

SOME GEOGRAPHIC INFLUENCES OF EASTERN WASHINGTON IN RELATION TO AGRICULTURE

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THE generally accepted idea that Washington comprises two distinct geographic sections is only relatively true. The geographic differences in Eastern Washington, especially as they affect agriculture, are about as marked in some cases as between the two main parts of the state. Rainfall and soil are the important influences, but altitude and topography too help to determine the products of different sections. In Kittitas Valley, sometimes known as the Upper Yakima, we are told that the higher altitude in comparison to Yakima will ever keep fruit-growing from being of first importance as an industry. However, the wide variation in the soil and subsoil and the less intensive irrigation have an important influence in preventing extensive reduction in size of farms and hence keeping out the possibility of extensive small orchard tract planting. The Kittitas Valley timothy hay is of first quality because of uniformly good weather for curing, and not because of soil adaptation. Yakima Valley proper produces larger quantities of hay (alfalfa), but the difference in soil, the lower altitude, the more intensive irrigation all have an influence in making this primarily a fruit section.

Experience has shown, however, that in some localities here topography has had its influence in an agricultural adjustment by eliminating fruit growing in the lower levels subject to alkali, and to confine peach growing to areas with a better air drainage and not so subject to low spring temperatures. Lower Yakima Valley, the major portion of which is Benton County, differs agriculturally from the other parts of this Valley because of the lower altitude, and because of the coarse sandy soil,—these two also causing a higher average annual temperature. These are the influences which put Kennewick in position to claim the earliest strawberries in the state. The coarse sandy soil warms up quickly, hence the early start of this crop. In this county too we can, because of the relatively high air and soil temperatures, easily believe the great possibilities in growing corn which have already been fully demonstrated. The type of soil and the winds also have resulted in some adjustment among farmers who have learned by experience the losses resulting from blowing soils where large areas of uncultivated ground are left exposed. Alternating narrow fields of alfalfa and cultivated crops are an illustration of how this has been overcome in a great measure. The entire Yakima, the Wenatchee, and Spokane valleys produce the major part of Washington's ten to eleven million dollar apple crop. Walla Walla County, and small sections on the Snake and Columbia rivers produce most of the remainder. The many sunshiny days of the growing season throughout these sections are the important factor, causing the rich coloring that is so predominant in the state's apple crop. The low cost of producing roughage, the hay prices, and

high prices of dairy products have all caused an increase in dairying through the irrigated districts.

The wheat producing area, largely because of differences in rainfall, comprises two rather distinct types of grain farming. In the Big Bend country parts of Benton, Klickitat, and Walla Walla counties and the higher lands of the irrigated districts that can not be watered, and where the rainfall usually does not exceed 16 inches, crops can be grown only on alternate years. In the other years the land is left fallow, first to save moisture for the following crop; second, to kill weeds; third, to store up plant food. Careful observation of the dry land farming experts show that even with the best methods of tillage only 70 per cent of the 12 to 15 inches of rainfall in typical areas of the Big Bend can be made to enter the soil. By clean and careful summer fallowing 80 per cent of this will still be in the soil the next fall. On this basis about 7 inches of rainfall is in the soil at fall seeding time, or 14 inches for the two years. As no crop can use all moisture present we do not have more than 12 or 13 inches in this region to be used by the wheat. Observations have also shown that each of these 12 to 13 inches will produce about 2.5 bushels of grain, making a possible yield of 30 bushels per acre under proper methods. This is even excelled by some of the best farms in the Big Bend country. It is here that our wheat farmers best heed agricultural teaching, for they realize that the difference between careful and careless work means the difference between success and failure. Here, as throughout the entire wheat section, the possibilities of high yield lie fundamentally not merely in the quality of the soil, but in its high moisture holding capacity, and the fact that the rainfall comes in the late fall, the winter, and early spring season.

The middle western farmer has had to learn dry farming a second time when he came to grow wheat in Washington, because here, with winter season precipitation, the soil must be fall-plowed and made receptive to this moisture, while in the middle west a large part of the moisture supply comes in the growing season. In the Palouse country and southwestern Washington fall plowing is doubly necessary, because of the heavier rains and the very rolling character of the land. It is not difficult to see, then, that Washington dry-land farming methods are an effort, by the best known means, to adjust agriculture to geographic influences peculiar to the state. In some cases these efforts fail, due to a soil that does not hold moisture, especially when the season is unusually windy. That is mainly why even the best methods sometimes fail, with seemingly small differences in rainfall and wind. The soil, poor in power to hold and store moisture, as well as the low rainfall (below 10 inches) both are influences determining the limits of areas fit for wheat production.

In the Palouse Country, constituting mainly the southern part of Spokane and all of Whitman counties, and southwestern Washington, the area south of the Snake River and east of the low rainfall belt at Pasco, the additional rainfall and difference in soil are responsible for methods of farm-

ing used here. Scientific agriculture has shown that some crops can be raised in this section every year, and hence the introduction of corn, field peas, and other crops, and therefore also an increase in livestock production. Both in moisture holding capacity and in natural fertility this soil is unexcelled. *Maintaining a high state of wheat production means careful saving of moisture (but not from one year to another, as in the Big Bend), keeping down weeds, and raising of crops as adjuncts to wheat farming which will keep up fertility. Little land needs to be left idle, primarily because of the additional 6 to 8 inches rainfall. Therefore, farming is more profitable and land values higher.*

Weather conditions and topography are also important influences determining harvesting methods. Whereas in southwestern Washington the binder is hardly seen, it predominates in the northern Palouse region. Here the binder seems necessary because of the presence of dews in harvest time and of the less uniform ripening. Never, as is the case farther south in the state, do we find "from header to thresher" harvesting. Headed grain is stacked here. The greater use of the combined harvester in the more level areas is due to the necessity of keeping the speed of the machine as uniform as possible. However, this difficulty has been partly overcome by running the machinery by different power than that which draws it over the fields. While important local influences of climate and soil determine adaptation of varieties and types of wheat, nowhere in the United States are the non-shattering club wheats so popular. This characteristic is so essential here because the climate makes it possible for farmers to allow wheat to stand in the field long after it is dead ripe, and therefore to harvest greater areas with the same equipment.

The eastern Washington counties bordering Canada (sometimes known as the Okanogan Highlands) comprise comparatively little in the way of developed agriculture, except in the line of stock raising. Topography has its influence in making agriculture here rather varied. Even in the small irrigated valleys farming is more diversified. The development of natural resources, better communications, and the settling up of large areas of land still to be taken, will have their influence on agriculture in this region.

Thirteen counties in eastern Washington, in districts designated as the Big Bend, the Palouse and the Walla Walla, west and south of the city of Spokane, produced, in 1909, a crop of 35,095,000 bushels of wheat, 6,000,000 bushels of oats and 4,500,000 bushels of barley, besides several million dollars' worth of fruits, vegetables and grasses. Whitman and Lincoln counties led all in the area devoted to grain, producing 16,500,000 bushels of wheat, of which 8,500,000 is credited to Whitman county, which also has first place with 3,000,000 bushels of oats.