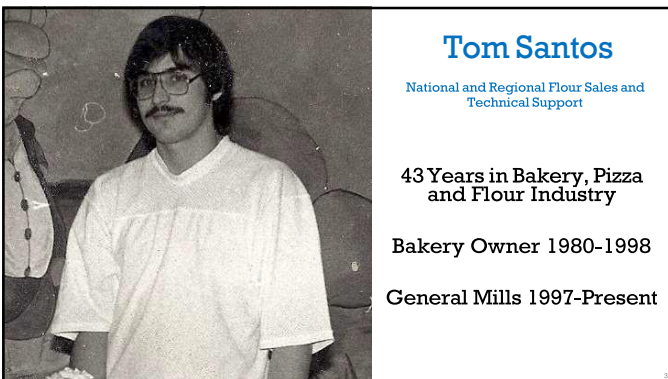




1



2



3



Curt Wagner
 Corporate Chef, CEPC,
 Flour

40 Years in the Baking and Pastry Industry

Developed a Sugar-Free and No Sugar Added Dessert line
 "Remember When Desserts"

4 Medals in AFC Competitions

4

General Mills Booth - 1922



Dough Making Demos

- 11:30 AM at GM Booth Tuesday/Wednesday
- 2:00 PM at GM Booth Tuesday/Wednesday



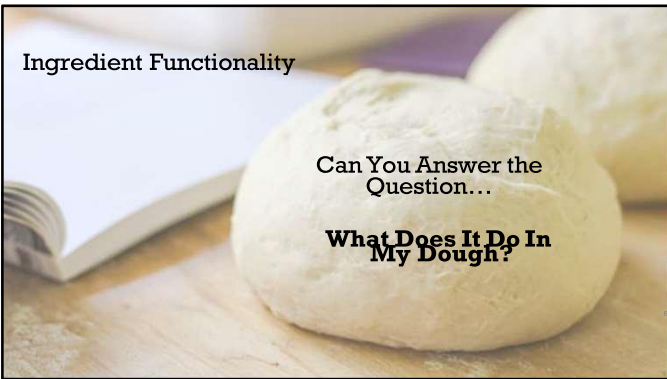
Pizza Crust Bootcamp™

Sessions held both Tuesday and Wednesday

- Part 1 – Technical
- 9:30AM-10:30AM
- Part 2 – Practical
- 3:30-4:30PM

5

Ingredient Functionality



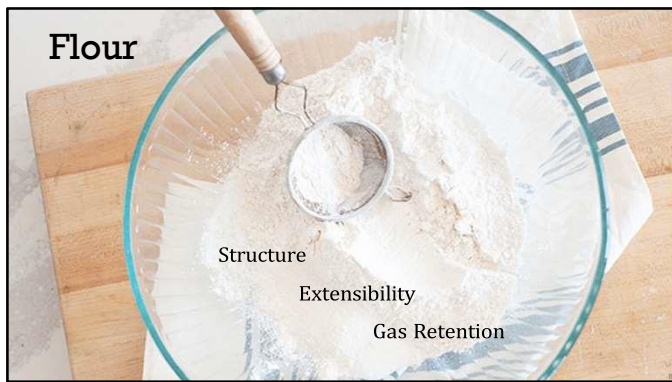
Can You Answer the Question...

What Does It Do In My Dough?

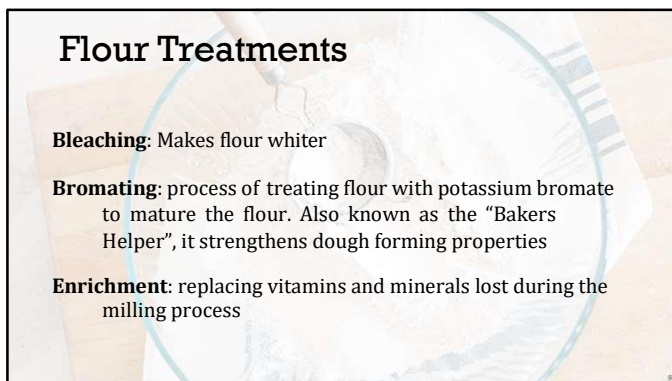
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11



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13



14



15

Baker's Percent:

Flour = 100%
Other ingredients are a percentage
of the flour

Ingredient	Weight	Bakers %
Flour	100 lbs.	100
Water	56 lbs.	56
Salt	2 lbs.	2
Sugar	4 lbs.	4
Oil	6 lbs.	6
Yeast	1 lb.	1
Total	169 lbs.	169%

16

**Water's Function
in the Dough:**

Temperature Control

Hydration Usage 54-75%

17

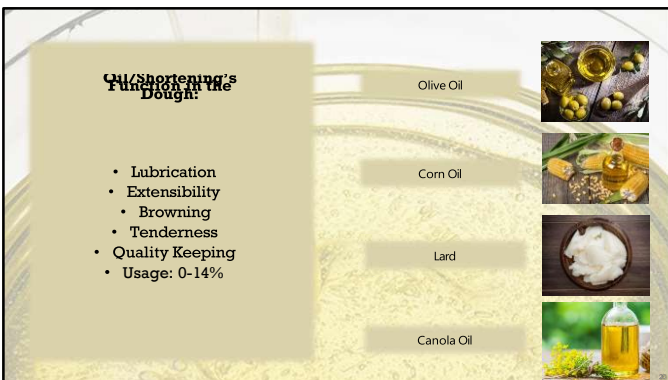
**Salt Function in the
Dough:**

- Helps Control Fermentation
 - Strengthens dough
 - Adds flavor
 - Keeping Quality
- Salt Usage: 1-2.5%

18



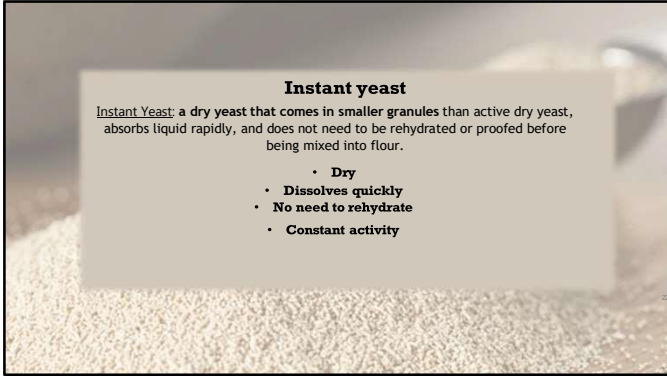
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20



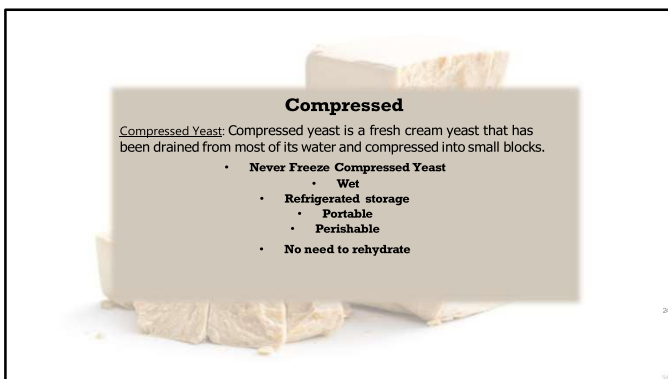
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24



25

Basic Dough Formulas – Spring Wheat

Pizza Type	NY Thin	NE Hand Tossed Pizza	Detroit
Flour Type	Spring Wheat	Spring Wheat	Spring Wheat
Formula	13.6+% High Protein	12.6+% Mid Protein Patent	12.3+% Mid Protein Patent
Flour	100	100	100
Water	58	56	58
Salt	2	1.5	1.2
Sugar	1	2	1.4
Oil	4	6	0
Yeast (instant)	0.75	1	1.2
Semolina	0	0	12

26

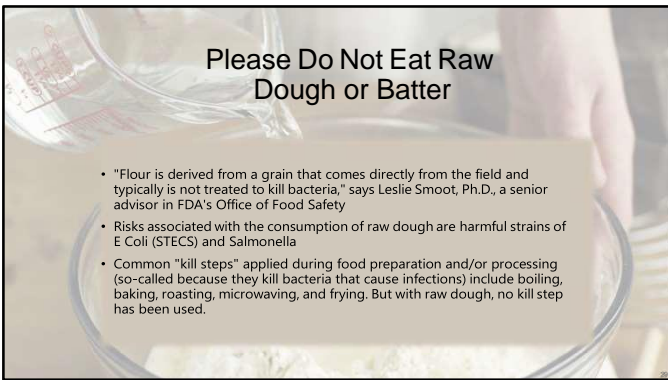
Basic Dough Formulas – Winter Wheat

Pizza Type	Deep Dish	Cracker	Neapolitan
Flour Type	All Purpose/H&R	All Purpose/H&R	Di Prim/Harvest King
Formula	10.5-11.5%	10-11%	11.7-12.0%
Flour	100	100	100
Water	56	50	63
Salt	1.5	2	2.25
Sugar	2.5	4	0
Oil	8	2	0
Yeast (instant)	0.5	1	0.25

27



28



29

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Start Ship: July 2024

Citizae™, High Protein Flour in Foodservice Channel, 12 months ending December 2023, in Dollars & Pounds.




30

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31

Questions?

Ready for a slice of success?
Scan this QR code to visit our pizza experience homepage for your pizza solutions!

Presented by Tom Santos and Curt Wagner
Booth #1922

32

Session 2: How to Make Dough

Presented by Tom Santos and Curt Wagner
From General Mills

33



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38



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Mixing Time Factors

Consistency = Quality

1. Flour Protein
2. Absorption
3. Formulation
4. Temperature
5. Mixer Type
6. Batch Size



40

Mix Time by Protein Level

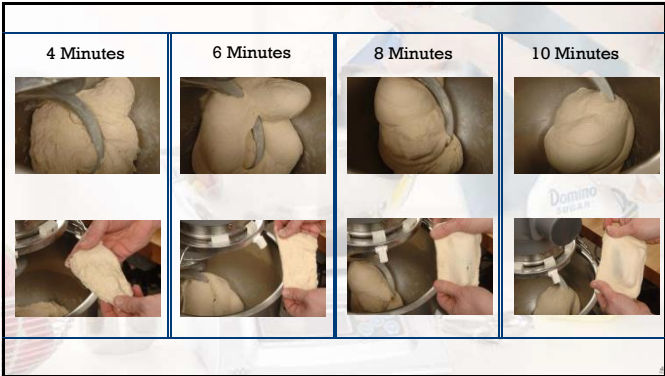


	Protein Level	Gluten Strength	Dough Strength	Mix Time
All-Purpose	10 – 12%	Low	Soft	5 - 7
Bread Flour	12 – 13%	Med	Med	7 - 10
High Gluten	13 – 14%	High	Stiff	10 - 14

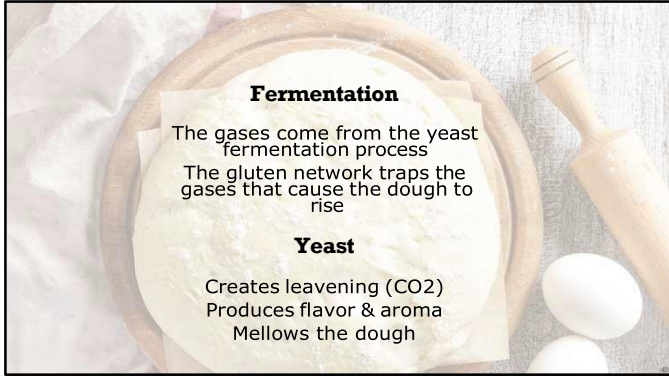
Mix times will be dependent upon processing method



41



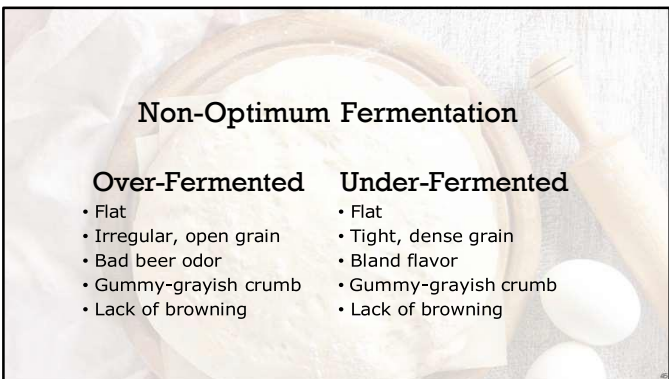
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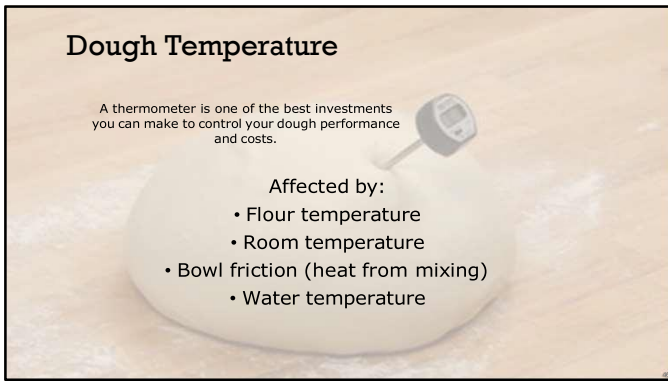
43



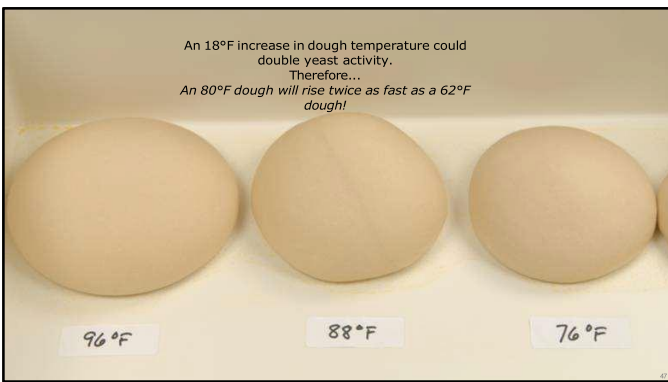
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46



47

Water Temperature Chart

	Room Temperature																							
	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	74	78	80	82	84	86	88	90
40	133	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270
42	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276
44	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282
46	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288
48	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294
50	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300
52	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306
54	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312
56	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318
58	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
60	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330
62	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336
64	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342
66	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348
68	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354
70	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360
72	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366
74	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372
76	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378
78	246	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384
80	252	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390
82	258	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390	396
84	264	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390	396	402
86	270	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390	396	402	408
88	276	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390	396	402	408	414
90	282	288	294	300	306	312	318	324	330	336	342	348	354	360	366	372	378	384	390	396	402	408	414	420

Using the water temperature chart*
 The intersection of the Room Temperature column with the Flour Temperature row reveals the needed Water Temperature for a 75°F dough temperature.
 Example Shown:
 If room temperature is 72°F and flour temperature is 60°F a 58°F degree water temperature would be needed to achieve a finished dough temperature of 75°F.
 *Chart is based on targeting a 75°F ideal dough temperature with an estimated friction factor of 35%.
 Points marked in blue will need to be adjusted to achieve the proper dough temperature.

48

Fermentation Time

Attribute	Fresh	Retarded
Age of dough	3 – 12 hours	12 – 72 hours
Yeast Level	Higher	Lower
Dough temp	Warm (85 – 95)	Cool (75 – 85)
Fermentation	Fast	Slow

49

Fresh Dough

Goal is to produce multiple, smaller batches in order to maintain a supply of fresh dough

Advantages:

- More refrigeration space
- Accurately anticipate demand

Concerns:

- Requires mixing during the day
- Short shelf-life of dough
- Potential for inconsistent product
- Flavor profile

50

Fresh Dough Method

Mix

Ferment/Proof

Make Up

Use/Hold

51

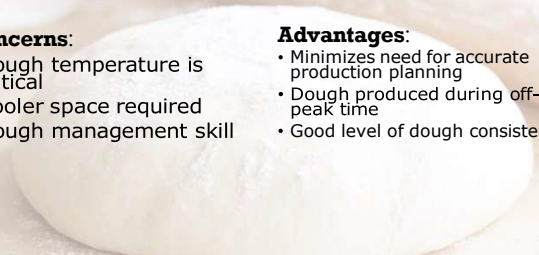
Refrigerated Dough

Concerns:

- Dough temperature is critical
- Cooler space required
- Dough management skill


Advantages:

- Minimizes need for accurate production planning
- Dough produced during off-peak time
- Good level of dough consistency




52


Refrigerated Dough Method




Mix




Divide/Round



Refrigerate




Warm Up



Make Up

53

Refrigerated Dough Method

54

Dough Tray – Cross Stack - Nestle



55

Emergency Dough

Emergency dough formula:

- Increase yeast level – double?
- Increase sugar level – double?
- Warmer dough temperatures >95°F

Should only be used in an emergency, then destroyed!

56



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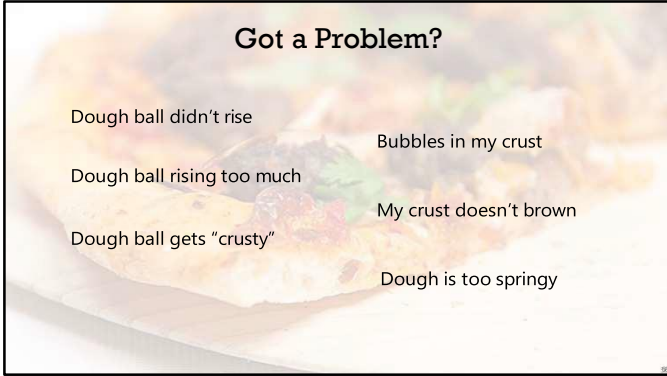
Start Ship: July 2024



Citrus™, High Protein Flour in Foodservice Channel, 12 months ending December 2023, in Dollars & Pounds.

57

Got a Problem?



Dough ball didn't rise

Bubbles in my crust

Dough ball rising too much

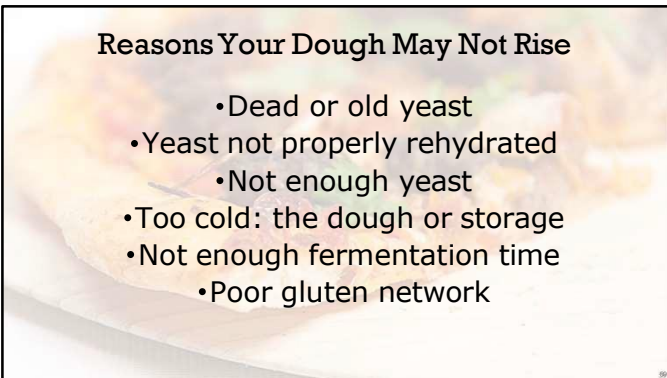
My crust doesn't brown

Dough ball gets "crusty"

Dough is too springy

58

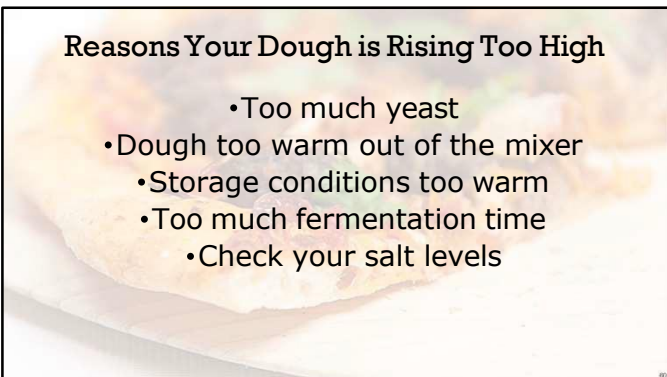
Reasons Your Dough May Not Rise



- Dead or old yeast
- Yeast not properly rehydrated
- Not enough yeast
- Too cold: the dough or storage
- Not enough fermentation time
- Poor gluten network

59

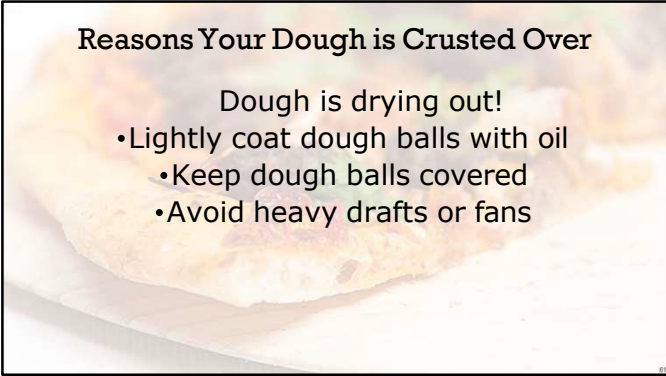
Reasons Your Dough is Rising Too High



- Too much yeast
- Dough too warm out of the mixer
- Storage conditions too warm
- Too much fermentation time
- Check your salt levels

60

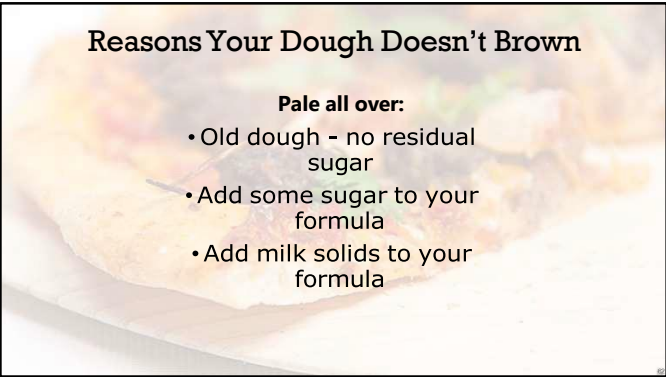
Reasons Your Dough is Crusted Over



- Dough is drying out!
- Lightly coat dough balls with oil
 - Keep dough balls covered
 - Avoid heavy drafts or fans

61

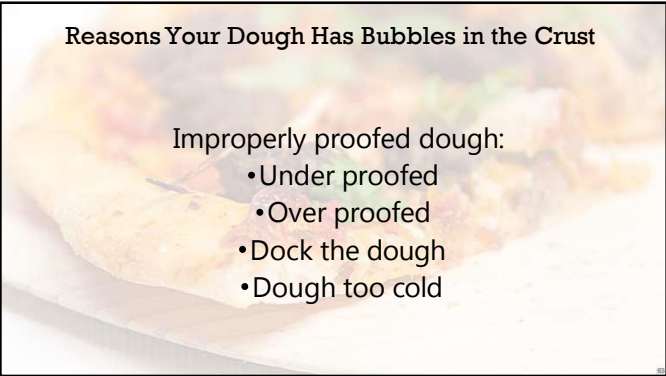
Reasons Your Dough Doesn't Brown



- Pale all over:**
- Old dough - no residual sugar
 - Add some sugar to your formula
 - Add milk solids to your formula

62

Reasons Your Dough Has Bubbles in the Crust



- Improperly proofed dough:
- Under proofed
 - Over proofed
 - Dock the dough
 - Dough too cold

63

Wheat Market Update

- Improved drought conditions in Spring Wheat Planting region
- Still concern about dryness in Winter Wheat Growing region
- Russia/Ukraine extended safe passage deal 60 days (market was hoping for 120 days)
- Bank concerns and debt weighing on markets (US Dollar)
- Supply Chain has improved since we talked last year.

64

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65

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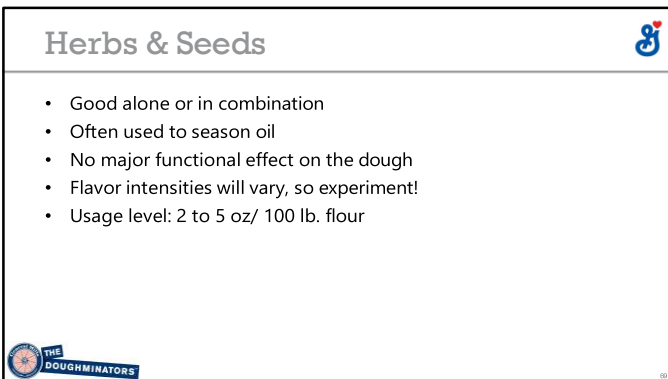
66



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68



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Herbs


Herb	Flavor	Affinities
Basil	Spicy, mint	Tomato, mozzarella, chicken, sauces
Oregano	Strong, rich	Tomato, beef, pork, garlic, mushrooms
Rosemary	Piney/pungent	Lamb, poultry, pork, tomato
Marjoram	Pungent, lavender-like	Mushroom, vegetables, meats
Chives	Mild scallion	Cheese, poultry, tomato
Thyme	Clove-like	Mushroom, meats
Parsley	Mild, carrot-like	Pairs well with most other herbs



70

Wheaten Style Pizza Formula

Ingredient	Bakers %	Weight
Whole Wheat Flour	40	10 lb
High Gluten Flour	60	15 lb
Water	64	16 lb
Salt	2	8 oz
Honey	6	1 lb, 8 oz
Oil	4	1 lb.
Yeast (instant)	0.75	3 oz



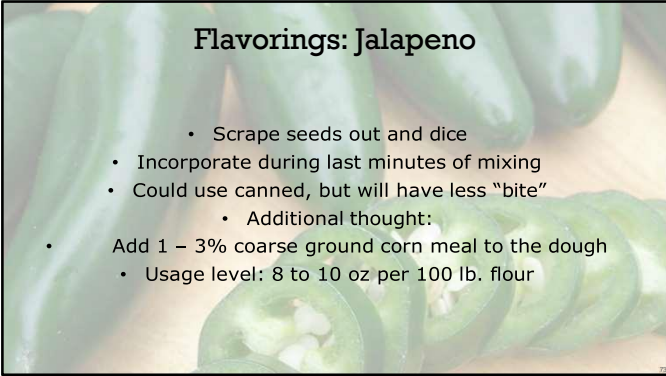
71

Flavorings: Onion and Garlic

- Use enough to produce a hint of flavor!
- Be careful, these will impart a dough relaxing effect
- Usage level: 1 to 3 oz per 100 lb. flour



72



Flavorings: Jalapeno

- Scrape seeds out and dice
- Incorporate during last minutes of mixing
- Could use canned, but will have less "bite"
 - Additional thought:
- Add 1 – 3% coarse ground corn meal to the dough
- Usage level: 8 to 10 oz per 100 lb. flour


73



Flavorings: Parmesan Cheese

- Usage level: 2 to 3 lb. per 100 lb. flour
 - Good rich flavor
- Blends well with herbs and spices

74



Sweeteners

Try different options other than plain white sugar, such as honey, molasses and brown sugar for a unique taste!

75

Creating Your Signature

Honey Wash

- Equal parts of honey and water
- Heat until it clarifies, cool and use
- Brush on the bone before baking

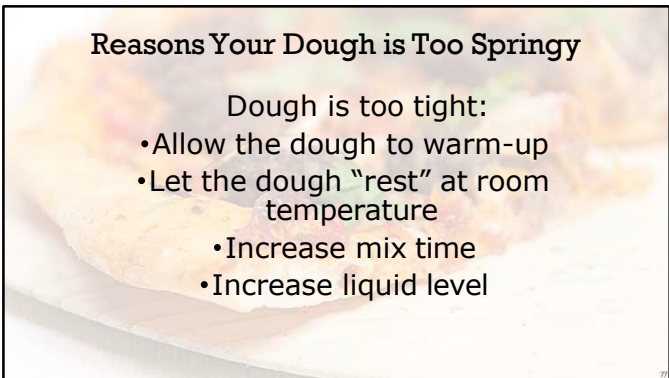


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Reasons Your Dough is Too Springy

Dough is too tight:

- Allow the dough to warm-up
- Let the dough "rest" at room temperature
 - Increase mix time
 - Increase liquid level



77

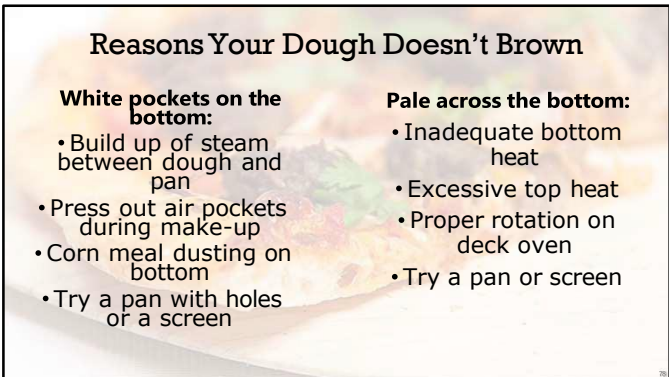
Reasons Your Dough Doesn't Brown

White pockets on the bottom:

- Build up of steam between dough and pan
- Press out air pockets during make-up
- Corn meal dusting on bottom
- Try a pan with holes or a screen

Pale across the bottom:

- Inadequate bottom heat
- Excessive top heat
- Proper rotation on deck oven
- Try a pan or screen



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