

Trial #1:

Nov. 11 2024

Sample #1:

Order in oven: Left to right
No Baking Baking Yeast
Agent Soda PowderQuantitative observations:

No. of	Empty Pan With Spray Weight (g)	Knead dough in Pan weight (g)	Cooked cake in Pan weight (g)	height of baked cake (cm)
NO Agent	80	$\begin{array}{r} 334 \\ - 80 \\ \hline 254 \end{array}$	Not done	5.4
Baking soda	78	$\begin{array}{r} 324 \\ - 78 \\ \hline 246 \end{array}$	Not done	8.9
Baking Powder	78	$\begin{array}{r} 322 \\ - 78 \\ \hline 244 \end{array}$	Not done	8.8
Yeast	78	$\begin{array}{r} 350 \\ - 78 \\ \hline 272 \end{array}$	Not done	6.3

Qualitative observations:

No Agent: not Stringy, not airy, not fluffy, not Stretchy, light, Soft, Smooth, Sticky, deflated

Dough:

Baking soda: Smooth, airy, Stretchy, not as sticky, drippy, feels grains, liquidy consistency, not slimy,

Baking powder: Stretchy, very light, Slime like, very airy, fluffy, Slightly sticky.

Yeast: Kind of sticky, heavy & fluffy, Kind of light, feel the grains of yeast, Stringy, Stretchy, doesn't smell good.

Taste of baked cake:

No agent: Plain, raw/not fully cooked, mushy, doughy

Baking soda: Tastes a little like Zucchini bread, crispy, cooked, moist

Baking Powder: Fluffy, moist, soft

Yeast: horrible taste - tastes like the smell of yeast, doughy, moist, similar consistency to no agent

Color of baked cake:

Yeast: white with golden edges

Baking soda: dark brown color

Baking Powder: Golden color

No agent: white with golden edges

Trial #1:

Nov. 11 2024

Sample #2:

Order in oven

Quantitative observations

	Empty Pan with Spray Weight(g)	1 cup dough in Pan Weight(g)	cooked cake in Pan Weight(g)	height of baked cake (cm)
No agent	80	$\begin{array}{r} 346 \\ - 80 \\ \hline 266 \end{array}$	$\begin{array}{r} 332 \\ - 80 \\ \hline 252 \end{array}$	5.7
Baking Soda	78	$\begin{array}{r} 324 \\ - 78 \\ \hline 246 \end{array}$	$\begin{array}{r} 307 \\ - 78 \\ \hline 229 \end{array}$	9.2
Baking Powder	78	$\begin{array}{r} 320 \\ - 78 \\ \hline 242 \end{array}$	$\begin{array}{r} 302 \\ - 78 \\ \hline 224 \end{array}$	9.0
Yeast	78	$\begin{array}{r} 340 \\ - 78 \\ \hline 262 \end{array}$	$\begin{array}{r} 327 \\ - 78 \\ \hline 249 \end{array}$	6.4

Qualitative observations

raw dough - Same as before

Taste

No agent: mushy, bland, doughy, moist

Baking Soda: tangy, tastes like Zucchini bread, a little bitter, moist

Baking powder: Soft, moist, fluffy, good

Yeast: spongy, doughy, mushy, tasted bad like
Smell

Color of baked cake:

Yeast: White with a bit of gold

Baking Soda: dark brown

Baking powder: Golden

No agent: White with golden edges

Trial # 2:

Sample #1:

Nov 14 2024

Order in oven
Baking Yeast No. Baking
Powder agent Soda

Quantitative observations

	Empty Pan with spray weight (g)	1 cup dough in Pan weight (g)	cooked cake in Pan weight (g)	height of baked cake (cm)
Baking Powder	78	328 <u>- 78</u> (250)	310 <u>- 78</u> (232)	8.8
Yeast	78	334 <u>- 78</u> (256)	320 <u>- 78</u> (242)	5.8
No agent	80	340 <u>- 80</u> (260)	326 <u>- 80</u> (246)	5.3
Baking Soda	78	332 <u>- 78</u> (254)	316 <u>- 78</u> (238)	8.5

Qualitative observations

raw dough - Same as trial 1

Taste

Baking powder: Moist, crispy, good

Yeast: moist, bad taste, mushy, gross

No agent: Bland, raw inside cake,

Baking Soda: Tangy, bitter, tastes like Zucchini bread

Color of baked cake

Baking Powder = Golden

Yeast = dark brown on the edges, white near the center

No agent = white with a little bit of brown

Baking soda = Dark brown

Trial # 2:

Nov. 14 2024

Sample # 2:

Quantitative observations

order in oven
Baking Powder Yeast No agent Baking Soda

	Empty pan with spray Weight (g)	1 cup dough in Pan Weight (g)	Cooked cake in Pan weight (g)	height of baked cake (cm)
Baking Powder	78	$\begin{array}{r} 322 \\ - 78 \\ \hline 244 \end{array}$	$\begin{array}{r} 305 \\ - 78 \\ \hline 227 \end{array}$	8.5
Yeast	78	$\begin{array}{r} 341 \\ - 78 \\ \hline 263 \end{array}$	$\begin{array}{r} 326 \\ - 78 \\ \hline 248 \end{array}$	6.1
No agent	80	$\begin{array}{r} 342 \\ - 80 \\ \hline 262 \end{array}$	$\begin{array}{r} 331 \\ - 80 \\ \hline 251 \end{array}$	5.2
Baking Soda	78	$\begin{array}{r} 360 \\ - 78 \\ \hline 282 \end{array}$	$\begin{array}{r} 316 \\ - 78 \\ \hline 238 \end{array}$	8.6

Qualitative observations

Raw dough - same as trial 1

Taste

Baking powder: fluff, moist, tasty

Yeast: Mushy, Slimey, bad taste

No agent: Squishy, Slimey, Bland

Baking Soda: Fluffy, tangy, moist

Color of baked cake

Baking powder: Golden

Yeast: light brown edges, white

No agent: mostly white with little brown edges

Baking Soda: dark brown

Trial # 3:

Nov 17 2024

Sample # 1:

Order in oven:
Baking Powder no agent Baking Soda yeast

Quantitative observations

	Empty pan with spray weight (g)	1 cup dough in pan weight (g)	cooked cake in pan weight (g)	height of baked cake (cm)
Baking Powder	78	$\begin{array}{r} 332 \\ - 78 \\ \hline 254 \end{array}$	$\begin{array}{r} 310 \\ - 78 \\ \hline 232 \end{array}$	9.0
No agent	80	$\begin{array}{r} 340 \\ - 80 \\ \hline 260 \end{array}$	$\begin{array}{r} 326 \\ - 80 \\ \hline 246 \end{array}$	5.6
Baking Soda	78	$\begin{array}{r} 331 \\ - 78 \\ \hline 253 \end{array}$	$\begin{array}{r} 314 \\ - 78 \\ \hline 236 \end{array}$	8.9
Yeast	78	$\begin{array}{r} 338 \\ - 78 \\ \hline 260 \end{array}$	$\begin{array}{r} 324 \\ - 78 \\ \hline 246 \end{array}$	5.7

Qualitative observations

* Raw dough - Same as before

Baking powder: A nice golden color

Color = No agent: White with brown edges

Baking Soda: Deep, Dark, brown color

Yeast: Crispy brown with white here and there

Taste

Baking powder: moist, fluffy, good

No agent: bland, gross, raw inside cake

Baking soda: tangy, moist

Yeast: gross, moist, tastes like the smell of yeast

Trial 3:
Sample 2:

Nov. 17 2024

Order in oven:
Baking Powder No agent Baking Soda Yeast

Quantitative observations

	Empty cake pan with spray weight (g)	1 cup dough in Pan weight (g)	Cooked cake in Pan weight (g)	height of Baked cake (cm)
Baking Powder	78	$\begin{array}{r} 326 \\ - 78 \\ \hline 248 \end{array}$	$\begin{array}{r} 310 \\ - 78 \\ \hline 232 \end{array}$	8.9
No agent	80	$\begin{array}{r} 342 \\ - 80 \\ \hline 262 \end{array}$	$\begin{array}{r} 330 \\ - 80 \\ \hline 250 \end{array}$	5.6
Baking Soda	78	$\begin{array}{r} 324 \\ - 78 \\ \hline 246 \end{array}$	$\begin{array}{r} 310 \\ - 78 \\ \hline 232 \end{array}$	8.5
Yeast	78	$\begin{array}{r} 326 \\ - 78 \\ \hline 248 \end{array}$	$\begin{array}{r} 324 \\ - 78 \\ \hline 246 \end{array}$	5.9

Qualitative observations

Raw dough - same as trial 1

Taste

Baking Powder: moist, good, crispy

No agent: Bland, plain

Baking Soda: Tangy, Bitter, moist

Yeast: gross, moist, crispy

Color

Baking Powder: A light golden color

No agent: white with gold edges

Baking soda: Dark with lighter middle/top

Yeast: Gold with white spots

Dec. 15 2024

Testing how I prepared yeast as a source of error:

Sample 1:

Weight of raw cake: $336\text{g} - 78\text{g} = 258\text{g}$

Weight of baked cake: $324\text{g} - 78\text{g} = 246\text{g}$

height of baked cake: 6.0 cm

Sample 2:

Weight of raw cake: $335\text{g} - 78\text{g} = 257\text{g}$

Weight of baked cake: $323\text{g} - 78\text{g} = 245\text{g}$

height of baked cake: 5.9 cm

Mar. 17 2025

Cost of leavening agents:

Baking soda: \$2.49 for a 500g box - 1 tbs = 18g = $\$0.09/\text{tbsp}$

Baking Powder: \$6.99 for a 340g container

1 tbs = 12g = $\$0.25/\text{tbsp}$

Yeast: \$3.99 for 24g - 1 tbs = 10g = $\$1.66/\text{tbsp}$

March 18 2025

pH values:

Vanilla extract: 4, acidic

Milk: 6.6 slightly acidic

Eggs: 7-7.1 close to neutral

Oil: 6.9 close to neutral



















