Aspects Of The Wiser Use Of Indiana's Soils

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The soils of Indiana are much more effectively used now than 140 years ago, when statehood commenced. Improvements have occurred in several respects: 1) tillage is much more effective. In the early years, plows were poor, and little of the land was well-prepared for crop growth. The rapidity of plowing now possible with tractors makes it commonly possible to prepare the seedbed when it can be plowed well, while formerly much land was plowed when it was too wet. Deeper plowing, including subsoiling, now is more widely practiced. Cultivation has greatly improved with the help of new equipment and more extensive knowledge. One of the somewhat surprising developments to those who cultivated crops fifty or sixty years ago is that now much land is less deeply cultivated than formerly, and less often.

2) The drainage by ditch and tile of much land formerly too wet for successful cropping has been a major improvement in Indiana. Indeed the nearly one-third of the state which formerly had little or no agricultural value because it was poorly drained has become the better crop land of the state. Drainage required decades of hard labor, and many tracts proved not worth the cost of draining. A major reason for the financial failure of various drainage projects was inadequate outlets for the vast amounts of water yielded by the occasional very heavy rains. Compaction of the soil as the humus oxidized was another drawback. Numerous areas well-drained by tile when it was first installed became after a time poorly drained as a result of changes in the soil. Drainage ditches and tile have been supplemented by levees or dykes to hold out flooded streams. Levees to the total length of more than 100 miles have been constructed along or near the lower Wabash River. Tile to a total length of more than 200,000 miles have been laid in Indiana, and drainage ditches with a total length of more than 30,000 miles have been dug.

3) The counteracting of the prevailing excessive soil acidity characteristic of our soils originally by the adding of pulverized limestone has greatly increased the yield of crops. Indeed liming of the soil has often doubled the average crop yield as compared with nearby unsweetened soils. This great improvement has occurred chiefly during the last 30 years. Indeed for several years under the New Deal, the farmers were supplied pulverized limestone almost free or were paid a bonus for using it.

4) Soil productivity has been conspicuously increased by growing crops which are more productive under the climatic conditions which generally prevail here than were the crops grown a century ago. The introduction and widespread growth of hybrid corn, soybeans, tomatoes and improved varieties of each of them and of wheat, oats, hay, and of many other crops have enormously increased yields. Likewise there has been a better adjustment of crops to soil. Special types of soil

are devoted increasingly to special crops which have been found to grow comparatively well in such soils. Examples are melons in sandy soil, onions and potatoes on muck land.

5) There has been a great increase in the amount of fertilizer used, and greater skill in its use. Seventy-five years ago almost no mineral fertilizer was used in Indiana while now many millions of dollars worth is used each year. Recently in addition to the three customary mineral fertilizers, nitrate, phosphate and potash, various lesser ones have been found to contribute locally notably to yields of certain special crops. Examples are boron, cobalt, copper, and manganese.

6) Irrigation is another technique which has greatly increased yields locally in Indiana. For several decades, a little sprinkling has been done of market gardens, house gardens and lawns but in very recent years many thousands of acres of crops have been irrigated in Indiana with the help of electrically driven pumps and aluminum pipes. Experts at Purdue estimated in 1955 that some fifty thousand acres were irrigated in Indiana, mostly of hybrid seed corn, a very valuable crop. The increased demand recently for water for irrigation is of more than local significance. For example, water-supply experts have estimated that if all the river bottom land along the White River were irrigated, and many land owners there desire to irrigate, there would be left in the river during seasons of low water an inadequate supply for the cities and industries further down stream. One of the arguments in favor of constructing the large reservoir in Salt Creek valley between Bloomington and Bedford is to supply water for great coal burning power plants which might logically be erected in the coal field along the lower Wabash, if the large amounts of water needed by such power plants is available.

Fifty years ago few people indeed thought that so much land would ever be irrigated in Indiana. But with higher prices for land, increased costs of the care of crops, and higher prices for crops, the time is approaching if not already here, when one of the major manners of increasing the productivity of Indiana's soils will be more irrigation.

7) An early improvement of increasing the usefulness of the soil was the clearing away of the trees and their stumps, and in a few areas, the removal of glacial boulders. Removal of the forest from the approximately nine tenths of our state which was wooded permitted a great increase in crop yields. The removal of stumps and stones facilitated the use of machinery.

8) Methods of combating weeds and parasites have also greatly improved. Although total yields continue to be seriously diminished by weeds, fungi, insects, worms and other animals, much progress has been made partly with the help of chemicals.

The total effect of all the improvements in the more effective use of the soil here mentioned is to vastly increase the annual returns from the soil. However, unfortunately there has been a serious loss of soil by soil erosion. Experts estimate a considerable loss of top soil has occurred in more than a third of the state and that about one-ninth of the state has suffered severely from erosion.