

## TROPICAL FRUITS IN ICE CREAM

WALTER A. KRIENKE

*Associate Dairy Technologist*

*Florida Agricultural Experiment Station*

Gainesville

The American consumers have accepted several fruit ice creams as standard items to give variety to the conventional vanilla and chocolate flavored products. This desire for variety is characteristic of our entire modern way of life and is particularly evident in the great and almost limitless number of items of food available in any market. In the constant search for new and different items with which to capture a higher percentage of the food dollar ice cream manufacturers, too, are extending the list of flavors by which ice cream can be made attractive.

Florida is in a favorable position to provide very unique fruits for use in flavoring ice cream. Some of them have been used in the past and are being used at the present time in the conventional manner of simply mixing fruit through the ice cream. This method often results in a finished ice cream hardly recognizable as the flavor indicated on the label of the package. A recent modification (1, 2) of the method for preparing fruit injection materials, and first used for orange ice cream (3), however, suggests a reconsideration of all fruits as flavoring items for ice cream. The process eliminates cooking of the fruit, thereby making possible retention of its natural full ripened flavor. A second highly important attribute is that of flavor intensification by the added sweetener. Although containing only about 38 percent fruit the fresh fruit injection materials impart a more pronounced flavor to the finished ice cream than does the fruit itself in an amount three to four times greater. This is particularly true of the variegated mango ice cream.

### PREPARATION OF VARIEGATED MANGO ICE CREAM

The process as developed is for the commercial fruit processor and the finished product is for commercially-made ice cream. The formula is as follows:

Pectin .....	0.8%
Sucrose .....	28.2%
Corn syrup .....	25.0%
Water .....	8.0%
Pulped mango .....	38.0%
	100.0%

The pectin must be free of lumps. It is mixed thoroughly into some of the sucrose (for this the weight of sucrose should be equal to the weight of water to be used). The water is added and mixing is done hurriedly to avoid formation of pectin lumps. While heat is applied to bring the temperature to 180° F. the mixture must be agitated continuously. Care must be taken to prevent overheating at the bottom and sides of the container. Heating is discontinued and the corn syrup is added in small portions while agitation continues. There is danger of gelation if agitation is discontinued. When this happens it will be difficult to obtain a smooth finished product. Usually the corn syrup will lower the temperature to about 120° F. The pulped mango is added in small amounts with agitation being continued. After addition of the remainder of the sucrose agitation is continued until it has all dissolved.

It may be desirable to prepare the mango pulp, add some sucrose to it (4 parts pulp to 1 part sucrose) and hold it frozen for later use in making the injection preparation. Allowance must then be made for this amount of sucrose when preparing the product.

### YIELD AND FLAVOR STUDIES

Studies are in progress on the yield of mango pulp to be expected from the different varieties and also on the flavor characteristics considered compatible with the dairy ingredients of ice cream. Based on preliminary studies involving 14 varieties of mangos, it was found that one pound of the fruit (well ripened and ready for processing but not peeled), after being processed, can be expected to flavor about 1.5 to 2.0 gallons of ice cream, except for the native varieties where the high fiber content resulted in substantially lower yields. Based on the present selling prices of the cooked type of injection preparation offered to ice cream manufacturers and when used at the rate of about one pound per

gallon of finished ice cream the selling price of the mango preparation made from one pound of fruit will need to be within the range of 45 to 60 cents, depending on the yield. Although no attempt has been made to estimate costs of manufacture of the injection preparation, it would appear that for the surplus mangos (that not sold as fresh fruit to consumers) there is a favorable working margin at such a price.

Certain varieties are more suitable for ice cream flavoring purposes than others and some blending of pulp from different varieties is possible to obtain a satisfactory product. These studies, however, are not complete to the point that future grove expansions can be based on these findings.

#### GUAVA, LYCHEE AND BARBADOS CHERRY

Some ice cream experts rate the new variegated guava ice cream one of the best from the standpoint of characteristic flavor. It has been described as having a "freshness" of

flavor characteristic of many berries when well ripened and served cold with cream and sugar. Individual variety studies of this fruit are planned. In general, it appears that the pink and rose colored fruits possess flavors more compatible with ice cream than do the white-fleshed varieties.

Studies with Lychees and Barbados Cherries have been of a very preliminary nature, but further studies are being considered. Based on the present acreages of these fruits in Florida, it appears that little or none of the fruits will be available for flavoring ice cream, except perhaps where a very select market would demand such ice cream and a premium price could be expected.

#### LITERATURE CITED

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## MACADAMIAS FOR FLORIDA

SEYMOUR GOLDWEBER

*Experimental Farm*

*Division of Research and Industry*

*University of Miami*

Coral Gables

Hawaii has been developing a crop of economic importance for the past thirty years—the macadamia nut. Commercial orchard growers in southern California have become interested in the possibilities of the macadamia, having already organized the California Macadamia Society to expand the potentialities and promote research in this nut crop.

In Hawaii, where a stock company was formed in 1922 to exploit the macadamia, the Territorial Legislature passed a law exempting from taxation all lands in the Hawaiian Islands used solely for the culture or production of macadamia nuts. The act covered a period of five years and became effective January 1, 1927 (1). This action stimulated interest and pointed the way for Hawaii to develop a new and profitable crop. Since that time many large plantings have been made. As of 1953,

there were more than 1500 acres of grafted trees planted (2), plus several hundred acres of seedling trees (9).

In Florida there are an estimated forty individual trees which are thirty to forty years old and flourishing, one of the best trees being the Glen Bates tree in Fort Lauderdale. There are also a few small plantings in south Dade County in addition to the plantings at the Sub-Tropical Experiment Station in Homestead (Fig. 1), the smaller trees at the University of Miami Experimental Farm, and several hundred trees in nurseries in the area.

The macadamia tree has been found to do well in the West Indies and some Mediterranean countries. In the region of Siguatepeque, Honduras, the tree thrives and fruits freely.

There is no question that a new and desirable crop is always in demand in every agricultural section of the world. The United States is the largest importer of the crop of Hawaiian macadamia nuts. Since there are adequate areas in south Florida that could fill almost all the production need of this valuable tree crop, why then should it not be planted?