

6.4: Milk in bread baking

In the dough stage, milk increases water absorption. Consequently, dough made with milk should come softer from the mixer than dough made with water. Other aspects of milk in yeast doughs include:

Dough may be mixed more intensively.

Milk yields dough with a higher pH compared to water dough, and the fermentation will be slower. Fermentation tolerance (the ability of the dough to work properly in a range of temperatures) will be slightly improved.

Bench time will be extended as the dough ferments more slowly at this stage. (Final proof times will be about the same, as by this time the yeast has adjusted to the condition of the dough.)

Bread made with milk will color faster in the oven and allowance should be made for this. If taken out too early after a superficial examination of crust color, it may collapse slightly and be hard to slice. The loaf should be expected to have a darker crust color than bread made without milk.

In the finished product, milk will make bread that has:

Greater volume (improved capacity to retain gas) Darker crust (due to the lactose in the milk) Longer shelf life (due partly to the milk fat)

Finer and more “cottony” grain

Better slicing due to the finer grain

If skim milk or skim milk powder is used, some of the above benefits will not be so evident (e.g., longer shelf life, which is a result of the fat in the milk).

The type of sugar found in milk, lactose, has little sweetening power and does not ferment, so in dough made with skim milk powder, sugar has to be added or the fermentation will be very slow. While lactose is not fermentable, it caramelizes readily in the oven and produces a healthy crust color. The recommended amount of skim milk powder used in fermented dough is 2% to 8% based on flour, and up 15% in cakes.

Buttermilk and sour milk are used to make variety breads. They have a lower pH and require a shorter fermentation for good results.

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