THE SOIL AND SOIL MANAGEMENT PROBLEMS OF POLK COUNTY

The virgin soils of the Red River Valley were well supplied with all the essential elements of fertility to produce maximum yields of adapted crops. The great amount of available and potential supply of the necessary elements for plant growth, caused many orators and not a few soil scientists to compare the fertility of the land to the great Valley of the Nile, supposedly the richest agricultural valley in the world. The facts that the fertility was present could not be denied but unlike the Nile Valley, the Red River Valley was not being enriched annually by rich silt deposits by flooding of the area.

Bumper crops, on the well drained land, were the rule rather than the exception. Grain crops were grown continuously on the prairie section of the county from pioneer days up to the time of World War I, with spring wheats the major crop. Little attention was paid, during the first forty years of farming in the county to the maintenance of the fertility of the soil.

A common soil depleting practice, which continued up to the late twenties on the larger prairie farms was that of burning the straw. Other than oat straw, straw from barley wheat and flax had little value and with the weed seed content which accumulated with the continuous grain cropping the straw piles were considered a menace. As a result, at threshing time, the night horizons were illuminated with flames from the burning straw piles.

The fallowing of land and the plowing down of green manures did not become common farm practices until the early twenties. Two perennial weeds, Sow thistle and Quack grass, blessings in disguise, were responsible more than any other factors in starting the soil fallow. Experimental evidence which had been accumulating up to this time pointed to the facts that continuous grain cropping and the removal of plant residues from the land were quite largely responsible for the changed physical condition of the heavier soil types of the prairie area. Experiments in the plowing under of straw, farm manures and green manuring crops proved that, the humus content of the soil could be restored and that the soil could be brought back to a good state of tilth.

The use of farmyard manures in the smaller livestock farms in the maintenance of soil fertility was an universal practice. On many of the larger farms however, the spreading of the small amounts of manures available on the land was considered detrimental because of the weed seed pollution of the straw in the manure. When farmyard manures were used they were generally applied to land for corn or some other cultivated crops.

Early pioneer work with commercial fertilizers was done at the Northwest Experiment Station. Comprehensive testing of commercial fertilizing materials alone and in combination and