UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
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# How to Make Good Bread
## From Missouri Soft Wheat Flour

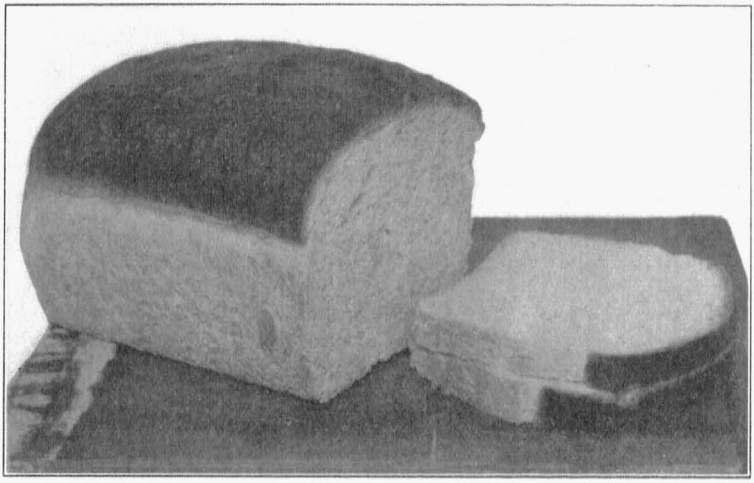

Fig. 1.—Bread of highest quality made from Missouri soft wheat flour, by using dried yeast, scalded flour and buttermilk.

COLUMBIA, MISSOURI
APRIL, 1926

# Missouri Soft Wheat Flour
## Makes Bread that Cannot Be Excelled

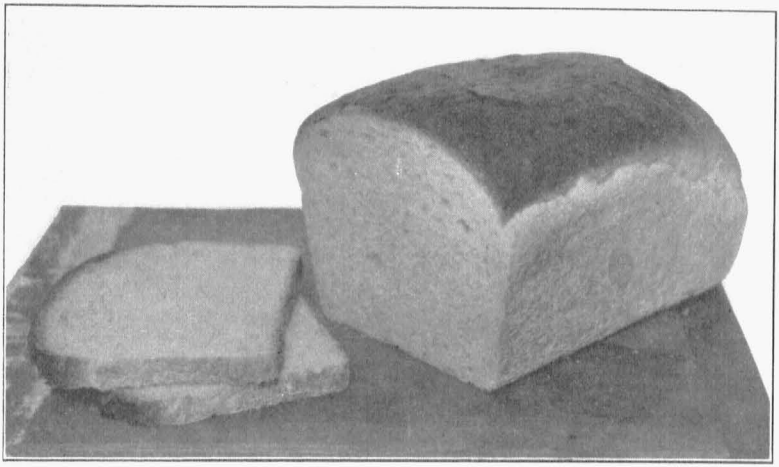

Fig. 2.—Missouri soft wheat bread made with dried yeast, potato water, and potato.

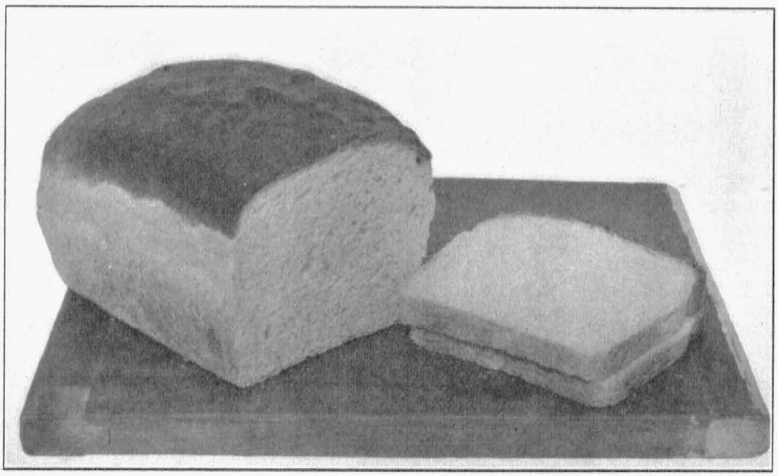

Fig. 3.—Missouri soft wheat bread made with dried yeast, scalded flour and potato water.

# How To Make Good Bread from Missouri Soft Wheat Flour

EVA MAE DAVIS AND JESSIE ALICE CLINE

ABSTRACT.—This bulletin deals with the results of using dried yeast with Missouri Soft Winter Wheat Flour for breadmaking. The results of these investigations showed that good bread could be made from Missouri flour, using dried yeast, comparable in quality to that made with compressed yeast, or to that made from our best hard wheat flours. It requires only two and one-half to three hours after the preliminary fermentation period. Recipes, with methods of procedure, are given.

Bread, although not satisfactory in mineral and vitamin content, can still be called the "staff of life," since there is no other article of diet so universally used. In nearly every part of the world some form of grain product is found to be the largest single source of energy in the food supply. Grain products furnish the most economical supply of calories, protein, phosphorus and iron. In an extended series of dietary studies made at the University of Maine, the grain products, while costing only 17 per cent of the total expenditure for food, furnished 40 per cent of the fuel, 25 per cent of the protein, and 18 per cent of the phosphorus. In the average of 224 typical American dietaries, grain products represented 18 per cent of the total cost of food and furnished 38 per cent of the calories, 37 per cent of the protein, 30 per cent of the phosphorus, 16 per cent of the calcium, and 26 per cent of the iron. Although white bread does not furnish as much mineral as the average of grain products, it nevertheless does more than its share of furnishing calories and protein for the money expended. According to Sherman, "As a rule a free use of bread and other grain products together with an adequate amount of milk makes for both an economical and a well-balanced dietary."

Wheat is commonly divided into two main classes, winter and spring. In general, the winter wheats are soft and the spring wheats are hard. Of all the states producing soft winter wheat, Missouri ranks first, with 94 per cent of all her wheat soft.

The importance of using home grown products was emphasized by the World War; but nevertheless statistics show that only 15 per cent of all the flour produced in Missouri is consumed within the State. The majority of the bakers of the State and half of the housewives use flour shipped in from other states for making bread. This results in increased cost of the flour we use or increased cost of our bread. A large part of the wheat is milled out of the State with the result that mill feed in Missouri costs more than it should due to doubled transportation expense.

If Missouri bakers and housewives will use Missouri flour as an "all-purpose" flour they will be cutting down materially on the high cost of living.

Flour made from soft winter wheat has a smooth, powdery texture; usually has a small proportion of gluten; will absorb a small quantity of water;

and is known as a "soft", "weak," or "pastry" flour. On the other hand, flour made from hard winter or spring wheat has a very granular texture; usually has a large proportion of gluten; will absorb a large quantity of water; and is known as a "hard," "strong," or "bread" flour.

Originally Americans used nothing but soft wheat flour for bread making. About 1870, hard wheats began to be popular with the millers of this country, and very extensive advertising caused many bakers to turn to hard wheat flour.* They found it would take up a large quantity of water and make a large loaf of a desirable shape with attractive color and texture. It also took less skill to make good bread from the stronger flours than it did from the so-called weaker flours. If the nutritive value is considered, however, a flour which does not absorb so much water has a decided point in its favor.

Recent experimental work on making light bread from Missouri soft winter wheat flour has definitely shown that it is perfectly possible to make a bread, comparable in quality to that made from our best hard wheat flours, from the softer flours and in much less time. This experimental work, reported in Missouri Experiment Station Bulletin 227, calls for a large quantity of compressed yeast. This is not practical for the farm woman or the housewife in the small town. Compressed yeast must be perfectly fresh to do its best work, and it is also the most expensive kind of yeast. It is often advantageous to use a cheaper yeast which can be kept in a good condition over a long period of time.

For these reasons it was thought important to make a study of the use of dried yeast in making light bread from Missouri soft wheat flour.

## INGREDIENTS IN BREAD

Flour, liquid, and yeast are the most essential ingredients for making bread, but sugar, salt, and shortening add greatly to the quality of the final product. It is also found that by using different liquids (milk, buttermilk, potato water) and by adding scalded flour or potato to the preliminary fermentation a much better product is obtained. The first requisite to insure success in breadmaking is good quality of materials.

*Thesis of Laurel E. Davis, University of Missouri, 1924.

# Experimental Results

Previous work has shown that in general the soft type of flour requires the use of more sugar, more yeast, and less water, but a relatively softer dough.* Every brand of flour, every sack of flour behaves differently and thus each lot must be handled differently to give the best results. The successful use of Missouri soft wheat flour in breadmaking depends, to a large extent, upon the use of the proper amount of liquid. Thus, each new sack of flour should be tested as to its water-absorbing power and this amount used for all the sack.

As a result of experimentation the following recipes have been formulated, and found to give satisfactory bread.

## RECIPES AND METHODS OF PROCEDURE FOR BREAD FROM SOFT WINTER WHEAT FLOUR

The proportions used are for a single one-pound loaf. All measurements are level, the flour sifted once before measuring, and the measuring cup filled lightly to avoid packing.

When potatoes were used one medium-sized potato (seventy-five grams) was peeled and cut in ½-inch cubes. One cup of cold water was added. These were cooked until the potatoes were tender and then the liquid drained off and set away for later use. The potatoes were run through a sieve so as to make them fine and smooth.

When scalded flour was used the following method was employed:

(1) The flour was sifted then measured and mixed with just enough warm water to form a soft paste or batter.

(2) The rest of the liquid was heated to boiling then divided into three portions and added to the batter in three installments, stirring vigorously all the time. One must be sure that the first portion of water is boiling. Stirring and gradual adding of water are also important.

### Recipe I.—Potato Water as the Liquid with Potato Used as the Starch

Proportion of Ingredients

| | |
|---|---|
| 3½ cups flour | 5½ teaspoons sugar |
| ⅔ cup Potato Water | 1 teaspoon lard |
| 1 medium sized potato | 1 teaspoon salt |
| | ¼ cake dried yeast |

Preliminary Fermentation

1. Prepare potato and potato water according to directions given above.
2. Add four teaspoons of sugar to the potato.
3. Add liquid at 90°F. (luke warm).
4. Add yeast and set in a warm place for twelve hours. Keep temperature of mixture even (80° to 90°F.).
5. At end of twelve hours add to this preliminary fermentation mixture one and one-half teaspoons of sugar and pour into a bowl containing the melted lard, salt and enough warmed flour to make a thin batter.
6. Beat for one minute then add rest of flour gradually. (The dough should be so soft that it must be handled quickly to prevent its sticking to the

*Missouri Agricultural Experiment Station Bulletin 227.

fingers and to the board. Soft winter wheat flour requires a soft dough for the best results.)

7. Turn on board and knead quickly until dough is soft, velvety and elastic (about ten minutes).

8. Place dough in a slightly greased and warmed mixing bowl, cover tightly and set in a warm place (80° to 90°F.).

9. When dough has doubled in bulk turn on board and knead gently until gas bubbles are small and evenly distributed (about three minutes for kneading and moulding). Mould and place in a warm, greased pan, turning dough so all surfaces will be greased.

10. Cover and set in a warm place until dough has trebled in bulk. (Occasionally the top of the dough while in the pan should be brushed with warm milk. This prevents hard places occurring in the finished loaf.)

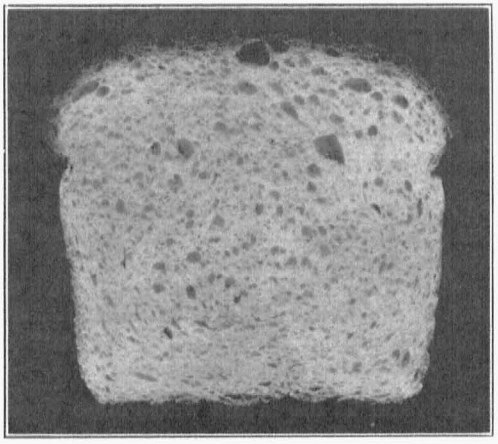

Fig. 4.—Made with dried yeast, potato, and potato water.

11. Bake in a moderately warm oven (350°F.) for ten minutes then increase to hot oven (400°-420°F.) and continue baking for twenty-five minutes; total of thirty-five minutes.

12. Bread should be placed across top of pan or on a bread rack to cool before storing in bread box.

**Recipe II.—Potato Water as the Liquid with Scalded Flour Used as the Starch**

PROPORTION OF INGREDIENTS

| | | |
|---|---|---|
| 3½ cups flour | 4 tablespoons scalded flour | 1 teaspoon lard |
| ⅛ cup potato water | 5½ teaspoons sugar | 1 teaspoon salt |
| | ¼ cake dried yeast | |

Preliminary Fermentation

1. Prepare scalded flour according to method described on page 5.
2. When cooled to luke warm (90°F.) add the sugar and yeast and set in a warm place for 12 hours. For rest of procedure follow directions given on pages 5 and 6, steps 5 to 12, inclusive.

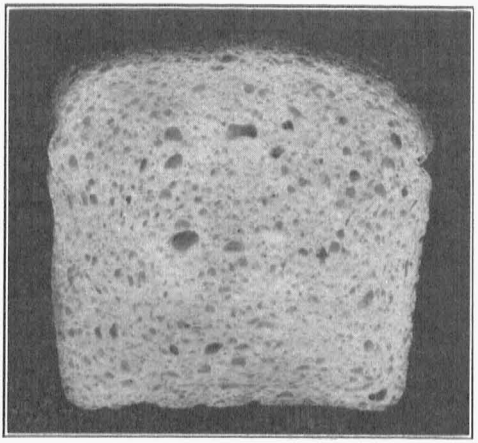

Fig. 5.—Made with dried yeast, scalded flour and potato water.

### Recipe III.—Milk and Buttermilk Bread

Good bread may be made by following directions for either Recipe I or II by supplementing ½ skim milk or buttermilk for ½ of the potato water.

Since milk is only 80 per cent water, more liquid will have to be used in order to make the dough soft enough.

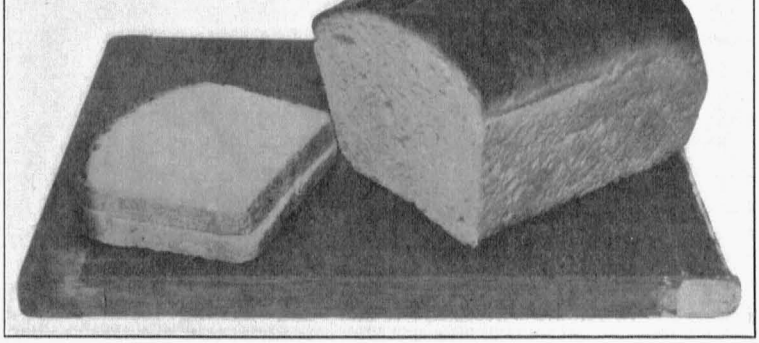

**Fig. 6.—Missouri soft wheat bread made with dried yeast, potato, and milk.**

In Recipe I where potato is used ¾ cup of either milk or buttermilk is required.

In Recipe II where scalded flour is used ⅞ cup of either milk or buttermilk is required. Buttermilk as the liquid and scalded flour as the gelatinized starch following method given in Recipe II seemed to give the best loaf of any of the series.

## NUTRITIVE VALUE OF MILK BREAD

Milk adds greatly to the nutritive value of bread. It supplies vitamins, protein of superior character for building tissues and muscles, milk sugar valuable as energy producing food, and both calcium and phosphorus for the bones and teeth. Dietary studies of American families have shown that the calcium content of the average diet frequently falls below the requirement. The ash content of milk is usually about 7 per cent and includes necessary elements for normal nutrition derived from both organic and inorganic sources.

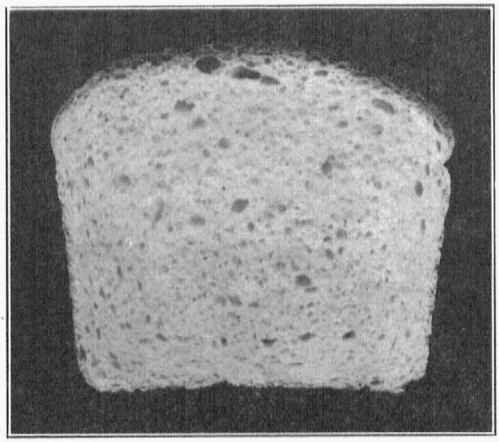

Fig. 7.—Made with dried yeast, potato, and milk.

"The high calcium and phosphorus content of milk renders it especially applicable for the correction of ash deficiencies of products made from patent wheat flour."*

## CONCLUSIONS

These investigations conclusively show that light bread of the highest quality can be made from Missouri soft wheat flour, using a small quantity of dried yeast. The bread is comparable in quality to that made from our best hard wheat flours. The amount of time necessary is very short when compared with the method of the average housewife using hard wheat flour.

By using a preliminary fermentation period, the yeast becomes so active that only 2½ to 3 hours is necessary to make and bake the bread.

*Baking Technology, June 1923, Vol. II, No. 6. page 178.