

## **FOR THE TEACHER: Background on Wheat in Kansas**

A man who grew wheat in central Kansas for fifty years declared:

“Wheat was and is the crop of first importance. It is the backbone of our economy and has made Kansas famous around the world”

When Erich Freuhauf made this observation in the 1970s, winter wheat had been grown in Kansas for about one hundred years. Statistics on wheat production have been kept since the 1870s. Kansas has produced more wheat than any other state since that time. North Dakota, the closest rival to Kansas in wheat production, has had a higher annual yield only a few times in the last one hundred years. Signs along Kansas roads that proudly proclaim, “Kansas, No. 1 Wheat Producer,” are an accurate statement of the great success of wheat production in Kansas. However, in the long course of human history, wheat is a relatively late arrival on the plains of Kansas.

### **Origins of Wheat**

Wheat is one of the oldest food plants cultivated by human kind. It is believed to have been domesticated from wild grasses as early as 7,000 B.C. in the area of the world now known as the Middle East. Excellent storage properties made this grain one of the basis of the civilizations of the ancient world. The oldest human records and images testify to the importance of wheat as “the staff of life.” Many varieties of wheat have been developed during the many centuries of its cultivation. These are classified into types, such as spring or winter wheat, soft or hard, and others.

### **Wheat in the New World**

The great voyages of discovery in the fifteenth century began the exchange of important food plants between the old world and new. Wheat, however, was not brought to the new world until Europeans settled on the Atlantic coast of North America in the seventeenth century. Though corn had been domesticated by native peoples of the Americas many centuries before, wheat previously had been unknown in the New World.

### **Wheat in Kansas**

Not until the middle of the nineteenth century did wheat reach Kansas, the future bread basket of the world. Kansas Territory was opened for settlement in 1854. Early settlers grew mostly corn but planted some wheat. In the 1870s winter wheat, the class best adapted to the climate and conditions of the plains, was finally introduced into Kansas. Land promoter T.C. Henry of Abilene planted a sizeable acreage of winter wheat in 1873. The next year Russian-German immigrants to central Kansas greatly increased wheat cultivation and the milling industry rapidly expanded in the state. Although no significant quantity of winter wheat seed was brought directly to Kansas from Russia, Russian-German immigrants, accustomed to dry land agriculture, devoted a large portion of their new lands to wheat cultivation. Many others followed their successful dry land cultivation methods.

## **Winter Wheat**

Erich Freuhauf observed,

“Hard Red Winter Wheat is the natural plant for the High Plains. Tough and hardy, it establishes a good root system in the fall of the year underground, and grassy growth of leaves on the surface which acts as protective cover for the soil.

A good stand of wheat is sufficient protection against the winter storms. When they begin to blow and the soil freezes, the wheat plant goes dormant. Its foliage dies almost to the ground.

The first warm days revive it. New leaves appear and grow until they are long enough to sway and roll in the wind lie waves on a lake. Around the end of March the wheat heads form on top of the stalks on which they will eventually ripen. By this growth habit it is possible for the winter wheat plant to utilize the winter snow or rain before the days become too hot and the soil too dry.”

## **Tools and Technological Change**

Machinery for planting and harvesting wheat has changed dramatically since wheat was first grown in Kansas. Before Kansas was opened to settlement in 1854, horse-drawn reapers and horse-powered threshing machines were in use in the eastern United States. Early settlers in Kansas used a horse-drawn plow for working the soil and harvested wheat with the traditional cradle scythe. On larger farms reapers and threshers harnessed to mules and horses were used.

As railroads crisscrossed the state providing Kansas farmers access to markets, new machinery, such as the gang plow and grain drill came into use. By the 1880s a self-binding reaper had been developed which not only cut the wheat but also gathered and bound the sheaves with twine. In years of little rainfall, however, the wheat stems were too short for the binders to work well and farmers in Kansas began using the header, a reaper which cut the wheat close to the top and conveyed the loose heads to a wagon moving alongside. Even with these improved implements many men and horses were necessary for the operations.

## **Steam Power**

From the 1870s and '80s into the early 20<sup>th</sup> century steam power was harnessed to some of the tasks of planting and harvesting. Steam engines, which consumed huge amounts of fuel and water, were heavy, cumbersome, and difficult to move. However, with long belts attached to the engine wheel and stretched to the gears of the threshing machine, harvesting operations were mechanized with steam power. Horses, mules, and men were still needed to transport the grain to and from the threshing machines. These machines later also cleaned the grain and were called separators. Many Kansas harvest photographs from the 1880s, '90s and later show steam-powered threshing and separating operations. Columns of dark smoke identified the steam engines in which water was heated by the burning of straw or coal.

## **Combines**

The combine, which integrated cutting, threshing, and cleaning operations in one machine, was not widely used in Kansas until the 1920s. Most machine-powered agriculture in Kansas was limited until the period following World War I when the lighter, more efficient, more affordable gasoline tractor came into common use.

Erich Freuhauf observed these changes firsthand. As he recalled his first harvest in 1926:

“While we pushed our headers through the wheatfields, employing many men and horses, only to pile our wheat into stacks in the field, fully knowing that another small army would be needed to thresh the grain, we could hear and see one or two of the new machines, called combines, cut and thresh the crop right in the field.

Several weeks after harvest a custom thresher came from farm to farm. He brought a large threshing machine, called a separator...and a crew of about six men. They had the job of pitching the stacks into the ever hungry groaning and clattering separator. A strong blast of air blew the empty straw and chaff into tall, cone-shaped piles while the cleaned grain emptied into the grain-tight boxes of our farm wagons which we backed against the side of the separator.

The benefits of the combine were only too evident though it could operate only when the crop was dead ripe and bone dry, it still caught up with the headers in acres covered. When a field was finished it was finished for good. The wheat was safely in the bin without the waste we had from wind and weather in the stack.”

Many farmers, like Freuhauf, admired these combines, but the machines were expensive. Gradually custom combining replaced threshing operations and the harvest was completely mechanized. As Freuhauf remarked, the speed, comfort, and efficiency of the modern combine could hardly have been imagined when he began farming in Kansas.

## **Storage and Milling**

In the early years of wheat growing in Kansas, most farmers stored their wheat until it was sold. Grain storage capacity developed with the spread of wheat cultivation. Wooden elevators gradually gave way to concrete bins which were becoming common by 1910. Some wheat went directly to local flour mills, which were located in many Kansas towns. Today wheat is stored in huge elevators along railroad tracks. The wheat is then moved to larger elevators along the seacoast for export or to flour mills. Kansas is the leading flour milling state.

During milling of wheat into flour, the bran (outer covering) and germ (embryo or sprouting section) are usually removed. The remaining endosperm is then ground into what we know as refined white flour. Many nutrients of the whole grain are lost when the bran and germ are removed. Enriching flour replaces many nutrients. Whole wheat flour is made from the entire wheat kernel and has the most nutrients and fiber.

### **Wheat and Nutrition**

Wheat plays an important part in the diet of most Americans. Foods made of wheat are excellent sources of complex carbohydrates and other important nutrients. In simplified terms, wheat provides protein, which builds and repairs cells; carbohydrates, which provide heat and energy; iron, important to blood; the B vitamins, which help the body use carbohydrates and repair nerve, skin, and other cells; and fiber which aids in elimination and digestion.

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#### Quotes in the essay are from:

Erich Freuhauf. "Fifty Years on a One-Family Farm." *Kansas History*, 2, (Autumn and Winter 1979), pp. 166-195, 252-275.

#### Information in the essay was taken from:

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