

7.4: The Function of Eggs

Eggs are a truly multifunctional ingredient and have many roles to play in the bakeshop. Their versatility means that product formulas may be adjusted once the properties of eggs are understood. For example, in French butter cream, egg whites may be substituted in the summer for whole eggs to give a more stable and bacteria-free product (egg white is alkaline, with pH 8.5). A yolk or two may be worked into a sweet short paste dough to improve its extensibility. Sponge cake formulas can be adjusted, for example, with the addition of egg yolks in jelly rolls to improve rolling up.

If a recipe is changed by replacing some or all of the eggs with water, two factors must be remembered:

Water replacement is about 75% of the egg content, since egg solids constitute about 25% of the egg.

Leavening ability is lessened and must be made up by the addition of chemical leavening.

Other uses of eggs are:

Leavening: They will support many times their own weight of other ingredients through their ability to form a cell structure either alone or in combination with flour. The egg white in particular is capable of forming a large mass of cells by building a fine protein network.

Moistening and binding: The fat in eggs provides a moistening effect, and the proteins present coagulate when heated, binding ingredients together.

Thickening: Eggs are valuable thickeners in the cooking of chiffon pie fillings and custard. **Emulsifying:** Lecithin, present in the yolk, is a natural emulsifier and assists in making smooth batters.

Customer appeal: Eggs enhance the appearance of products through their colour and flavour, and they improve texture and grain.

Structure: Eggs bind with other ingredients, primarily flour, creating the supporting structure for other ingredients.

Shelf life: The shelf life of eggs is extended through the fat content of the yolk.

Nutrition: Eggs are a valuable food in every respect. Note, however, that 4% of the lipid in egg yolk is cholesterol, which may be a concern to some people. Developments in poultry feed claim to have reduced or eliminated this cholesterol level.

Tenderizing: The fat in eggs acts like a shortening and improves the tenderness of the baked cake.

Keep these points in mind when using eggs:

Spots in eggs are due to blood fragments in the ovary. Such eggs are edible and may be used.

The albumen or egg white is soluble in cold water, congeals at 70°C (158°F), and remains insoluble from then on.

Cover leftover yolks or whites tightly and refrigerate. Add a little water on top of yolks, or mix in 10% sugar, to prevent crusting.

Do not return unused portions to the master container.

Use clean utensils to dip egg products from their containers.

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