Hard whole wheat barm bread, e.g. Kansas *Turkey Red* wheat.

Amounts are right for a bread machine loaf, with one pound of flour. The total process spans approximately 24 hours

Ingredients	*Digital scale - ounces*	*Cups & spoons*
Hard whole wheat flour	16.00 oz	three & a half cups
Vital wheat gluten** (optional)**	up to 1.05 oz	Up to three tablespoons
Water	12.48 oz	one & a half cups
Salt**	0.16 oz	1 teaspoon
Malt* (Enzyme active malted barley or wheat flour)**	0.16 oz	one teaspoon
Barm stock *	2.88 oz	one third cup

* Barm stock contributes 1.28 oz flour, 0.01 oz salt, and 1.60 oz water.

**Use plain sea salt without additives. Salt is 1% with respect to total flour; this is a low salt amount. Use 1.5% if saltier taste preferred.

***Malted barley flour available by mail order from www.bobsredmill.com, or use malted wheat flour from www.barmbaker.com.

**** Optionally, replace some of the whole wheat flour with vital wheat gluten if protein is less than 15%: 0.21 oz for each percent difference to 15%.

Day one – preparation *(Steps 1, 2 span 1-3 hours, and step 3 spans 12-18 hours)*

Step 1. Collect and measure out ingredients:

(i) Divide the total flour equally between two bowls, labeled *mash flour* and *dough flour* respectively. Optionally, replace some *dough flour*** with vital wheat gluten.

(ii) Measure into a jug: all the water and salt. Completely dissolve the salt and set aside. This is the total salty water ingredient.

Step 2. Make a mash of salty water, flour, and malt, in a 2½ quart saucepan with lid (stainless steel or glass), as follows:

(i) Thoroughly mix malt into *mash flour*.

(ii) Heat approximately three quarters of the total salty water, to 130-140º F. Use the higher temperature if your flour is cold, or use lower temperature in a hot kitchen.

(iii) Add the mixed malt and *mash flour*, to the hot water in saucepan. Mix well and cover with lid. This is the mash; allow it to cool slowly. Wrap in a blanket, and un-wrap after 1 hour. Wait until the mash has cooled to at least 100ºF before proceeding, 1-3 hours.

Step 3. Make the sponge for this bake, and barm stock for next baking:

(i) To the cooled mash, in the saucepan, add the barm stock. Mix well, cover with lid and leave at room temperature, approximately 70ºF, overnight (12-16 hours). Mix and beat well to incorporate air, at 4-8 hour intervals, during the fermentation time. The sponge should be used to make the bread dough at the end of this time, when pH has dropped to 3.5-4, and it is well gassed.

(ii) For barm stock: Take out 2.88 oz from sponge and leave in covered bowl at 70ºF for as long again as it took for the pH to drop to 3.5-4, i.e. for another 8-24 hours. Stir well several times. Store barm stock covered, in refrigerator 40ºF.

Day two – bread making *(Steps 4, 5 and 6 span 3-4 hours)*

Step 4. Make the bread dough, in a bread machine, or with an electric mixer, or by hand in a mixing bowl (knead with lightly water-moistened hands):

(i) To final mixing bowl, add *dough flour*, half remainder of salty water, and the remaining sponge from the saucepan. Add the rest of the salty water only if needed to make a supple dough during mixing. Mix or knead until the dough is smooth and can be pulled into a paper-thin sheet, 10 – 20 minutes.

(ii) Leave in covered bowl, to rest and rise to at least half the volume again, at room temperature, 70ºF, 30-120 minutes.

(iii) For one loaf, 6-12 buns or 2 baguettes: Divide and round dough-pieces on a board, cover and leave to rest 10-30 minutes.

Step 5. Shape finally into loaf, buns, or baguettes, and allow to rise for up to 2 hours, 70ºF, before baking.

Step 6. Bake the bread. *Pan loaf*: 350ºF, 45 minutes. *Pocket breads or thin buns*: 475ºF, 5 minutes. *Baguettes*: 475ºF, 10-15 minutes.