

“Chernozem,” or Black Earth Soils, Seedbed of Grain in U. S., Russia, Argentina And Australia

By H. L. Walster¹

The earliest English language description of the “Black Earth” soils of Russia which this writer has ever seen occurs in the volume of the Journal of the Royal Agricultural Society of England published in 1842. The author, R. D. Murchison, F.R.S., then president of the Geological Society of England, entitles his paper “On the Tchornoï Zem,” or “Black Earth of the Central Regions of Russia.” The Russian word, meaning “black earth” is variously spelled when expressed in the Latin (or English) alphabet, as Chernozem, Tschernosem, or Tshernosem.



FIGURE 1.—An excellent example of the “black earth” soils is the Agronomy Seed Farm at Casselton, N. Dak., acquired by the North Dakota Experiment Station in 1950. Above, in this picture taken in 1952, Farm Manager Mark Jendro turns under a lush crop of sweet clover, plowed under as a soil conditioning agent.

In his chapter on “Soils of the Grasslands,” Charles E. Kellogg (Soils that Support Us (1941)) says that, “The most important group of soils developed under natural grasses is the Chernozem—black soil of subhumid regions. In the United States these are found in the eastern Dakotas, Nebraska and Kansas, and in small areas in eastern Washington, eastern Oregon, western Idaho and elsewhere. Also there are large areas in the Soviet Union, Argentina, Australia and Roumania.” In this same chapter Kellogg also notes that “a large part of the bread grain of the world is now grown on these soils.”

¹Associate, The North Dakota Institute for Regional Studies, The Library, North Dakota Agricultural College, Fargo, North Dakota.

A very large proportion of the hard red spring wheat, and most of the barley grown in North Dakota is produced on Chernozem or "black earth" soils. These North Dakota chernozems have been farmed for about 75 years with little return of fertility. The reader will, it is hoped, be interested in the English geologist's appraisal of similar Russian soils made 115 years ago. Said Murchison:

"The 'Tchornoi Zem' is unquestionably the finest soil in Russia, whether for the production of wheat or grass. It is so fertile as arable land that the farmers never apply manure; and after taking many crops in succession, leave it fallow for a year or two, and then **resume their scourging treatment**. The natural productiveness of this soil has doubtless tended to confirm the prejudices of the peasants of Central Russia against the use of manure, enormous piles of which, the accumulation of ages, are seen behind most villages and towns, forming between the house and the river below them, hillocks of considerable magnitude, the export of which might really prove a very beneficial trade to those countries more advanced in agriculture, and whose poorer soils are worthless without repeated dressings of manure. In the meantime, however, it is right to state that the well-educated Russian proprietors of such lands in Central Russia are now laboring hard to overcome the ignorance of their peasants, and have in some instances succeeded in inducing them to manure their fields; whilst in the northern governments, where the soil and climate are more adverse to the cultivator, improved agricultural habits are becoming prevalent, and in all the military and German colonies manure is regularly harrowed in, the culture being occasionally as clean as in some parts of Western Europe."

Murchison's comments upon the failure of the Russian peasant to apply manure to the "Black Earth" soils, and to let it accumulate in great piles reminds me of the comments of my father, a southern Wisconsin farmer, who, when he bought wheat bran for his cows more than 50 years ago, said he was buying the fertility of Dakota. Only within the last 10 years has North Dakota started to replace some of its marketed fertility—in sacks of fertilizers. Kellogg noted in 1941, in the chapter previously quoted, that our American Chernozems are beginning to need phosphates.

What is probably the first extensive scientific description of the Russian "Black Earth" soils was published by the Russian soil scientist Dokuchaiev in 1883 in his "The Russian Chernozym." The 1952 edition of the Encyclopedia Britannica has an extensive description of the Soils and Climate of Russia including two soil maps, one of the European part of the U.S.S.R. and one of the Asiatic part of the U.S.S.R.