syrups are perfect for this application as are Lyons Toppings.

Did you know?
Vanilla is Americas favorite flavor.

EQUIPMENT STRATEGY

"Mix-In" Mixers – If you anticipate adding Mix-Ins to your menu, you will want to seriously consider investing in a mixer designed specifically for this application. A mixer designed for this application will be more powerful to increase reliability and decrease mix time for these much thicker products. A splash shield is also a useful accessory for these mix-ins because the mixing process tends to be much messier than it is for shakes.

ICE CREAM FOR MILK SHAKES

Hard Ice Cream – Vanilla Ice Cream is all that is necessary for great shake program. The density of super-premium makes it difficult to disperse shake syrups evenly without over blending. For this reason we suggest that a high quality ice cream of

10%-12% milkfat with approximately 100% overrun is appropriate for most operators.

Soft Serve Shake Base – In simplest terms there are two basic approaches to preparing milk shakes with soft serve. If you intend to serve shakes exclusively or if you serve enough shakes to justify a separate shake dispenser, you will want to use Direct-Draw shake base. This product is typically 3%-5% butterfat. It is frozen without the addition of any other ingredients in a freezer designed to dispense it in the correct milk shake consistency. These soft serve shake machines dispense products at approximately 28° F with 45%-60% overrun. At this temperature the finished product can be enjoyed through a straw. They either include canisters, which can automatically inject a flavoring such as Lyons Streamline Shake Syrups, or an externally mounted spindle mixer with which you can blend in shake syrups.

If you make sundaes and other fountain preparations in addition to milkshakes, you can prepare great shakes by adding an appropriate amount of milk to your frozen soft serve mix which is typically dispensed at 17°F to 18°F. You can then add the appropriate amount of Lyons Shake Syrups and blend in spindle mixer or blender to achieve the desired consistency.

A hard frozen milk shake base, on the other hand, is frozen in the same manner as ice cream, and a milk shake is produced by blending it with a quantity of milk, and flavoring it on spindle-type mixer. The formulations of these two products are consequently different.

EQUIPMENT STRATEGY

Soft Serve Shake Machines

Direct Draw milkshakes can be flavored by one of two methods: Most often, the appropriate amount of Lyons shake syrup is portioned into the shake and the flavoring is blended into to the shake by a spindle mixer mounted on the dispenser or in a free standing spindle mixer or blender. Some soft serve dispensers feature an injection system, which can be calibrated to meter the appropriate proportion of Lyons shake syrup into the shake as it is dispensed. Systems of this type are generally utilized in QSR operations, which limit their menu to two or three flavor choices.

MILK SHAKE EQUIPMENT

Spindle Mixers

Spindle mixer is the industry term for the traditional milk shake mixer. Invented in 1911 by Hamilton Beach, they are still popular because they work very well. A spindle mixer has a vertical shaft extending downward with an agitator at the end. The mixing action of the rotating shaft and agitator begins automatically when you slide the cup containing the milk shake ingredients up over the shaft.

Spindle Mixers work equally well with hard or soft ice cream, though for optimal performance a “butterfly” or flexible agitator works best for soft ice cream and a “solid” agitator works best for hard ice cream. In addition to mixing the ingredients these agitators aerate milk shakes making them fluffier and smoother.

THE KEY TO MIXING MILK SHAKES IS TO AVOID OVERMIXING, WHICH CAN RESULT IN A WATERY, COARSE SHAKE.

Blenders

Blenders are increasingly popular for the preparation of Shakes, Smoothies and other frozen beverages. There are many levels of quality available in commercial blenders. The higher quality units will produce a very smooth well-mixed shake. Some of the less capable units may have difficulty accommodating hard ice cream efficiently. If distinct fruit identity is important to the operator it is important to avoid over-blending.

Blenders are quite simple machines and you can differentiate the relative quality of different units by comparing a few basic features:

Motor size – can range from 1/3 horsepower to as much as 3 horsepower. The higher the horsepower the more powerful the blender. More power typically results in an increase in blender speed and capacity.

RPM – (revolutions per minute) – a measure of the speed at which the blades rotate. A faster motor will break down the product into a smoother, more homogeneous consistency.

Drive or Clutch Assembly – The interface between the motor and the rotating blade assembly. These range in durability from plastic to plastic, to plastic to metal, to metal to metal. Plastic wears down more quickly resulting in diminished performance.

Fountain Pumps

Fountain Pumps enable the operator to serve consistent portions quickly and neatly. Portion control is essential for controlling food cost and for ensuring that the customer is served consistent products. These pumps are self-priming and dispense the same portion with each pump. Stainless steel fountain pumps are available to pump products directly from the can, as in the case of hot and cold fudge, as well as from syrup rails and gallon jugs. These pumps can be adjusted to serve all standard portion sizes.

Lyons Magnus can provide our customers with inexpensive, high-quality, plastic fountain pumps. These pumps are self-priming and available in 1/4oz., 1/2oz., and 1oz sizes. Available for #10cans, #5 cans, and one gallon jugs, they are self-priming and easy to clean.

ICE CREAM SODAS AND FLOATS

These traditional soda fountain preparations are similar. An ice cream float is made with ice cream and a soda such as root beer, while an ice cream soda is made from flavored Syrup such as Lyons Streamline Syrups, carbonated water and ice cream. Following are basic recipes for these two items:

Did you know?

The Ice Cream Soda was invented in 1874 at a fair in Philadelphia. Robert M. Green, a concessionaire, ran short of the sweet cream he was putting into his flavored soda drinks, so he substituted vanilla ice cream. The mixture of syrup, carbonated water, and ice cream was an instant hit. Green's profits rose from $6.00 per day to $600.00 per day.

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16oz. Ice Cream Soda

5oz. Soft serve vanilla or hard vanilla
1oz. Milk
2oz. Lyons Streamline Syrup
10oz. Carbonated Water
1oz. Whipped Cream

Put two ounces of Lyons Streamline Syrup in the bottom of a 16 oz. glass or to-go cup. Add soda water, stirring as you pour to within 3 inches of the top of the glass. Add 2 #16 scoops of firm ice cream slowly into the glass so that it is partially submerged. The soda water will start reacting with the ice cream to create a foamy head. Top with whipped cream.

16oz. Root Beer Float

5oz. Soft serve vanilla or hard vanilla
10oz. Root Beer
1 oz. Whipped cream

Add Root Beer to within 3 inches of the top of a 16 oz. glass or to-go cup. Slowly add 2 #16 scoops of firm vanilla ice cream. Top with whipped cream.

CONE DIPS

Cone Dips are popular as the coating for soft serve dipped cones and sundaes. They have also been used traditionally to coat other novelty standards such as chocolate dipped frozen bananas, and as an ice cream ingredient. Increasingly, cone coats are being used in more creative applications such as in Mix-In preparations, and even to coat frozen pastries in casual dining desserts.

Lyons offers Cone Dips in three flavors, Chocolate, Cherry, and Butterscotch. They must be maintained at the correct moderate temperature (85° F to 100° F) to perform effectively. If you are serving soft serve, cone coats are an essential. Don't limit their use to cones and sundaes; use your imagination to create fun, signature items.

Product Handling Suggestions-Once opened, the best method for storing Cone Dips is to leave them in the Dip Sever, on low, for overnight storage. When used cone dip will pick up moisture from natural condensation and from the ice cream that it placed in it. By allowing the product to sit overnight at low temperature, this excess moisture will evaporate. Do not refrigerate Cone Dip because this will encourage moisture build up. If cone coat is allowed to return to room temperature after heating, white oil may appear on the surface of the product. Simply stir the Cone Coat as it is heated and it will return to it's normal state.

EQUIPMENT STRATEGY

DIP SERVERS

To be served efficiently and cost effectively con coats require the use of a dip server to maintain the product at the appropriate serving temperature. Dip servers are available in 1, 2, and 3 flavor models and are thermostatically controlled.

Shake Recipes

Recipes include soft serve weight measurements. 7.5oz hard ice cream and 5oz milk may be substituted.

CHOCOLATE RASPBERRY
9oz Vanilla ice cream
5oz Milk
.5oz Chocolate Syrup
.5oz Black Raspberry Syrup

MINT CHOCOLATE
9oz Vanilla ice cream
5oz Milk
.5oz Mint Syrup
.5oz Chocolate Syrup

CHOCOLATE BANANA
9oz Vanilla ice cream
5oz Milk
.5oz Banana Syrup
.5oz Chocolate Syrup

RASPBERRY VANILLA
9oz Vanilla ice cream
5oz Milk
.5oz Black Raspberry Syrup
.5oz Vanilla Syrup

CHERRIES AND CREAM
9oz Vanilla ice cream
5oz Milk
.5oz Cherry Syrup
.5oz Vanilla Syrup

CHOCOLATE DIPPED CHERRY
9oz Vanilla ice cream
5oz Milk
.5oz Cherry Syrup
.5oz Chocolate Syrup

VANILLA MALT
9oz Vanilla ice cream
5oz Milk
.5oz Vanilla Syrup
.5oz Liquid Malt Syrup

STRAWBERRIES AND CREAM
9oz Vanilla ice cream
5oz Milk
.5oz Strawberry Syrup
.5oz Vanilla Syrup

BANANA NUT
9oz Vanilla ice cream
5oz Milk
.5oz Banana Syrup
1oz Maple Walnut Topping

VERY BERRY
9oz Vanilla ice cream
5oz Milk
.5oz Strawberry Syrup
1oz Mixed Berry Topping

CHOCOLATE OREO
9oz Vanilla ice cream
5oz Milk
.5oz Chocolate Syrup
1oz Crushed Oreo Topping

PINA COLADA
9oz Vanilla ice cream
5oz Milk
.5oz Pineapple Syrup
1oz Shaved Coconut Topping

TROPICAL BREEZE
9oz Vanilla ice cream
5oz Milk
.5oz Banana Syrup
1oz Pineapple Topping

PEANUT BUTTER CHOCOLATE
9oz Vanilla ice cream
5oz Milk
.5oz Chocolate Syrup
1oz Peanut Butter Topping

TROPICAL BERRY BLAST
9oz Vanilla ice cream
4oz Milk
1oz Orange Juice
.5oz Black Raspberry Syrup
.5oz Banana Syrup
1oz Strawberry Topping

PROTEIN POWER
9oz Vanilla ice cream
5oz Tiger or Soy Milk
.5oz any Lyons Shake Syrup

BANANA SPLIT IN A SHAKE
9oz Vanilla ice cream
5oz Milk
.5oz Banana Syrup
1oz Chocolate Syrup Topping
1oz Maraschino Cherry Topping
1oz Strawberry Topping

BLACK AND TAN
9oz Vanilla ice cream
5oz Milk
.5oz Chocolate Syrup
.5oz Vanilla Syrup
2oz Caramel Topping

Ice Cream Soda Recipes
Recipes include hard ice cream weight measurements. 9 oz of soft serve ice cream may be substituted.

HOBOKEN
7.5oz Chocolate ice cream
4oz Milk
4oz Pineapple Syrup
Splash of Soda Water

STRAWBERRY SODA
7.5oz Vanilla ice cream
2oz Milk
2oz Strawberry Syrup
Splash of Soda Water

CANARY ISLAND SPECIAL
7.5oz Chocolate ice cream
4oz Milk
1oz Vanilla Syrup
Splash of Soda Water

Sundae Recipes
All sundaes should be garnished with whipped cream topping

BROWNIE SUNDAE
1 2x2 inch Brownie Square
6oz Vanilla ice cream
2oz Mallo Creme topping
2oz Hot Fudge Topping

PEANUT BUTTER BROWNIE SUNDAE
1 2x2 inch Brownie Square
6oz Vanilla ice cream
2oz Mallo Creme topping
2oz Hot Fudge Topping
2 oz Peanut Butter Topping

TIN ROOF SUNDAE
6oz Vanilla ice cream
2oz Hot Fudge Topping
1 oz Dry Peanuts

OLD FASHIONED SURPRISE
8oz Vanilla ice cream
1oz Maraschino Topping
1oz Pineapple Topping
1 oz Strawberry Topping

ALL AMERICAN SUNDAE
8oz Vanilla ice cream
1oz Mallo Creme Topping
1oz Strawberry Topping
1oz Blueberry Topping

TURTLE PIE
6oz Vanilla ice cream
1oz Caramel Topping
1oz ChocolateTopping

PEACHY TREAT
6oz Vanilla ice cream
1oz Crushed Peach Topping
1oz Caramel Topping

APPLE WALNUT SWEETIE
6oz Vanilla ice cream
1oz Spiced Apple Topping
1oz Maple Walnut Topping