SELECTED ARTICLE

BANANA FLOUR*

FROM time to time the possibility of producing banana flour for consumption in temperate countries has created interest, and it is a proposition that is undoubtedly worth considering, not with a view to attempting to displace even a small proportion of the cereal flours now used, but rather of introducing it as a product for special purposes.

From an economic standpoint the large-scale production of Banana flour is apparently quite practicable. The yield of bananas per acre averages about 32,000 lb., and in food value per acre a crop of bananas far surpasses what are considered the staple food crops of the world. This statement includes corn, potatoes, rice, sweet potatoes, and wheat. Coupled with this exceptionally high yield is the advantage that the cost of manufacturing banana flour is low.

Banana flour has a very pleasant flavour, and when freshly made possesses the characteristic odour of the fresh fruit. It is not quite so nutritious as wheat flour, as it has a considerably lower protein content; however, banana flour is richer in carbohydrates, and on a basis of food value, calculated in calories, it compares very favourably with wheat flour (See Table below).

As fresh fruit bananas are far too bulky to make a satisfactory ration, for to obtain 10 oz. of carbohydrate it is necessary to consume about 50 oz. of fruit But by means of dehydrating or converting the pulp into flour, the banana can be reduced into a concentrated form that compares very favourably in nutrient value with products prepared from the cereals.

Banana flour is produced in the West Indies for local consumption. It is prepared from the fully-grown but green fruit which has not yet commenced to ripen. In this green fruit the carbohydrates are still in the form of starch; as the fruit ripens the starch changes to sugar.

Approximately 50 per cent. of edible pulp is recoverable from the green bananas. There is about 50 per cent. of waste, and this includes both the stems and the skins.

The practice in the West Indies is to cut the fruit free from the bunches and soak it in warm water (temperature about 175°F.) for five minutes, which serves to loosen the green skin and facilitates its removal.

The pulp is split in halves with a blade made of silver, wood, or bone, and arranged on suitable trays. Much of the fruit is dried in the sun, but some is dehydrated with artificial heat; in a few very modern establishments vacuum driers have been installed. The moisture content is reduced to a maximum of 15 per cent. and the dried product is milled and reeled, using No. 13 (129 mesh) bolting cloth.

* (From "Food Industries Manual" (Leonard Hill, Ltd., 1939), page 13.)

It is generally reckoned that about 18 per cent. of the gross weight of the green fruit can be recovered as flour carrying a moisture content of not more than 15 per cent.

In the following table the nutritive value of banana flour as compared with wheat flour is given :—

Product.	Moisture	Protein.	Fat.	Carbohydrates.	Ash.	Food value per pound
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	(Calories)
Banana flour ..	9·7..	3·1..	0·5..	84·1..	2·5..	1,610
Wheat ,, ..	12·0..	14·4..	1·0..	75·1..	0·5..	1,650

Banana flour is generally packed in paper-lined containers—either barrels or boxes.

It is stated to be difficult to make bread from a pure banana flour, but when blended with a proportion of cereal flour it gives highly satisfactory results. Using a pure banana dough which has been subjected to the action of steam under pressure, good quality bread has been produced. However, it is as a special flour for use in confectionery, and not for the making of bread, that banana flour has the greatest potential value in Europe.

In the cultivation of bananas for the fresh fruit market a considerable proportion of the crop is undersize or otherwise unsuitable for shipment ; much of this might be profitably utilized in the production of flour. But, further than this it would seem that there are interesting possibilities in growing bananas expressly for flour manufacture.

An extensive educational campaign would be necessary to promote the use of banana flour in England, while the ability to offer it at an attractive price would be an important factor in developing a steady demand.