3.4: Functions of Fat in Baking

The following summarize the various functions of fat in baking.

Tenderizing Agents

Used in sufficient quantity, fats tend to “shorten” the gluten strands in flour; hence their name: shortenings. Traditionally, the best example of such fat was lard.

Creaming Ability

This refers to the extent to which fat, when beaten with a paddle, will build up a structure of air pockets. This aeration, or creaming ability, is especially important for cake baking; the better the creaming ability, the lighter the cake. Plastic Range Plastic range relates to the temperature at which the fatty acid component melts and over which shortening will stay workable and will “stretch” without either cracking (too cold) or softening (too warm). A fat that stays “plastic” over a temperature range of 4°C to 32°C (39°F to 90°F) would be rated as excellent. A dough made with such a fat could be taken from the walk-in cooler to the bench in a hot bakeshop and handled interchangeably. Butter, on the other hand, does not have a good plastic range; it is almost too hard to work at 10°C (50°F) and too soft at 27°C (80°F).

Lubrication

In dough making, the fat portion makes it easier for the gluten network to expand. The dough is also easier to mix and to handle. This characteristic is known as lubrication.

Moistening Ability

Whether in dough or in a cake batter, fat retards drying out. For this purpose, a 100% fat shortening will be superior to either butter or margarine.

Nutrition

As one of the three major food categories, fats provide a very concentrated source of energy. They contain many of the fatty acids essential for health.

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