



Wheat Curriculum Unit

Middle School

Feature: Wheat Farming in Washington

Adapted from Jim Kershner's HistoryLink.org Essay 20504

Wheat has been cultivated in Washington since the 1820s. Today, it remains the most important agricultural product in much of eastern Washington. It was first grown in early Hudson's Bay Company outposts. Pioneer farmers found in the 1860s that the Walla Walla area was well-suited to wheat. Over the next decades, wheat-growing spread north into the Columbia Plateau and east to the Palouse region. We now know these areas are among the most productive wheat-growing areas in the country. Early farmers harvested fields with massive 32-horse combines. These were replaced in the middle of the twentieth century by motorized equipment. Early on, farmers began exporting their wheat to Europe. But, by the 1950s, wheat was mainly sold to Asia and the Middle East for Asian noodles and flatbreads. Whitman and Lincoln counties are the top two wheat-growing counties in Washington, as well as in the country.

"Wheat Thrives Astonishingly"

Wheat is not native to the Northwest. Not a single grain grew in Washington before Europeans brought seeds. Yet early explorers saw the potential of this fertile area. Sir George Simpson (ca. 1787-1860), governor of the Hudson's Bay Company, stood at the mouth of the Okanogan River in 1825 and wrote that "grain in any quantity may be raised here..." (Merk, 50).

Simpson was the first to encourage large scale wheat production in what would later become the state of Washington. He brought seed wheat with him to Fort Vancouver (where the city of Vancouver in Clark County later grew up). By 1833, the post began harvesting 3,000 bushels of wheat. A visiting naturalist noted that "wheat thrives astonishingly; I never saw better in any country" (Scheuerman and McGregor, 13). The farmers on post found wheat varieties from England grew well. This may have been because of the similar climate western Washington shared with England. Simpson sent a bushel of seed wheat to Fort Colville, near today's Kettle Falls in northeastern Washington. By 1827, Fort Colville was harvesting

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200 bushels of wheat and barley. This was the first harvest of what would be Washington's top crop. However, it would take some time to find the best methods to grow in this new climate.

On the west side of the Cascades, the Hudson's Bay Company had also established a farm south of Chehalis. By 1841, the farm was producing 8,000 bushels of wheat. During the same period, missionaries were beginning their own wheat growing. Marcus (1802-1847) and Narcissa (1808-1847) Whitman established the Whitman Mission in 1836. Located near current Walla Walla, they attempted planting from a jar of wheat seed. They found the area to have good growing conditions and began milling their own flour by 1841. This area later became the heart of that state's wheat growing country.

Spreading From Walla Walla

Wheat continued to be grown west of the Cascades as more farmers arrived. After the 1855-1856 Indian wars, wheat farmers began moving into the Walla Walla and Touchet valleys. The first crop in the Touchet Valley was raised in 1861. A few years later, the Walla Walla area would be boasting of its wheat supremacy. In 1864, a Walla Walla newspaper mentioned that five flour mills were in operation in town. The article also said "local flour was superior to that produced in the Willamette Valley" (Brumfield, 30). By 1866, Walla Walla produced so much wheat that it was the cheapest in the country. It sold at that time for just 60 cents per bushel.

State legislators wanted to improve sale opportunities for farmers. They asked for the Mullan Road to be updated and better maintained. The road ran from Fort Walla to Fort Benton in Montana. There, farmers could sell their surplus to the Montana gold fields. In 1867, Walla Walla began sending surplus grain to Portland, Oregon. The grain was loaded onto ships and sent to Europe through England. It became clear that wheat could be grown cheaply and in large quantities east of the Cascades. Slowly, wheat became an eastern Washington crop and Europe became its biggest consumer.

Wheat farms began to spread. Farmers new to the area discovered that where native bunchgrass grew, wheat would thrive. Although wheat grew well in the area, it was very far



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away from market. Many farmers had to haul their entire harvest by wagon to the Columbia River. Many still considered the central and eastern Washington too arid for agriculture. Some far-sighted observers, however, glimpsed the region's future. In 1882, surveyor Thomas W. Symons (1849-1920) looked out on the bunchgrass country of the Columbia Plateau and predicted that it would one day "be a waving field of grain" (McGregor, 157). His prediction would come true within 20 years.

In 1883 and 1884, transcontinental railroads finally pushed through the state. This helped solve the problem of getting wheat to market. Wheat farming had expanded to Columbia County in the 1870s. It continued to expand to the Palouse country along the southern stretch of the Washington-Idaho border by the 1880s. "After these areas were settled, farmers moved into the more arid lands further west -- the Big Bend, Horse Heaven, and the western Palouse regions of Washington" (McGregor, 155). Wheat growing had moved as far west as Lind in Adams County by the 1890s. Yet the eastern Palouse country of southeast Washington would be most important. The distinctive rolling hills would support the most wheat in Washington State.

Natural Advantages of the Palouse Region

The Palouse region had many natural advantages. Here they are described in an overview of Northwest wheat farming history:

"The Palouse Hills [area], named for the Palouse River, provides the best soil and moisture conditions for wheat culture in the Pacific Northwest. It is characterized by rolling hills of wind-blown soil at an average elevation of 1,000 to 3,000 feet. The area extends southward to the Blue Mountains. It includes parts of Spokane, Whitman, Garfield, Columbia, Walla Walla and Franklin counties ... Originally a sparsely populated land covered with bunchgrass, pioneer farmers discovered the Palouse soils to be ideal for wheat. The soil is wind-laid in a deep mantle over basaltic rock, and is finely textured, fertile and highly retentive of moisture. Although generally sloping, the loess soil readily absorbs moisture. Precipitation averages 15 to 25 inches annually. A reliable seasonal snow cover protects winter-wheat from winter-kill. ... The disadvantage of the Palouse Hill terrain is the steep slope of some fields" ("Wheat Supply and Distribution").



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The Palouse agriculture industry had begun with sheep and cattle grazing. This was similar in the rest of eastern Washington. A few farmers in the Palouse began experimenting with wheat in the 1880s. Wheat strains suited to wetter, cooler climates broiled in the sun. Ground squirrels and grasshoppers ate the shoots. It took “two decades of experimentation” before the Palouse became a productive wheat growing area (McGregor, 156). By the turn of the century, many cattlemen and sheepmen began converting their land to wheat. The state’s agricultural statistics showed this change. In 1896, Washington farmers produced 6 million bushels of wheat. In 1905, they produced 25 million bushels, almost all coming from the Columbia plateau.

A 1903 brochure highlighted the advantages of central and eastern Washington wheat country. Quoting U.S. Department of Agriculture figures, it said: “The highest average yield of wheat per acre in the entire United States for 1901 was in the state of Washington. It was 29.1 bushels to the acre, while the general average for all of the states was but 15 bushels” (“Washington Wheat Lands”). It had taken a great deal of trial and error to produce that kind of yield. Many early farmers had been lucky to get 10 bushels an acre. They fought many difficulties, including a plague of ground squirrels. “When the crop was two or three inches high, hundreds of those squirrels would take the seed and ruin the field,” said one pioneer near Ritzville (Brumfield, 35).

In Spokane County, the county farm agent held contests to try and solve the problem. Elementary-school classes competed to see which could poison the most ground squirrels. Jackrabbits were the biggest problem in other wheat-growing areas. Then there was the ongoing farmers’ problem of too little rain -- or too much. In 1893, the grain was too wet, and much of it spoiled. The more common problem was lack of moisture. Farmers in the drier parts of the region learned that they needed to let their land rest every other year. This allowed the land to collect much needed moisture.

Manpower and Horsepower

Wheat farming in those early days required plenty of manpower and horsepower. Also necessary was a considerable investment in specialized machinery for harvesting. The two most important machines were the header and the thresher. The header cut off the heads of the mature wheat stalks with a device somewhat like a giant reel mower. A header required



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six horses, which pushed -- not pulled -- the machine through the fields. The header also had a conveyor belt that catapulted the heads into a wagon alongside. The wagon would then take the heads to the second key piece of machinery, the thresher. This was a huge, complex contraption that knocked the grain from the heads. In the early days, the thresher was horse-powered, requiring 12 to 14 horses. By the late 1880s, big iron steam engines appeared on the scene to power the threshers. These 42,000 pound machines and their engineer-drivers traveled from farm to farm at harvest time.

Harvesting required an average of 20 men on every farm. Beginning in July, dozens of workers would arrive by train in wheat towns. They would wander “up and down Main Street, looking for work,” as a 1968 history recalled:

“They came from everywhere. Some could tell of following the harvest from Texas up through the Dakotas into Canada. Others had farms of their own in the Willamette Valley and were out to make a little extra to help with the mortgage back home” (Brumfield, 109).

Many were immigrants. These were the men who pitched straw, sewed up sacks of grain by the thousands, ran the machinery, and guided the horses. It was a hot, backbreaking, dusty job. They “put up with conditions that would be unthinkable today -- they did so mainly because there was no other way” (Brumfield, 109). Sometimes operating a thresher was dangerous for another reason: explosions and fires. In the hot summer of 1914, spontaneous explosions wrecked at least 40 threshers in the Palouse. Some of these accidents led to serious burns. Federal authorities came out to investigate another rash of explosions in 1915. They concluded that the explosions were caused by a buildup of dust and spores. These spores were from wheat smut, a pervasive wheat disease.

The Combine

Beginning around 1890, the combined header-thresher -- the “combine” -- appeared in Washington. It was a complex and expensive piece of machinery. Built on a heavy wooden frame, its advantages were obvious:

“In a single sweep, the grain was cut, separated and sacked. There was no need to haul the headed or bundled wheat to the separator. Instead of bringing the wheat to the thresher, the combine took its thresher to the wheat and did the job while moving through a field” (Brumfield, 119).



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By 1905, the combine had become common and before long it had swept away the competition. Some of the biggest combines cut a swath 30 feet wide or more. This made them efficient, but it also meant they required a tremendous amount of horsepower. Most used a 32-horse (or mule) team, and some rigs on steep rolling farmland required 50 horses. Everywhere in Washington wheat country people witnessed this new spectacle: “32 horses in one hitch, pulling a machine through the fields, which gobbled up wheat in one end [and] discharged filled sacks out the other end” (Brumfield, 120- 121). On hills, the combine driver often lost sight of his long line of horses who disappeared over the ridge. “Even the most experienced drivers had a sense of relief as the combine pulled over the hill and the horses came back into view” (Scheuerman andMcGregor, 85). The manpower required for a typical harvest plummeted from an average of 20 people to about six.

In the hilly Palouse country, the combine had one serious disadvantage. It could overturn on a sidehill, endangering men and horses. An invention called the side-hill leveler solved this problem. The side-hill leveler allowed the header to adjust to the slope, while keeping the main body of the combine level. Invented in 1891, the leveler became commonly used in the next decade. “Only then could the combine be really practical in the extremely hilly Palouse region” (Brumfield, 130).

The era of the 32-horse combine lasted for a long time. They remained in use even after gas- and diesel-powered combines and motorized tractors appeared following World War I. By 1926, many wheat farmers began using motorized combines and tractors. A study showed that most wheat farmers were still using horsepower. Horses remained more cost efficient than the new machinery. However, as improvements were made to motorized machinery, horses fell out of use on Washington farms.

By the end of the 1930s, the conversion to gas or diesel power was nearly complete. In the old days, a team of six horses plowed five acres a day. Yet by 1941, machinery was plowing 100 acres a day. Harvest crews had dwindled to a mere three. This did not come without cost. French believed something important had been lost:

“Saturday or Sunday night [in the early part of the century] the whole crew went to town, the boss and wife occupying the seat of the hack, and the children and the hired men filling the back. The barbershop was full of animated humanity, the saloon resounded



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to joke and song, and the store clerks were busy until all hours. ... Now [1941] the men who turn over fifty acres a shift are lonesome men. They sit a long ten hours, twelve hours, listening to the rattle of the motor; they grab their lunch at noon or midnight between gear shifts and have communication with neither man or beast in their work” (Brumfield, 158).

Feeding the World

Asia and the Middle East continue to be the state’s primary markets. Iran was Washington’s top wheat buyer for a time until the hostage crisis there in 1979-1981. Around the same time, China began purchasing Northwest wheat as relations between China and the US improved. In 1999, The Spokesman-Review followed Washington wheat’s journey around the world. They sent a reporter and photographer to Japan, Pakistan, and Egypt, the three biggest markets at the time:

“The wheat is ground into flour and used to make udon noodles and exquisite desserts in Japan. More often, it’s used for simple bread, like the chapati prepared by the Pakistani family. In Pakistan and Egypt, especially, bread is life. It’s the major source of calories. It’s filling. And it’s cheap” (Sudermann).

Spokesman-Review editor Chris Peck wrote, “Wheat farming is our Boeing, generating more than \$500 million in export sales in a good year” (Peck).

The total acreage of wheat in Washington remained the same from 1992 to 2012. At the same time, the number of farms declined by 57 percent, from 5,032 to 2,871. In other words, farms were consolidating and growing larger. More farms were owned by corporations (including family corporations) and fewer by individuals.