

New Emphasis Placed Upon Baking Quality of Wheat

By Rae H. Harris¹

The increasing importance of producing only wheat varieties of good milling and baking quality was emphasized at the Kansas Wheat Field Day held at Hutchison, Kansas, May 27, 1955. About 6,000 wheat growers and several hundred millers, bakers, and grain men were present. The Kansas Wheat Improvement Association in cooperation with Kansas State College is urging farmers to plant 50 per cent of their acreage in strong-gluten and the remaining 50 per cent in "mellow"-gluten types, eliminating all varieties possessing poor baking quality.

It was pointed out by the speakers that the original Turkey wheat grown in Kansas had been gradually supplanted during the last 15 years by varieties of better field quality but less satisfactory for bakery flour production. Finally the millers found it necessary to add outside wheat to their milling blends to obtain the required gluten strength.

In 1952 substitution reached a level of 10 to 20 per cent. In 1940 no mill imported less than 25 per cent of its grind, while several mills ground as much as 50 per cent of wheat grown in other states. It was estimated that approximately a third of the total wheat used in Kansas for milling came from without the state. This occurred in spite of the higher cost of outside wheat.

In the export market there is a demand for strong type wheats. Mechanization of the European baking industry is increasing, and this tends to increase the need for stronger wheats. For Kansas wheat to qualify for export purposes, mixing of poor varieties with good wheats must be prevented and wheat must be segregated on the basis of protein content, variety, and baking quality.

From the central and western areas of Kansas there should be about 80 million bushels this year, consisting of 55 million of moderate baking strength, and 20 million of strong wheat, an increase of 8 to 10 million bushels of strong types. It is estimated that there will be a marked change in wheat varieties seeded in Kansas this fall. In the main wheat belt 23 per cent of the acreage will go into strong wheat, as compared to 14 per cent for 1954, while 68 per cent of the acreage will be seeded to medium strength varieties. Poor wheat will be grown on nine per cent of this area, a decrease of six per cent from 1954. The eastern section of Kansas does not produce much wheat suitable for a baking flour mix.

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The situation in Kansas, a state noted for quality wheat production, shows what might happen in North Dakota if proper and stringent standards were not adhered to in evaluating the quality of new wheats developed in the program for combatting stem rust 15B. In their search for genetic material carrying resistance to Race 15B, wheat breeders are compelled to use wheats of abnormal milling and baking quality for crossing with varieties of good quality.

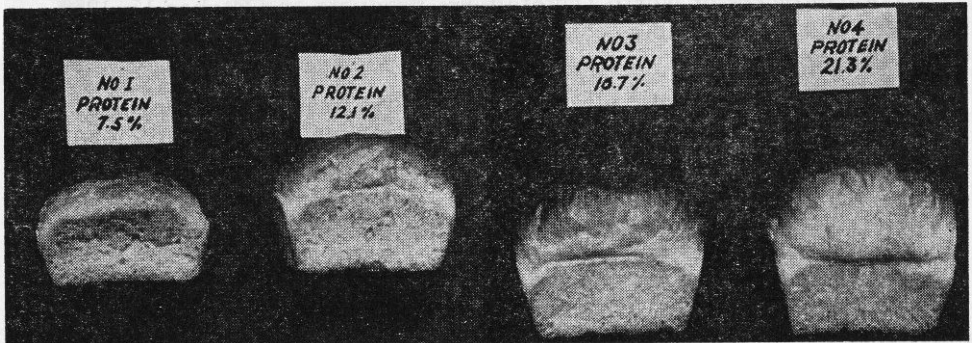


FIGURE 1.—These pictures of actual test loaves from wheats of different protein content illustrate the relationship of protein content to baking quality.

From these crosses emerge lines varying greatly in rust resistance and quality. One variety, for example, which was tested by this laboratory possessed excellent rust resistance and good yielding ability, but was very poor in milling and baking quality. This wheat can be crossed with other wheats to sort out or segregate the factors responsible for resistance and yield and combine these with satisfactory milling and baking quality. Other hybrids of both hard red spring and durum types have yielded promising results in preliminary tests and are being increased for further testing and possible release later. These wheats are also resistant to Race 15B of stem rust, offering promise of escape from future damage from epidemics of this race of rust yet at the same time maintain the high reputation of North Dakota wheat for quality.

The description of the current wheat quality picture in Kansas was condensed from the *Northwestern Miller*, issue of May 31, 1955.

Let no one try to lull your conscience with the tragic old chestnut: "People always have starved and always will." We could have abundant food. The problems are many and difficult. The big question is: How badly do we want it? The technical problems with soils, plants and animals, great as they are, are small compared with the economic, social and political ones. What soil science says is that if the people want an efficient agriculture producing abundant food on a sustained basis, and are willing to develop necessary social institutions, they may have it.—Dr. Charles E. Kellogg, Chief, Division of Soil Survey, USDA.