

## Baking Procedure for 100% Whole Wheat Flour Bread using a Straight Dough Method

### Formulation:

Ingredients	Percentage	Grams
Whole Wheat Flour	100	*200
Water	70	**140
Yeast (active dry)	1	2
Salt	1.5	3
*Flour (14% mb)		
**Optimum Water Absorption%		

### Ingredients:

Non-iodized table salt

Red Star Active dry yeast

Crisco Shortening (for greasing)

### Equipment:

1 Qt Commercial Grade Round Food Storage Containers with Lids

Rack-oven

Fermentation Cabinet

200g bowl pin-style mixer made by National Mfg.

100g puploaf pan (top inside, about  $14.3 \times 7.9$  cm ( $55/8 \times 31/8$  in.); bottom outside, about  $12.9 \times 6.4$  cm ( $51/16 \times 21/2$  in.); inside depth, about 5.7 cm ( $21/4$  in.))

50ml Graduated cylinder

600ml Plastic Beakers

50ml plastic beakers

Food grade bowls

2-roll sheeter (6-in. roll width with adjustable gap settings (min.  $1/8$  in., max.  $3/8$  in.) and foot switch

Serrated knife

Bread Cutting Board

### Preparation for Straight Dough Baking

1. Weigh out flour (14% mb) and salt into the 1-qt containers a day prior to bake day.  
Weigh out all the samples that will be baked

### Bake Day

1. Pre-heat the oven to 400 °F and set the fermentation cabinet temperature to 86°F and the humidity at 85%.
2. Dissolve the yeast into water . Make enough solution for the samples that will be baked that day. Make the yeast solution daily.

## Mixing Procedure

1. Add the flour and salt into the mixing bowl then pour in 12ml of the yeast solution measured out using a graduated cylinder. Use the remaining water to rinse out the graduated cylinder. The initial water absorption for the sample is based on either the absorption given by the farinograph or mixograph. During the mixing stage, water is added (if needed) to the dough in order to reach optimum absorption.
2. Mix to optimum gluten development. Take a small portion of the dough and stretch between your fingers. Stretch it without tearing to the point where it becomes see through. This is the window pane test. If you can do this with your dough, it has reached optimum development. Remove the dough from the mixing bowl and place it on the counter to be rolled into a ball. Place the dough into a greased bowl and then into the fermentation cabinet.
3. This straight dough method is a 140-minute fermentation with a proof time of 33-35 minutes.
4. At the 60 minute mark, remove the dough from the cabinet to de-gas it.
5. With your fingers, loosen the dough from the pan and place on a lightly floured surface sticky side up. Take the ends of the dough and bring them together to pinch them tight. Roll the dough log gently on the floured surface to lightly coat it with flour to prevent it from sticking to the rollers.
6. Pass the dough between the rolls with a gap setting of  $\frac{7}{32}$  in.. Then fold the sheeted dough in half and in half again, and place back into the bowl with the crease down and return to fermentation cabinet. Dough characteristics are recorded at these stages.
7. Repeat steps 5 and 6 at the 90 minute mark.
8. After another 15 minutes, sheet the dough again. Pass through once at gap setting  $\frac{11}{32}$  in., and then again at  $\frac{7}{32}$  in.. Place the dough on the countertop and with your fingers, tightly roll the dough into a log about 5.8-6.5 in. in length. Label the dough with a small piece of paper and place it into the greased puploaf pan. Place the pan back into the fermentation cabinet for 33-35 minutes until dough proofs to a height of 2cm above the rim of the pan.
9. After reaching proof height, place the sample into the pre-heated oven and baked for 30 minutes. Allow it to cool for an hour before taking the bread volume and evaluating the bread characteristics.
10. Breads are evaluated on bread symmetry, crumb grain, crumb texture, and flavor. For bread symmetry, evaluate the bread before cutting. Make notes on the size of the bread, the break & shred, the top (rounded top or flat and uneven). Cut the dough and make observations on the crumb grain and texture. Is the grain, open with a uniform cell structure? Is the texture soft and spongy? For flavor, make note of any strong and unique flavors.