

Chapter 1: The Bread-Making Process from Mixing through Baking

Questions

Multiple Choice

1. To be successful, the baker must be able to think like a yeast cell and sense things like a
 - a. scientist.
 - b. technician.
 - c. flour molecule.
 - d. lactobacilli.

2. Mixing the dough so that the gluten is adequately developed enables the dough to
 - a. stretch well and to hold trapped carbon dioxide gases.
 - b. rip easily.
 - c. deflate quickly when punched down.
 - d. develop a dense bread.

3. The production of organic acids during fermentation
 - a. does not contribute significantly to bread flavor.
 - b. weakens the dough structure.
 - c. improves the keeping quality of the bread.
 - d. is a minor factor in dough development.

4. It is important to flour the surfaces of the tools and scale used to divide the dough because otherwise
 - a. the surface of the dough may rip and your speed will suffer.
 - b. you will incorporate raw flour into the dough.
 - c. you will deflate the dough.
 - d. making pieces of equal size is more difficult.

5. During the final rise, bread should be allowed to rise
 - a. 40 to 50 percent.
 - b. 100 percent.
 - c. 85 to 90 percent.
 - d. 75 percent.
6. The first visible change as bread bakes is known as
 - a. the Maillard reaction.
 - b. crust development.
 - c. bulk fermentation.
 - d. oven spring.

True or False

7. The first step in proper mixing involves the attaching the dough hook to the mixer.
8. During mixing, we are concerned above all with the consistency of the dough, not its strength.
9. The wetter the dough, the less quickly carotenoids are oxidized, which means wet doughs can be mixed longer without losing the aroma and flavor associated with carotenoids.
10. The optimum dough temperature for wheat-based breads is between 80° and 90°F.
11. The tightness to which a loaf is preshaped determines the duration of the bench rest.
12. Factors that affect moisture loss in doughs during baking include oven type, shaping techniques, scoring techniques, refrigeration of the baked loaf, and type of mixer.

Fill-in-the-Blank

13. When scaling, we are also calculating the _____, and accuracy will prevent _____, or _____.
14. The simplest description of mixing is that it brings about a _____, so they are evenly dispersed throughout the dough.
15. When _____ are added in the form of butter, oil, eggs, and so on, the lipids coat the gluten strands and _____ their development.
16. An alternative to folding dough on the work bench is known as _____.
17. Doughs are _____ in order to give the randomly shaped pieces more consistent shapes and make _____ easier and more effective.
18. Scoring the bread creates a weak section on the surface of the loaf in order to encourage a _____ of the bread.

Matching

- | | |
|---------------------------------------|---|
| 19. _____ folding | a. the first stage of fermentation; begins the moment the mixer is turned off |
| 20. _____ autolyse | b. the phase of fermentation that occurs after dough is divided and preshaped |
| 21. _____ bulk (primary) fermentation | c. pressing the dough enough to expel the major portion of the gases |
| 22. _____ gliadin | d. dough's ability to be stretched |
| 23. _____ oven spring | e. slow-speed mixing of the final dough flour and water, except for salt, yeast, and pre-ferments; once the flour and water are |

incorporated, the mixer is turned off, and the dough is covered and left to rest for twenty minutes to an hour

24. _____ extensibility

f. final phase of fermentation that takes place once the dough is loaded into the ovens

25. _____ bench rest

g. helps develop dough structure and the elastic quality of the dough

26. _____ glutenin

h. provides dough with its extensible characteristic

Essay

27. What are the benefits of steam during bread-baking and how is steam effectively applied to breads?

28. What are the best ways to delay staling in baked breads?

Answer Key

Multiple Choice

1. d
2. a
3. c
4. a
5. c
6. d

True or False

7. False (correct answer: the determination of the water temperature required for the mix)
8. False (correct answer: dough strength as well as dough consistency are important components of mixing)
9. True
10. False (correct answer: 75° and 78°F)
11. True
12. False (correct answer: loaf weight, dough shape and crust-to-crumb ratio, length of bake)

Fill-in-the-Blank

13. final dough yield, underproduction, overproduction
14. uniform distribution of ingredients
15. fats, delay
16. bucket folding
17. preshaped, final shaping
18. controlled expansion

Matching

19. c
20. e
21. a

- 22. h
- 23. f
- 24. d
- 25. b
- 26. g

Essay

27. What are the benefits of steam during bread-baking and how is steam effectively applied to breads?
- a. Proper steaming has a profound effect on bread for a number of reasons: It promotes a rich color to the crust and a surface shine on the loaf, and it also increases the volume of the bread.
 - b. If bread is slightly under-risen, a little extra steam ensures that the surface of the loaf remains moist longer, so the bread can rise more.
 - c. If bread is slightly over-risen, somewhat less steam is necessary, since it is important to have the crust firm more quickly to prevent the bread from flattening out.
 - d. Crust color is enhanced when steam is injected into the oven because during the early stages of baking, there is a rapid increase in enzymatic activity on the surface of a loaf. Steaming the oven moistens the surface of the dough, and this enables the enzymes to remain active for a longer period of time, yielding richer color.
 - e. A properly steamed oven promotes a crust with a good sheen because steam at the initial stages of baking provides moisture that gelatinizes the starches on the surface of the loaf. The starches swell and become glossy, resulting in a shining crust.
 - f. A properly steamed oven results in bread with better volume. As the bread enters the hot environment of the oven, there is a rapid increase in volume due to oven spring. The surface of the dough remains moist longer, enabling greater oven spring to occur before the formation of a surface crust, and the result is bread with superior volume.
 - g. Just prior to loading the oven, steam is injected into it so that the loaves enter a moist environment. Once loaded, a second steaming is applied. If the oven's steam injection is effective, approximately 4 to 6 seconds of overall steaming is normally appropriate. The benefits of steam occur only during the first third or so of the baking cycle.

28. What are the best ways to delay staling in baked breads?

- a. Cool the loaves carefully after baking. Air currents on bread hasten the evaporation of moisture from the crumb and cause a premature crust to form on the surface of the loaf (in humid environments, some airflow can help to pull moisture away from the loaves, helping the crust to remain crisp).
- b. Baked breads stale most quickly at temperatures between 32° and 50°F. Clearly, the worst environment for bread is in the refrigerator.
- c. When cooled bread is wrapped tightly in plastic and frozen to 0°F or lower (particularly if the freezing is done very rapidly), the rate of staling is slowed.
- d. Using pre-ferments or having a long bulk fermentation means that the organic acids developed in the pre-ferment phase or during the lengthy fermentation assist in lengthening the shelf life of bread. The addition of sugar may increase shelf life, but texture and flavor will certainly be compromised in breads that do not ordinarily contain sugar.
- e. Stale bread can regain some of its former eating quality if reheated right to the core, which allows the starches to once again gelatinize and the loaf to take on some of its former characteristics. However, it quickly reverts to stale, and should be eaten soon after reheating.