5.3: The Functions of Yeast

Yeast has two primary functions in fermentation:

To convert sugar into carbon dioxide gas, which lifts and aerates the dough
To mellow and condition the gluten of the dough so that it will absorb the increasing gases evenly and hold them at the same time

In baked products, yeast increases the volume and improves the flavor, texture, grain, color, and eating quality. When yeast, water, and flour are mixed together under the right conditions, all the food required for fermentation is present as there is enough soluble protein to build new cells and enough sugar to feed them.

Activity within the yeast cells starts when enzymes in the yeast change complex sugar into invert sugar. The invert sugar is, in turn, absorbed within the yeast cell and converted into carbon dioxide gas and alcohol. Other enzymes in the yeast and flour convert soluble starch into malt sugar, which is converted again by other enzymes into fermentable sugar so that aeration goes on from this continuous production of carbon dioxide.

Proper Handling of Yeast

Compressed yeast ages and weakens gradually even when stored in the refrigerator. Fresh yeast feels moist and firm, and breaks evenly without crumbling. It has a fruity, fresh smell, which changes to a sticky mass with a cheesy odor. It is not always easy to recognize whether or not yeast has lost enough of its strength to affect the fermentation and the eventual outcome of the baked bread, but its working quality definitely depends on the storage conditions, temperature, humidity, and age.

The optimum storage temperature for yeast is -1°C (30°F). At this temperature it is still completely effective for up to two months. Yeast does not freeze at this temperature.

Other guidelines for storing yeast include:

Rotating it properly and using the older stock first
Avoiding overheating by spacing it on the shelves in the refrigerator

Yeast needs to breathe, since it is a living fungus. The process is continuous, proceeding slowly in the refrigerator and rapidly at the higher temperature in the shop. When respiration occurs without food, the yeast cells starve, weaken, and gradually die.

Yeast that has been frozen and thawed does not keep and should be used immediately. Freezing temperatures weaken yeast, and thawed yeast cannot be refrozen successfully.