UNIVERSITY OF ILLINOIS

Agricultural Experiment Station

SOIL REPORT No. 67

DEWITT COUNTY SOILS

GUY D. SMITH AND L. H. SMITH

URBANA, ILLINOIS, JUNE, 1940

"It must be remembered that the productive power of the soil is the basic support of all prosperity."

C. G. HOPKINS

"It is the duty of every landowner to see that his land when he leaves it is as good or better than when he received it."

J. G. MOSIER

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INTRODUCTORY NOTE

IT IS A MATTER of common observation that soils vary tremendously in their productive power, depending upon their physical condition, their chemical composition, and their biological activities. For any comprehensive plan of soil improvement looking toward the permanent maintenance of our agricultural lands, a definite knowledge of the various existing kinds or types of soil is a first essential. It is the purpose of a soil survey to classify the various kinds of soil of a given area in such a manner as to permit definite characterization for description and for mapping. With the information that such a survey affords, every farmer or landowner of the surveyed area has at hand the basis for a rational system for the improvement of his land. At the same time the Experiment Station is furnished a scientific inventory of the soils of the state; and with such an inventory as a basis it can proceed intelligently to plan those fundamental investigations so necessary for the solution of problems of practical soil improvement.

This county soil report is one of a series reporting the results of the soil survey which, when completed, will cover the state of Illinois. Each county report is intended to be as nearly complete in itself as it is practicable to make it, even at the expense of some repetition.

While the authors must assume the responsibility for the presentation of this report, it should be understood that the material for it represents the contribution of a considerable number of the present and former members of the Agronomy Department working in their respective lines of soil mapping, soil analysis, and experiment field investigation.

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DEWITT COUNTY SOILS

By Guy D. Smith and L. H. Smith[1]

GEOGRAPHICAL AND HISTORICAL FEATURES

DEWITT COUNTY lies near the geographical center of Illinois. Its total area is about 400 square miles, and its population in 1930 was 18,598. The first white settlers came to DeWitt county about 1824 and located in what is now Tunbridge township, where timber was abundant and the natural drainage was good. Other settlers soon followed, selecting locations near the streams where timber was available for buildings and for fuel. Clinton, the first town in the county, was organized in 1835. The county was split off from Macon and McLean counties in 1839, and Clinton was established as the county seat. The population rose rapidly to almost 11,000 in 1860 and to 17,000 in 1880, but since 1880 it has remained almost stationary. Population changes since 1860 are shown in Fig. 1.

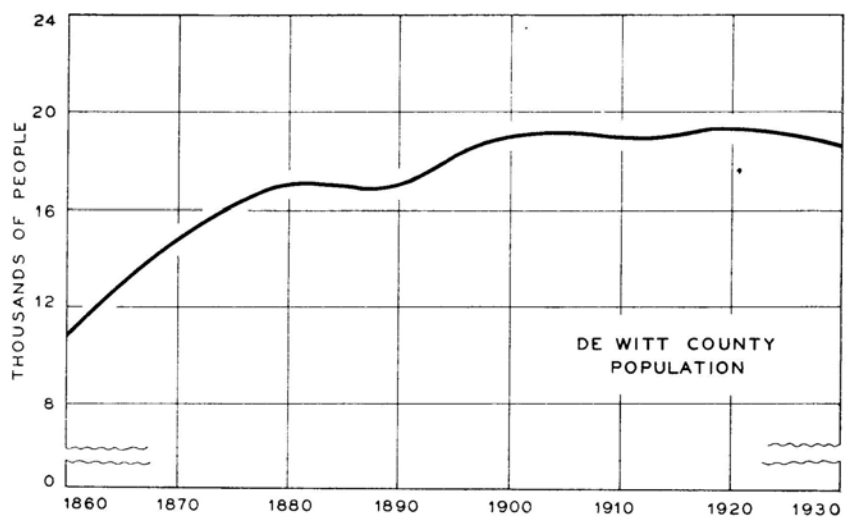


Fig. 1.—Growth of Population in DeWitt County

The population of DeWitt county rose from about 11,000 in 1860 to over 17,000 in 1880. Since 1900 it has remained fairly constant.

The level poorly drained prairie areas, covered with swamps, were the last to be brought under cultivation, for drainage districts had to be organized, ditches dredged, and connecting tile lines laid before there were outlets for many areas. In fact, much of the land has been cultivated less than fifty years.

Transportation facilities within the county are good. There is a good net-

[1]Guy D. Smith, Associate in Soil Physics and Soil Survey, and L. H. Smith, Chief in Charge of Publications of the Soil Survey.

work of railroads so arranged that no part of the county is more than seven miles from a railroad. There is likewise a good system of paved roads, and in some townships there is no home which does not have an all-weather road to a main highway.

Agricultural Production

Agriculture is the leading industry in DeWitt county. The major portion of the county is tillable, and the soils having been farmed only forty to seventy-five years are for the most part still highly productive.

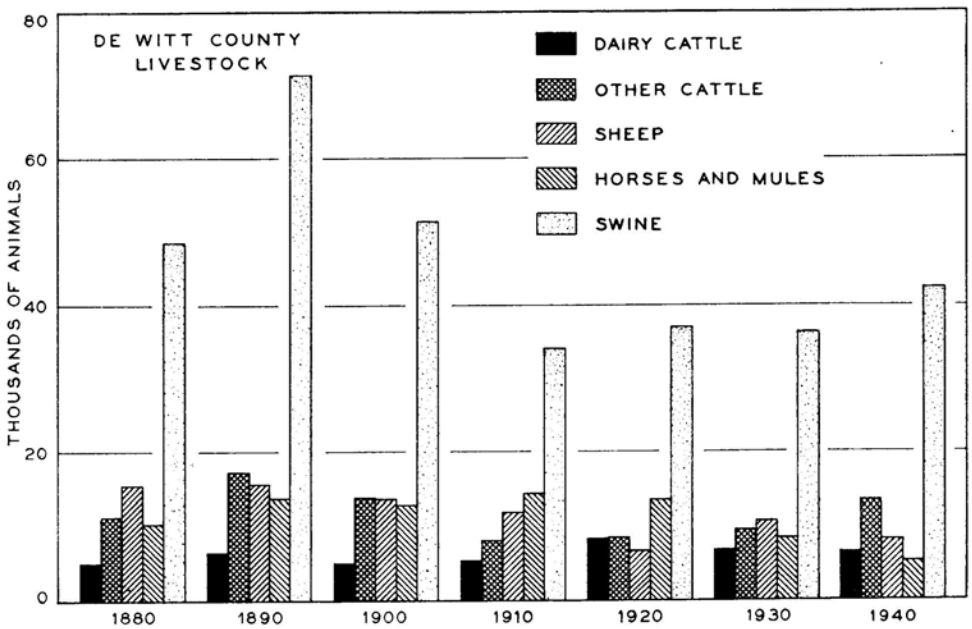


FIG. 2.—PRODUCTION OF PRINCIPAL CLASSES OF LIVESTOCK IN DEWITT COUNTY

The production of dairy cattle in DeWitt county has remained fairly constant during the period represented by this graph, reaching its peak during the decade 1910 to 1920. The production of other cattle, after reaching a maximum of more than 17,000 head by 1890, dropped back to less than half that number during the first two decades of this century. By 1940 the number of other cattle had risen to more than 13,000 head. Since 1900 the number of swine has remained relatively constant, whereas the number of sheep has been steadily declining. The number of horses and mules has fallen off markedly since 1920 because of the increasing amount of farm machinery used in recent years.

Corn is the major crop in this section of the state. During the ten years 1930 to 1939 inclusive corn occupied an average area of 96,000 acres in DeWitt county, ranging in annual production from 18 to 54 bushels an acre. The use of hybrid seed which became rather general during the latter part of the decade is apparent from the noticeable increase in production.

The acreage devoted to oats during these same ten years averaged about 38,000 acres with an average production of 30 bushels an acre. Wheat occupied an average of 10,000 acres and had a yield of 20 bushels an acre.

Soybean production in DeWitt county, as in the state as a whole, has expanded tremendously in recent years. Whereas only 3,000 acres were given

over to this crop for seed production in 1930, almost 48,000 acres were grown for this purpose in 1939 in addition to 5,000 acres for other purposes. Not only has the acreage been increased, but the crop has been improved, so that while in the first half of the last decade an average of 18 bushels to the acre was reported, during the last half the yield rose to 22 bushels an acre.

Alfalfa has been more widely planted in recent years. Since 1934 over 3,000 acres of alfalfa have been grown in DeWitt county each year. Another leguminous crop that is coming into more prominence is sweet clover. A five-year average, 1934-1938, shows that practically 9,000 acres of sweet clover were grown.

According to the 1930 U. S. Census, DeWitt county has about 23,000 acres of woodland that are not pastured. There are more than 20,000 acres of plowable pasture.

DeWitt county is located in what is known as the cash-grain-farming area. In 1930 65 percent of all farms were classified as cash-grain farms, 14 percent as general farms, and only 15 percent as livestock farms, including those devoted to dairy and poultry as well as those devoted to beef cattle and hogs. The county has declined in importance as a livestock county. The numbers of the different types of livestock in this county are shown in Fig. 2 for ten-year intervals starting in 1880.

Climate

The humid, temperate climate of DeWitt county is characterized by a wide range in temperature between the extremes of winter and summer and a somewhat irregularly distributed rainfall. The mean summer temperature during the twenty-three-year period 1915 to 1937 inclusive was 72.8° F. The mean winter temperature during the same period was 31.4° F. The highest temperature recorded during this period was 113° F. and the lowest –34° F., a range of 147 degrees. These figures are from the weather records at Lincoln, Illinois, 12 miles west of DeWitt county.

The average date of the last killing frost in spring during this twenty-three-year period was May 3, and the average date for the earliest in the fall was October 16, giving an average frost-free season of 166 days. The shortest growing season was 137 days in 1925, and the longest, 188 days in 1926. The average length of the growing season in this region gives ample time to mature the crops commonly grown, altho frosts occasionally catch such crops as corn and soybeans before they have fully matured.

The annual rainfall recorded at the Lincoln Weather Station during the twenty-three-year period 1915 to 1937 averaged 37.0 inches ranging between 26.45 inches in 1936 and 50.84 inches in 1927. The yearly snowfall averaged 19.4 inches.

The rainfall during the growing season, April thru September, ranged from 13.87 inches in 1936 to 33.36 inches in 1927, averaging 23.0 inches. This average is adequate for good crops if properly distributed. However, the rainfall during the growing season is uncertain, and prolonged rainless periods sometimes occur. (A rainless period is defined as one during which there is no rainfall of as much as half an inch within any 24-hour interval.) There were rainless periods extending thru 87 days in 1936, 69 days in 1934, and 55 days both in 1930 and in

1929. During the twenty-two years 1916 to 1937 there were 52 rainless periods of 21 days or more during the growing season.

Topography and Drainage

DeWitt county occupies a broad flat plain broken by two features: one, a broad ridge known as the Shelbyville moraine, running in a northwest-southeast direction across the southwest corner of the county, and standing between 50 and 100 feet above an outwash plain to the west; the other, a deep gash cut thru the Shelbyville moraine by Salt Fork, with rough, broken land extending back on either side for distances ranging between half a mile and a mile. Nowhere in the county do differences in elevation greatly exceed 100 feet; and except for the Shelbyville moraine and the areas immediately adjacent to the streams, slopes seldom exceed 2 or 3 percent.

FIG. 3.—A VIEW IN THE MORE ROLLING PART OF DEWITT COUNTY

This scene shows some of the rolling topography along Salt Fork near the Shelbyville moraine and about four miles south of Clinton. Strawn silt loam, which is subject to erosion if cultivated, can be seen in the distance.

Much of the upland of DeWitt county was originally very poorly drained, but dredge ditches and tile lines now furnish good underdrainage to almost all the upland. The soils are moderately permeable; and the water, altho running off slowly, is soon carried away thru underground outlets. Surface drainage is good thruout the rolling land along the Shelbyville moraine and near Salt creek, but these areas form only a small part of the county.

The drainage of the bottomlands of Salt creek and Kickapoo creek is generally poor. The bottomland soils are rich, but floodwaters destroy a large proportion of the crops. Probably less than 50 percent of all the bottomland is in cultivation, and corn is almost the only crop grown there.

FORMATION OF DEWITT COUNTY SOILS

Origin of Soil Material

The nature of DeWitt county soils can be more readily understood if one has some knowledge of the formation and composition of the material from which they have been derived. The upland soils have developed from material deposited toward the close of the Glacial Epoch. The bottomland soils have developed from sediments derived largely from glacial materials but reworked and deposited in more recent times by the streams.

Fig. 4.—A Distant View of the Shelbyville Moraine

In some places in DeWitt county the Shelbyville moraine, shown here at the horizon line, stands 100 feet or more above the Illinoian till plain. A part of this plain, covered by outwash, occupies the foreground.

During the Glacial Epoch the climate alternated between long intervals during which it was much like that of today and intervals when the average temperature was so low that the snow which fell in winter did not entirely melt in the following summer. During these colder intervals snow and ice accumulated in the northern parts of this continent in such enormous amounts that the pressure developed in the mass caused it to push outward from the centers of accumulation, forming glaciers.

The glaciers, aided by further accumulations of snow and ice at their margins, moved southward until they reached a region where the climate was warm enough to melt the ice as rapidly as it advanced. In moving across the country, the ice sheets picked up masses of rock, gravel, sand, silt, and clay, ground them together, and sometimes carried them for hundreds of miles. The pressure of the moving ice leveled off hills and filled old valleys, often obliterating the features of the surface over which the ice passed. The deposits of rock material left by the glaciers are known as glacial drift and glacial till,[1] terms which appear frequently in descriptions of soils.

[1]As defined by the Illinois State Geological Survey, glacial "drift" includes all material, stratified or unstratified, of glacial origin, whether deposited by the ice itself or by the glacial waters; "till" is unstratified drift deposited directly from the ice.

The area that is now DeWitt county was probably covered by at least three of the four major advances of ice from the north, but only two of the ice sheets, the Illinoian and the Wisconsin, have had much influence on the present topography or on the soils. The Illinoian, the earlier of these two ice sheets, covered the entire county and on melting back left a large gently undulating plain, portions of which still persist in the southwest corner of the county. The last ice sheet to enter DeWitt county was the Wisconsin, whose forward movement was stopped by melting a few miles short of the southwest corner of the county. When the ice retreated, a huge pile of glacial till forming a moraine was left, rising more than 100 feet above the Illinoian till plain. This moraine, known as the Shelbyville moraine, marks the farthest advance of the Wisconsin ice. It

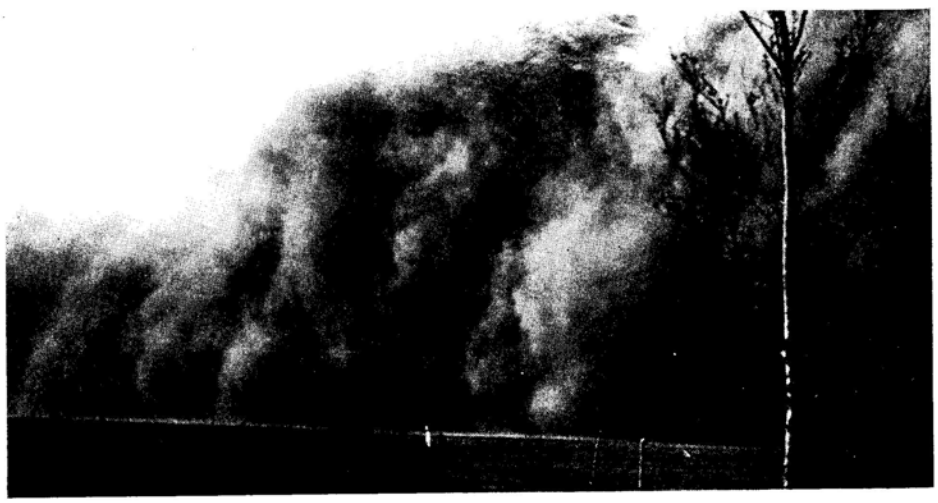


FIG. 5.—LOESS IN THE MAKING

The upland soils of DeWitt county owe their productivity largely to the silty wind-blown material, called loess, deposited near the close of the ice age by dust storms similar to the one pictured above. In DeWitt county the Illinois river bottom was the source of most of the dust. This picture was taken in Texas in the spring of 1935. *(Photo by courtesy of U. S. Soil Conservation Service.)*

passes thru DeWitt county in a northwest to southeast direction, entering from the west about four miles north of Midland City and leaving the county almost directly south of Kenney.

As the ice of the Wisconsin glacier melted, the waters spread over the old Illinoian glacial plain, burying the soils there under a bed of stratified sands, silts, and gravels.

Presumably each winter, when cold checked the melting of the ice sheet, the floodwaters, which had spread over the bottomlands of Illinois river, receded into the stream channels, exposing large mud flats. When these flats became dry, the wind picked up the fine sediments and redeposited them upon the upland, forming deposits of uniform texture, called loess. Very shortly after the retreat of the Wisconsin ice from DeWitt county, a loess blanket varying in thickness from 40 to 70 or more inches was laid down over the county, burying the Wis-

consin till and outwash and forming the parent material of the present soils. This loess was deposited slowly over a period of years, so that there was some mixing of the loess and the drift thru the action of frost and of animal life.

How the Soils Were Developed

As soon as the loess was deposited, it was subjected to the action of the weathering forces, and thus the processes of soil development began. When first deposited, the unweathered loess was pale yellow, of an open, porous structure, high in lime content, and amply supplied with the mineral elements of plant food.

Fig. 6.—Studying the Soil Profile

One of the very pronounced characteristics observed in most soils is that they are composed of more or less distinct layers, or strata, often spoken of in soil literature as "horizons." The vertical section of the soil showing the arrangement of these horizons from the surface down is called the "soil profile."

The rainwater, the oxygen and carbon dioxid of the air, and the products of the decaying plants attacked the minerals of the loess, leaching out the free lime and reducing some of the minerals to clay. Since the weathering forces are most active near the surface and decrease in activity with increasing depth, various degrees or stages of weathering occur at different depths. Thus carbonates are first leached from the surface, where decomposition of the minerals is most active. Likewise, organic matter accumulates in the surface soil in much greater quantities than at greater depths, as is indicated by the darker color of the surface. The clay particles formed at or near the surface are gradually carried down by the percolating waters to a depth where they are filtered out by the soil mass, their accumulations at the lower depth forming a clay subsoil. Thus horizons are gradually formed, and the parent material acquires characteristics that permit it to be called a soil.

During the period when clay is forming rapidly near the surface and before appreciable amounts have been carried down into the subsoil, the horizons of the soil are but faintly developed and the soil is said to be young or in an early stage of development. As weathering continues, the soil characteristics become more clearly developed and the horizons more sharply defined, so that the soil is thought of as becoming progressively older until finally the mature or old-age stage is reached.

The soils of DeWitt county vary greatly in stage of development. Both the bottomland soils, which receive frequent deposits, and the upland soils, which are subject to rapid erosion, show little or no development either because the material was so recently deposited or because the soil material was so recently uncovered by erosion that the weathering processes have not had long to act. The upland soils, excluding the areas influenced by erosion, vary in stage of development, some having no distinct horizons and some having strongly developed surface, subsurface, and subsoil zones. These differences are due largely to differences in the intensity of the action of the weathering forces, for soil-forming processes do not act with uniform intensity from spot to spot but are influenced by the slope of the land, the moisture supply, the native vegetation, and other factors.

The course of soil development is determined in part by the character of the vegetation on the land. Prairie grass retards soil development and thru its extensive fibrous root system adds much organic matter to the soil. Trees, in contrast, accelerate the processes of soil development. Their coarse roots upon decay add relatively little organic matter to the soil. The forest litter falling on the forest floor is exposed to the air and is subject to rapid and complete decay. A forest vegetation therefore favors organic-matter destruction and creates an acid condition which accelerates weathering. Grass, on the other hand, promotes organic-matter accumulation, which being nonacid, retards the action of the weathering forces.

Drainage also influences soil development. Impeded drainage tends to retard the decomposition of the organic matter in the soil but favors mineral decomposition and clay formation. Thus in many poorly drained areas the soils are black and the texture is that of a clay loam, or "gumbo," as it is often called.

Thus it is seen that differences in drainage, topography, vegetation, and parent soil material bring about differences in the environment under which soils develop and consequently various kinds of soils are formed in any given region.

SOIL CLASSIFICATION AND MAPPING

In the soil survey the "soil type" is the unit of classification. Each soil type has definite characteristics upon which its separation from other types is based. These characteristics are inherent in the strata, or horizons, which taken together constitute the soil profile in mature soils. Among these characteristics may be mentioned color, structure, texture, and chemical composition.

Failure to appreciate that soil types are differentiated on the basis of the character of the *entire* soil section, and not on the surface alone, often makes it difficult to understand what is meant by soil type, for the surface stratum of one

may be no different from that of another, yet the two may be widely different in character as well as in agricultural value. It is of utmost importance, therefore, in studying descriptions of soil types to get a clear mental picture of *all* the outstanding features of each type.

It is likewise important to understand that a given type necessarily includes a range in properties. The boundaries between soil types are seldom sharp, there frequently being a transitional band which includes some of the properties of each type. Also, many small isolated spots of one or more distinct types must occasionally be included with the prevailing type in the area in order to avoid undue confusion and to simplify the printed map as much as possible. One of the most difficult problems of the soil surveyor is to determine the limits of variability in a given soil type.

Besides the natural range in properties found within a given soil type, there are other variations that have been brought about by differences in the management of the soil since it was brought under cultivation. For example, the productive capacity of soil developed on rolling topography may be easily and permanently impaired by management practices which encourage soil erosion and thus cause permanent soil differences. Differences of a temporary nature may be induced by poor rotations; these are difficult, if not impossible, to show on a soil map.

Twenty-three soil types are mapped in DeWitt county. These are listed in Table 1, which shows the area of each in square miles and in acres and indicates

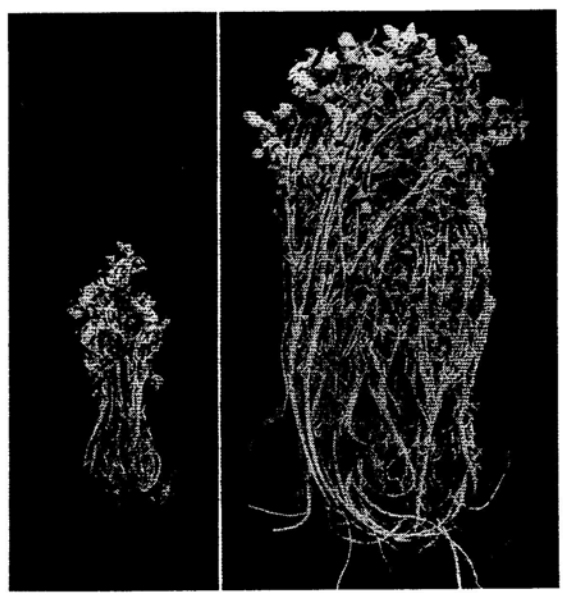
TABLE 1.—DEWITT COUNTY SOILS: AREAS OF THE DIFFERENT TYPES

Type No.	Type name	Area in square miles	Area in acres	Percent of total area
25	Hennepin gravelly loam	5.74	3 670	1.44
51	Kern silt loam, terrace	.07	40	.02
58	Osceola silt loam	.85	540	.21
60	LaRose silt loam	1.03	660	.26
67	Harpster clay loam	10.27	6 570	2.58
73	Huntsville loam, bottom	18.95	12 130	4.77
80	Alexis silt loam, terrace	2.05	1 310	.52
81	Littleton silt loam, terrace	.37	240	.09
107	Sawmill clay loam, bottom	2.73	1 750	.69
134	Camden silt loam, terrace	4.89	3 130	1.23
148	Proctor silt loam	3.95	2 530	.99
149	Brenton silt loam	4.39	2 810	1.10
152	Drummer clay loam	95.97	61 420	24.14
154	Flanagan silt loam	138.74	88 790	34.90
158	Vance silt loam	.58	370	.15
159	Pilot silt loam	.10	60	.03
171	Catlin silt loam	35.48	22 710	8.92
195	Hersman clay loam, terrace	.40	260	.10
206	Thorp silt loam	3.40	2 180	.85
207	Ward silt loam	1.89	1 210	.47
224	Strawn silt loam	17.62	11 280	4.43
233	Birkbeck silt loam	39.12	25 040	9.84
234	Sunbury silt loam	8.61	5 510	2.17
G.P.	Gravel Pit	.22	140	.06
RRY	Railroad yard	.12	80	.03
	Lake or swamp	.04	20	.01
	Total	397.58	254 450	100.00

the percentage that each type constitutes of the total area of the county. The accompanying colored map, presented in two sections, shows the location and boundary of each type.

GENERAL SUGGESTIONS FOR SOIL IMPROVEMENT

A full discussion of the principles of soil fertility is beyond the scope of this report, but it would seem worth while at this point to comment briefly on some of the more important principles. The following discussion is based on the assumptions that adequate drainage has been established and that the principal cash crop will be corn. Since, however, other crops will be grown, consultation with the DeWitt county farm adviser about good soil practices is desirable. Moreover there are new developments in fertilizer practices from time to time, and the farm



No Limestone Limestone

FIG. 7.—SWEET CLOVER DEMANDS LIMESTONE

These plants are from a second-year spring growth of sweet clover on one of the Illinois soil experiment fields. Each bundle is the growth from 4 square feet, the small one at the left having grown on unlimed soil, and the large one at the right on soil given a 2-ton application of limestone.

adviser is probably the best immediate source of information regarding these new developments.

Liming.—Usually the first step in soil improvement, assuming adequate drainage has been provided, is the correction of soil acidity. Each field should be tested for acidity, and limestone applied as needed. The county farm adviser should be consulted about such testing before the work is undertaken. For detailed instructions for collecting samples of soil and making tests, see Circular

346, "Test Your Soil for Acidity," which may be obtained free of charge from the Illinois Agricultural Experiment Station, Urbana.

Nitrogen.—Correction of soil acidity paves the way for the second step in a soil-improvement program—building up the soil's supply of available nitrogen. Under a livestock system, where the major part of the grain and hay grown on the farm is fed to livestock and the manure is returned to the fields, a fairly satisfactory nitrogen level can often be maintained without additional treatment. When a cash-grain system of farming is being followed, it is necessary to grow and plow under green-manure crops, such as sweet clover, if the nitrate level is to be maintained. Whichever method is followed, it is essential that the soil be sweet if the best results are to be obtained.

Phosphate and Potash.—Having taken care of any need for lime and nitrogen, a farmer should next test his fields for phosphate and potash. Instructions for taking the samples and making the test for phosphorus will be found in Circular 421, "Testing Soil for Available Phosphorus," which may be obtained free of charge from the Illinois Agricultural Experiment Station, Urbana. Those who desire help with this test should see the county farm adviser or write to the Experiment Station.

The test for available potash is more difficult to make than the available phosphorus test, and consequently it is not recommended that anyone attempt to make his own potash tests unless he is willing to spend some time and money in acquiring the proper equipment and learning the proper operating technic. A method for making this test is explained in a mimeographed folder, which can be obtained on request.

When both phosphate and potash are low, the application of either one by itself will do very little good. For maximum crop yields it is essential to maintain adequate supplies of both phosphorus and potash, as well as available nitrogen, in the soil thru the growing season. If any one of these three elements is present in insufficient amount, crop yields will be reduced no matter how ample the supply of the other two elements may be. Therefore, in order to make use of the nitrogen supplied by the growing and plowing under of legumes, a farmer must be sure that his soil contains ample amounts of phosphate and potash.

Systems of Farming.—In general, a DeWitt county farmer who keeps enough livestock to consume all his grain and roughage can keep up the productive capacity of his soil for a number of years by using lime and manure and growing legumes for hay or pasture. It seems probable, however, that before many more years of farming, some form of phosphate fertilizer will be needed on most DeWitt county soils, especially for such crops as wheat and alfalfa. If a grain system of farming is followed, best yields are obtained by plowing under sweet clover at frequent intervals and adding phosphate and potash whenever they become deficient.

Erosion Control.—Finally, a farmer must give serious consideration to the long-time effects of soil erosion. This is mentioned last, not because it is least important, but because in general the best method of controlling erosion is to keep a good vegetative cover on the land as large a part of the year as possible.

Since this cannot be done effectively on a poor soil, the application of lime, phosphate, and potash as needed must be a part of any permanent program of erosion control. Some suggestions for methods to use on specific types of soil in DeWitt county are made in this report in the *Use and Management* paragraph under each soil type needing such protection. If more information is desired, Farmers' Bulletin 1795, "Conserving Corn Belt Soil," should be studied (it can be obtained free from the United States Department of Agriculture, Washington, D. C.).

SOIL TYPES OF DEWITT COUNTY: THEIR USE, CARE AND MANAGEMENT

Twenty-three soil types have been mapped in DeWitt county. A brief description of each type, together with recommendations for its use and management, is presented in the following pages. Some of this information, including only the more important characteristics, together with the index number or "rating" of each type for crops, pasture, and timber is given in Table 2 on page 27 of this report.

The recommendations made for the utilization of each soil type are based on the capacity of the type to produce crops common to the region, as determined by the inherent characteristics of the soil. To outline a complete soil-improvement and management program for a field or farm, one would need to know not only what soil types are involved and what cropping and management practices have been followed in the past but also what type of farming is planned for the future. Obviously not all these details are easily available. The purpose of this report is, therefore, to furnish such basic information about the various soil types as will enable a farmer to lay out his own program for the management and improvement of the soils that occur on his farm.

Hennepin gravelly loam (25)

Hennepin gravelly loam occurs on the steep slopes along Kickapoo creek and Salt creek and their tributaries. It covers about 3,700 acres in DeWitt county.

In a virgin forest area, where recent erosion has been slight, the surface soil is a brownish-yellow gravelly loam varying from 3 to 5 inches thick. The subsurface is yellow, and the subsoil, beginning at a depth of 6 to 10 inches, is a reddish-yellow gravelly clay loam. Calcareous till is usually near the surface, and in many places has been exposed by erosion.

Use and Management.—The best permanent use for Hennepin gravelly loam is for timber production. Some of it may be used for pasture where the slope is not too steep, but unless great care is used to prevent overgrazing, erosion will quickly destroy its productive value.

Kern silt loam, terrace (51)

Kern silt loam, terrace, a minor soil type in DeWitt county, is found on the nearly level portions of the terraces of Salt creek, which were formerly covered by a heavy stand of deciduous hardwood trees. It occupies a total area of about 40 acres.

The surface soil, which is 4 to 6 inches thick, is a light brownish-gray silt loam. The subsurface, which is 10 to 15 inches thick, is a light-gray ashy silt loam with a pale-yellow cast. The subsoil usually begins at a depth of 18 to 20 inches and is a grayish-yellow clay slowly permeable to water. Below 30 or 35 inches the

Fig. 8.—A Timbered Pasture on Hennepin Gravelly Loam

The best permanent use for Hennepin gravelly loam in DeWitt county is for timber production. But such timbered areas should not be used for livestock grazing, for grazed woodlands will produce neither satisfactory forage nor the best marketable timber and they are in danger of becoming eroded.

material is more friable, and below 60 inches there are usually stratified sands and gravels. While in some parts of the county this soil type is subject to overflow in times of extremely high water, damage is seldom done to growing crops.

Use and Management.—In its properties and in its responses to soil treatment, Kern silt loam, terrace, is very similar to Ward silt loam, Type 207, page 24, an upland soil. The same recommendations for use and management apply to it as apply to Ward.

Osceola silt loam (58)

Osceola silt loam occurs on nearly level or depressional topography on the outwash plains in the northeastern and southwestern parts of DeWitt county, occupying a total area of about 540 acres. The native vegetation on these acres was tall prairie grass.

The surface soil, which is about 7 or 8 inches thick, is a brownish silt loam with a distinct gray cast. The subsurface is a dull-gray friable silt loam.

The subsoil, which is usually encountered at a depth of 20 to 30 inches, is

a yellowish-gray clay 12 to 15 inches thick and slowly permeable to water movements. Below 50 to 60 inches stratified outwash sands are found.

Use and Management.—Osceola silt loam is acid and relatively low in nitrogen and available phosphorus. The chief problem in management is drainage, for surface runoff and underdrainage are slow.

Surface drainage can be improved by a system of open ditches if an outlet is available. The slowly permeable subsoil makes it difficult to improve underdrainage. Tile laterals probably should not be spaced wider than 4 rods. The response to soil treatment will be affected by the degree of drainage secured.

After adequate drainage is provided, the chief needs of Osceola silt loam are lime and organic matter in the form of either animal or green manure. Altho the available-phosphorus content is low, the growing of deep-rooted legumes may postpone the need for applying this element for several years. Tests for phosphorus are therefore advised in advance of phosphate applications. Potash may be expected to increase crop yields on this soil after a number of crops of sweet clover have been plowed under.

LaRose silt loam (60)

LaRose silt loam is a dark-colored soil developed on strongly rolling topography under a grass vegetation. Most of the original loess covering has been removed by the slow process of geologic erosion, so that the parent material is a friable calcareous till, which may or may not be covered by a layer of loess as thick as 30 inches in some places. This type occupies a total of only 660 acres in DeWitt county.

The surface is a light-brown silt loam 3 to 6 inches thick, frequently containing a few pebbles. The subsurface, which extends to a depth of 7 to 12 inches, is a brownish-yellow silt loam. The subsoil, which begins at a depth of 12 to 20 inches, is a light brownish-yellow silty clay loam, usually containing pebbles. A friable calcareous till is present at a depth of 20 to 40 inches.

Use and Management.—LaRose silt loam should not be cultivated, because of the rapid erosion that results. Pasture or meadow is recommended as its best permanent use. Alfalfa does well following a light application of lime, but it is difficult to establish a good stand without allowing small gullies to form. If the slopes are long, strip-cropping may be used to advantage in establishing alfalfa, for only a small amount of erosion will result under this method of handling the crop. Once it is established, alfalfa will control erosion. When it becomes necessary to reseed the alfalfa because of the invasion of bluegrass, strip-cropping methods may again be used to advantage.

Harpster clay loam (67)

Harpster clay loam is a dark-colored soil that occurs chiefly in depressions and in association with Drummer clay loam. It is alkaline in reaction, and the content of organic matter is usually high, altho light-colored spots are common. Many areas are too small to be shown on the soil map, but the presence of this soil type may be recognized by fragments of snail shells on the surface of the

soil. This type was formerly covered by shallow intermittent lakes. It covers a total area of a little more than 10 square miles in DeWitt county.

The surface soil, which is 5 to 10 inches thick, is a grayish-black clay loam or silty clay loam that usually contains fragments of snail shells. The subsurface is a dark yellowish-gray clay loam which frequently grades into a yellow-mottled light-gray clay loam subsoil. Lime concretions are usually present within the profile. A few areas lacking snail shells but having abundant lime concretions on the surface were included with this type in making the survey.

Use and Management.—Two factors commonly limit crop yields on Harpster clay loam in DeWitt county—poor drainage and lack of potash. The relative importance of these factors depends on the degree of drainage provided. Large areas can usually be drained satisfactorily by tiling, but small areas which receive considerable runoff from adjacent higher land often suffer from lack of drainage, even after tiling. It is suggested that when water stands on the land long enough to kill growing crops even after tile have been laid, a catch basin be installed to help carry away surface water.

Harpster clay loam is high in nitrogen and phosphorus but is frequently low in available potash. If corn yields are unsatisfactory even where drainage is adequate, the soil should be tested for available potash to determine whether lack of that element is limiting crop growth. Potash may be supplied to the soil in fertilizers, straw, or strawy manure.

Huntsville loam, bottom (73)

Huntsville loam, bottom, is a dark-colored soil found on most of the first bottoms or flood plains of streams in DeWitt county. It occupies a total area of about 19 square miles, all of which is subject to occasional or frequent overflow. Much of this soil type is used either for pasture or for forestry.

This soil shows little or no profile development and varies in character according to the recent sediments of which it is composed. It is usually silty in texture and brown to dark brown in color.

Use and Management.—Huntsville loam, bottom, is sweet and is well supplied with plant food, but its value for cropping is restricted by the frequency with which overflow occurs during the growing season. In areas where summer overflow is too frequent, the land should be used for pasture or else for the production of timber. Probably more than half the Huntsville loam in DeWitt county should be put to one of these uses. The balance of the type, which is so situated that floods are less frequent, can be used for summer crops such as corn or, in some cases, soybeans. It is doubtful if any treatment other than flood protection is needed at present.

Alexis silt loam, terrace (80)

Alexis silt loam, terrace, occurs on the rolling portions of the terraces of Salt and Kickapoo creeks. It is a minor type in DeWitt county, covering only about 2 square miles.

The surface soil is a light-brown silt loam 4 to 7 inches thick. The subsurface is a brownish-yellow friable silt loam. The subsoil, beginning at a depth of 10

FIG. 9.—AN AREA OF HUNTSVILLE LOAM, BOTTOM

Much of Huntsville loam, bottom, is subject to such frequent overflow that its best use is either for grazing or for timber. On areas of this type not so subject to overflow, summer crops such as corn or soybeans can be grown.

to 15 inches, is a light brownish-yellow silty clay loam. Below 40 to 60 inches there are stratified sands and gravels.

Use and Management.—Alexis silt loam, terrace, is medium-acid and moderately low in organic matter and available phosphorus. Available potash is ample for normal crop yields.

The rolling topography of this type of soil makes erosion a serious problem. Sheet erosion and a few gullies, while not appearing harmful, rapidly lower the productivity of this soil, so that a constant effort must be made to keep down erosion. A vigorous vegetation is essential in order to control erosion effectively, and this may be readily secured by liming and growing a green-manure crop such as sweet clover or by applying animal manure. Cultivated crops, such as corn or soybeans, should be held to a minimum, and alfalfa or clover substituted.

Phosphate will probably produce appreciable increases of alfalfa or wheat. In some instances contour farming, and possibly terraces as well, may be needed to supplement the erosion-control program. The more rolling portions of this soil type should be kept in permanent pasture or meadow.

The area of Alexis silt loam, terrace, mapped south of Salt Creek at Farmer City is not typical, as it is located on nearly level topography, and erosion-control measures are not needed in its management.

Littleton silt loam, terrace (81)

Littleton silt loam, terrace, is a dark-colored soil found on the nearly level or gently undulating terraces of Salt creek. It is a minor type in DeWitt county, covering only 240 acres. Some areas are covered by overflow waters during very high floods, but the water seldom remains long.

The surface soil is a brown or dark-brown silt loam 6 to 8 inches thick. The subsurface is somewhat lighter in color. The subsoil begins at a depth of 15 to 18 inches and is a yellowish-brown clay loam. Below 40 to 60 inches stratified sands and gravels are found.

Use and Management.—The recommendations made for Flanagan silt loam, Type 154, page 21, will apply also to Littleton silt loam.

Sawmill clay loam, bottom (107)

Sawmill clay loam, bottom, is found in some of the poorly drained bottoms of DeWitt county. The largest area extends along Salt creek near Farmer City. There are over 1,700 acres of this type.

The soil is a black clay loam or silty clay loam, which becomes gradually lighter in color with increasing depth.

Use and Management.—Sawmill clay loam, bottom, is sweet and high in plant-food elements, but it is subject to frequent prolonged overflow during the growing season. For this reason the best use for most of it is pasture. Where the flood hazard is not too great, tile will help to carry off floodwaters as soon as the creeks subside into their channels, and may make it possible to grow a fair crop instead of a complete failure. Since fresh material is constantly being deposited by floodwaters, no provision need be made for soil treatment.

Camden silt loam, terrace (134)

Camden silt loam, terrace, is a light-colored soil found on the undulating to gently rolling terraces of the DeWitt county streams. It covers a total area in the county of nearly 5 square miles.

The surface is a yellowish-gray silt loam 5 to 7 inches thick. The subsurface is somewhat lighter in color than the surface and extends to a depth of 12 to 15 inches. The subsoil is a yellowish-gray clay loam, usually with a reddish cast. Below 40 to 60 inches stratified sands or gravels may be found.

Use and Management.—Camden silt loam, terrace, is acid and low in organic matter and available phosphorus. Surface drainage and underdrainage are fair to good. Altho not naturally productive, it responds fairly well to treatment.

The first step in a soil-improvement program should be to apply limestone and, following this, to grow sweet clover or other clovers in the rotation. This soil responds well to manure, but manure must be preceded by limestone if the full value of the manure is to be realized.

Sheet erosion is apt to be serious on the rolling portions of this soil type and can probably be best controlled by good soil treatment and a crop rotation in which cultivated crops are reduced to a minimum.

Proctor silt loam (148)

Proctor silt loam occurs on the gently rolling to rolling slopes of the glacial outwash plains in the southwestern and northeastern parts of DeWitt county. The type covers only about 4 square miles.

The surface is a brown to light-brown silt loam 6 to 8 inches thick. The subsurface is a brownish-yellow silt loam. The subsoil, which begins at a depth of 12 to 18 inches, is a brownish-yellow silty clay loam. At 40 to 60 inches a deposit of almost pure sand is found.

Use and Management.—The recommendations made for Catlin silt loam, Type 171, page 23, apply also to Proctor silt loam.

Brenton silt loam (149)

Brenton silt loam is a dark-colored soil developed on the undulating topography of the glacial outwash plains in association with Proctor silt loam. It occupies somewhat over 4 square miles in DeWitt county.

The surface is a finely granular dark-brown silt loam 8 to 10 inches thick. The subsurface is a light-brown silt loam. The subsoil, which begins at a depth of 16 to 18 inches is a yellowish-brown silty clay or clay loam. Below 45 to 60 inches beds of almost pure sand are found.

Use and Management.—Brenton silt loam is usually slightly acid, high in organic matter and other plant foods, and is one of the best soils of DeWitt county. It is easily drained with tile. For maximum crop production, moderate to light applications of limestone are needed; and to maintain the nitrogen and fresh organic-matter content of the soil, either green-manure crops should be plowed under or else animal manure should be applied. Phosphorus tests should be made, altho phosphate applications will not always be needed. Trial applications of superphosphate might well be made on wheat as well as on alfalfa seedings. Potash deficiency is not likely to limit crop production until nitrogen deficiencies have been corrected by the growing and plowing under of a number of crops of sweet clover.

Drummer clay loam (152)

Drummer clay loam is one of the most extensive soil types in DeWitt county, occupying about 96 square miles, or about one-fourth of the area of the county. It is found on the nearly level or depressional areas in the upland thruout the county. In many places areas of Harpster clay loam, Type 67, too small to be shown on the map, are present in Drummer clay loam.

The surface soil is a well-granulated black clay loam about 10 inches thick. It is high in organic matter and plant-food elements and is usually sweet. The subsurface is a brownish-gray or very dark-gray clay loam. The subsoil, beginning at a depth of 15 to 18 inches, is a gray clay loam mottled with pale yellow. Below 35 inches the material is rather friable. Where the Drummer clay loam is subject to overflow by runoff from adjacent hilly land, a covering of brown or light-brown silt is frequently deposited on the surface. In some places this deposit has reduced the productivity of the type to below normal.

Use and Management.—Drummer clay loam is a highly productive soil when well drained. It is sweet, high in organic matter, available phosphorus, and potash, and needs only an occasional application of green manure to maintain its productivity. It is better adapted to corn or soybeans than to small grains, as

small grains have a tendency to lodge. The results from the Hartsburg experiment field apply to this soil (see Bulletin 425 of this Station, "Crop Yields From Illinois Soil Experiment Fields").

Flanagan silt loam (154)

Flanagan silt loam is a dark-colored soil found on gently undulating to gently rolling topography in the upland. It is an extensive type, covering almost 139 square miles, or about 35 percent of the total area of DeWitt county.

Fig. 10.—A Representative Area of Drummer Clay Loam and Flanagan Silt Loam

Drummer clay loam and Flanagan silt loam occur in association on very gently undulating plains, such as shown above. These two soil types occupy nearly 60 percent of the total area of DeWitt county.

The surface is a moderately granulated brown or dark-brown silt loam 6 to 8 inches thick. The subsurface is a dull brownish-yellow silt loam. The subsoil, beginning at a depth of 14 to 18 inches, is a light brownish-yellow silty clay loam or clay loam. Below 30 inches the subsoil sometimes becomes gray, with faint mottlings of yellow. Free carbonates are found at a depth of 40 to 60 inches; and calcareous Wisconsin drift, usually separated from the loess by a thin band of sand or gravel, is found at 45 to 100 inches.

The type as mapped includes a few areas of silty clay loam and a few small depressional areas having a grayish-brown surface, a gray subsurface, and a slowly permeable subsoil.

Use and Management.—Flanagan silt loam is slightly acid, high in organic matter, medium to high in available phosphorus, and high in potash. The subsoil is permeable, and tile draw readily, making the drainage problem relatively simple. When areas of this type were first drained and cultivated, crop yields were excellent, but continued cultivation for the past fifty to seventy-five years

without attention being given to crop rotations or soil treatment has resulted in considerable reduction in the productivity of many fields.

The basic soil treatment for Flanagan silt loam involves testing the soil for acidity and applying limestone as needed, as explained on page 12. After lime has been applied, a good rotation should be adopted that includes deep-rooted legumes such as sweet clover or alfalfa. If manure is not applied, crops of sweet clover should be plowed under to maintain the supply of actively decomposing organic matter.

Tests should next be made to determine the need for phosphate. Applications of manure or the growing of deep-rooted legumes will frequently postpone the need for phosphate applications for a number of years. On many farms where neither manure nor deep-rooted legumes have been used, phosphorus may now be deficient. It can be supplied without a large initial investment by drilling a readily soluble form such as superphosphate with wheat, or broadcasting it on alfalfa, two crops which are very responsive to phosphate applications. Heavy applications of rock phosphate are not advised unless the land is limed and clovers are grown frequently.

Potash is not expected to become deficient in Flanagan silt loam for a number of years.

Vance silt loam (158)

Vance silt loam is a light-colored soil that has developed under forest vegetation on the undulating to rolling portions of the outwash plain along Salt creek in the western part of DeWitt county. It is not an extensive type, occupying only 370 acres.

The surface is a brownish yellowish-gray friable silt loam 5 to 7 inches thick. The subsurface is a yellowish-gray silt loam; and the subsoil, beginning at a depth of 12 to 15 inches, is a yellowish-gray clay loam. Below 35 inches the soil material becomes rather friable; and between 40 and 60 inches almost pure sand is found.

Use and Management.—The suggestions made for the management of Camden silt loam, terrace, Type 134, page 19, apply also to Vance silt loam.

Pilot silt loam (159)

Pilot silt loam is a minor type in DeWitt county, covering only about 60 acres. It occurs in this county on the strongly rolling topography.

The surface soil is a light-brown silt loam 3 to 6 inches thick, and frequently contains considerable sand or gravel. The subsurface is light brownish-yellow, and the subsoil, beginning at a depth of 10 or 12 inches, is a yellow sandy or gravelly clay loam. Below 20 or 25 inches coarse sand or gravel is found.

Use and Management.—Because of its drouthy nature and its extreme tendency to erode if cultivated, this soil should be kept in permanent pasture or in a drouth-resistant hay crop such as alfalfa. It is doubtful if soil-improvement practices would prove practicable in connection with any crop except alfalfa, which requires lime and sometimes phosphate.

Catlin silt loam (171)

Catlin silt loam is a dark-colored soil found on the gently rolling to rolling upland in association with Flanagan silt loam, Type 154. Thirty-five and one-half square miles are mapped in DeWitt county. The most extensive areas are found on the front of the Shelbyville moraine in the western part of the county.

The surface is a brown to light-brown weakly granulated silt loam 5 to 8 inches thick. The subsurface is a brownish-yellow silt loam; and the subsoil, beginning at a depth of 12 to 18 inches, is a yellow silty clay loam with yellowish-brown coatings on the cleavage faces. Calcareous friable Wisconsin till is found at depths varying from 45 to 90 inches.

Use and Management.—Catlin silt loam is a satisfactory general-farming soil if given good treatment and management. It is naturally well drained and productive. Because of its rolling topography, however, sheet erosion, altho not appearing harmful, rapidly lowers its productivity. Any system of management must therefore be designed to prevent sheet erosion, and it is fortunate that the system which will best control erosion will also build up and maintain a high level of fertility.

The basic treatment for Catlin silt loam includes the application of limestone as needed and the frequent inclusion in the crop rotation of such deep-rooted legumes as sweet clover and alfalfa. In this way cultivated crops can be held to a minimum. On the more rolling areas fall plowing and the growing of such crops as soybeans should probably be avoided altogether. Contour farming is a practical means of reducing erosion on many areas, but the main reliance should be on keeping the land covered with vigorously growing vegetation as much of the year as possible.

The adequacy of the phosphate supply should be determined by testing the soil and applications then made as needed. Lack of potash is not at present a limiting factor but may become so at some future time.

Hersman clay loam, terrace (195)

Hersman clay loam, terrace, is found on some of the terraces of Salt creek in the western part of DeWitt county. It is a minor type, occupying only 260 acres. There is no significant difference between Hersman clay loam, terrace, and Drummer clay loam, Type 152, in appearance or in management requirements, and the reader is therefore referred to the discussion of Drummer clay loam, page 20, for further comment. The type was mapped separately from Drummer because it is subject to overflow in times of exceptionally high floods.

Thorp silt loam (206)

Thorp silt loam is a dark-colored soil found on nearly level or depressional topography in the area underlain by glacial outwash sands. It covers 2,000 acres in DeWitt county.

The surface to a depth of 6 or 8 inches is a brown silt loam with a gray cast

when dry. The subsurface is a brownish-gray friable silt loam. The subsoil, beginning at a depth of 18 to 20 inches, is a yellowish-gray medium-plastic clay loam and is slowly permeable. This soil is similar to Osceola silt loam, page 15, but is more permeable to water and is a better soil.

Use and Management.—Thorp silt loam, when adequately drained, is a productive soil. It is fairly high in organic matter, has a good supply of both phosphorus and potash, and is not subject to erosion. Limestone and either animal manure or green manure form the basis for a soil-improvement program. Phosphorus may be low at present, but animal manure, or a green manure such as sweet clover, will often increase the available phosphorus. If applications of phosphorus are needed, they should be made on the more responsive crops, such as wheat. Thorp silt loam responds satisfactorily to treatment, but the difficulty of obtaining adequate drainage is likely to handicap crops in wet years.

Ward silt loam (207)

Ward silt loam is a light-colored soil found on the nearly level or depressional areas formerly covered by a heavy stand of hardwood timber. It is not an extensive type, covering a little less than 2 square miles in DeWitt county.

The surface soil, which is 6 to 8 inches thick, is a gray silt loam with a brownish cast. The subsurface is a light-gray ashy silt loam with a yellowish cast. The subsoil, which begins at a depth of 8 to 15 inches, is a yellowish-gray plastic clay loam and is slowly permeable to water.

Use and Management.—Ward silt loam is acid, low in organic matter, and low in phosphorus. The most difficult problem in connection with its management is to get good drainage. Tile usually will not draw satisfactorily, and surface ditches or dead furrows must be used to carry off excess water.

Limestone and animal or green manure furnish the basis for a program of soil improvement and maintenance. Tests should be made to determine the need for lime and for phosphate, and applications made as needed. Rock phosphate should be used only if clovers are regularly included in the rotation. Under the best treatment Ward silt loam will produce fair yields, but in wet seasons crops on it are likely to be injured by poor drainage.

Strawn silt loam (224)

Strawn silt loam is found on strongly rolling topography in areas formerly covered by forest vegetation. It covers about 17½ square miles in DeWitt county.

The surface, which may or may not have been lost by erosion, is a light-brownish-yellow silt loam with a distinct gray cast when dry. The subsurface is a grayish-yellow silt loam; and the subsoil, which begins at a depth of about 10 or 12 inches, is a yellow silty clay loam often containing considerable gravel. Below 20 to 40 inches friable calcareous till is found.

Use and Management.—If cultivated, Strawn silt loam is subject to destructive erosion. It should therefore be kept in permanent pasture or meadow. If it

FIG. 11.—THIRD CUTTING OF ALFALFA ON STRAWN SILT LOAM

Strawn silt loam is subject to destructive erosion if cultivated, but it will produce good pasture or alfalfa hay. It occupies about 17½ square miles in DeWitt county.

has been cultivated and allowed to erode, and is to be put back into grass, lime or phosphate or both may be needed to establish a good sod. Tests should be made to determine the needs of the soil.

Birkbeck silt loam (233)

Birkbeck silt loam is found on the gently undulating to rolling slopes which were formerly covered by a mixed hardwood forest. The type covers more than 39 square miles of DeWitt county.

The surface soil is a brownish-yellow indistinctly granular silt loam and has a distinct gray cast when dry. The subsurface, beginning at a depth of 7 or 8 inches, varies from a yellow to yellowish-gray silt loam, depending on the natural drainage. The subsoil, beginning at a depth of 12 to 18 inches, is a grayish-yellow to yellow medium-compact and medium-plastic silty clay loam. Below about 35 inches the material is friable, and at 50 to 90 inches calcareous till is found.

Use and Management.—The surface drainage and underdrainage of Birkbeck silt loam are fair to good, and only the more level areas require artificial drainage. Tho not naturally a "strong" soil, in the sense that crop yields can be maintained under poor farming, Birkbeck silt loam responds well to good treatment.

On a large portion of this soil type sheet erosion constitutes a serious problem. The suggestions made for controlling sheet erosion on Catlin silt loam, Type 171, page 23, apply equally well to this Birkbeck silt loam.

Keeping in mind the necessity of controlling erosion, the first step in a soil-improvement program is to correct the acidity by applying limestone. After this has been done, a rotation should be adopted in which the percentage of cultivated crops is kept low and the percentage of land in deep-rooted legumes, such as sweet clover or alfalfa, is increased.

Phosphorus may soon become deficient, especially if manure is not applied. Tests should therefore be made for available phosphorus. If they show a need for phosphate and it is desired to hold down the initial cost of application, small amounts of a readily soluble phosphate such as superphosphate can be drilled with wheat or spread on alfalfa.

Potash is not likely to limit crop yields on this soil type in the near future.

Sunbury silt loam (234)

Sunbury silt loam is a medium-dark soil which occurs as a transition belt of varying width between forest and prairie soils. It is found on nearly level to undulating topography, and the presumption is that it was covered by forest vegetation too short a time to entirely destroy the characteristics which the prairie vegetation had given to the soil. It occupies a total area of about 8½ square miles in DeWitt county.

The surface soil is a brownish-gray to grayish-brown silt loam from 6 to 8 inches thick. The subsurface is a friable gray silt loam with a yellowish cast; and the subsoil, beginning at a depth of 16 to 18 inches, is a brownish-yellow slightly plastic clay loam or silty clay loam. Below 30 inches the material becomes friable, and calcareous loess or till is found somewhere between 50 and 70 inches.

Use and Management.—Sunbury silt loam might be considered a lightly timbered Flanagan silt loam, Type 154. Altho its present productivity is somewhat less than that of Flanagan silt loam, the management suggestions made for Flanagan, page 21, apply equally well to Sunbury, with the difference that more attention should be given to providing for frequent additions of organic matter on Sunbury.

SUMMARY OF IMPORTANT CHARACTERISTICS OF DEWITT COUNTY SOILS

A summarized statement of the agriculturally more significant characteristics of the soil types shown on the soil map of DeWitt county is presented in Table 2, page 27. Topography, drainage, acidity, and the contents of organic matter and available phosphorus are all indicated, together with an index of the productivity of each type, in the untreated condition, for crops, pasture, and forest.

The information in this table is necessarily general and should not be taken to mean that *every* farm or field of a given soil type will exhibit the exact characteristics indicated here. As already pointed out, acidity and productivity may vary markedly within areas of the same type; and for that reason every field should be tested as recommended in the more detailed discussion of the type, and treatments should be based on such test or tests.

It must also be remembered that soils differ in their response to soil treatment, and that these differences are not always definitely indicated by the productivity index in Table 2.

TABLE 2.—DEWITT COUNTY SOILS: SUMMARY OF CHARACTERISTICS, PROPERTIES AND ADAPTATION

Type No.	Type name	See page[1]	Topography[2]	Drainage[3]		Reaction	Available phosphorus	Organic matter	Productivity indexes[4]		
				Surface	Under				Field crops	Pasture	Forest
25	Hennepin gravelly loam	14	Steep	Excessive	Moderate	.....	.....	.....	10	C	B
51	Kern silt loam, terrace	14	Nearly level	Slow	Slow	Acid	Low	Low	6	B	B
58	Osceola silt loam	15	Nearly level	Slow	Slow	Acid	Low	Medium	5–7	B	B
60	LaRose silt loam	16	Strongly rolling	Rapid	Moderate	Medium acid	Medium	Medium	6–7	A	A
67	Harpster clay loam	16	Nearly level	Poor	Moderate	Alkaline	High	High	1–2	..	..
73	Huntsville loam, bottom	17	Nearly level	Poor	Moderate	Neutral	High	Medium to high	5	A	A
80	Alexis silt loam, terrace	17	Rolling	Rapid	Moderate	Medium acid	Medium	Medium to high	3–4	..	..
81	Littleton silt loam, terrace	18	Undulating	Moderate	Moderate	Slightly acid	Medium	High	2	..	..
107	Sawmill clay loam, bottom	19	Nearly level	Slow	Slow	Neutral	High	High	5–7	A	A
134	Camden silt loam, terrace	19	Undulating to rolling	Moderate to rapid	Moderate	Acid	Low	Low	5	B	A
148	Proctor silt loam	19	Gently rolling	Moderate to rapid	Moderate	Medium acid	Low	Medium	3	..	..
149	Brenton silt loam	20	Undulating	Moderate to rapid	Moderate	Slightly acid	High	High	2	..	..
152	Drummer clay loam	20	Nearly level	Slow	Moderate	Neutral	High	High	1	..	..
154	Flanagan silt loam	21	Undulating to gently rolling	Moderate	Moderate	Slightly to medium acid	Medium	High	2	..	..
158	Vance silt loam	22	.....	.....	.....	.....	.....	.....	5	..	..
159	Pilot silt loam	22	Strongly rolling	Rapid	Rapid	Acid	Low	Medium	9	B	B
171	Catlin silt loam	23	Rolling	Rapid to moderate	Moderate	Medium acid	Low	Medium	3–4	..	..
195	Hersman clay loam, terrace	23	Nearly level	Poor	Moderate	Neutral	High	High	1	..	..
206	Thorp silt loam	23	Nearly level to undulating	Slow	Slow	Medium acid	Medium	Medium	3–4	..	..
207	Ward silt loam	24	Nearly level to undulating	Slow	Slow	Acid	Low	Low	7	B	B
224	Strawn silt loam	24	Strongly rolling	Rapid	Moderate	Acid	Medium	Low	8	B	A
233	Birkbeck silt loam	25	Undulating to rolling	Moderately rapid	Moderate	Acid	Low	Low	5–6	B	A
234	Sunbury silt loam	26	Undulating to nearly level	Slow	Moderate	Medium acid	Medium low	Medium low	3–4	B	A

[1]For description of soil type turn to page indicated.

[2]Topography is expressed by the following terms based on the respective slopes: *nearly level*, less than .5 percent slope; *undulating*, .5 to 1.5 percent; *gently rolling*, 1.5 to 3.5 percent; *rolling*, 3.5 to 7 percent; *strongly rolling*, 7 to 15 percent; *steep*, greater than 15 percent.

[3]Of the terms used to express drainage, *moderate* expresses the most desirable drainage.

[4]The index number assigned to a soil type for production of field crops is based on its ability to produce the major crops grown in the region, without soil treatment but with the soil in a cleared and drained condition. The scale used is 1 to 10, the *most productive soil* in the state being rated as 1 and the *least productive* as 10. The indexes for pasture and forest are indicated by A, B, and C, A signifying the best and C the poorest.

ALPHABETICAL INDEX TO SOIL TYPES

Alexis silt loam, terrace 17
Birkbeck silt loam 25
Brenton silt loam 20
Camden silt loam, terrace 19
Catlin silt loam 23
Drummer clay loam 20
Flanagan silt loam 21
Harpster clay loam 16
Hennepin gravelly loam 14
Hersman clay loam, terrace 23
Huntsville loam, bottom 17
Kern silt loam, terrace 14
LaRose silt loam 16
Littleton silt loam, terrace 18
Osceola silt loam 15
Pilot silt loam 22
Proctor silt loam 19
Sawmill clay loam, bottom 19
Strawn silt loam 24
Sunbury silt loam 26
Thorp silt loam 23
Vance silt loam 22
Ward silt loam 24

SOIL REPORTS PUBLISHED

1 Clay, 1911
2 Moultrie, 1911
3 Hardin, 1912
4 Sangamon, 1912
5 LaSalle, 1913
6 Knox, 1913
7 McDonough, 1913
8 Bond, 1913
9 Lake, 1915
10 McLean, 1915
11 Pike, 1915
12 Winnebago, 1916
13 Kankakee, 1916
14 Tazewell, 1916
15 Edgar, 1917
16 Du Page, 1917
17 Kane, 1917
18 Champaign, 1918
19 Peoria, 1921
20 Bureau, 1921
21 McHenry, 1921
22 Iroquois, 1922
23 DeKalb, 1922
24 Adams, 1922
*25 Livingston, 1923
26 Grundy, 1924
27 Hancock, 1924
28 Mason, 1924
29 Mercer, 1925
30 Johnson, 1925
31 Rock Island, 1925
32 Randolph, 1925
33 Saline, 1926
34 Marion, 1926
35 Will, 1926
36 Woodford, 1927
37 Lee, 1927
38 Ogle, 1927
39 Logan, 1927
40 Whiteside, 1928
41 Henry, 1928
42 Morgan, 1928
43 Douglas, 1929
44 Coles, 1929
45 Macon, 1929
46 Edwards, 1930
47 Piatt, 1930
48 Effingham, 1931
49 Wayne, 1931
50 Macoupin, 1931
51 Fulton, 1931
52 Fayette, 1932
53 Calhoun, 1932
54 Ford, 1933
55 Jackson, 1933
56 Schuyler, 1934
57 Clinton, 1936
58 Washington, 1937
59 Marshall, 1937
60 Putnam, 1937
61 Wabash, 1937
62 Vermilion, 1938
63 St. Clair, 1938
64 Stark, 1939
65 Boone, 1939
66 Shelby, 1939
67 DeWitt, 1940

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Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410;

(2) fax: (202) 690-7442; or

(3) email: program.intake@usda.gov.

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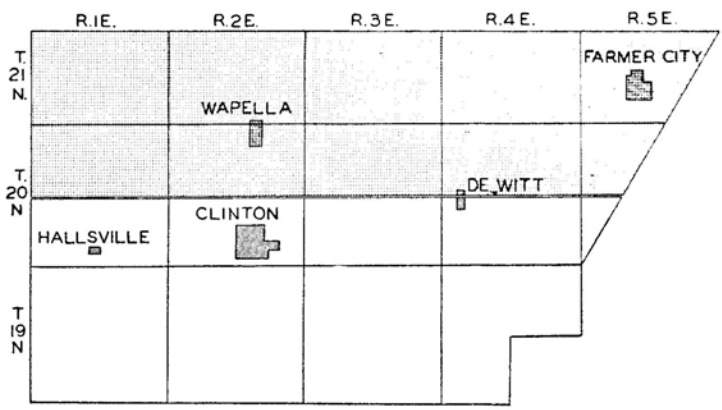
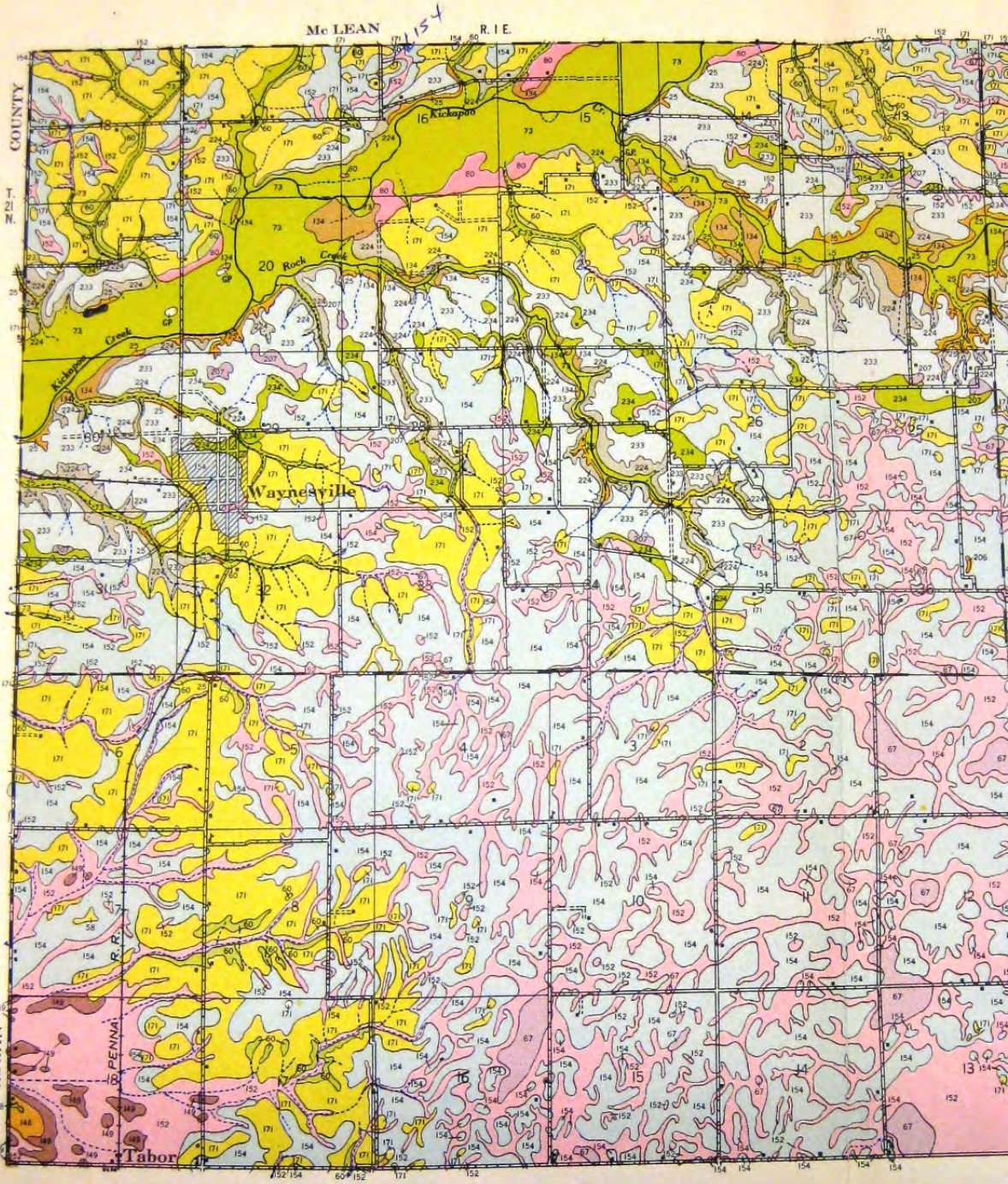
DEWITT COUNTY SOIL MAP (NORTH SHEET)

This map of DeWitt county, presented in two sections, indicates the location of each soil type in the county by a distinctive color and number. Schools, houses, streams, roads, and other distinguishing features are shown in order to help one in locating a particular farm or region. For a description of each soil type and a statement of its best use and recommended management, see pages 14 to 26, consulting *Contents,* page 2, for exact page references.

The portion of the county shown by this sheet is indicated by the shading on the outline map shown below.

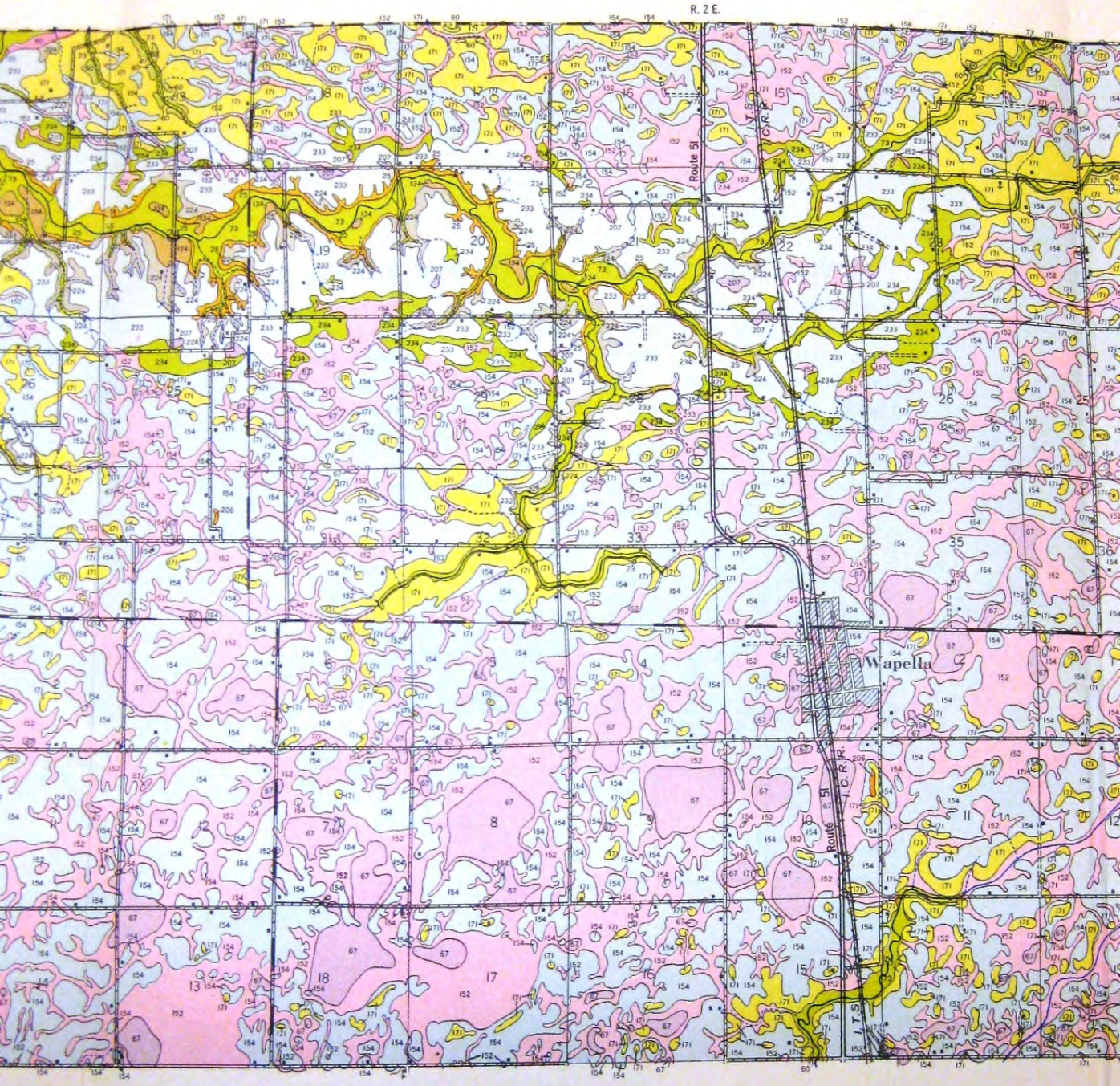




R. S. Smith, In Charge Soil Survey

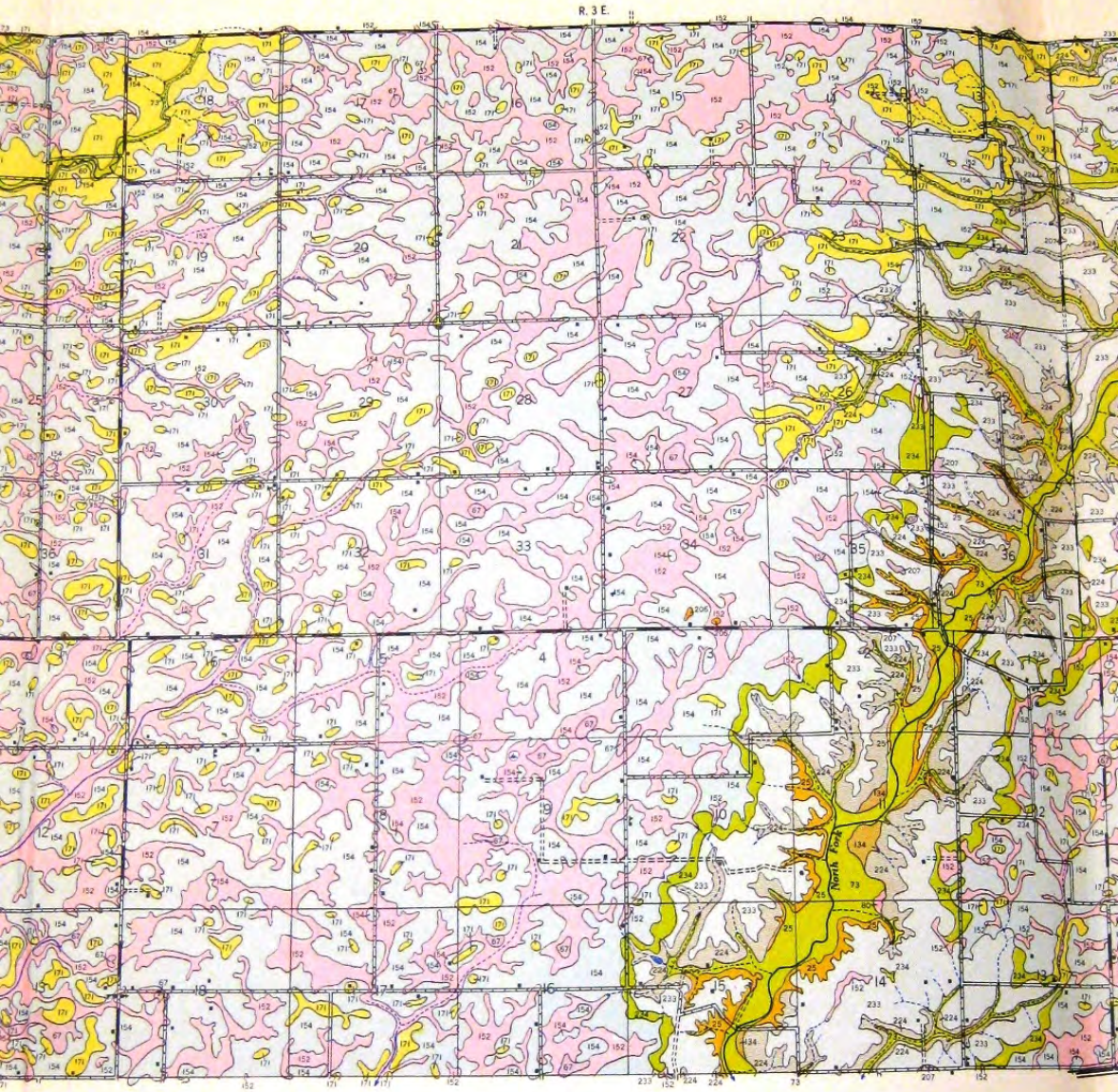
LEGEN

25	Hennepin gravelly loam	67	Harpster clay loam	107	Sawmill clay loam, bottom
51	Kern silt loam, terrace	73	Huntsville loam, bottom	134	Camden silt loam, terrace
58	Osceola silt loam	80	Alexis silt loam, terrace	148	Proctor silt loam
60	LaRose silt loam	81	Littleton silt loam, terrace	149	Brenton silt loam



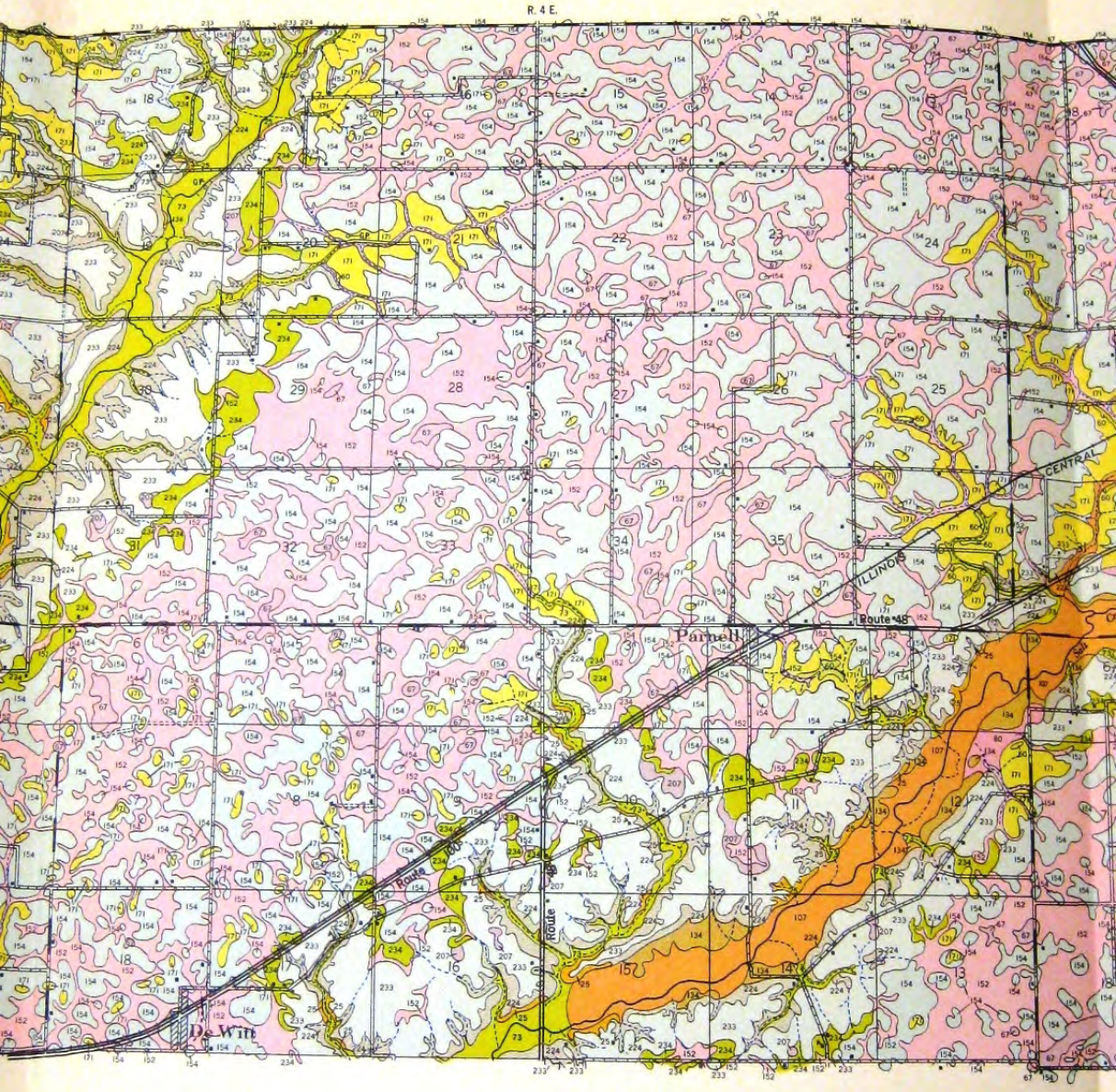
LEGEND

107	Sawmill clay loam, bottom	152	Drummer clay loam	171	Catlin silt loam	224	Strawn silt loam
134	Camden silt loam, terrace	154	Flanagan silt loam	195	Hersman clay loam, terrace	233	Birkbeck silt loam
148	Proctor silt loam	158	Vance silt loam	206	Thorp silt loam	234	Sunbury silt loam
149	Brenton silt loam	159	Pilot silt loam	207	Ward silt loam		



SOIL SURVEY MAP OF DE WITT COUNTY

UNIVERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION



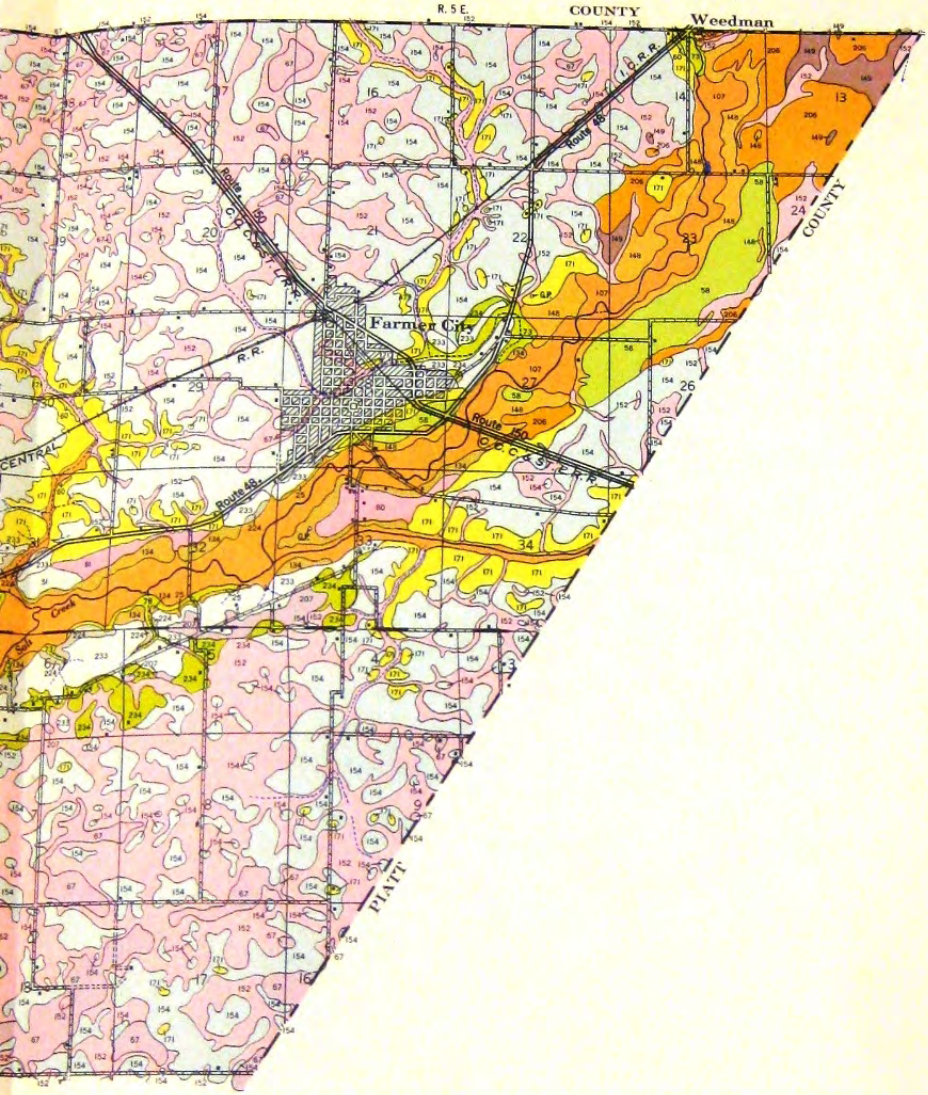
CONVENTIONAL SIGNS

- House
- School house
- Church
- Store building
- Elevator
- Railroads (steam)
- Railroads (electric)
- Paved Through Routes
- Metalled (allweather) roads
- Improved Dirt Roads
- Secondary Dirt and Private Roads
- Township boundary lines

Scale

0 ¼ ½ 1 2 Miles

1937



Soils Surveyed by
Guy D. Smith, in Charge
J. E. Gieseking
Herman Wascher
E. P. Whiteside
Eric Winters

County boundary lines

Streams (flowing)

Streams (intermittent)

Lake or Pond

Swamp

Gravel Pit

Fords

General Maps, 600 W. Van Buren St., Chi

DEWITT COUNTY SOIL MAP (SOUTH SHEET)

This map of DeWitt county, presented in two sections, indicates the location of each soil type in the county by a distinctive color and number. Schools, houses, streams, roads, and other distinguishing features are shown in order to help one in locating a particular farm or region. For a description of each soil type and a statement of its best use and recommended management, see pages 14 to 26, consulting *Contents,* page 2, for exact page references.

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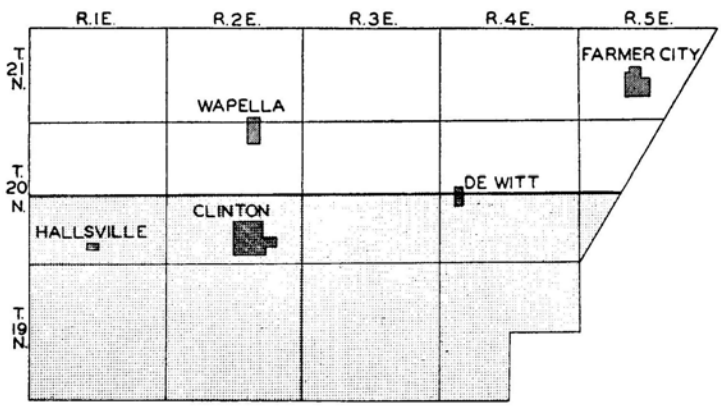
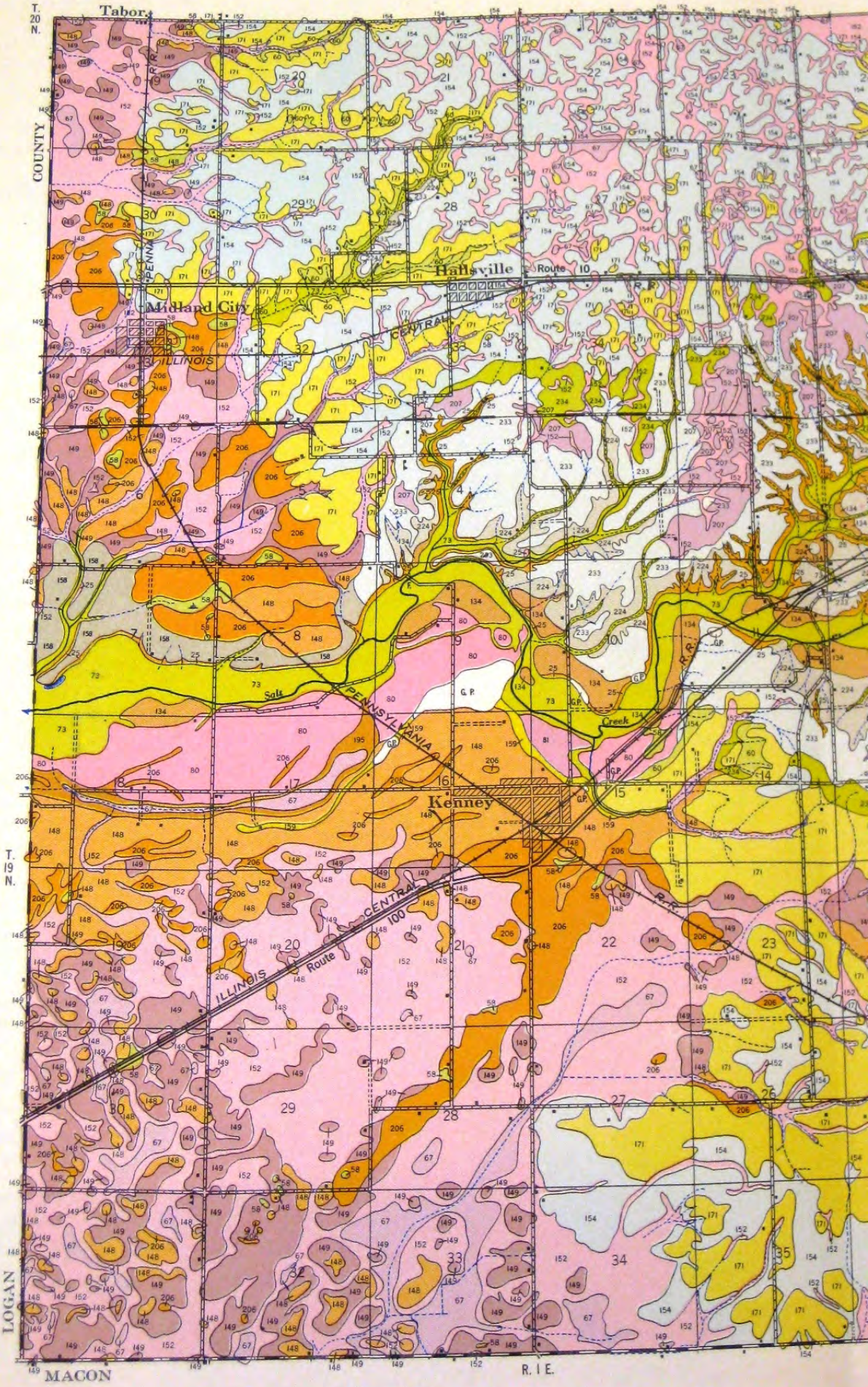
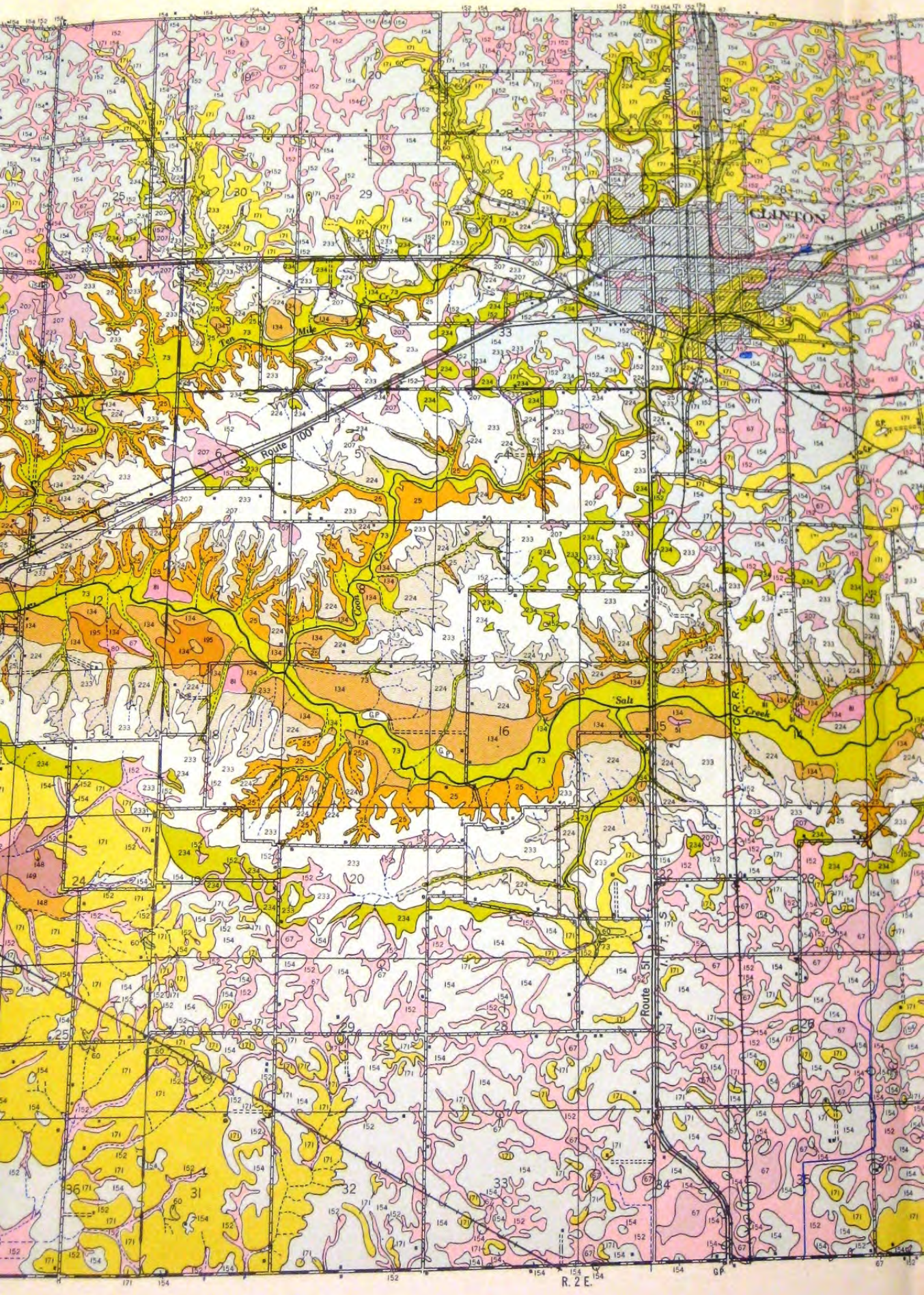
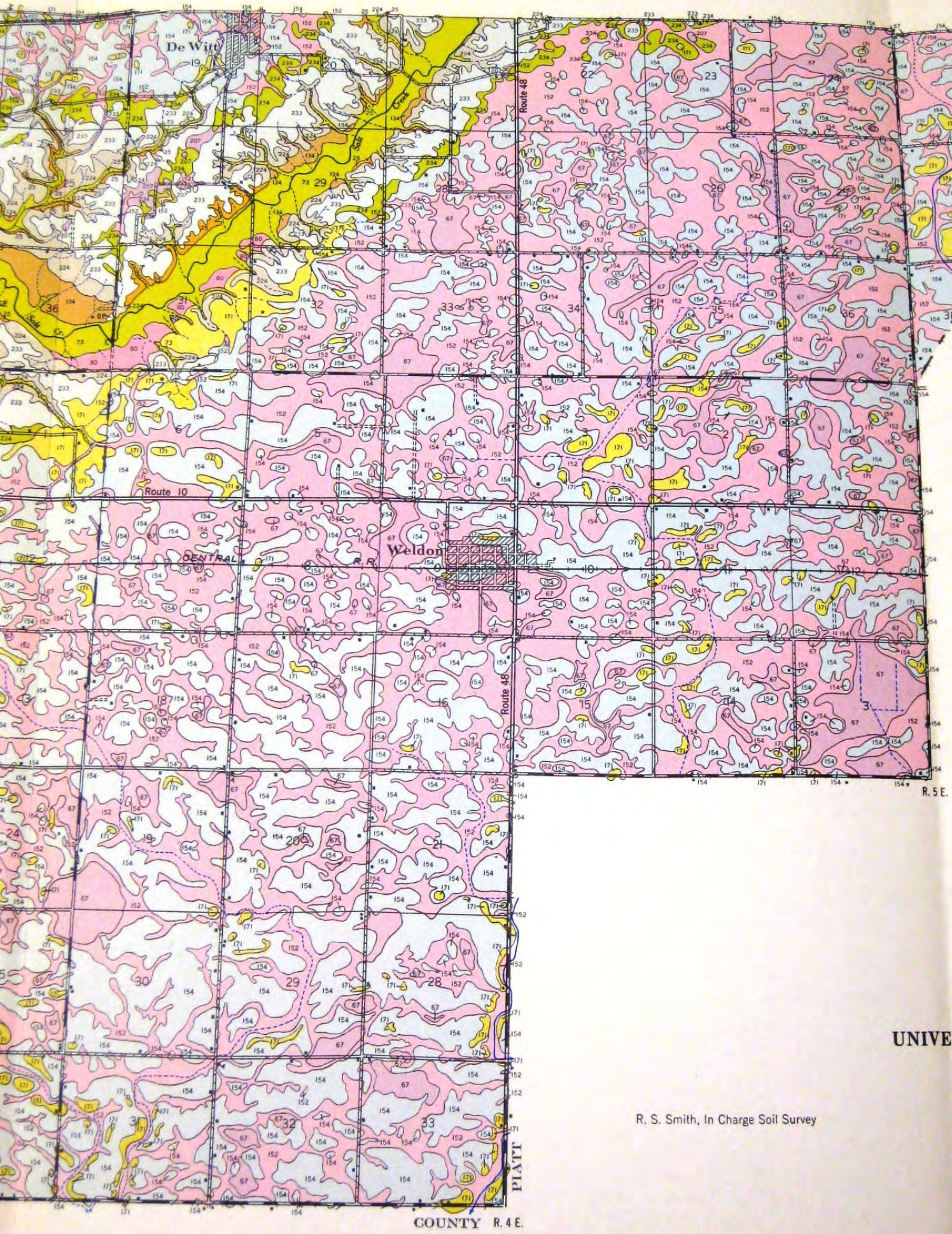



T. 20 N.
Tabor
COUNTY
Hallsville
Route 10
Midland City
ILLINOIS
CENTRAL
Salt
PENNSYLVANIA
Creek
Kenney
T. 19 N.
ILLINOIS
Route 100
CENTRAL
LOGAN
MACON
R. 1 E.


CLINTON
Route 100
Ten Mile Cr.
Salt Creek
Route 51
R. 2 E.

Birkbeck
North Fork
Route 100
Route 10
Salt Creek
Lane
ILLINOIS
R. 3 E.



R. S. Smith, In Charge Soil Survey

LEGEND

25	Hennepin gravelly loam
51	Kern silt loam, terrace
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60	LaRose silt loam
67	Harpster clay loam
73	Huntsville loam, bottom
80	Alexis silt loam, terrace
81	Littleton silt loam, terrace
107	Sawmill clay loam, bottom
134	Camden silt loam, terrace
148	Proctor silt loam
149	Brenton silt loam
152	Drummer clay loam
154	Flanagan silt loam
158	Vance silt loam
159	Pilot silt loam
171	Catlin silt loam
195	Hersman clay loam, terrace
206	Thorp silt loam
207	Ward silt loam
224	Strawn silt loam
233	Birkbeck silt loam
234	Sunbury silt loam

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- County boundary lines
- Streams (flowing)
- Streams (intermittent)
- Lake or Pond
- Swamp
- GP Gravel Pit
- F Fords

Scale

0 ¼ ½ 1 2 Miles

1937

SOIL SURVEY MAP OF DE WITT COUNTY

ERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION

Soils Surveyed by
Guy D. Smith, in Charge
J. E. Gieseking
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Eric Winters