

Ice Cream Basics

By Dan Gill, Ethno-Gastronomist

When I was growing up on the farm, we always had a milk cow and plenty of fresh milk, cream and butter. A special summer treat was homemade ice cream, hand-churned at first, and then later made in an electric *White Mountain* ice cream freezer chilled by a slurry of ice, salt and water. It was good. In fact it was so good that it is now illegal, at least for trade. Our mix was simply raw milk, cream, raw eggs, sugar and flavoring – usually chocolate. It was not overly sweet, but it was so rich that it would coat the roof of your mouth. Since the only stabilizers and emulsifiers were components of egg yolks, it melted quickly, lightly and completely on the tongue and therefore seemed much colder than the more complex and slower melting ice creams of today. When we decided to make ice cream at Something Different, I wanted to make our old-fashioned version (with pasteurized eggs and milk, of course), but quickly discovered that, by law, any dairy mix used to make ice cream has to be pasteurized and homogenized beforehand. Therefore, at least in the Commonwealth of Virginia, virtually any ice cream sold to the public starts with a mix made in a dairy plant. Even so, there are significant differences in quality based on the components of the mix, additional ingredients and flavorings and the way it is frozen and handled.



Independent ice cream shops that make their own premium and super-premium specialty ice creams in batches will often have their mixes custom-made. High quality all-natural custom mixes use milk from hormone- and antibiotic-free cows, small amounts of natural emulsifiers and stabilizers and no High Fructose Corn Syrup.

Ice cream is a strained and tenuous alliance of things that do not ordinarily play well together: water (ice crystals), cream (butterfat) and air, each of which tries to seek out its own kind and separate into icy clumps. Agitation and cold result in a smooth matrix of small ice crystals coated with sugar and interspersed with cream, conditions that result in cold, smooth, sweet and creamy sensations when eaten. Tiny air bubbles are incorporated naturally by the action of beaters in batch ice cream freezers, which work just like an old hand-crank model laid on its side and chilled by refrigerant. In industrial continuous-flow machines, air is injected into the mix during the freezing process. Air makes ice cream soft so that it can be scooped. Emulsifiers help keep the butterfat in suspension and stabilizers slow the formation of larger ice crystals, which grow when ice cream is subjected to fluctuations in temperature during transportation and storage, especially when kept in frost-free freezers.

Ice cream is judged, classified and priced primarily by the percentage of cream in the mix and the amount of air incorporated into the final product. In order for a frozen dessert to legally be called “ice cream” it must contain at least 10% butterfat and less than 50% air. “Overrun” is a measurement of the volume of air relative to the initial volume of mix. Therefore, an ice cream that is half air by volume is said to have 100% overrun, the legal maximum. Since ice cream is sold by volume and not by weight, overrun is a reliable indicator of value. Regular store-bought ice cream will be close to the minimum requirements. Premium ice cream contains about 14% to 16% butterfat and less overrun than standard brands. You can actually feel the difference by picking up a gallon of each grade and comparing the heft. Super premium is generally available only in specialty shops that make their own in small batches. It typically contains more than 16% butterfat and less than 50% overrun (25% air by volume) for a rich, creamy mouth feel. It is expensive to make and usually contains high quality natural ingredients, such as real vanilla, fruits and nuts, and fewer artificial flavorings.

It is safe to say that all ice cream is flavored and most contains commercial flavorings and colorants. There is a vast industry that creates, manufactures and markets flavorings and colorants for the food industry in general and the ice cream industry specifically. Most are composed of concentrated natural and/or artificial flavors and colors dissolved in propylene glycol. Commercial flavorings are designed to stand on their own or to intensify the taste and color of natural ingredients, such as peaches or pecans, for added consumer appeal.

Vanilla is the benchmark and the basis of all other flavors. If you can make a good vanilla ice cream, then you can make anything. Vanilla is also the most popular flavor by far, followed by chocolate and butter pecan. Better quality ice creams use real vanilla extract, rather than a flavoring based on artificial vanillin. At Something Different, we use pure Madagascar Bourbon, the best there is, to make our super-premium, all-natural ice creams.

In fact, we don’t use any manufactured flavorings or colorants at all: To make our Buttered Pecan, we caramelize pecans in butter and organic sugar. We make a trip to the mountains of Virginia in the summer and bring back bushels of the little *White Lady* peaches for our White Peach ice cream and enhance the natural flavor of peaches and strawberries with a little balsamic vinegar and kelp powder.

Last Christmas, we made some eggnog ice cream as an experiment. Not the normal variety made with eggnog flavoring, but a real adult version using my mother’s recipe. Mother did not make wimpy eggnog. It was so popular that customers actually got angry when they found out that we were not going to make it except during the holidays. We then came up with Grasshopper made with Crème de Menthe and Crème de Cacao and topped with chopped *Oreo* cookies. We plan to try some other adult flavors this summer, such as Piña Colada or Margarita. Fortunately, we are licensed as a “Gourmet Shop” by ABC so that we can legally use alcohol in our recipes, but we serve and sell our adult ice creams only to verified adults and there is an alcohol warning on the label. There are also some technical difficulties to be overcome when incorporating alcohol into ice cream as it lowers the freezing point and reduces overrun so that the ice cream is more expensive to make and it remains relatively soft at normal serving temperatures.

There are a few other shops in the River Country that serve premium ice creams or make their own on site. Pleasant Living plans to take the ice cream tour for the July – August issue.