LAND USE PLANNING REPORT

PIERCE COUNTY
WISCONSIN
1940
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FORWARD

The County Agricultural Committee of the Pierce County Board of Supervisors have included all evident major agricultural programs in their program of work as annually planned and outlined. The Agricultural Committee voted to adopt the land use planning work with the aim that the planning would create greater harmony between the agricultural agencies of our county, both governmental and educational; that a long-time agricultural program could be formulated which would coordinate in the county and on the farm; and that solutions might better be built on the recommendations of the people who would derive benefits.

The Chairman and Secretary of the County Land-Use Planning Committee wish to express their appreciation for the cooperation and interest shown by the Land-Use Planning Committees, as well as from agencies which supplied us information and help.

Cooperating with the Land-Use Committees, and assisting in the directing of the land-use planning work were: D. F. Rusy, W. A. Rowlands, Emil Jorgenson, Extension Supervisors; and L. G. Sorden, State B.A.E. Representative of the United States Department of Agriculture. They are to be commended.

/s/ Geo. G. Wild  
Chairman, County Land-Use Committee

/s/ H. G. Seyforth  
Secretary, County Land-Use Committee
Organization

The land-use planning program which was requested by the County Agricultural Committee was adopted and organized in Pierce County in October, 1939. The organization and procedure as conducted in other Wisconsin counties in which land-use planning work has been under way for some time was explained by state land planning representatives. In order to facilitate the planning procedure, the Agricultural Committee divided the county into seven districts or communities on a soil type basis, as mapped by the State Geological and Natural History Survey. The districts with towns included in each are as follows: District No. 1, River Falls, and Clifton; District No. 2, Martell and Gilman; District No. 3, Spring Lake, Rock Elm, and El Paso; District No. 4, Ellsworth and Trimble; District No. 5, Oak Grove and Diamond Bluff; District No. 6, Hartland, Isabelle, and Trenton; and District No. 7, Maiden Rock, Salem, and Union.

Following the division of the county into districts, the Agricultural Committee selected a County Land-Use Planning Committee composed of representatives of State and Federal agencies, Chairman of the district or community committees, and many farmers of the county. The selection of the members of each district committee was done by the Chairman of the district committee, who had been appointed by the County Agricultural Committee. The County Land-Use Planning Committee personnel is as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency Representing</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>George F. Wild, Chr.</td>
<td>County Agricultural Com.</td>
<td>Elmwood</td>
</tr>
<tr>
<td>W. H. Tousley</td>
<td>&quot; &quot; &quot; &quot; &quot; Chr.</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>Arthur Bucknower</td>
<td>&quot; &quot; &quot; &quot; &quot;</td>
<td>Bay City</td>
</tr>
<tr>
<td>M. L. Saxton</td>
<td>Co. Superintendent of Schools</td>
<td>Ellsworth</td>
</tr>
</tbody>
</table>

- 1 -
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<thead>
<tr>
<th>Name</th>
<th>Agency Representing</th>
<th>Address</th>
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<tbody>
<tr>
<td>Lars Florness</td>
<td>County Agricultural Com.</td>
<td>Bay City</td>
</tr>
<tr>
<td>F. E. McCue</td>
<td>Farmer</td>
<td>River Falls</td>
</tr>
<tr>
<td>Martin Selveson</td>
<td>Farmer</td>
<td>Maiden Rock</td>
</tr>
<tr>
<td>George Andrews</td>
<td>Farmer</td>
<td>Bay City</td>
</tr>
<tr>
<td>John Most</td>
<td>Farmer</td>
<td>Prescott</td>
</tr>
<tr>
<td>Jay Nelson</td>
<td>Farmer</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>J. G. Soyforth</td>
<td>County Agric. Agent</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Edna M. Langseth</td>
<td>Co. Home Dom. Agent</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>V. W. Poroutky</td>
<td>Ass't Co. Agric. Agent</td>
<td>Ellsworth</td>
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<tr>
<td>H. L. Shanks</td>
<td>Farm Security Admin.</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>W. H. Rasmussen</td>
<td>Soil Conservation Scr.</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>J. H. Jackelona</td>
<td>Soil Conservation Scr.</td>
<td>Ellsworth</td>
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<tr>
<td>Selmer Grant</td>
<td>National Farm Loan</td>
<td>River Falls</td>
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<tr>
<td>Ralph Condit</td>
<td>Production Credit</td>
<td>River Falls</td>
</tr>
<tr>
<td>Mrs. Ellon Carlson</td>
<td>Central Application Bur.</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Mrs. F.M. Brookshaw</td>
<td>Farm Homemaker</td>
<td>Ellsworth</td>
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<tr>
<td>Mrs. Dewey Borowick</td>
<td>Farm Homemaker</td>
<td>Prescott</td>
</tr>
<tr>
<td>Mrs. Alvin Hurtgon</td>
<td>Farm Homemaker</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>Mrs. Paul Baird</td>
<td>Farm Homemaker</td>
<td>River Falls</td>
</tr>
<tr>
<td>Audrey Peterson</td>
<td>Instr. Homo Economics</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Kenneth Wall</td>
<td>Instr. Vo-Agriculture</td>
<td>Ellsworth</td>
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<tr>
<td>Norman Christianson</td>
<td>Instr. Vo-Agriculture</td>
<td>Prescott</td>
</tr>
<tr>
<td>Arthur Fischer</td>
<td>4-H Club Leader</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Melvin C. Nolsby</td>
<td>Chr., County A.A.A.</td>
<td>Spring Valley</td>
</tr>
</tbody>
</table>
The Community Committees are as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
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<tbody>
<tr>
<td><strong>District No. 1</strong></td>
<td></td>
</tr>
<tr>
<td>F. E. McCuc, Chairman</td>
<td>River Falls</td>
</tr>
<tr>
<td>Sam McKeen</td>
<td>River Falls</td>
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<tr>
<td>E. Lovell</td>
<td>River Falls</td>
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<tr>
<td>John Haugh</td>
<td>River Falls</td>
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<tr>
<td>Mrs. E. Lovell</td>
<td>River Falls</td>
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<tr>
<td>Harry Morriman</td>
<td>River Falls</td>
</tr>
<tr>
<td>William Baird</td>
<td>River Falls</td>
</tr>
<tr>
<td>Mrs. Harry Morriman</td>
<td>River Falls</td>
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<tr>
<td>Mrs. Paul Baird</td>
<td>River Falls</td>
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<tr>
<td>Alfred Youngren</td>
<td>River Falls</td>
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<tr>
<td>Fred Lindenberger</td>
<td>River Falls</td>
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<tr>
<td><strong>District No. 2</strong></td>
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<tr>
<td>Melvin C. Molsky, Chr.</td>
<td>Spring Valley</td>
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<tr>
<td>Theodore Vanasse</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>Henry Aasrud</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>E. T. Noss</td>
<td>River Falls</td>
</tr>
<tr>
<td>Mrs. Henry Aasrud</td>
<td>Spring Valley</td>
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<tr>
<td>Paul Bjorking</td>
<td>Beldonville</td>
</tr>
<tr>
<td>Norm C. Anderson</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>Mrs. Alvin Hurtgen</td>
<td>Spring Valley</td>
</tr>
<tr>
<td><strong>District No. 3</strong></td>
<td></td>
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<tr>
<td>George Wild, Chr.</td>
<td>Elmwood</td>
</tr>
<tr>
<td>Mrs. George Wild</td>
<td>Elmwood</td>
</tr>
<tr>
<td>Carl Cook</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>Mrs. Sylvester Cook</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>A. C. Reinkey</td>
<td>Elmwood</td>
</tr>
<tr>
<td>Mrs. A. C. Reinkey</td>
<td>Elmwood</td>
</tr>
<tr>
<td>Alton Webb</td>
<td>Spring Valley</td>
</tr>
<tr>
<td>William Sanford</td>
<td>Ellsworth</td>
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<tr>
<td>William Butel</td>
<td>Beldonville</td>
</tr>
<tr>
<td><strong>District No. 4</strong></td>
<td></td>
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<tr>
<td>Jay Nelson, Chr.</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Henry C. Anderson</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Kenneth LaGrandor</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Mrs. Kenneth LaGrandor</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>John McAleavy</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Mrs. Ruben Molander</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>Melvin Huber</td>
<td>Ellsworth</td>
</tr>
<tr>
<td>James Mallon</td>
<td>Ellsworth</td>
</tr>
</tbody>
</table>
Name | Address
--- | ---
John C. Most, Chr. | Prescott
Mrs. John C. Most | Prescott
John Stoon | Prescott
Dewey Borowick | Prescott
Mrs. Dewey Borowick | Prescott
A. D. Carlson | Diamond Bluff
Edmund Steiger | Hager City
Charles Struve | Prescott

**District No. 6**

George Andrews, Chr. | Bay City
Arthur Buettner | Bay City
Mrs. Arthur Buettner | Bay City
Silas Johnson | Bay City
Lars Flomness | Bay City
Emil Kind | Hager City
Mrs. Lorentz Lindquist | Hager City
Ted Hilden | Ellsworth
Enoch Peterson | Ellsworth

**District No. 7**

Martin Solveson, Chr. | Maiden Rock
Mrs. Martin Solveson | Maiden Rock
George Rhiei | Plum City
Mrs. George Rhiei | Plum City
Marshall Hoffman | Arkansaw
Lawrence Bjurquist | Maiden Rock
Theodore Gustafson | Maiden Rock
J. H. Shannon | Ellsworth
Joe Magnuson | Maiden Rock
Fred Sorenson | Maiden Rock

**Procedure:**

A meeting of the County Land-Use Planning Committee was held in November, 1939 at which time representatives of the State Agricultural Extension Service explained the objectives of land-use planning. The discussion which followed brought out the fact that some of the farm programs had been necessarily rather hastily created since there had not always been time enough or sufficient information to permit detailed planning prior to starting the program. As a result of this, much emphasis must be given to the coordination of the programs especially when the administration comes down to the individual farm or farmer.
Even if the programs had been set up more slowly, it would still be nec-
essary to make sure that those programs are in harmony with operations
in the county. This is one of the most important jobs that the County
Land-Use Planning Committee's work is attempting to do; to help each of
these programs to tie in with all the others; and to form an agricultural
program that is well coordinated when it reaches the county, the neighbor-
hood, and the farm.

In November, 1939, the chairmen of the community committees appointed
their community committee members. A month later when community committee
meetings were held, a member of the County Extension Office attended each
meeting and explained the purpose and objectives of the land-use planning
work. At this meeting they started on their land classification phase
of the work by mapping their individual communities on county plat maps,
and coloring the various classes as instructed in Work Outline No. 1.
The plat maps were later copied on a county map of a one inch to the mile
scale which had been supplied by the State Agricultural Extension Depart-
ment. At this same meeting, the committee asked for background informa-
tion on a county and town basis to be used in studying their problems.
Members of Homemaker Clubs, who were on the committee, met with the Home
Demonstration Agent to discuss information they desired which would enable
them to contribute to the planning work.

A second series of the land-use planning community meetings were held
in the month of May, 1940. A state land planning representative was present
at each meeting of this series. In addition to the presentation of the
completed land-use classification map by the County Agent, many other charts
and maps showing other conditions of the county by towns were presented
to the committees. Among these maps and charts, the following information
was presented at each meeting of the series: (1) a map showing the loca-
tion of owner-operated and tenant-operated farms taken from Agricultural Conservation Association records, thereby designating the tenancy problem in the county; (2) a map showing the location of farms having Farm Security Administration loans, Federal Land Bank loans, giving the date and amount of the original loan, the present amount of the loan, and reporting any delinquency; (3) a map showing the location of a few farms owned by insurance companies as recorded in the office of the Register of Deeds, and also the small number of farms having severe tax delinquency as reported by the County Treasurer; (4) a map showing the location of the Soil Conservation Service demonstration farms in the county; (5) a map showing the location of the users of the lines of the Rural Electrification Administration and the Northern States Power Company; (6) a map showing the location of fertility grain trial plots which are being worked by the County Extension Office and with the help of the Soil Conservation Service; and (7) a map showing the lime, phosphorus, and potash soil requirements per acre by townships as determined by 8,000 soil samples from 1,000 Pierce County farms.

In addition to these maps other information from the Central Application Bureau showed the location of W.P.A. workers, the amount of expenditure by the local units for those projects, and also the location of recipients of surplus commodities. The Dean of Men from River Falls Teachers College provided weather data compiled from records of the U. S. Weather Reporting Service. A Soil Conservation Service representative who attended each meeting of the second series of meetings contributed much in the way of information on erosion problems and their controls and soil fertility problems. Two reports were also distributed to the members of the community committees, one was a Pierce County Agricultural Statistical
Bulletin prepared by the Wisconsin Crop and Livestock Reporting Service, and the other was a similar bulletin on a township basis prepared by the County Extension Office. After the presentation and discussion of this material, recommendations were made which were recorded by the County Agent to be presented to the County Land-Use Planning Committee.

In June, 1940 the County Land-Use Planning Committee met and reviewed the recommendations of the community committees as well as adding many of their own. It was requested that these recommendations and a description of their problems of the county be put into report form to be presented to the State Land-Use Planning Committee for their action.

DESCRIPTION OF COUNTY

Location

Pierce County is located on the west-central border of Wisconsin, bordered on the south by the Mississippi River which forms Lake Pepin, and a small part of Pepin County. The western border is formed by the Mississippi River and Lake St. Croix, while St. Croix County forms the northern boundary, and Dunn and Pepin the Eastern. Ellsworth, the county seat of Pierce County, is about 30 airline miles from St. Paul, Minnesota, and it is about 185 airline miles from Madison, Wisconsin.

At one time Pierce County had a large number of livestock shipping associations located at Maiden Rock, Hager City, Prescott, River Falls, Ellsworth, Spring Valley, and Elmwood. The one located at Elmwood was the largest in the state, but now there are no such associations chiefly because of the change in mode of transportation from railway stock cars to trucks. This was possible since the market is located in south St. Paul.
Pierce County with a land area of 370,448.22 acres ranks fifty-second in size among the 71 counties of the state. It is considerably smaller than any of the surrounding counties except Popin, and is almost exactly the same size as Green County in the southern part of the state.

There is considerable variation in the size of the 17 towns in Pierce County. The towns' range is from 30,731 acres in River Falls to only 6,773 acres in Isabell's. Maiden Rock, with 26,318 acres, ranks second in size and is closely followed by Oak Grove with 26,104 acres.

Topography

In general, Pierce County is a well-dissected upland plain which slopes very gently to the south and southwest. Marti's "Physical Geography of Wisconsin" compares this region, and especially the area around River Falls with the Alleghany plateau in western New York state. The Lower Magnesian limestone upon which the plain is formed has been cut into narrow stream valleys which are sometimes 100 to 300 feet below the wide, gently rolling or rolling, interstream uplands. A few isolated hills and long ridges rise above the surface of the plain, especially to the north and northwest of Ellsworth. These hills and ridges are capped by resistant Calona-Black River limestone and are remnants of a higher plain which once covered this region. To the south and west the upland (about 1,200 feet above sea level) drops away to the river over bluffs, 200 to 500 feet high.

Pierce County was once covered by the great continental ice sheet. However, the county lies in what glacial geologists now call the area of "Old Drift" to distinguish it from the "Young Drift" -- the glacial drift resulting from the Wisconsin ice sheet. During the Glacial Period, there were successive advanced and retreats of the ice, the last advance which covered this section of the country, is known as the Wisconsin stage of
glaciation. The earlier advance of the continental glacier which covered Pierce County extended southeast as far as Alma. It is thought the ice in this area was relatively weak, since it represented almost the limit of glaciation, and it is probable that the ice did not remain over the region for a long period compared with areas to the north, east, and west.

As a result of the ice sheet the pre-glacial topography of Pierce County was considerably smoothed either by ice erosion, deposition, or both. There are none of the outstanding physical features of a glaciated area like those in northern Wisconsin to be found in Pierce County. The "Old Drift" is relatively thin and, because it has been exposed to the elements for longer periods than the "Young Drift", has been weathered considerably more. There are no lakes, but few swamps, and moraines are absent. In many respects it resembles the Driftless Area more than the regions of Wisconsin drift.

Lake Pepin, which forms part of the southern border of Pierce County, is formed by the damming of the Mississippi River by deltaic deposits from the Chippewa River. The lake is 1.0 to 2.5 miles wide and approximately 22 miles long. It has a maximum depth of 56 feet, but most of it is 20 to 35 feet, according to the "Physical Geography of Wisconsin". Formerly, the lake extended farther up the river toward Prescott, but the sediments dropped by the Mississippi as it entered the upper end of the lake have filled the valley downstream. Eventually, the continuation of those deposits will completely fill the lake.

Lake St. Croix is a smaller edition of Lake Pepin. This lake is caused by the Mississippi River deposits damming the St. Croix River at its mouth at Prescott. The width ranges from one-quarter to half a mile; the depth from \( \frac{3}{2} \) to 30 or 50 feet. The Kinnickinnic River has built a delta out into the lake.
Along the Mississippi River are several terraces which indicate the levels at which the river has flowed at various times. A series of four of these terraces extend from Bay City to Diamond Bluff at elevations of about 20, 40, 60 and 90 feet above the river. At Prescott there are three terraces, the lowest, upon which the city is situated, is approximately 95 feet above the river, and the others are at 155 and 235 feet. From the coarse nature of the deposits the uppermost of these terraces is thought to have been made during glacial times when the ice was nearby, and the lower terraces when the ice had retreated to the north.

Soils

Pierce County soils are, on the whole, good agricultural soils -- fertile, well drained and rather easily tilled. Because of the rolling nature of most of the land and the rough topography in some sections erosion has been, and still is, a problem in the county. The removal of the natural forest vegetation on the slopes has caused the gullying of some of the best land while some of the level upland areas have been subjected to considerable wind erosion.

Pierce County, according to the U. S. Soils Geological Survey, had 25 classes of soil. Seventy-one and nine tenths per cent of the soils of the county are classified as heavy and are found chiefly in the towns of Hartland, Ellsworth, Rock Elm, Gilman, and Martell. In these particular towns 80 per cent or more of their soil is of this type. Six and eight tenths per cent of the soils of the county are lean and fine sandy loam, comprising about 15 per cent or more of the towns of River Falls, Clifton and Trimble. About two per cent of the soils of the county are of a sandy nature, the town having the highest percentage of it being Isabelle with 22.7 per cent, and next in line is Trenton with 9.9 per cent. The remainder of the soils of the county are either
poorly drained soils or are of a miscellaneous nature constituting approximately 6.2 per cent and 11.1 per cent respectively for the county as a whole.

Over one-half, or 63 per cent, of the soils in Pierce County are acid; over three-fourths, or 83 per cent, are deficient in available phosphorous; and about one-fourth, or 27 per cent, are deficient in available potassium, according to the reports on over 8,000 soil samples tested prior to June 1, 1940 by a W.P.A. soil testing project. The information is shown in Figure 1.

In comparison with like figures for the state as a whole, Pierce County's acid and available phosphorous condition is about the average for the state, but in available potassium it is below the average. Further work of this type is being carried, and the results from a larger number of samples may be available at a future date.

**Soil Erosion**

In a recent survey conducted by the Soil Conservation Service at Camp Ellsworth it was shown that there has been a serious loss of top soil on the farms of Pierce County.

Soil surveys taken from cultivated land, pasture and woodland on representative farms chosen from different parts of the county show that:

- **On 11 Per cent of the land from none to 25 per cent of top soil is gone.**
- **On 26 per cent of the land from 25 to 50 per cent of the top soil is gone.**
- **On 17 per cent of the land from 50 to 75 per cent of top soil is gone.**

This alarming loss represents a cross-section of the county, and it roughly illustrates the condition of the entire county. If the soil surveys had been taken on cultivated land only, the results would have shown a much greater percentage of land under the heavier-soil-loss classes.

This loss of the rich layer of soil in which crops are grown is due to
Figure 1 - Soil Fertility Requirements per Acre
by Towns, Pierce County.
January 1, 1940

Clifton
- 36
- 52
1.15
2T

River Falls
- 61
- 119
1.5
1.1T

Martell
- 75
- 506
1.8
1.1T

Gilman
- 63
- 167
1.5
1.1T

Spring Lake
- 50
- 161
1.1T

Oak Grove
- 253
- 289
1.13
1.1T

Trimble
- 93
- 51
1.1T

Ellsworth
- 105
- 971
1.45
1.1T

El Paso
- 55
- 269
1.1T

Rock Elm
- 381

Diamond Bluff
- 25
- 197
1.1T

Trenton
- 90
- 211
1.1T

Hartland
- 13
- 437
1.1T

Salem
- 52
- 255
1.1T

Union
- 71
- 631
1.1T

Isabelle
- 12
- 198
1.1T

Maiden Rock
- 15
- 357
1.1T

County Average
(949)
Number of farms from which soil samples were taken
(6969)

1.5 Tons of Lime per acre.
60 Pounds of Phosphate per acre.
46 Pounds of Potash per acre.
erosion caused by inferior farming practices on land which, at the maximum, has been farmed only ninety years.

**Climate**

Pierce County has a 13 year average growing period of 136 days. The average last killing frost is May 16, and the average first killing frost is September 29. On the average, Red Wing, Minnesota, located across the Mississippi River from Hager City, has an average growing season of 157 days. This is a growing season that is 21 days longer than Pierce County's average, and it is probably due to the Mississippi River and elevation differences. River Falls, the location of Pierce County's weather recordings, is 22 miles, aerial distance, north of Red Wing.

Our average annual snowfall is 45.8 inches. Figure 2 has been compiled from records at River Falls and it shows the average monthly precipitation in Pierce County. On an average of 93 days each year there has been a precipitation of .1 inch or more, whereas the annual average rainfall is 30.4 inches.

![Figure 2 - Average Monthly Precipitation in Pierce County.](image)
Figure 3 shows the average yearly rainfall since 1920. The average rainfall for the last 10 years has been well below the annual average of 30.4 inches. The data on corn yield has been placed on Figure 3 to show the comparative effect of rainfall on corn yield, although soil fertility is without doubt an additional factor.

**Figure 3 - Yearly Rainfall vs. Corn Yields, 1920-39 in Pierce County**

The gross farm income of Pierce County in 1936, the latest year for which there is data available, was $4,949,761 of which $4,501,041, or 91 per cent, was from livestock and livestock products; and $448,720, or nine per cent, from the sale of crops. Figure 4 gives the detailed break down of the source of farm income for the year 1936. This was more than $1,800,000 greater than the gross farm income in 1933, and $800,000 greater than that in 1931. In 1927 the gross farm income was estimated at $6,744,200 with 80 per cent from livestock and livestock products and 11 per cent from crops.
Figure 4 - Sources of Gross Farm Income, 1936
in Pierce County

Milk 45.4%
Hogs 18.6%
Other* 6.0%
Potatoes 2.1%
Peas for canning .1%
Hay .3%
Seeds .1%
Cabbage .2%
Grains 2.6%
Cattle & Calves 9.7%
Poultry & Eggs 15.6%

*Other includes: Sheep, Wool, honey, and beeswax, 1.8%; Fruits .4%;
Fruits .4%; Cabbage .2%; Seeds .1%; Hay .3%; Peas for canning
.1%; Miscellaneous products 3.1%

Farm Tenancy

Pierce County has a definite problem of farm tenancy as is shown by
the fact that in 1936, 24.4 per cent of its farm operators were tenants.
Similar figures on tenancy for the towns of Pierce County are: in Oak
Grove 28.4 per cent of its farm operators were tenants; in Clifton 36.6
per cent were tenants; in River Falls 28.9 per cent were tenants; in
Salem 28.6 were tenants; in Trimbello 28 per cent; in Hartland 27.7 per
cent were; in Spring Lake 16.4 per cent were; and in Maiden Rock 19.9
per cent were tenants. Figure 5 shows the number of farms operated by
tenants expressed as a percentage of the total number of farms in the
county as reported by each census.
Figure 5 - The Total Number and Size of Farms and the Percentage Tenant Farms are of Total Farms in Pierce County, 1900-1935

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number of Farms</th>
<th>Total Farm Acreage</th>
<th>Acres Per Farm</th>
<th>Tenant Farms as a Per Cent of Total Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>3,323</td>
<td>333,641</td>
<td>100.4</td>
<td>11.6</td>
</tr>
<tr>
<td>1910</td>
<td>3,213</td>
<td>347,179</td>
<td>108.1</td>
<td>14.1</td>
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<tr>
<td>1920</td>
<td>3,105</td>
<td>346,468</td>
<td>111.3</td>
<td>16.7</td>
</tr>
<tr>
<td>1925</td>
<td>3,073</td>
<td>342,163</td>
<td>111.3</td>
<td>19.9</td>
</tr>
<tr>
<td>1930</td>
<td>3,013</td>
<td>343,004</td>
<td>113.8</td>
<td>22.3</td>
</tr>
<tr>
<td>1935</td>
<td>3,089</td>
<td>356,357</td>
<td>115.4</td>
<td>24.4</td>
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</tbody>
</table>

Home Management Survey Summary

The real purpose of all efforts to make money is to provide a good living for the family. The way in which the homemaker manages the available money, and the way in which she preserves home produced foods, thereby supplementing the farm cash income, makes a great deal of difference in the family standard of living. In a recent survey, a questionnaire on family living was answered by nearly 300 homemakers of the county. The following are some of the more significant findings.

The Family's Food -- Fruits and Vegetables. About 90 per cent of the families in Pierce County have gardens. Of those, 40 per cent reported having serious troubles from insects or disease, usually on some specific vegetable. A number of these gardens evidently do not produce enough vegetables and fruits to provide for the family during the winter. (See Figure 6) Families with from two to five members are fairly well taken care of, but larger families either have to buy a large percentage of their fruits and vegetables or else they are getting a diet insufficient in those foods. The larger the family the lower the per cent of necessary amount of fruits and vegetables are canned or stored. Much of the fruit which is canned is purchased; more of it could be raised. Here are the
Figure 6 - Average Production of Food for Family Consumption Compared with the Amount Needed for Good Nutrition, by Size of Family. Pierce County

<table>
<thead>
<tr>
<th>Food</th>
<th>Suggested amount for good nutrition</th>
<th>Actual average production expressed as a per cent of amount needed for good nutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Adults</td>
<td>3-5 Adults</td>
</tr>
<tr>
<td>Pounds of fruit canned or stored, nine month's use</td>
<td>202</td>
<td>404</td>
</tr>
<tr>
<td></td>
<td>112%</td>
<td>98%</td>
</tr>
<tr>
<td>Pounds of vegetables canned or stored, nine month's use</td>
<td>280</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>73%</td>
<td>63%</td>
</tr>
<tr>
<td>Pounds of meat canned and cured, nine month's use</td>
<td>126</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td>63%</td>
<td>69%</td>
</tr>
<tr>
<td>Pounds of meat stord in refrigerator lockers.</td>
<td>168</td>
<td>336</td>
</tr>
<tr>
<td></td>
<td>202%</td>
<td>153%</td>
</tr>
<tr>
<td>Number of chickens used yearly.</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>89%</td>
<td>67%</td>
</tr>
<tr>
<td>Eggs used weekly.</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>171%</td>
<td>150%</td>
</tr>
</tbody>
</table>
percentages of families raising the following fruits:
Apples - - 47%  Grapes - - 12%  Plums - - 37%  Strawberries 56%
Blackberries 9%  Gooseberries 22%  Raspberries 53%

Meat and Poultry (See Figure 6): - Approximately 58 per cent of the meat needed for adequate nutrition (and most people eat much more) is canned and cured. This means the remainder must be purchased. The smaller families eat fairly large numbers of poultry. All sized families save those of ten or more members use adequate numbers of eggs.

Miscellaneous Foods: - Ninety-three per cent of the women said they rendered their own lard, but 31 per cent said they used commercial lard substitutes to a larger or smaller degree. Eighty-eight per cent reported planning meals by the day rather than by each meal only, but only 13 per cent reported planning by the week. If meals were planned for a longer time than one day, considerable savings might be effected.

Family Clothing: - Seventy-five per cent of Pierce County homemakers with small children in the family make clothes for them. Of all families, 32 per cent of them make clothes for older children, and 38 per cent make clothes for themselves. Two hundred out of 243 families make over clothing, 249 out of 252 families have sewing machines.

Miscellaneous: - Out of 273 homemakers' replies, women did the following jobs themselves:

Painting - - - - - - - - 70 Per Cent  Planting Flowers - - - - 87 Per Cent
Painting - - - - - - - - 42 Per Cent  Planting Gardens - - - - 81 Per Cent
Simple Repairs - - - - - - 52 Per Cent  Caring for chickens - - - 66 Per Cent

The families contacted had these conveniences:
Running water in house - 32 Per cent  Bathroom - - - - - 17 per cent
Running water in barn - - 30 Per Cent  Septic Tank - - - - - 17 per cent
County Paper - - - - - - 64 Per Cent  Pressure Cooker - - - 15 per cent
Radio - - - - - - - - - 90 Per Cent  Telephone - - - - - 52 per cent
Woods:

Each year the weed problem is becoming more serious. Weeds are a constant source of expense in that they absorb soil moisture, use plant food, crowd out useful plants, increase the need for more tillage, interfere with regular rotations, often cause tainted milk, lower the market value of seed and feed, harbor insects and diseases, and are unsightly.

Of the noxious weeds in Pierce County, Creeping Jonny (Field Bindweed) is becoming one of the most serious. Infestations of Creeping Jonny have been found in the towns of Clifton, Martell, Spring Lake, Ellsworth, Oak Grove, Hartland, Isabella, Maiden Rock, and Union. Most of the infestations were small, except the one in Hartland which consists of several acres and was found to have been there for nearly twenty years.

Crops:

With the exception of six years, oats has occupied the largest acreage since 1915. However, as shown in Figure 7 there has been an upward trend in barley acreage since 1927, and yields have declined in recent years. Corn ranks third in acreage, following oats and tame hay, while rye has declined since 1922 as is pictured in Figure 8.

In 1938 Pierce County ranked first in the state in wheat acreage and production. In that year the acreage was about half the record harvested in 1919. Since the record acreage in 1919, there has been almost a steady decrease until the early 1930's. More spring wheat than winter wheat was harvested in the county until recent years. Very little winter wheat was reported as harvested in 1934. Except in 1925 and 1926, winter wheat yields have been higher than those of spring wheat.

Alfalfa has become more important than clover and timothy as a hay crop. Acreages of both types of hay dropped sharply in 1934, but have been larger since that year. Figure 9 has been prepared in order that the acreage of alfalfa can be compared with that of clover and timothy.
Figure 7 - Barley and Oats Acreage in Pierce County

![Graph of Barley and Oats Acreage](image)

Figure 8 - Rye and Wheat Acreage in Pierce County

![Graph of Rye and Wheat Acreage](image)
A definite increase in alfalfa acreage is apparent as clover and timothy acreage has decreased.

**Dairy and Livestock**

Creamery butter production has increased from 472,000 pounds in 1885 to the record of 6,293,000 pounds in 1938. 1939 Figures are not available at this time. This production record is shown on Figure 10.

The number of livestock on farms is shown in Figure 11.

**Statistical Material**

Other background statistical material is shown in Figures 12 to 15.
Figure 9 - Alfalfa, Clover and Timothy Hay Acres

Figure 10 - Creamery Butter Production 1885-1938

Figure 11 - Number of Livestock on Farms as of January 1
<table>
<thead>
<tr>
<th>Village</th>
<th>Area in Acres</th>
<th>Total Farms</th>
<th>Av. Acres Per Farm</th>
<th>Crop Acres Per Farm</th>
<th>Farms with AAA</th>
<th>Productivity Rating</th>
<th>Percent Full Owners</th>
<th>No. of F.L.B. Farms</th>
<th>F.L.B. Loans</th>
<th>Total Am't. of F.L.B. Loans</th>
<th>F.C.A. Loans</th>
<th>Total Am't. F.C.A. Loans</th>
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<td>196</td>
<td>122</td>
<td>110</td>
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<td>*(267)</td>
<td>100</td>
<td>53</td>
<td>*(239)</td>
<td>*(119.8)</td>
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<td>16</td>
<td>$152,866</td>
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<table>
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<th>Township</th>
<th>Farm Security Loans</th>
<th>Total Amount Loans</th>
<th>No. R.E.A. Users</th>
<th>No. Northern States Users</th>
<th>Farms Soil Tested</th>
<th>Total Soil Samples</th>
<th>Demonstration Soil Plots 1940</th>
<th>Total paid Surplus Commodities '39</th>
<th>No. on W.P.A. Surplus Comm.</th>
<th>No. on March 1, 1940</th>
<th>Tax Problem Farms</th>
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<td>Union</td>
<td>10</td>
<td>8,225</td>
<td>2</td>
<td>51</td>
<td>74</td>
<td>631</td>
<td>2</td>
<td>355</td>
<td>9</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Total or County Average</td>
<td>194</td>
<td>193,359</td>
<td>836</td>
<td>238</td>
<td>949</td>
<td>7918</td>
<td>79</td>
<td>**13,473</td>
<td>248</td>
<td>#288-C</td>
<td>16</td>
</tr>
</tbody>
</table>

*(288-C implies 288 were certified, 258 were working, March 1, 1940)*

**Total of county includes that paid to villages, not listed in above column.**
Figure 14 - Soils Classification Map as Outlined by Land-Use Planning Committees for Pierce County

Clifton
River Falls
DISTRICT NO. I

Martell
Gilman
Spring Lake

Oak Grove
DISTRICT NO. II

Ellsworth
Rock Elm

Diamond
Bluff
DISTRICT NO. III

Trinville
Trenton
DISTRICT NO. IV

El Paso

DISTRICT NO. V

Hammond
Salem
DISTRICT NO. VI

Maiden Rock

Class A Area (Blue)

Class B Area (Green)

Class C Area (Red)

Class E Area (Yellow)

Note: V-Incorporated Village or City
<table>
<thead>
<tr>
<th>Town</th>
<th>Class A Land</th>
<th>Class B Land</th>
<th>Class C Land</th>
<th>Class D Land</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acreage</td>
<td>Per Cent</td>
<td>Acreage</td>
<td>Per Cent</td>
<td>Acreage</td>
</tr>
<tr>
<td>Oak Grove</td>
<td>3,993</td>
<td>15.3</td>
<td></td>
<td></td>
<td>22,112</td>
</tr>
<tr>
<td>Trimbolle</td>
<td>3,686</td>
<td>15.8</td>
<td>1,324</td>
<td>5.7</td>
<td>18,222</td>
</tr>
<tr>
<td>D. Bluff</td>
<td>240</td>
<td>2.1</td>
<td>1,747</td>
<td>16.6</td>
<td>1,160</td>
</tr>
<tr>
<td>Trenton</td>
<td>2,387</td>
<td>13.3</td>
<td>1,510</td>
<td>8.4</td>
<td>760</td>
</tr>
<tr>
<td>Ellsworth</td>
<td>971</td>
<td>4.2</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Martell</td>
<td>243</td>
<td>1.5</td>
<td>200</td>
<td>1.0</td>
<td>22,669</td>
</tr>
<tr>
<td>Hartland</td>
<td>3,072</td>
<td>10.8</td>
<td></td>
<td></td>
<td>19,796</td>
</tr>
<tr>
<td>Isabelle</td>
<td>2,187</td>
<td>32.3</td>
<td>240</td>
<td>3.5</td>
<td>4,346</td>
</tr>
<tr>
<td>Gilman</td>
<td>1,241</td>
<td>5.5</td>
<td></td>
<td></td>
<td>21,115</td>
</tr>
<tr>
<td>El Paso</td>
<td>6,880</td>
<td>30.5</td>
<td></td>
<td></td>
<td>15,711</td>
</tr>
<tr>
<td>Salem</td>
<td>8,139</td>
<td>35.9</td>
<td></td>
<td></td>
<td>14,538</td>
</tr>
<tr>
<td>Spring Lake</td>
<td>3,003</td>
<td>12.9</td>
<td></td>
<td></td>
<td>20,131</td>
</tr>
<tr>
<td>Rock Elm</td>
<td>3,384</td>
<td>14.6</td>
<td>480</td>
<td>2.8</td>
<td>19,232</td>
</tr>
<tr>
<td>Union</td>
<td>3,794</td>
<td>16.3</td>
<td></td>
<td></td>
<td>19,447</td>
</tr>
<tr>
<td>Maiden Rock</td>
<td>5,596</td>
<td>21.2</td>
<td>896</td>
<td>3.4</td>
<td>19,826</td>
</tr>
<tr>
<td>River Falls</td>
<td>678</td>
<td>2.2</td>
<td>398</td>
<td>1.3</td>
<td>29,655</td>
</tr>
<tr>
<td>Clifton</td>
<td>2,494</td>
<td>11.3</td>
<td>456</td>
<td>2.0</td>
<td>19,139</td>
</tr>
<tr>
<td>Total</td>
<td>49,900</td>
<td>13.2</td>
<td>6,340</td>
<td>1.7</td>
<td>5,048</td>
</tr>
</tbody>
</table>
PRESENT LAND-USE AREAS

Generally, there is no definite type of farming for any particular area. Truck crops, however, are raised in the light soil areas of Trimble and Ellsworth. A large per cent of small grains is raised in Oak Grove, Clifton, Trenton, Diamond Bluff, and Hartland towns; all towns but Hartland bordering the west side of the county. Corn is raised in all sections, though slightly more is raised in Salem, Isabelle, Clifton, El Paso, Union and Ellsworth towns. In the majority of cases, potatoes are raised only for home use. Salem, Spring Lake, and Gilman lead in alfalfa acreages.

Soil erosion caused by running water is general throughout the county, with wind erosion in the neighborhood of Bay City, Hager City and River Falls.

RECOMMENDATIONS FOR LAND-USE AREAS IN PIERCE COUNTY

Class A Land (Blue)

Class A land, designated in blue, is land now farms which is not suited for farming and in which the lands should be put to some other use.

The land which comprises this area is mostly in pasture, woodland and odd areas, and is of a rolling nature. It contains 49,900 acres, or 13.2 per cent of the total area of the county. The removal of the natural woodland and the pasturing of the slopes has caused considerable gullying; and, therefore, it is recommended that this area be protected and planted to trees to provide some income and guard against erosion. Since only a limited amount of the areas should be pastured, and only odd corners and idle acres can be made into wildlife coverts, it is recommended that the hill sides be covered with vegetation as well as the lands bordering streams. Many of these areas contain streams; and if erosion is better controlled, streams will be cooler and cleaner for fish.
Class B Areas (Green)

Areas, designated as Class B and colored green, are not now in farms and should not be used for farming because they are unsuited for this use either as full time or part-time farms. Only 6,340 acres, or 1.7 per cent of the total area of the county, comprises this area which is not farmed because its bluffs along the Mississippi River are mostly limestone and the area is covered with water part of the year. Limestone quarries have been set up in several places along these bluffs, and the limestone is used for agricultural and road construction purposes. The low land area makes good hunting ground. It is, therefore, recommended that these areas be left as they are and that they be used as they have been in the past.

Class C Areas (Red)

Areas designated as Class C and colored red are now in farms and are questionably suited for arable farming. A few such small areas exist totaling 5,048 acres, or 1.6 per cent of the total area of the county, and is of a sandy soil nature. Since much of these soils are subject to wind erosion, it is recommended that general soil erosion methods be practiced on these farms; shelterbelts of coniferous trees be placed at right angles to the prevailing winds and at 40 to 50 or 60 rod intervals; and soil tests be made of these farms, to determine the advisability of their continuance in agriculture.

Class D Areas (Orange)

Class D areas are areas not now in farms but which are suitable for development into either part-time or full-time farming. The Land-Use Planning Committees found no such areas in Pierce County.
Class E Areas (Yellow)

Class E areas which are colored yellow are areas which are now in farms and which should remain in farming either with or without some changes or shifts in the size and type of farm, the cropping systems, and soil conserving practices followed, or other adjustments in the farming system.

There are 309,253 acres, or 83 per cent of the land of Pierce County, classified in this area. Farms in this area are best suited to diversification with livestock; and livestock products contribute the major part of the farm income. It is recommended that farmers in this area follow the recommendations as outlined in this report.

MAJOR PROBLEMS

As recognized by the county and community land-use planning committees, it was definitely evident that soil erosion is the major agricultural problem in Pierce County. Most of the land is of a rolling nature, natural forest vegetation has been removed on the slopes, gullies have developed and there is considerable wind erosion.

The major problems of the county can be summarized as follows:

1. Erosion control and soil improvement.
2. Herb improvement with educational work on Area Bang's Test.
3. Weed control.
4. Adjustments relative to agricultural credit and farm tenancy.

The committee's recommendations which follow in this report, are an all important phase of this planning work. Those provide guidance and help to all public programs in agriculture. The planning committee's work does not end with recommendations, but extends into every field of agricultural action. It is the committee's task to keep its people informed of the recommendations made and of the reasons underlying them.
A Youth Survey has been conducted in the county, and although the project has not been completed, brief mention is here made of the objectives, organizations, and procedure.

**Objectives:** This survey was undertaken by the young people of Pierce County to determine their ideas, interests, and future needs in regard to education, recreational, and occupational possibilities. It is a study of their own problems.

**Organization:** The County Youth Community was assisted by A. F. Wileton and Martin P. Anderson, rural sociologists, State College of Agriculture, and J. D. McMurray, United States Department of Agriculture, Bureau of Agricultural Economics, V. W. Poroutky, Assistant Agricultural Agent, was elected chairman of the local committee. A youth leader was appointed in each selected school district to act as a leader in distributing and collecting the questionnaires.

**Procedure:** The committee decided to get a representative sample on the basis of school districts; and the key school districts, 24 in number, were selected by a random sampling method. The committee asked each person out of school between the ages of 14 and 27 years inclusive in those school districts to completely fill out a schedule. There are about 500 youth in this age group in those selected school districts.

Since this survey is being undertaken by a sampling process, it is important that we get as close to 100 per cent returns as possible on the questionnaires. About 85 per cent of the questionnaires have been returned to date (June 1, 1940). It is expected that 95 per cent of the questionnaires will be returned, and then the results can be tabulated. From this selected sample covering about 20 per cent of the county, the Youth Committee will get a good picture of the problems, interests and social needs of out of school rural young people of Pierce County.
Figure 16 - Pierce County Summary Sheet
Land-Use Planning 1939-40 for Crop Farming Areas

<table>
<thead>
<tr>
<th>Items</th>
<th>County Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Present Cultivated Crop land to be continued in cultivation</td>
<td>90.3 Per Cont</td>
</tr>
<tr>
<td>Approximate number of acres of land to be continued in cultivation</td>
<td>179,939 acres</td>
</tr>
<tr>
<td>Percentage of Recommended Cultivated Acreage to be in:</td>
<td></td>
</tr>
<tr>
<td>1. Intertilled crops</td>
<td>26 Per Cont</td>
</tr>
<tr>
<td>2. Small grains and other close grown crops</td>
<td>32 &quot;</td>
</tr>
<tr>
<td>3. Grass and hay crops</td>
<td>42 &quot;</td>
</tr>
<tr>
<td>Percentage of Recommended Cultivated Crop Land Acreage Needing Soil Conserving Practices:</td>
<td></td>
</tr>
<tr>
<td>1. Strip Cropping</td>
<td>78 Per Cont</td>
</tr>
<tr>
<td>2. Lime-phosphate application, or other fertilizer</td>
<td>75 &quot;</td>
</tr>
<tr>
<td>3. Terracing</td>
<td>28 &quot;</td>
</tr>
<tr>
<td>4. Winter cover crop for green manure</td>
<td>12 &quot;</td>
</tr>
<tr>
<td>5. Summer cover crop for green manure</td>
<td>5 &quot;</td>
</tr>
<tr>
<td>6. Contour cultivation</td>
<td>12 &quot;</td>
</tr>
<tr>
<td>7. Other</td>
<td></td>
</tr>
<tr>
<td>Approximate Acreage Recommended for Pasture</td>
<td>127,063 Acres</td>
</tr>
<tr>
<td>Percentage of Recommended Pasture Acreage Needing Soil Conserving Practices:</td>
<td></td>
</tr>
<tr>
<td>1. Lime-phosphate application</td>
<td>25 Per Cont</td>
</tr>
<tr>
<td>2. Rosoeeding</td>
<td>20 &quot;</td>
</tr>
</tbody>
</table>
RECOMMENDATIONS OF THE PIERCE COUNTY
LAND USE PLANNING COMMITTEE

Soil Improvement and Erosion Control

Pierce County is best suited to diversified farming with livestock and its products contributing the major part of the farm income. This type of farming dovetails well with soil and moisture conservation practices that are needed. In discussing the problems and recommendations four divisions are used, namely, crop land and pastures, woodland and odd areas, gullics, and general.

A. Crop Land and Pastures

Because of the rolling nature of most of the land and the rough topography in some sections erosion has been, and still is, a problem in the county. The removal of the natural forest vegetation on the slopes has caused the gullying of some of the best land while some of the level upland areas have been subjected to considerable wind erosion.

1. There is a general need for contour tillage, strip cropping, fertilizing, liming, and practices that will increase humus.

2. Contour tillage will provide sufficient control against erosion on small areas of moderate erosion, with slopes of four per cent or less, when good rotations and fertilizer practices are followed to maintain soil humus and fertility. On steeper slopes, longer rotation with more hay or strip cropping should be practiced along with contour tillage.

3. Hay crops should be rotated with other crops and more practices should be followed that would maintain or increase the humus content of the soil.
4. Broad base terraces are recommended for crop land on slopes ranging from 4 to 12 per cent where suitable outlets are available and where sub-
surface drainage is adequate.

5. Wind erosion is a problem on the sandy plains west of Bay City. Shelter-
belts of coniferous trees placed at right angles to prevailing winds and
at 40 to 60 rod intervals are recommended.

6. Pasture management and renovation is a definite need in Pierce County.
Fertilizing, liming, and reseeding is recommended on the poor pastures.
The use of grass or legume silage or rotational pasture to supplement
permanent pastures are recommended to avoid over-grazing.

B. Woodland and Odd Areas

1. Many farms in Pierce County have some land that is better suited to the
growing of trees than for any other purpose. Steep land having slopes
of over 30 per cent, light soil with low fertility, and badly eroded
land are the most common cases. It is recommended that these areas be
protected and planted to trees to provide some income and guard against
erosion.

2. One of the biggest woodland problems in Pierce County is the general
practice of woodlot liquidation on lands primarily suited for growing
timber. It is recommended strongly that the farmers protect these
woodlots from fire and grazing and follow better cutting practices.
Such cutting practices as removing the over-mature, dead, deformed,
and diseased trees along with others that crowd or overtop thrifty
young saplings or interfere with the growth of "final crop" trees are
recommended. These practices will provide yearly tree crops and pro-
tection to erosion.

3. Odd corners, idle areas, and stream banks can be made into excellent
wild life coverts. It is recommended that those waste areas be developed
to restore and develop a better supply of game birds and fish. Such practices as planting conifers for winter cover, leaving corn shocks for winter food, and planting willows along streams for protection against erosion, and for keeping the water cleaner and cooler, should be followed.

C. Gullies

Pierce County has gullies ranging from large ones that require much time and money to control to small ones that can be easily controlled by individual farmers.

1. Special emphasis should be placed on the small gullies which can be easily handled by individual farmers. These may be shoe-string gullies in fields, small gullies in drainage ways, or small gullies encroaching upon fields. It is recommended that these gullies be controlled by use of small check dams, diversion dikes, sloping and sodding, sloping and seeding, protection against grazing, planting to trees, or by combination of these practices. All natural waterways should be left permanently in wide sod strips.

2. In cases where large gullies are draining large areas it is recommended that all the farmers endangered contribute toward the necessary control measures. This is usually necessary in order to finance the project.

3. Pierce County has a serious highway erosion problem. In many cases farms have been damaged by erosion that started from highway drainage. It is recommended that highway drainage be properly handled at the time of construction. The highway departments of both town and county should cooperate with the farmers in areas where gullies are serious, and where bank erosion is prevalent, either because of natural erosion or erosion due to bank cutting. Such practices as sloping and seeding shoulders, cuts and fills; providing check dams in drainage ditches, providing drop inlets to culverts where necessary, and providing flumes where
necessary are suggested.

D. General

1. Many farms have suffered from erosion because tenants have been given only year to year leases. There is no incentive on the tenant's part to try to improve the land because he may not have the farm long enough to realize a return on his investment. It is suggested that longer leases be encouraged.

2. Legumes and grasses used for hay and pasture play an important role in soil and moisture conservation. Since cultivated fields are more subject to erosion, it is recommended that trials be made using grasses and legumes for silage.

Specific Recommendations for Action Agencies

1. Farmers in Pierce County should be encouraged to visit farms where demonstrations on erosion control have been set up by the Soil Conservation Service. Many farmers who have farms with some top soil erosion, and no gullies do not realize that soil is being lost by sheet erosion.

2. It is suggested that education on woodlot management be emphasized through demonstrations, contests, class instruction, and community meetings with visual instruction.

3. Since the future of our land depends on youth, the county land use committee recommends that instructors in vocational agriculture, working in cooperation with the county extension office, spend more time in class room discussion and field trips relative to soil erosion improvement project and soil conservation. Levels and steel tapes are available for use by students from the Soil Conservation Service through the County Extension Office. It is further recommended that the instructors teach their students how to use these levels in laying out strip crops.
4. Movie films on soil erosion in Wisconsin and in Pierce County or other soil erosion movie films and projector slides, should be shown at community meetings emphasizing erosion losses and erosion control measures.

5. A soil building program and a program of soil erosion prevention should be carried out wherever new loans are made or new farms are purchased with money furnished by government loans.

6. Phosphate is a costly fertilizer in this section, freight charges being an important part of that cost. It is recommended that chemical analysis be made by the Soils Department of the College of Agriculture of the green colored rocks in the Ellsworth vicinity for possible phosphate content. Deposits can be found in road banks on both sides of Ellsworth on Highway 10.

7. Sufficient emphasis has not been given to the soil building and erosion control provisions of the agricultural conservation program. It is recommended that more credit be allowed for the use of lime, fertilizer, and soil erosion control practices.

a. Credits of soil building units are earned under the AAA program for carrying out soil building practices of seeding of grass seeds and the applications of lime, etc. Credit is given for the application of fertilizer to a seeding of grass or legumes provided no soil depleting crop is harvested from that acreage. It is recommended that the present soil building practices should be retained, and in addition credit should be given for the use of fertilizers when used with a soil depleting crop that is seeded with grasses or legumes.

b. Credits for soil building units are earned for phosphate received under grants of aid when applied to, or in connection with, a
non-depleting acreage or a new seeding of grasses or legumes, provided no soil depleting crop is harvested from that acreage. It is recommended to allow credits for grants of aid, such as phosphate and potash used with a soil depleting crop that is seeded to grasses or legumes.

c. One unit of credit is given to alfalfa per acre, and \( \frac{1}{2} \) unit per acre to each red clover and sweet clover. Since red clover has been grown successfully in Pierce County as well as has sweet clover it is recommended that equal credit to that on alfalfa be put on red clover and sweet clover.

d. Units of credit should be given and payments made for the construction of terraces in cultivated crops, sod earth or brush rock dams, and diversion dykes.

8. The administrative set-up of the A.A.A. Program provides payment to farm reporters for inspection work at a set rate per day. The result in some cases has been that the best reporters would not receive the credit due them for their efficient and accurate work as compared with an average or below average reporter. It is recommended that reporters working on farm inspection be paid on piece work instead of per day.

9. The bulletin NCR-401 or "Docket" has previously been made up for the entire North Central Region and contained regulations and practices which don't apply to Wisconsin. In order to avoid confusion and obtain greater simplicity, it is recommended that a separate Wisconsin docket be made up from the North Central Region docket so that it will apply to Wisconsin conditions only.

10. Farmers have carried out the practices of seeding legumes and application of lime and fertilizers without knowing the true condition or requirements of the soil on which those practices are carried out.
It is recommended that a provision be made for farmers to take soil samples to the County Extension Office and have their soil tested for lime, phosphate, and potash before credit be given for sowing of legumes and applying lime and fertilizers.

11. Many farmers have requested help from the Soil Conservation Service with erosion problems on their farms. Some objected to long term agreements; others have been unable to get assistance regardless of the agreement; some have objected to having the entire farm on the agreement when perhaps only one field on the farm is subject to erosion. It is recommended that shorter term agreements be made where the erosion problem does not concern the whole farm. The length and details of the agreement should be elastic enough to meet the conditions of each farm. More farms should be given assistance even though it may be necessary to omit some details formerly stressed. It is further recommended that if only a field or a small section of the farm is eroded and other parts of the farm are not subject to erosion, then only the area subject to erosion should be considered under an agreement between the land owner and the Soil Conservation Service.

12. People of many communities do not know what work is being done by the Soil Conservation Service. Soil tests have been made on many farms and fertilizer grain plots have been seeded with fertilizers calculated to meet the specific soil fertility requirements. The Soil Conservation Service has established soil dams, spillway dams, and other constructions for controlling soil erosion on 104 farms in the county. It is recommended that roadside signs be posted by the Soil Conservation Service where erosion control practices have been developed. These signs would be an excellent method of advertising and informing the passers-by as to the location of these farms where Soil Conservation
Service projects have been set up.

13. The County Agent's program has been completely filled with work other than soil conservation work. With the advance of more serious erosion problems, it is recommended that an assistant to the County Agent be employed to care for those problems, and especially so since the soil conservation district has been organized.

14. Various agricultural groups have made tours through the La Crosse Erosion Experiment Station where much interest has been created. It is believed that the location of a soil trap device in Pierce County used for measuring soil run-off would create even wider interest in the problem of sheet erosion. It is, therefore, recommended that a soil trap device be set up in Pierce County by the Soil Conservation Service.

### Dairying

1. Forty-five per cent of our income is derived from dairy products; and to further emphasize a dairy quality program, it is recommended that more intensive dairy herd improvement work be encouraged through the Extension Program.

2. Because 30 per cent of the farmers have tested their herds for Bang's disease, and because the Guernsey's Breeders Association has already urged the adoption of the Area Test for Bang's disease, the county land use planning committee feels that further educational work should be done to promote the adoption of the Area Test.

3. The present provisions of the A.A.A. program do not provide for allotment payments, or parity payments, for dairy farmers who carry out good practices of dairy farming. It is recommended that the dairy farmer should be given the same consideration as other special crop
farmers, such as corn and wheat, and should be given parity payments and have cow allotments for each county, thus providing a year-round stable price on dairy products.

4. All the creameries of Pierce County have signed up on a National Dairy Products Advertising Program. It is recommended that continued effort be made to stimulate greater consumption of dairy products.

Agricultural Credit and Tenancy

1. The debt load on Pierce County farms needs some adjustments. Some debt adjustment has been made in the last few years, but the load is still too heavy in many cases. It is recommended that in such cases payments should be extended over a longer period and a lower interest rate be made.

2. Improved leasing arrangements on tenant farms should be made whereby longer tenure could be secured. The tenant should be compensated for improvements to the farm and for crops remaining when the tenant moves. It is recommended that the flexible type of lease be distributed shortly through the Extension Service be considered for use in Pierce County.

3. Federal loaning agencies should make loans only to those who are qualified for successful farming. Subsidies should not be made to those who are not qualified for farming.

4. During the past seven years the Farm Credit Administration, through its branch farm loan associations and the production credit associations, have been active in the field of long and short time credit to the farmers throughout the country. It has been necessary for the farmers who obtain service through these associations to purchase capital stock in proportion to the amount of the loans obtained. After their loan has been paid in full, farmers often desire to have their stock sold. In order for them to sell their stock in the pro-
duction credit association, it is necessary to either find a buyer whose loan has been approved by the association or list their stock with the association to be sold to new borrowers. Often there is a considerable delay in these sales. This procedure has in many cases worked hardships on the farmer and has had a tendency to influence farmers to invest in other loaning associations rather than their own cooperative loaning associations. It is recommended that Congress revise the Farm Credit Act to permit loans without the purchase of capital stock. This would make the services of the organizations more attractive to prospective members.

5. The original owners of a Federal Land Bank farm should be given the first opportunity to rent or repurchase such a farm, provided, of course, that the farmer has demonstrated his ability as a farm operator. No one knows the farm better than the original owner, and the family has been a part of that community.

General

1. As a result of a survey among farm women in Pierce County, it is evident that there is not enough fruit produced on the home farm; lard substitutes are used to considerable extent; dairy products are not used sufficiently; and the two locker plants of the county are located too far away from the majority of farm homes to be of much value. It is, therefore, recommended that more small fruits and fruit trees be grown; larger gardens developed; lard be used in place of substitutes; both children and adults consume more milk; and that a frozen locker plant be constructed in Ellsworth. More meat should also be cured and canned on the farm.

2. It is evident that the purchasing power of the farmer is very low, partly due to the increased cost of production. To meet this situation
he must produce more products more efficiently, and to do this machinery is necessary. Since machinery costs are comparatively high, it is recommended that machinery used in controlling soil erosion, such as fertilizer drills, cultipackers, and grass seeders, etc., be purchased cooperatively. Cooperative ownership and use of soil erosion control and soil building types of machinery is particularly desirable.

3. Farm machinery and buildings constitute a considerable part of the investment in the farm. Because there are many changes in farm machinery constantly taking place, it is recommended that the College of Agriculture through the State Extension Service provide specialists who will assist farmers in obtaining a better understanding of the efficiency and economy of the various types of mechanical farm equipment.

4. There are many farms and part of farms in Pierce County which should be put to some other use. Since much of these areas have a slope of 30 per cent or more, it is recommended that farmers and assessors become acquainted with the woodlot tax exemption law (Section 70.11, subsection 40 of the Wisconsin Statutes).

5. Buildings on the farm are in need of painting and repair. It is recommended that some form of a federal government program finance farmers for the purpose of meeting this need.

6. The wheat crop insurance counties have done a large amount of work and have gone to considerable expense to carry out the crop insurance program in Wisconsin. This program has not been entirely satisfactory in Pierce County; one of the reasons being that the average wheat yield for the county has been established too low. It is recommended that the wheat insurance program in Pierce County be discontinued.
7. All of the worst perennial noxious weeds of Pierce County spread by an underground system of either creeping roots or of rhizomes. Creeping Jenny, Wild Morning Glory, and Canada Thistle are examples. The perennials are a more serious problem than are the annuals. The perennial weeds spread in seed grains, grass seeds, hay, straw, animals, machines, and other means. Common weed control methods, such as summer fallowing, smother crops, and control measures outlined in the Wisconsin Weed Law, have been carried out to some extent. The County Land Use Planning Committee encourages the continuation of the control of Creeping Jenny along the highways in the county by the use of the chemical, sodium chlorate. It is recommended that the County Highway Department try to control perennial noxious weeds on state and county highways along cultivated fields in order to prevent spread to cultivated fields. It is also recommended that a small amount of sodium chlorate be tried on small patches of perennial noxious weeds. Farmers not acquainted with Creeping Jenny should acquaint themselves with the characteristics of the weed, and when such weeds are found it should be reported to the County Extension Office.

The planning committee's work does not end with the above recommendations. The county committee should continue to exert a direct influence on all activities dealing with agricultural and land use problems in the county. It is the committee's task to keep the people informed on the results in land use planning work. These recommendations will form the basis in planning all agricultural programs in Pierce County.
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