Sourdough Bulk Fermentation Chart

Bulk fermentation time by dough temperature and starter percentage — with the rise target that actually tells you when to stop.

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01 The chart

Read across from your **dough temperature** (measured after mixing, not room temperature) to the column matching your starter percentage. The rise target is the volume increase to aim for before shaping. The full written guide behind this chart is at frugalorganicmama.com/blog/bulk-fermentation-sourdough.

DOUGH TEMP	STARTER 10% of flour	STARTER 20% of flour	STARTER 30% of flour	RISE TARGET	WHAT IT FEELS LIKE
80°F / 27°C	**4.5–6 h**	**3–4 h**	**2–3 h**	**25–35%**	Fast. Check every 30 minutes past halfway; overproofing happens quickly here.
76°F / 24°C best	**6–7 h**	**4–5 h**	**3–4 h**	**40–50%**	The most forgiving range for home kitchens — a usable window, not a moment.
72°F / 22°C	**7.5–9 h**	**5–6 h**	**3.5–5 h**	**55–65%**	Steady pace. Easy to schedule around a workday.
68°F / 20°C	**10–12 h**	**7–8 h**	**5–6.5 h**	**65–80%**	Cool kitchen. Start in the evening, shape in the morning; expect more sourness.
65°F / 18°C	**13–16 h**	**9–10 h**	**6.5–8 h**	**75–100%**	Cold kitchen. Overnight is normal; the dough should approach a full double.

Rows marked **best** are the range most home bakers land in. **Time ranges and rise targets are practical estimates compiled from the cited sources, not guaranteed fermentation times.**

> **The most common mistake:** waiting for the dough to double at every temperature. At 76°F a full double means overproofed dough. At 65°F it is roughly correct. The target moves with the temperature — that is the whole point of the fourth column.

02 How to use this chart

What this chart covers

- White and mostly-white wheat doughs at roughly **70–75% hydration**, 2% salt.
- An active starter at peak, fed at 1:2:2.
- Bulk fermentation only — the stage from mixing to shaping.

What it does not cover

- Final proof, cold retard, or baking times.
- Rye or high whole-grain doughs, which ferment faster.
- Stiff doughs below 65% hydration.

Three definitions that change the answer

- **Dough temperature, not room temperature.** A 68°F kitchen produces 72°F dough if you mix with warm water. Measure the dough.
- **Starter percentage is baker's percentage** — starter weight divided by flour weight, not by total dough weight. 20% starter in a 1000g-flour recipe is 200g.
- **The clock starts at mixing.** Every hour listed includes the folds. If you fold every 30 minutes for the first two hours, that time is already inside the range.

What shifts the numbers

- **Starter strength** is usually the largest single source of error, larger than temperature. A starter that is not at peak will push every range on this chart longer, sometimes by hours; an unusually vigorous one will shorten them. Judge the starter first, then the clock.
- **Hydration.** Dough at 80% hydration ferments slightly faster than at 70%.
- **Whole grains and rye** ferment noticeably faster and reach the target rise sooner.
- **Folds** degas the dough, which temporarily reduces measured volume but does not reset fermentation.

03 Reading the dough, not the clock

Volume is the primary signal, but it is not the only one. When the numbers and the dough disagree, trust the dough.

- **Surface bubbles.** Small bubbles along the sides and across the top, not just a few isolated ones.
- **The dome.** The surface holds a slight dome rather than sitting flat.
- **Jiggle.** Shake the container gently — the dough should wobble as a single mass, not slosh.
- **Feel.** Airy and elastic when stretched, with some resistance left. Not tight, not collapsing.

> **The poke test does not belong here.** It measures how shaped dough springs back during final proof. During bulk there is no shaped structure to return, so the same timings read as under-proofed even when the dough is ready. Use it after shaping, not before.

How to measure the rise percentage

A percentage target is useless without a reliable way to measure it. A rise percentage is a change in **volume**, not height. 50% rise means the dough occupies 1.5× its starting volume.

- **Straight-sided container.** Mark the starting level, then read the new level. Works only when the sides are vertical.
- **Aliquot jar.** Put 30–50g of just-mixed dough in a narrow straight-sided jar and let it rise alongside the main dough. Easiest to read, undisturbed by folds, works in any container shape.
- **Round-bottomed bowls** overstate early rise and understate late rise, because the cross-section changes as the dough climbs.

04 Temperature effect

Fermentation rate roughly doubles for every **10–15°F (5.5–8°C)** rise in dough temperature, and roughly halves for the same drop. The relationship holds between about 65°F and 80°F and breaks down outside that range — which is why this chart stops at both ends.

Published baking sources disagree on whether the interval is 10°F or 15°F. We state the range rather than picking one, because a single figure would overstate the precision of the underlying sources.

05 Sources and what each one supports

- **K-State Research & Extension** — "Sourdough Bread" handout. Supports the temperature-to-rise-target relationship and the general time shape across temperature bands. flinthills.k-state.edu/health/sourdough_bread_recipes_handout_final.pdf
- **The Sourdough Journey** — controlled bulk fermentation timetables and percentage-rise research. Supports the finding that the target rise changes with dough temperature, and the lower-temperature time ranges. thesourdoughjourney.com/the-mystery-of-percentage-rise-in-bulk-fermentation/
- **Dough-Lab** — bulk fermentation timing methodology. Supports the doubling interval and its simplification from the Q10 coefficient. dough-lab.com/methodology
- **The Bread Code** — fermentation tables and starter-percentage modelling. Supports the non-linear effect of starter percentage on timing. the-bread-code.io/fermentation-table/
- **King Arthur Baking** — dough temperature guidance and dough-handling references. Supports the dough-temperature definitions and the volume-measurement notes. kingarthurbaking.com

> **A note on what these sources are.** The time ranges above are compiled from practical baking sources and extension material, not from a single controlled laboratory trial. Where sources disagreed we published a range instead of an average, and we would rather show a wider window than imply a precision the data does not have. Percentages, unit conversions and the merged table structure are our own collation.

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