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FORTY YEARS OF WHEAT CULTURE IN OHIO.[1]

OHIO lies within the borders of what is known as the winter wheat belt of the United States — a region, the soil and climate of which are especially adapted to the culture of this cereal. The State possesses two great natural arteries of traffic, one on its northern and one on its southern boundary, and before the advent of the railway it was crossed by two lines of canals, each extending from the lake on the north to the river on the south, and affording outlets for its productions that served a very important function in its early history. Lying, as it does, right in the gateway between the East and the West, it has been crossed by line after line of the great transcontinental railways, while its rich mineral resources have caused the building of multitudes of other lines, running in all directions, until its territory is now traversed by a network of railways, aggregating within the State nearly 8,000 miles of main track, besides more than 2,000 miles of sidings.

Under such circumstances it is not surprising that the culture of wheat became at an early date, and has ever continued to be, a leading branch of Ohio's agriculture, and that the State should not only have liberally supplied itself with bread, but have had much to spare.

Because of this relative prominence of wheat culture in the agriculture of the State, the Experiment Station has made the study of wheat a leading feature of its work, and the statistical study now published has been undertaken primarily for the purpose of obtaining such assistance as it might give in the conduct of the station's experimental research. It was hoped that this study might throw some light upon such problems as the relative adaptability to wheat culture of soils of different geologic origin and history, and the effect of differences of latitude, of drainage, and the use of commercial fertilizers, and it is believed that some of the conclusions which it seems to warrant should be carefully considered by the farmers of large areas of the State.

[1] From the Bulletin of the Ohio Agricultural Experiment Station, Nov., 1891.

A glance at the geological map of Ohio shows three broad bands running across the State from north to south. That on the east embraces the coal measures, and extends across nearly one-third of the State; then follows a narrower strip, underlaid with Waverly rocks and bordered by a narrow belt of Huron Shales, while the western half of the State lies over limestones.

As the Waverly rocks are chiefly sandstones or calcareous shales, this formation would offer a sharp contrast between soils of such origin and those derived from limestones, were it not for the fact that, in the case of Ohio, both these formations are covered with a thick bed of glacial drift. The drift, however, is considerably modified by the underlying rocks, and it would seem that if there were any marked differences in the value for wheat culture of soils of the widely different character produced from these different formations it should be indicated in this case.

Omitting the four counties in the north-western corner of the State, which overlie the outcrop of Huron shale in that region, viz.: Williams, Fulton, Defiance, and Henry; the five counties which lie on both sides of the belt of Huron shale, extending north and south through the State, namely: Erie, Crawford, Delaware, Franklin, and Pickaway, and the five counties lying immediately north of the coal region and chiefly over conglomerates, namely: Lake, Geauga, Ashtabula, Summit, and Trumbull, the remaining seventy-four counties have been divided into three parallel belts, according to latitude, and subdivided according as they lie over the limestones, shales, or coal measures, making nine groups in all.

In the northern belt are included twelve limestone counties, viz.: Lucas, Ottawa, Wood, Sandusky, Paulding, Putnam, Hancock, Seneca, Van Wert, Allen, Hardin, and Wyandot; seven counties over the Waverly, viz.: Lorain, Cuyahoga, Huron, Medina, Richland, Ashland, and Wayne, and six counties over coal, viz.: Portage, Mahoning, Stark, Columbiana, Holmes, and Carroll.

In the middle belt are eleven limestone counties, viz.: Mercer, Auglaize, Marion, Shelby, Logan, Union, Darke, Miami, Champaign, Clark, and Madison; four Waverly counties, viz.: Morrow, Knox, Licking, and Fairfield, and seven coal counties, viz.: Coshocton, Tuscarawas, Harrison, Jefferson, Muskingum, Guernsey, and Belmont.

In the southern belt are twelve limestone counties, viz.: Preble, Montgomery, Greene, Fayette, Butler, Warren, Clinton, Highland, Hamilton, Clermont, Brown, and Adams; three Waverly counties, viz.: Ross, Pike, and Scioto, and twelve coal counties, viz.: Perry, Morgan, Noble, Monroe, Hocking, Athens, Washington, Vinton, Meigs, Jackson, Gallia, and Lawrence.

It appears that in the northern belt the counties over Waverly rocks have given a larger average yield over the entire forty-year period under review than those in the same latitude, which are underlaid with limestones or with the rocks of the coal measures, and that the rate of increase in yield during the past twenty years is also larger in the counties over the Waverly.

In the middle belt the result is just the opposite: the limestone counties show the larger yield and the greater rate of increase.

In the southern belt the limestone counties show the larger yield, but the Waverly counties show a greater rate of increase.

The counties overlying the coal measures stand below either of the other divisions in yield per acre in each of the