Wheat Breeding and Our Food Supply

The capacity of the United States to produce wheat has been greatly increased through research. Improved varieties and better ways of growing them have made higher acre yields possible and have reduced losses caused by many wheat pests.

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Wheat (Triticum aestivum L.) is grown in more than 50 countries of the world and in most of the 48 States in the United States. Ground into flour, it is one of the main staples in the diet of people in America, Europe and many other areas.

The United States produces about a billion bushels of wheat each year, worth two billion dollars to the farmers and as new wealth to the country. Half of the crop is milled into flour for domestic use which is baked into five billion dollars worth of bakery products plus home-made pastries and breads of endless variety. Each of our 150 million people is provided with an average of 135 pounds of wheat flour per year. It requires about 80 million bushels of seed to resow the crop each year. Over 100 million bushels are fed to livestock, a little enters the industrial alcohol trade, and about 300 million bushels are exported annually.

Wheat improvement in the United States will be outlined in this article. Breeding and otherwise discovering better varieties of wheat have had far-reaching effects on our ability to produce large quantities of this important food.

Introduction and Establishment of the Crop

Carrier (12) and Ball (5) summarized the early history of wheat-growing and improvement in this country. Wheat had to be introduced from other lands because it was not a native crop. Columbus brought it from Spain to the West Indies in 1494. Wheat from Spain was taken to Mexico in 1510, western South America and southwestern United States soon afterward, to provide a basis for club, poolard and common types rather well suited to the conditions of those regions.

Fishermen and explorers brought English, Dutch, Swedish and French varieties to different points along the north Atlantic coast and made observations on them as early as 1578, but it is doubtful that permanent culture was established by these early trials.

The Colonial period of the 17th and 18th centuries was important because of the diversity of origin of the colonists and, hence, of the kinds of wheat varieties brought to the new continent. Ball (5) stated that “it was fortunate that the United States was settled as a series of colonies, and over a long period of years . . . from several different countries of Europe. These facts insured that many different kinds of wheat were brought here with successive immigrations, thus guaranteeing the best possi-
bles foundation for making variations in adaptation apparent and allowing for crossing and variation to occur. There resulted from this period a screening out of poorly adapted forms and a perpetuation of valuable source materials for later cultivation.

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Fig. 1. General distribution of the types of wheat grown in the United States. The durum type is grown in area 2. One billion one hundred thousand bushels of grain were produced from the 76 million acres of wheat harvested in 1949.

Revolution and was especially important in Virginia. Red Chaff, a white wheat, now known as Goldcoin, dates to 1798.

Several other introductions were to have great influence on wheat expansion in the United States. Mediterranean, introduced from some part of the area of that name in 1819, soon was widely grown because of its good adaptation to the southern corn belt area. Purple-