Reclassification of agricultural land for assessment purposes in Teton County
by Willard D Schutz

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Economics
Montana State University

Abstract:
The purposes of this study were (1) to provide a brief summary of experience in classifying land for assessment purposes in the United States, (2) to present a detailed account of the Teton County land reclassification, and (3) to give an economic evaluation of the Teton County reclassification.

The review of land classification for assessment purposes in the United States showed that the usual practice was to base the classification primarily on the inherent characteristics of the soil. This practice received favorable comment in the literature reviewed.

The classification of Teton County was developed from a reconnaissance soils survey supplemented with historical yield data and with data on experiences of operators. Land was classified according to its probable best use# General conclusions regarding classification are: 1. A productivity classification of land is essential to equitable apportionment of land taxes.

2. Land classification for assessment purposes should be based on a map which reflects relative productive capacity of various soil types# 3. Land class intervals should be established on the basis of productivity, not on the basis of dollar valuations.

4. Classification of land on the basis of present use is most satisfactory. Provision should be made for keeping classification in agreement with land use.

5. A schedule of values must be adopted and applied to the respective land classes in order to make use of a land classification for assessment purposes.

6. Taxpayers should be informed of purposes and procedures in land classification.

7. Great care must be exercised in arriving at a productivity valuation of land for assessment purposes in order that assigned values will reflect relative income producing power of each land class.

RECLASSIFICATION OF AGRICULTURAL LAND FOR ASSESSMENT PURPOSES IN TETON COUNTY

by

WILLARD D. SCHUTZ

A THESIS

Submitted to the Graduate Committee

in

partial fulfillment of the requirements

for the degree of

Master of Science in Agricultural Economics

at

Montana State College

Approved:

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Chairman, Examining Committee

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Chairman, Graduate Committee

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PART I. INTRODUCTION

Background

Problems in the assessment of farm lands have long challenged students and have long plagued farmers. Findings of assessment studies have focused attention on the following criticisms of Farm assessments:

> "Two principal weaknesses in the present system of assessing farm lands seem to be largely responsible for inequalities which exist among various grades of farm and grazing land. They are: (1) lack of adequate classification of land for assessment purposes, and (2) lack of information and appreciation of the large differences between economic values of the poorer and the better grades of land." 1/

Along this same vein, another writer has said:

> "One of the difficulties in tax assessment, revealed by numerous studies in various parts of this country and Canada, is the tendency to overassess the poor land compared with the good land. Assessments concentrate too close to the average, the excellent farms being underassessed and the poor farms overassessed, a situation contrary to the intent of the assessment which is supposed to provide for taxation in proportion to value. One of the important contributions that can be made in taxation, therefore, is improvement in assessment achieved through more accurate classification." 2/

The classification of agricultural lands on the basis of productivity gives promise of alleviating inequalities in assessment. Teton County has been basing assessment on a land classification designed for that purpose. In this study, the Teton County classification will be presented in detail, with special attention given to the bases used in classifying land and to

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1/ Renne, R.R., "Land Classification as an Aid in Real Estate Assessment", in The Classification of Land, Montana Agricultural Experiment Station Bulletin 421, December 1940, p.80.

2/ Murray, William G., Farm Appraisal, The Iowa State College Press, Ames, Iowa, 1940, p.188.

the economic results of the classification. Other land classifications suited to assessment purposes will be briefly presented.

Purposes of the Study. In this study the purposes will be:

(1) To provide a brief survey of experiments in land classification for equitable tax assessment.

(2) To present all pertinent facts related to reclassification of agricultural lands in Teton County.

(3) To analyze evidence which will help in evaluating results of Teton County reclassification.

Procedure in the Study. The survey of experiments in land classification will be considered first. The evolution of the productivity classification developed in Teton County will then be traced. Lastly, an evaluation will be made of economic results attributable to employment of the classification in Teton County.

Land Classification in Various States

For many years, soils men have been conducting their reconnaissance surveys, and for many years economists have been developing their appraisal tools and techniques. A productivity classification of agricultural lands is a logical outcome of these two pieces of work. The first one is a survey of the inherent characteristics of the soil. The other is a consideration of man's relationship to the soil.

> "There are two general aspects to the problem of land classification: (1) the natural classification of land types on the basis of the inherent qualities of the land and (2) the practical classification of land into categories defined in such a way as to achieve the particular objective for which it is needed.
>
> "The objectives in practical land classification have been variously stated, depending on the special problems of the moment and particularly upon the experience of the one

> advancing the proposals. As far as rural lands are concerned, there are two general, but not mutually exclusive, problems which can probably best be satisfactorily solved with a land classification: (1) the equalization of taxation on land according to the productive capacity of the land, and (2) the planning of land use. The second objective may simply imply the accumulation of data for general recommendations, or for the use of people on the land, or it may imply the accumulation of data and its detailed geographic expression for some method of rural zoning or other public policies with respect to land use."1/

New York. In New York, economic studies of land utilization have been made for approximately twenty counties.2/ The type of classification employed was adapted to the planning of land use. Land was usually placed in five classes, although six classes are sometimes used in this system. Land least suited to agriculture was put in Class I; land best suited to agriculture was put in the highest class. In this work an attempt has been made to indicate relative profitableness of farming different types of soil. This led to a study of abandoned farms which was instrumental in the State purchase of abandoned land and in the beginning of a reforestation program. Classification relied heavily on amount and condition of agricultural capital; the theory was that well-built-up, well-maintained farmsteads evidenced an area well suited to agriculture.

Virginia. Virginia has many counties classified. Like the New York classification, the Virginia land classification was unsuited for use in arriving at assessment values. It serves rather as a guide to land use.

1/ Kellogg, Charles E., and Ableiter, J. Kenneth, A Method of Rural Land Classification, United States Department of Agriculture Technical Bulletin, No. 469, February 1935, p.2-3.

2/ See Lewis, A.B., An Economic Study of Land Utilization in Tompkins County, New York (Cornell) Agricultural Experiment Station Bulletin 590, 1933.

Wisconsin. Classification of land in Wisconsin is generally associated with zoning and land use. A 1931 Law required assessors to classify real estate into six classes:

> "Since 1925, the assessment roll has required that real estate be classified into six groups, namely: (a) residential; (b) mercantile; (c) manufacturing; (d) agricultural; (e) marsh, cut-over, and waste; and (f) timber lands. The last three classes are further subclassified as follows: agricultural, grades 1, 2, and 3; wild hay and pasture; class (e), marsh, cut-over good, cut-over poor, waste; timber, mixed timber, wood. This change in the roll resulted from a change in policy on the part of the Tax Commission rather than from legislative enactment. Not until 1931 was this classification written into the statutes. The law passed in 1931 merely gives legal recognition to what had already become an accomplished fact."1/

Legal status for the Wisconsin classification was established before the State Tax Commission began classification work. The classification plan was used by the Commission as an aid in determining equitable taxation values for districts and in facilitating equitable assessment between districts. Although assessment is done by township assessors, there is supervision by district deputy assessors. A definite function of supervision is the equalization of valuation between assessment districts. Supervisors of assessment districts break down sales of real estate into real estate classes in order to make recommendations to the assessors.

In requiring a land classification and then marshalling data to aid in assigning values to classes, the Wisconsin approach to equitable assessment strikes at the crux of the problem. Of questionable value would be the

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1/ Krueger, L. B., "Classification of Farm Lands for Assessment Purposes in Wisconsin," Journal of Land and Public Utility Economics, VIII, No. 2 (May 1932) p.116.

classification by townships, especially since such a classification is mainly dependent on judgment. The breakdown of farm real estate sales and the calculation of land class values has merit because it is done only for a homogeneous area. Assessors have an opportunity to study the classification and to note the approximate values for each class which provides them with a pattern.

In spite of the grave criticisms which might be raised to the Wisconsin assessment procedure, a more equitable assessment probably has resulted from its use. The Wisconsin approach is very significant since it resulted from a need for a sound tax base. When those charged with the responsibility of assessing land sought a scientific foundation for that assessment, land classification became a must and the assignment of values became the second major task.

A paragraph from the reference given is pertinent:

> "Classification of farm real estate for purposes of taxation is not advanced here as an easy way out. The assessment problem centers around the corner stone of economics--namely, value and valuation. There is not now and never has been any royal road to values. The time will perhaps never come when purely objective standards can be established on the basis of which real estate can be appraised without the element of human judgment entering into the equation. It is maintained here, however, that an adequate comprehensive classification of farm real estate is at present the only feasible method by which elements contributing to the value of farm real estate can be evaluated and measured on a comparative basis, which after all is the important thing in an equitable assessment."1/

Kansas. In 1938, an entirely new system of assessment was introduced in Trego County, Kansas, by Worden R. Howat. Essentials of the plan

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1/ Krueger, Ibid., p. 119

as given by its author follow:

> "The fifteen men were called in who were to be the deputy assessors . . . We first took an acre of average tillable land, figured cost of production of the various crops adapted to this county and these were calculated, which gave us an average price of the returns on the investment. We then took an average acre of exclusive nontillable pasture land and applied the various ways of utilizing same, as gain made by steer at average price per pound, cow raising calf and sale of calf, and by milking cow, selling milk and cream, etc. Computation of these figures gave us average revenue which in comparison to average acre of tillable land resulted in a ratio of 15 to 6 being adopted." 1/

> "We then procedded to classify, using as a base what we termed an average acre in both classes. We designated average as 100% with above mentioned in the two classes respectively. From that point we advanced to 120% as a high and decreased below average to 70% as a low, all cases of classification to be based on the assessor's judgment." 2/

As is usual in attempts at developing an equitable assessment, the Trego County men worked out a system of land classification and a schedule of values for assessment purposes. After these major steps, the total computed valuation of property was modified by the consideration of advantages and disadvantages of geographical location of property. Since the moisture is less and the wind erosion is greater as one goes from east to west in the county, the center range was taken as neutral, and to the land in each successive range eastward from center, an additional two percent of computed valuation was added. An additional two percent was subtracted

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1/ An average acre of nontillable pasture land was given a valuation equal to 40 percent of the valuation assigned to an average acre of tillable land.

2/ Quoted by Harold Howe in "A Brief Description of the Assessment Plan Used in Trego County, Kansas", Unpublished, December 15, 1943

from the computed valuation of land on each successive range westward from the neutral center range.

The distance to market was the only economic factor having influence on valuation which was considered. Here again a neutral position was located. At six miles from market, no percentage addition or subtraction to property valuation was made. For each mile nearer market, an addition of three percent of computed valuation was made; for each mile beyond six, three percent of computed valuation was subtracted.

The adoption of this assessment procedure changed the assessor's assignment. His job became that of making a land classification. Land was always classified according to present use--never according to estimated use capability. Once the classification was made, determined values were applied to classes and percentages were used to take care of the other influences considered--in this case, rainfall and distance to market.

The following is from an appraisal of the Trego County plan:

> "Assessment of real estate in Trego County is more equitable under the new plan than under the old . . .
>
> "The writer makes his statement that the plan now used is more equitable than the old because the new plan allows for variation in values based on objective factors which the citizens of the county recognize as factors influencing values. The plan would be more equitable than the old for that characteristic alone. (The old plan provided no uniform objective classification of land.) But there are other characteristics of the new plan which also make it a distinct improvement over assessment of real estate found elsewhere in the state. They are: (1) Careful study was given to the value of an average acre of tillable land and an average acre of pasture land. (2) Every acre in each farm was accounted for on the standard form used by the deputy assessor. (3) The assessment was uniformly done throughout the county. (4) The large map with assessed values thereon was, and is, available for inspection by anyone.

> This one improvement alone would mark Trego County as having taken a step forward in assessment practice."1/

There is a marked similarity between the Trego County Plan and the Wisconsin assessment Procedure. In both cases, classification was left to the assessor, but to make classification more uniform, assessors and supervisors worked together in developing tools and techniques. The assessors were provided with guides to land class values. In Wisconsin this service was more in the way of a suggestion than was the case in Trego County, Kansas. Beyond these two fundamental steps, there was little similarity in the assessment systems, for in Wisconsin each assessor made his appraisal of economic factors rather than depending on a rigid formula adopted by the group.

North Dakota. Another classification plan is the one developed in North Dakota. Work done in McKenzie County affords an illustration of land classification for the purpose of arriving at equitable assessment. The procedure followed in working out a classification of agricultural lands in this County is as follows:

> "The whole procedure as accomplished in McKenzie County can be generalized into four steps: (1) accurate mapping, in detail, of the important physical features of the land; (2) the determination of the natural productivity of each important combination of these physical features (the natural land type); (3) the determination of the use group (or combination of use groups) to which the various social land units belong; and (4) the evaluation or rating of each individual tract of land according to its capabilities within its use group."2/

1/ Howe, Harold, "A Brief Description of the Assessment Plan Used in Trego County, Kansas," Unpublished, December 15, 1943.

2/ Kellogg, Charles E., and Ableiter, J. Kenneth, A Method of Rural Land Classification, United States Department of Agriculture Technical Bulletin No. 469, February 1935, p. 8.

A brief explanation of these four steps may be pertinent. The map was based on the inherent characteristics of the soil. Although a revision of the productivity valuation would have to be made periodically, the map could be used for an indefinite period. To determine the natural productivity of the land types, production records were examined, and the people familiar with the land were consulted. After careful study, the land type selected as best for crops was designated as 100 percent. Percentage figures for other land types were arrived at by making a comparison of each type with the land best suited for crops. Thirty percent was taken as top for grazing land, and the same system was used in arriving at percentage figures for other types of grazing land. Rating was made by forty-acre tracts for the determination of the use group. Consideration was given to the farm as a unit and allowances were made for isolated areas of either crop or grazing land. Land was rated according to its capabilities within its use group. A system was devised whereby land was graded according to distance from market, to kind of road provided, to stoniness, and to other such factors. Finally, a percentage figure was established for assessment valuation.

South Dakota. Another illustration of land classification used in arriving at an equitable assessment of agricultural lands is that used in Hand County, South Dakota.[1/] This classification was based on a reconnaissance soils survey provided by the Soil Conservation Service. Economic

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1/ Anderson, Norris J., Assessment Problems and Procedure in South Dakota, South Dakota Agricultural Experiment Station Bulletin 355, August 1941.

factors were considered for each 160-acre tract. One noticeable result of using the valuations developed in this way was the lessening of differences in valuation per acre between adjoining townships.

Iowa. Another approach to land classification was made in Nevada Township, Story County, Iowa, 1935-36.1/ Work was done as a joint project of the Iowa Agricultural Experiment Station and the Resettlement Administration. "This study was made with the primary purpose of developing and testing a method of economic land classification which would be suitable for use under conditions in Iowa and similar regions of the Corn Belt."2/

Two maps of the township were prepared--one on land classification and one on land use. Land classification was based on the inherent characteristics of the soil, including such factors as soil type, slope, and erosion. Productivity ratings were assigned to the land classes. People familiar with the area were consulted as an aid in estimating yield for classes. In order to have all land on a comparable basis, one bushel of corn was taken as equivalent to one feed unit. Other crops, and pasture, were then converted to feed units. To determine the productivity rating, average crop yields for each year of the practiced rotation were converted to feed units. The total feed units were then divided by the number of years in the rotation.

1/ Englehorn, A. J., Land Classification as a Basis for Land Appraisal And Equalization of Tax Assessments, "Report on the Land Classification Study in Nevada Township, Story County, Iowa", United States Resettlement Administration, Land Use Planning Publication 8, December 1936.

2/ Ibid, p. 1.

Using a corn-corn-oats rotation on a Webster loam, cropland class 12A1 had a productivity rating of 43.1.1/

Three major land uses were mapped: (1) cropland including rotation pasture, (2) permanent pasture, and (3) woodland. Data on farm buildings were gathered. Farm boundaries were shown on the map.

When productivity ratings had been assigned for all land classes and land use had been mapped, calculation of average productivity ratings for farms was possible. This calculation was done by superimposing the land classification map on the land use map and then using a planimeter to measure each use-class area. By applying the derived productivity rating to the measured acreages and then summing all products, total productivity rating for the farm was determined. This figure divided by acres in the farm gave the average per acre productivity rating, a rating suitable for valuation purposes.

After making the land classification, a comparison was made between productivity valuation and assessed valuation of the land. Speaking of the tax assessment, Mr. Englehorn said that it did "seem to follow somewhat the productivity of the land." But he went on to say that this may be an exceptional finding, and he made the following remarks:

> "It would seem from this study that the productivity of the land should receive more consideration, not only as a basis for tax assessments, but also whenever appraisal values are placed on land. An adequate system of land classification

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1/ Corn yields were estimated at 55 bushels per acre and oat yields at 45 bushels per acre on the Webster loam class. A bushel of oats was rated at 43 percent of a bushel of corn. Two years of corn yields 110 units; one year of oats yields 19.4 units. The sum of the units for three years is 129.4, and average yearly production of units is 43.1.

> seems indispensable for use in achieving a reasonable degree of uniformity and equitableness in tax assessment and land appraisal. Tax assessments as now made are haphazard and generally are far from equitable. Only a slight variation may be found as between tax assessments on poorly productive and highly productive lands. This study would indicate that if land is classified in enough detail so that variations in productivity may be detected, basis for true and accurate tax assessments might be derived."1/

Nebraska. A Nebraska study affords an illustration of a fairly recent approach to the problem of land classification. Attention was directed to the need for "developing more effective systems of land classification and evaluation . . .

> "Correct land use and conservation, equitable assessments and appraisals, and economic and social stability are dependent basically on sound land evaluation . . .
>
> "It is the object of this paper to present a method of classifying and evaluating the soils as mapped in regular soil surveys on the basis of land types, which are here defined as areas having reasonably similar productivity and use suitabilities. The standards used to differentiate land types will vary according to the desired objectives, but any material difference in yield, or in practices necessary to maintain a desirable level of productivity, will justify recognition of land types.
>
> "The materials necessary for the procedure in this study are: (1) county soil survey maps and reports, (2) detailed land-use, slope, and erosion maps for selected farms or areas, (3) crop acreage estimates by soil types, and (4) average county production estimates."2/

The land type considered the most productive was rated as 100. When the classification was complete, all other land types had been given a

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1/ Englehorn, Ibid, p. 24

2/ Anderson, Arthur, Nelson, A.P., Hayes, F.A., and Wood, I.D., A Proposed Method for Classifying and Evaluating Soils on the Basis of Productivity and Use Suitabilities, Nebraska Agricultural Experiment Station Research Bulletin 98, May 1938, p. 3.

relative percentage rating by comparison with this most productive land. Corn was used as a common denominator of feed crops, and yields of the various crops were converted to feed unit equivalents. When slope and erosion were considered for each soil type, 52 conditions were recognized and given crop ratings. Of these, 39 conditions were sufficiently different, because of yield or use suitabilities, to be considered land types. Fifty-six conditions were given a pasture rating.

Average county production estimates were used to check the reliability of derived yields for each crop. The derived yield figure for each land type, when weighted according to acreage in the County, gave a production total equal to the average County production estimate.

The following application of this method was suggested:

> "Productivity and use estimates are fundamental to effective systems of land classification and evaluation. Such estimates involve not only a detailed study and interpretation of soil factors, but all other environmental conditions affecting crop production.
>
> "Such analyses and estimates would be particularly valuable:
>
> 1. In the development of use suitability classifications for such purposes as taxation assessment, conservation practices and programs, and individual farm analyses and planning.
>
> 2. To public and private agencies and individuals for land purchase and loan purposes.
>
> 3. In general specific programs of research, education, extension, and action designed to bring about more effective land-use practices."1/

The Nebraska classification was developed to demonstrate a workable procedure for arriving at a sound basis for land valuation. The report

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1/ Anderson, Nelson, Hayes, and Wood, Ibid., p. 34.

neither indicated that the classification was initiated as a base for tax assessment nor that any attempt was made to assign values to productivity ratings and thus contrast classification evaluation with assessed valuation.

Purpose in Studying Teton County Reclassification

Need for Investigation. Little work has been done to evaluate the land classification that was done in Teton County. There are publications giving a brief outline of what has been done in reclassifying the County.1/ Nothing has been done about gathering and interpreting evidence in order to evaluate the reclassification for assessment purposes.

Within recent years, Montana Agricultural Experiment Station bulletins have been published which indicate inequalities of assessment and which advance methods for improving assessment.2/ Two major evils growing out of present assessment procedure in Montana have been given. These are:

> "(1) The failure to assess lands in accordance with its ability to pay (productivity), particularly the tendency to overassess the lower grades; and (2) the lack of any uniformity in assessment procedure among the counties or among various areas of the state."3/

Teton County affords a laboratory for testing some of the hypotheses of tax students and an opportunity for those interested in becoming familiar

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1/ See Land Use Planning Under Way, United States Department of Agriculture, Bureau of Agricultural Economics, July 1940, p. 12-25. See also "An Agricultural Policy For Teton County, Montana" (a preliminary report), mimeographed, July 1939.

2/ See Lord, H.H., Voelker, S.W., and Gieseker, L.F., Standards and Procedure for Classification and Valuation of Land for Assessment Purposes, Montana Agricultural Experiment Station Bulletin 404, June 1942. See also Renne, R.R., and Lord, H.H., Assessment of Montana Farm Lands, Montana Agricultural Experiment Station Bulletin 348, October 1937.

3/ Renne and Lord, Ibid, p. 41.

with one method of attacking these evils of Montana's tax system. As the Teton classification is presented, it will be possible to see to what degree the classification conforms with the ideal advocated by students of the subject. An economic analysis of the Teton County assessment should show the economic merit of assessment based on productivity.

Investigation is timely for there is a strong probability that the tax burden will become increasingly oppressive in the years ahead.1/ To help forestall a recurrence of critical county finance conditions, every effort should be made to develop a system of assessment based on farm income. Delinquency will show up on overassessed lands first, and at a time when some lands are not paying their fair share of taxes.

> "The contention that the evaluation of land, for whatever purpose, should be governed by its productivity or producing power is generally accepted. It would seem only logical that tax assessments on land should be in accordance with the earning capacity of that land or its ability to pay. When not thus regulated, taxes may be so high that the poorest land is forced into the most exploitative use, thereby creating serious land-use maladjustments, or too low in the case of good land, considering its capability of carrying a larger share of the tax burden."2/

The Problem. This study of land classification in Teton County will be concerned with supplying answers to the following questions:

(1) How was the land of Teton County classified?

(2) What are the economic results of the use of this land classification as a base for tax assessment?

1/ Halcrow, H.G., Montana County Finances at the End of the War: 1945, Montana Agricultural Experiment Station, Mimeograph Circular 44, June 1946, p. 1.

2/ Englehorn, op.cit., p. 16

Methods and Techniques. To answer the question of how the land of Teton County was classified, County records were examined and informed persons were interviewed. To determine the economic results of employing the reclassification for assessment purposed, County records were examined and studies were made of (1) the general tax picture, (2) delinquency, (3) appeals for equalization of assessment, and (4) productivity value correlated with assessed value. Figures and tables are used to facilitate presentation of the material.

PART II. HISTORY OF TETON COUNTY LAND CLASSIFICATION

Classification of 1919-1920

1919 Classification Law. The classification of the agricultural lands of Teton County was made under the provisions of the Classification Law of 1919. This Law changed the order of assessment in Montana by recognizing seven classes of property each to be taxed at a different percentage of "full and true value". A directive was given requiring classification of all farm land.

> "Under provisions of the 1919 Law, all farm land was to be classified into different classes or grades of irrigated, non-irrigated tillable, grazing, timber, and mineral lands for tax purposes. The County Commissioners were authorized to employ appraisers to survey and classify the lands and to levy funds for paying the cost of such classification. In some counties, a fairly good job was done for that period, but in most of them, a poor job was done all too hastily by untrained men. The classifications as a whole lacked uniformity and were superficial and unscientific. For example, lands were classified as farm lands if their topography was suitable for cultivation regardless of whether the soil was really capable of producing profitably when farmed."1/

Procedure in Classification in Teton County. In Teton County, two engineers were employed to make the classification. These two men made their classification largely on the basis of topography. This key precedes their field notes:

Agricultural land, non-irrigated
- A - Smooth Cultivated
- B - Rolling Cultivated
- C - Smooth Uncultivated
- D - Rolling Uncultivated

1/ Renne, R.R., and Lord, H.H., Assessment of Montana Farm Lands, Montana Agricultural Experiment Station Bulletin 348, October 1937, p. 9.

Pasture Land
3 - Also described as poor, fair, good, or very good
Irrigated Land
Described as irrigated or colored blue[1/]

In the engineer's field notes, each section or partial section was mapped on a separate page. The above symbols, and occasionally the terms, poor, fair, good, and very good, were written on the section maps. Land class often followed the boundaries of 40-acre tracts, but not infrequently several symbols were written in on one 40-acre tract and pencilled boundary lines were drawn. Often a majority of 40-acre tracts in a section were divided about equally between two land classes.

From these field notes, cards were made on which the classification of each acre of a holding was given. In changing from an alphabetical to a numerical classification, the following were the usual conversions: A - always one-plow; B - often one-plow, sometimes two-plow; C - nearly always one-plow; D - generally two-plow. Nearly all class-three land was given a one-grazing classification. When pasture was described as poor, a two-grazing classification was generally given.

The classification was deficient in many respects. Little consideration was given to soil types. Topography was the chief criterion on which classification was made. Inspection of the area was not thorough. From some high point the engineers would often merely look around over the surrounding area and then proceed to make their entries. Since topography figures so strongly in the appraisal, classification was made with little regard to present land use. Fairly smooth land was classified as plow land even though

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1/ From Unpublished Field Notes of Engineers who made the classification. On file in Teton County Assessor's office.

it was in sod. A period of high wheat prices and a consequent breaking of sod contributed to this practice of assigning a plow land classification to many unplowed acres. Better than average rainfall, in the years preceding the classification, contributed to the general optimism regarding the possibility of expanding dry-farm wheat culture. The placing of sod land into plow classes worked a real hardship on many ranchers. In many cases either the soil was not suited to cultivation, or it was not economically feasible to crop the acreage in the unit.

In making the classification, valuation comparison was made between land of different slope and between land differing markedly in other physical properties. Township plats were made, and on these, valuations for the various classes were written (See Table I). These values were to be used as a base for assessment purposes. However, it is probable that the values in table I were used only in making the classification for the County Commissioners adopted a schedule of values for assessment purposes in 1921.

TABLE I. STANDARDS FOR LAND CLASSES AND VALUES
in
TETON COUNTY, 1920

Symbol	Land Class Description	Value Per Acre
I	Irrigated Land	$30.00
P	Plow Land	20.00 - 30.00
RP	Rolling Plow Land	20.00 - 28.00
GP	Good Plow Land	18.00
GRP	Good Rolling Plow Land	14.00 - 16.00
GG	Good Grazing Land	12.00 - 15.00
G	Grazing Land	10.00 - 12.00
PG	Poor Grazing Land	8.00

Source: Old Plats in Vault of Teton County Court House

The frequent change in valuation schedules between 1921 and 1935 is indicative of the unsettled assessment conditions in Teton County. Since these schedules apply to the years during which the first classification was being used and to the years during which reclassification was progressing, they are presented in tables II to VII.

The 1929 schedule of values was almost the same as the 1927 schedule. Class 4 grazing was added in 1930. Class 5 grazing was added in 1931 and the sub-irrigated class was dropped. In 1932, class 4 hayland and two more classes of grazing land were added.

Table V gives values used for assessment purposes in 1933. In 1933, values were revised downward. The most important change in 1934 was the lowering of assessment values for irrigated land.

In 1935, the County Commissioners made a big change in assessment procedure. When the schedule of values for assessment purposes was adopted, zones were not included. This meant that all land of a given class would have the same assessed value irrespective of its location in the County. At the time of this study, zones have not been reintroduced into the schedule of values.

TABLE II. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND

AS ADOPTED BY TETON COUNTY COMMISSIONERS, 1921

Land Class	Value Per Acre		
	Zone[a/] 1	2	3
Dry Plow			
Class 1	$28	$24	$22
Class 2	24	22	20
Class 3	22	20	18
Grazing			
Class 1	14	12	10
Class 2	12	10	8
Class 3	10	8	6
Irrigated[b/]			
Class 1	50	45	40
Class 2	40	35	30

a/ Zone 1 to include territory within three miles from nearest marketing point.
Zone 2 to include territory from 3 to 8 miles from the nearest marketing point.
Zone 3 to include from 8 to 13 miles from the nearest marketing point.

b/ Land in Greenfields irrigation system all taken as second class land; first zone, $40; second zone, $35; third zone, $30.

Source: Minutes of Teton County Commissioner's Proceedings.

TABLE III. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND

AS ADOPTED BY TETON COUNTY COMMISSIONERS, 1922

Land Class	Value Per Acre — Zone 1	Zone 2	Zone 3
Dry Plow			
Class 1	$20	$18	$15
Class 2	15	14	13
Class 3	13	12	10
Grazing			
Class 1	12	11	10
Class 2	10	9	8
Class 3	8	6	5
Irrigated			
Class 1	45	40	35
Class 2	40	35	30
Class 3	35	30	25
Sun River (all land)	35	30	25

Source: Minutes of Teton County Commissioner's Proceedings

TABLE IV. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND

AS ADOPTED BY TETON COUNTY COMMISSIONERS, 1927

	Value Per Acre		
	Zone		
Land Class	1	2	3
Dry Plow			
Class 1	$16	$14	$13
Class 2	14	13	12
Class 3	12	11	10
Grazing			
Class 1	10	9	8
Class 2	8	7	6
Class 3	7	6	5
Irrigated			
Class 1	40	35	30
Class 2	35	30	20
Class 3	30	25	20
Sun River (all land)	35	30	25
Sub-Irrigated			
Class 1	30	25	20
Class 2	25	20	18
Class 3	20		

Source: Minutes of Teton County Commissioner's Proceedings

TABLE V. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND

AS ADOPTED BY TETON COUNTY COMMISSIONERS, 1933

Land Class	Value Per Acre — Zone 1	Zone 2	Zone 3
Dry Plow			
Class 1	$13.30	$11.65	$10.85
Class 2	11.65	10.85	10.00
Class 2a	10.85	10.00	9.15
Class 3	10.00	9.15	8.30
Class 4	9.15	8.30	7.60
Grazing			
Class 1	$ 7.20	$ 6.30	$ 5.40
Class 2	6.30	5.40	4.50
Class 3	5.40	4.50	3.60
Class 4	4.50	4.50	3.60
Class 4a	3.60	3.60	2.70
Class 5	2.70	2.70	1.80
Class 5a	1.80	1.80	
Irrigated			
Class 1	25.00	$25.00	$25.00
Class 2	25.00	25.00	
Class 3	25.00		

Source: Minutes of Teton County Commissioner's Proceedings

TABLE VI. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND AS ADOPTED BY THE TETON COUNTY COMMISSIONERS, 1935

Land Class	Value Per Acre
Dry Farm	
Class 1	$13.30
Class 2	11.65
Class 3	10.85
Class 4	10.00
Class 5	9.15
Grazing	
Class 1	5.40
Class 2	4.50
Class 3	3.60
Class 4	2.70
Class 5	1.80
Irrigated	
Fairfield and Bynum District	
Class 1	15.20
Class 2	13.30
Class 3	11.65
Class 4	10.85
Other Irrigated Land	25.00

Source: Minutes of Teton County Commissioner's Proceedings

TABLE VII. SCHEDULE OF VALUES FOR ASSESSMENT OF LAND

AS ADOPTED BY THE TETON COUNTY COMMISSIONERS

Land Class	Value Per Acre	
	1940 and Before	1941 and After
Dry Farm		
Class 1	$13.30	$15.00
Class 2	11.85	13.50
Class 3	10.15	11.75
Class 4	10.00	10.25
Class 5	9.15	9.00
Class 6	8.30	8.00
Class 7	7.60	6.50
Grazing		
Class 1	5.40	4.50
Class 2	4.50	3.75
Class 3	3.60	2.50
Class 4	2.70	1.75
Class 5	1.80	1.00
Irrigated		
Greenfields District		
Class 1	20.00	20.00
Class 2	18.00	18.00
Class 3	15.00	15.00
Other Districts		
Class 1	25.00	25.00
Class 2		20.00
Class 3		15.00
Hay Land		
Irrigated		
Class 1		18.00
Class 2		14.00
Class 3		8.00
Non-Irrigated		
Class 1		12.00
Class 2		9.00
Class 3		6.00

Source: Minutes of Teton County Commissioner's Proceedings

Reclassification of 1929 - 1940

In 1927, discussion groups headed by Bob Clarkson, County Agent of Teton County, became interested in problems of land assessment. This interest grew out of some meetings in which Clarkson led discussions on "Where the Farmer's Tax Dollar Goes". From this inquiry, another subject for consideration arose; namely, "Where Does the Tax Dollar Come From?" It was apparent that the group was not only concerned with the proportion of the tax dollar coming from land, but also they were concerned with the distribution of the land tax among the farmers. Otto Wagnild, the County Assessor, was called in to meet with the group and to advise with them. Mr. Wagnild was, at that time, casting about for ways of improving the assessment technique and he welcomed a concerted attack on the assessment problem. Obert Peterson, the County Surveyor, also cooperated with the persons interested in examining the assessment base. Since it had been Mr. Peterson's job to investigate appeals from assessment and to recommend remedial classification, he was well aware of the problem.[1/]

Tenancy was growing at an alarming rate in Teton County during the Twenties. (See table VIII.) Tax delinquency made a rapid growth after 1929. For instance, in 1928, 18% of the acreage of agricultural land was tax delinquent; in 1933, 41% of the acreage of agricultural land was tax delinquent.[2/] Growing tenancy and tax delinquency in Teton County help to

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1/ Information from Mrs. Iona Sagoda, Bob Clarkson's secretary while County Agent, and from Fred Willson, successor to Bob Clarkson as County Agent in Teton County.

2/ "Planning an Agricultural Program for Teton County", Montana Extension Service in cooperation with the Resettlement Administration and the Works Progress Administration, Bozeman, Montana, Mimeographed, October 1936.

explain why farmers and County officials were very tax conscious in the late Twenties and early Thirties.

TABLE VIII. DISTRIBUTION OF TETON COUNTY FARMS BY TENURE, 1920, 1925, 1930

Year	Total[a]	Tenant Operated	Owner Operated	Part Owner Opr.
1920	97.6%	10.7%	68.5%	18.4%
1925	98.8	21.3	31.3	46.2
1930	99.1	21.5	36.4	41.2

a/ Does not include corporation farms or any that are manager operated.

Source: "Planning an Agricultural Program for Teton County", Montana Extension Service in cooperation with the Resettlement Administration and the Works Progress Administration, Bozeman, Montana, Mimeographed, October 1936.

Soon the County Commissioners became interested in the possibility of obtaining a land classification which would serve their need for an assessment base better than the old assessment. In 1928, the County Commissioners decided to have the Assessor and the Surveyor undertake a reclassification of the County.[1/]

Nearly the entire job of reclassification was done by these two regularly employed county officials. An extra man was employed at times but the majority of the work was done during the winter months and in other slack periods by the Assessor and the Surveyor.

Development of a Workable System. Wagnild and Peterson started their reclassification in the southwestern part of the County, an area used

1/ "An Agricultural Policy for Teton County, Montana". (A preliminary report.) Prepared by Community and County Agricultural Planning Committee, Mimeographed, July 1939.

largely for grazing. A beginning was made in this area because this land had required constant attention of the Equalization Board. It was the observation of Peterson that most of the appeals for equalization were made on the poorer grades of plow land and on low grades of grazing land. The first approach of the two men was one of using values to indicate comparison between various grades of land. At that time there were only three classes of dry plow land and only three classes of grazing land. (See table IV, page 27.) Since there were so few land classes, the Assessor and Surveyor naturally kept these dollar values in mind as they made their comparisons.

The results of the early work were not satisfying to Wagnild and Peterson. As they sought a means of doing a good job of reclassification while relying on value comparisons, they frequently added a new land class and recommended rearrangement of the valuation schedule. The $4 spread in plow land classes and the $3 spread in grazing land classes proved insufficient. By 1935, there was a $5.70 spread in seven plow classes and a $3.60 spread in five grazing classes. (See tables IV, V, and VI, pages 27, 28, and 29.) That these changes in the number and valuation of land classes were affected by reclassification is attested to by Mr. Wagnild.

Teton County's original land classification had been in effect for ten years prior to the beginning of the reclassification. Wagnild and Peterson realized that their classification could be of a semi-permanent nature. Both men had experience in handling appeals from assessment. Cognizance of these facts should help an investigator understand why they insisted that a sound, justifiable basis for land reclassification must be found.

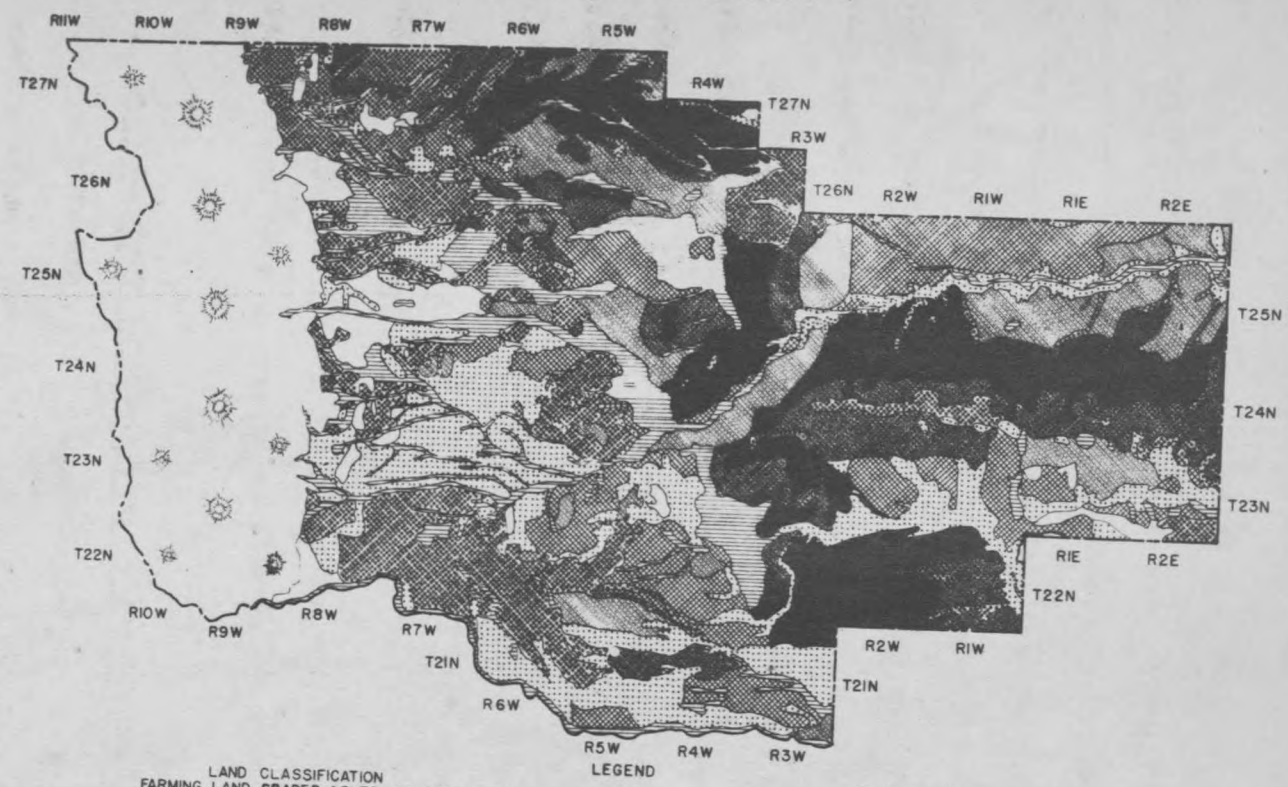
In striving to find a suitable system for classification, Wagnild and Peterson gradually got away from assigning dollar values to classes and came to use productivity as a basis for assigning classes. Soon after they started the reclassification, a reconnaissance soils survey map, prepared by the Agronomy Department, Montana Agricultural Experiment Station, in co-operation with the Bureau of Chemistry and Soils, United States Department of Agriculture, became available. Both the map and the information about it follow:

> "The accompanying land classification map is an adaptation of the reconnaissance soil survey map of Teton County. In preparing this map, the various soil factors such as color, texture, structure, number and thickness of horizons or layers and the phosphorus and nitrogen contents of each soil type of the different soil series identified in the county have been correlated with crop yields and carrying capacity of the land. The reconnaissance soil survey information has been supplemented by historical yield data gathered by the Agricultural Economics Department of the Montana Agricultural Experiment Station and by grazing information furnished them through the cooperation of the United States Forest Service. Consideration was given and adjustments made for certain farm hazards such as insect damage, plant diseases, frequency of hail and drought and, in the case of grazing land, to overgrazing. Yields and carrying capacity indicated are what may be expected over a long period of years based on the above information."1/

One can readily appreciate, from the foregoing paragraph describing the land classification map, that the map was well designed to serve as a base for a productivity classification of land. When Wagnild and Peterson came to rely on the map, according to their personal testimony, they began to make real progress. Both men were pleased with results and confident that they had hit upon a means of making a satisfactory land classification.

1/ "Planning an Agricultural Program for Teton County", Montana Extension Service in cooperation with the Resettlement Administration and the Works Progress Administration, Bozeman, Montana, Mimeographed, October 1936.

FIGURE I. LAND CLASSIFICATION MAP
TETON COUNTY



LAND CLASSIFICATION
FARMING LAND GRADED AS TO YIELD OF SPRING WHEAT ON SUMMERFALLOW

- 1ST GRADE FARM LAND 22 BU. OR OVER
- 2ND GRADE FARM LAND 16 TO 21 BU.
- 3RD GRADE FARM LAND 12 TO 15 BU.
- 4TH GRADE FARM LAND 8 TO 11 BU.

GRAZING LAND
GRADED AS TO ACRES PER 1,000 LB. STEER FOR 10 MONTHS GRAZING PERIOD

- 1ST & 2ND GRADE GRAZING LAND 27 ACRES OR LESS
- 3RD & 4TH GRADE GRAZING LAND 28 TO 55 ACRES
- 5TH GRADE GRAZING LAND 56 ACRES OR MORE

MISCELLANEOUS LAND

- LAKES AND STREAM BOTTOMS
- MOUNTAINS
- TIMBERED GRAZING LAND

LEGEND

PREPARED BY
THE AGRONOMY DEPARTMENT
MONTANA AGRICULTURAL EXPERIMENT STATION
(BASED ON SOIL RECONNAISSANCE CONDUCTED COOPERATIVELY WITH BUREAU OF CHEMISTRY AND SOILS, UNITED STATES DEPARTMENT OF AGRICULTURE)

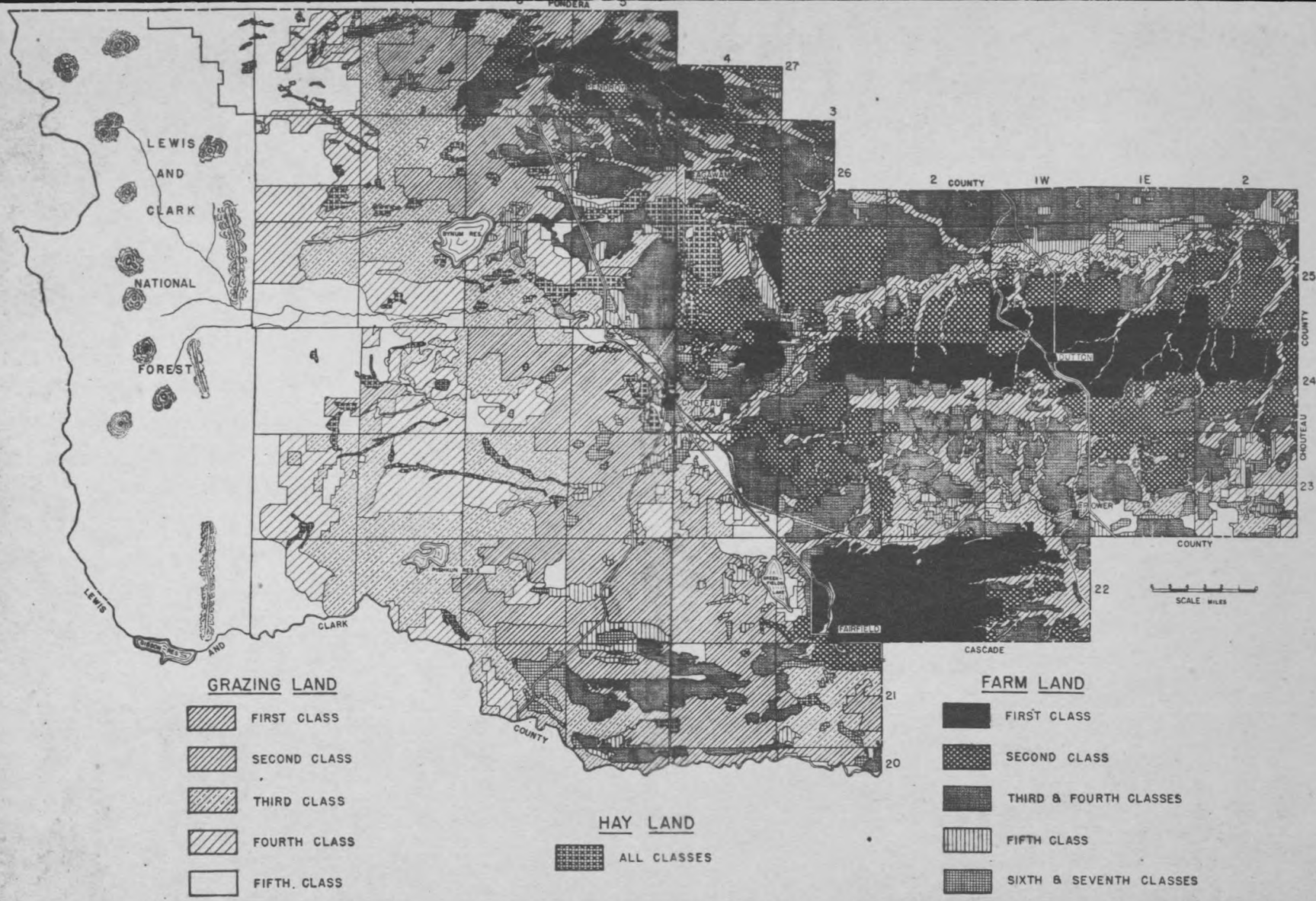
Under the new procedure, difference in productivity rather than difference in estimated dollar valuation determined land class.

In making the reclassification, Wagnild and Peterson did not adhere strictly to the land classification map, figure 1. Boundaries on the land classification map usually separate soil types, but the segregation of soil types was not perfect. Figure 1 was simply the main guide used in developing the reclassification map for assessment purposes, figure 1a. A comparison of these two maps will show the close relation between them. Figure 1a gives the land classification.developed and used for assessment purposes in Teton County.

Dry Farm Land Classification. Nearly all of the first four assessment classes were taken from the first three grades of farming land, as given in the Land Classification Map, figure 1. Approximate intervals for assessment classes were: first class, 20 bushels and above; second class, 17 1/2 to 20 bushels; third class, 15 to 17 1/2 bushels; and fourth class, 12 1/2 to 15 bushels. Classes 5, 6, and 7 were taken largely from the remaining lower grade.

Grazing Land Classification. For grazing land, assessment classes corresponded closely to grazing classes as set up in the land classification map.

Supplementary Material Used in Classification. Additional information on yields became readily available after the Agricultural Adjustment Association records were kept. But before the AAA, Wagnild and Peterson were getting additional support for their classification directly from farmers. When asked about reclassification of their lands, farmers frequently recalled questions put to them by Wagnild and Peterson. On irrigated lands,



TETON COUNTY

FIGURE 1a. LAND RECLASSIFICATION MAP FOR ASSESSMENT PURPOSES—
1929—1940

alkali is a hazard at all times. In many cases, the farmer would be about the only one capable of giving a reliable statement regarding alkali conditions on his land. An example like the one just given helps explain the importance of consulting with the people who have immediate contact with a farm before making a land classification, and a statement in support of the procedure follows:

> "Even where detailed soil surveys are available, local judgment is important in determining the productivity of different soil types. If lands are classified and graded without detailed-reconnaissance surveys, then local opinion becomes an even more important factor. Use of farmer judgment for reassessment of land necessitates a medium for bringing farmers together to study available information and to crystallize local opinion. The state and local planning program in recent years has developed techniques for this type of work."1/

Reclassification Procedure. Every 40-acre tract was examined before final reclassification was made. The land classification map was always used. Yield histories and information from interview were considered where available. Started in 1929, the reclassification was not finished until 1940. Mr. Wagnild stated that as soon as reclassification was completed in the field, it was presented to the County Commissioners for approval, and he recalled no occasion when approval was not given.

As soon as possible after classification was approved, the Assessor made new cards for his files. All of the land owned by one person was entered separately, on one or more cards, and then filed in alphabetic order

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1/ Lord, H.H., Voelker, S.W., and Gieseker, L.F., Standards and Procedure for Classification and Valuation of Land for Assessment Purposes, Montana Agricultural Experiment Station Bulletin 404, June 1942, p. 9

in township groups. Since one owner often had land in two or more townships, a perfect segregation of townships was impossible.

On the card, every acre of a holding was entered under some land class. The smallest area for which a description was given was forty acres, unless the owner had parcels of less than forty acres. If the holdings were all of one class, the briefest possible description was given. Forty-acre tracts of two or more classes were usually described separately and the number of acres of each class was entered in the proper place. From the filed cards, it was impossible to determine what part of a 40-acre tract was in a certain class, but this information could be had from a map of the assessment land classification.

According to Mr. Wagnild, as each annual assessment was made, all of the reclassification available was employed. This was a very important point in the Teton County reclassification. By gradually introducing the new classification, no great hurdle was encountered in its implementation. Assessor Wagnild used care in smoothing out glaring inequalities between reclassified and adjacent lands. So successful was he in this that no violent antagonism to the change was aroused.

The County Commissioners had a part in making widespread adjustments in classification. As reclassification progressed, it became evident that some land classes would have to be changed. For example, sod land classified as low grade plow land was invariably given a grazing classification. Such land was predominantly in the western ranges. So the Commissioners approved a shift of these lands to a grazing classification.[1/] In

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1/ Minutes of County Commissioner's Proceedings and from Mr. N. W. Edwards, County Commissioner of Teton County.

this way an adjustment of the tax base did not have to wait for Wagnild and Peterson. All lands were eventually carefully examined and final reclassification was established. Widespread adjustments by the commissioners permitted Wagnild and Peterson to pursue their assignment in a thorough manner without interfering pressure from interested parties.

Classifying Land on the Basis of Productivity. The significant fact to note concerning the Teton County land reclassification, as given in this section, is that productivity took the place of value as a basis upon which to establish land classification. In using productivity as a base for classification, one simply designates land class in keeping with yield histories and estimated yields for the various soil types. The class interval is stated in terms of bushels for crop land and in terms of carrying capacity for grazing land. To assign a productivity value to land, a schedule of values must be drawn up and applied to respective acres of each land class.

Summary. Reclassification of Teton County was accomplished by County officials with the support of an interested citizenry. At the time when the County officials were dealing with the problem of numerous appeals from assessment and were confronted with an alarming growth in tax delinquency, the County Agent's discussion group was pointing up questions which focused attention on the importance of an equitable tax base. This was the problem that assessor Wagnild was attacking with unusual vigor and insight. The practice of taking care of current appeals was obviously inadequate and shortsighted. The Surveyor found that in correcting classification for one farmer, he invited appeals from his neighbors. A thoroughgoing reclassification was in order. After 1928, the Commissioners declined to treat many individual appeals for equalization of assessment. Instead they directed the energy of their officials to making a comprehensive reclassification of all lands in the County.

PART III. APPRAISAL OF STANDARDS AND PROCEDURES

Land Classes and Values

In this study, schedules of values for assessment purposes have been presented because the schedules show changes in land classes and in valuation of classes.

Emphasis has been given to the fact that reclassification was accomplished apart from value considerations. Negligible change was made in the schedule of values for assessment purposes from 1935 to 1941. (See tables VI and VII, pages 29 and 30.) In 1936, class eight-plow land was added. However, not many acres were ever given this classification and it was subsequently dropped.

Since no revision of the schedule of values had been made for five years, readjustment of values was probably overdue. In this section, major emphasis will be given to the circumstances attending the proposal and adoption of the 1941 schedule and to a contrast of it with the preceding schedule.

With the completion of reclassification, Gilbert Lee, successor to Mr. Wagnild, started to move toward a readjustment of values. In 1940, Mr. Lee made the following remarks:

> "Land classification in Teton County has been based on productivity. With this work completed, and assuming that we have a land classification fair and equal to the landowner, we come next to the placing of values on the different classes of land. I understand that your County Planning Board intends to make a thorough study of how the various classes of land should be valued. By that is meant that the proper ratios between the different classes of land shall be reflected in the values." 1/

1/ From an unpublished statement by Gilbert Lee presented at a County Planning Board meeting, June 1, 1940.

Later, in 1941, Mr. Lee spoke in a similar vein:

> "Upon the completion of the land classification, it followed as a natural result that due consideration must be given to the matter of fixing land values for assessment purposes, inasmuch as the classification of the land was intended as the basis for assessment of the land. Even though land may have been catalogued into its proper grade, an equality of assessment will not result until the assessed values of the different grades have been adjusted to bring about a proper ratio of one grade to another. Since the beginning of this work, it has been taken for granted by those in connection with it that a studied adjustment of values would be the final step in its completion."1/

Adoption of 1941 Schedule of Values

The Teton County Planning Board did not present any schedule of values to be used for assessment purposes. When no proposal for readjustment of values was forthcoming from members of the Planning Board, Mr. Lee decided to go ahead on his own initiative. Believing that better grades of farm land were undervalued in comparison with other land classes, Mr. Lee resolved to ameliorate this inequality. The following were the principles which the Assessor enumerated as guides to valuation considerations:

1. The valuation of the county must be kept about the same as before in order to maintain present well-balanced circumstances.

2. The assessed value of land must represent a percent of its actual value in the same proportion as other classes of property to have an equalized assessment.

3. Land owners in Teton County must not be penalized with a higher valuation than that of bordering counties.

4. Values must be reasonable and conform to the general opinion of what such values should be.

1/ From an unpublished statement by Gilbert Lee presented at a County Planning Board meeting, 1941.

5. Values adopted for each class have to apply to all of that particular class.1/

Mr. Lee stated above: "Even though land may have been catalogued into its proper grade, equality of assessment will not result until the assessed values of different grades have been adjusted to bring about a proper ratio of one grade to another." Did the values proposed by Mr. Lee and later adopted, fulfill this requirement? The Assessor did not defend the schedule on these grounds. Both he and Obert Peterson felt that to arrive at values that would properly adjust the ratio of one grade to another, it would be necessary to start with either a top figure or a bottom figure and calculate values for other classes from this base. Because of resistance to drastic change in valuation of classes, this was not done. In developing the 1941 assessment schedule, Lee first determined what values were assigned to first class farm land in adjoining counties. He decided that a $15 top for Teton County land would not be out of line. Other values were determined on a basis of judgment and with minimum change from the 1940 schedule. (See table VII, page 30.) The $3.50 spread in the values of five grazing classes is almost unchanged from the $3.60 spread in the 1940 schedule. The same adherence to the old pattern was discernible in the case of farm land. Although the spread in valuation between Class 1 and Class 7 was increased by $2.70, the spread in the first three classes was increased only ten cents. The spread of $3.75 as contrasted to a previous spread of $2.40 between Class 4 and 7 farm land is significant. The lowering of grazing land valuations was in keeping with the pattern of lowering values on low grade farm lands in relation to values on upper grades. Increases in class valuations

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1/ Lee, (1941), Ibid.

varied from $1.70 on Class 1 dry farm to 25 cents on Class 4 dry farm land. Rates on all other dry farm classes were reduced. The $1.10 reduction in Class 3 grazing was the largest dollar reduction, but the 44 percentage reduction in valuation of Class 5 grazing was the largest percentage reduction.

Both Peterson and Lee stated that, in their opinion, the 1941 schedule of values did not go far enough in expressing the difference in value which should exist between the upper and lower grades of farm land. They were satisfied that the revised schedule was a step in the right direction, however, and as big a step as was possible at the time.

Subsequent events proved that Peterson and Lee's discretion was well advised. Violent opposition to the proposed schedule was encountered in the dry farm areas. After the Assessor had recommended the schedule to the County Commissioners, a public meeting was held at the Court House. At the meeting, a resolution was passed supporting the prevailing schedule of values.1/ This meeting may have represented the opinion of the farmers who would have their assessments increased but it may not have been representative of general County opinion. In raising the relative taxes on better grades of dry farm land, owners of these lands were brought into opposition. Livestock ranchers were in favor of the change. In this particular public meeting, those who felt that they were being adversely affected seemed to have been in the majority. Despite this demonstration, the Commissioners approved the new schedule. In 1941, the new schedule was employed in assessment. No change has been made in the valuation schedule to date.

1/ Lee, (1941), Ibid.

Appraisal of Procedure

The conclusion is warranted that the 1941 schedule of values for assessment of land was not systematically developed. As with previous schedules, the practice followed was not that of starting with a top assessment value, or a bottom assessment value, and determining other values in accordance with relative productivity of each class.

Much opposition was encountered when the Assessor recommended a revised schedule of values. Public opinion in Teton County was not ready to go the whole way in readjusting the tax base in accord with true productivity value of land in 1941. An inability to appreciate the difference in value between low grade and higher grade lands contributed to the failure to increase the spread in values sufficiently. Farmer opposition was a real obstacle to change and contributed to a continuation of overassessing of low grade lands and the underassessing high grade lands.

PART IV. ECONOMIC ANALYSIS OF RESULTS OF RECLASSIFICATION

The reclassification of agricultural lands in Teton County was started in 1929 and completed in 1940. The results of reclassification have had about ten years longer in which to be tested on some lands than on other lands. It has already been mentioned that the County Commissioners made widespread adjustments in classification on many acres before the final reclassification. Therefore, most of Teton County has been affected by reclassification for ten to fifteen years. Sufficient time has now elapsed for building up evidence from which to evaluate the reclassification.

Procedure in Economic Analysis

As a method of analyzing the economic results of reclassification, the following procedure will be followed:

1. Tables will be presented to show the actual changes in the assessment picture since 1927.
2. Tables and maps will be presented to show what has happened to delinquency.
3. Results of a correlation of productivity values to assessed values for 1930 and for 1945 will be given.

Changes in the Assessment Picture

During the 19-year period, 1927 to 1945, constant change is discernible in both acreage and value of land groupings. (See table IX, page 48.)

Irrigated land showed a steady decline for the first ten years of the period which was probably attributable to causes other than land-reclassification. Low prices of agricultural products no doubt resulted in some contraction of irrigated acreage. The big increase in irrigated acreage in 1937 resulted from a change in taxation procedure on many acres in the Bynum area. In that year, the acreage was given an irrigation classification.

Previously a water charge had been made on lands in the Bynum irrigation district and the lands had been assessed on a dry farm basis. Acreage of tillable, non-irrigated land dropped sharply the year that irrigated acreage made its big gain. The increase in irrigated acreage after 1937 resulted from an extension of irrigation to more lands and was not a result of reclassification.

Acreage of tillable, non-irrigated agricultural land was declining during the 19-year period. Grazing land acreage was increasing during this period. Much of this change was the result of reclassification for there was a net movement of land from a farm to a grazing classification during these years.

Contributing to the instability of groupings was the fluctuation in acreage held by the County, since County lands were not subject to taxation. The increase in grazing land and the decrease in dry farm land was the most significant fact to be noted from table IX.

Land declined in importance as a source of tax revenue during the years of reclassification as shown in table X. However, the decline was gradual. It should be noted that the taxable value of the County was declining during this period. The general decline in taxable value must be attributed to a long-time downward trend in percentage of full value at which the property was assessed. In the case of land, a part of the decline in taxable value arose from a net shift of acres from a farm land classification to a grazing land classification.

Tables IX and X show that no violent disturbance of the tax has resulted from reclassification. This was not accidental. In the previous

TABLE IX. ACREAGE AND VALUE OF AGRICULTURAL LAND AS LISTED IN TETON COUNTY ASSESSMENT BOOKS 1927-1944

	Irrigated Land		Dry Farm		Grazing Land		State Land	
Year	Acres	Value	Acres	Value	Acres	Value	Acres	Value
1927	25,216	$845,360	516,064	$7,188,017	363,495	$2,781,561	26,282	$173,249
1928	24,568	810,717	514,285	7,152,693	371,578	1,493,029	27,401	163,662
1929	16,605	578,685	552,049	7,676,706	382,757	2,901,975	27,653	168,416
1930	17,245	572,769	547,838	7,494,539	386,414	2,533,091	39,955	189,396
1931	16,829	537,501	503,466	6,935,791	417,188	2,379,094	40,999	147,330
1932	13,465	454,911	469,578	5,864,196	437,301	2,035,982	39,363	124,327
1933	13,249	335,335	458,880	5,388,906	463,076	1,854,032	38,714	118,646
1934	13,136	332,212	456,203	5,334,833	466,506	1,860,281	32,178	106,341
1935	12,781	324,801	455,550	5,457,808	476,511	1,743,330	30,716	102,774
1936	12,395	313,138	457,816	5,386,133	483,621	1,740,566	32,229	107,750
1937	38,636	799,309	422,685	4,789,451	480,005	1,674,864	32,571	105,607
1938	54,817	1,204,000	404,550	4,487,952	487,711	1,672,140	31,175	120,496
1939	56,187	1,224,372	403,573	4,476,657	492,329	1,681,917	29,862	112,033
1940	60,448	1,277,718	401,717	4,412,115	492,817	1,671,429	28,106	107,779
1941	64,203	1,209,469	405,423	4,809,247	484,237	1,338,309	26,600	110,410
1942	64,797	1,224,021	406,133	4,815,842	489,197	1,345,672	26,867	105,041
1943	66,392	1,253,224	405,178	4,811,291	497,174	1,385,936	24,728	98,737
1944	75,556	1,427,930	413,715	4,876,646	500,585	1,378,943	22,455	92,300

Source: From recap of Teton County Assessment Books

TABLE X. TAXABLE VALUE OF AGRICULTURAL LAND COMPARED WITH TAXABLE VALUE OF COUNTY 1927-1942

Year	Taxable Value of Agricultural Land	Taxable Value of County	Percentage Taxable Value of Land is of Taxable Value of County
1927	$3,296,456	$5,160,996	63.8
1928	2,886,030	5,250,539	54.9
1929	3,397,734	5,507,271	61.6
1930	3,236,938	5,405,054	59.8
1931	2,999,914	5,025,792	59.6
1932	2,543,824	4,160,987	61.1
1933	2,309,075	3,760,088	61.4
1934	2,290,100	3,779,276	60.7
1935	2,288,613	3,841,424	59.5
1936	2,264,273	3,932,260	57.5
1937	2,291,769	3,799,384	60.3
1938	2,245,376	3,799,020	59.1
1939	2,248,493	3,892,909	57.7
1940	2,240,712	3,965,902	56.4
1941	2,240,230	4,100,810	54.6
1942	2,247,292	4,334,699	51.8

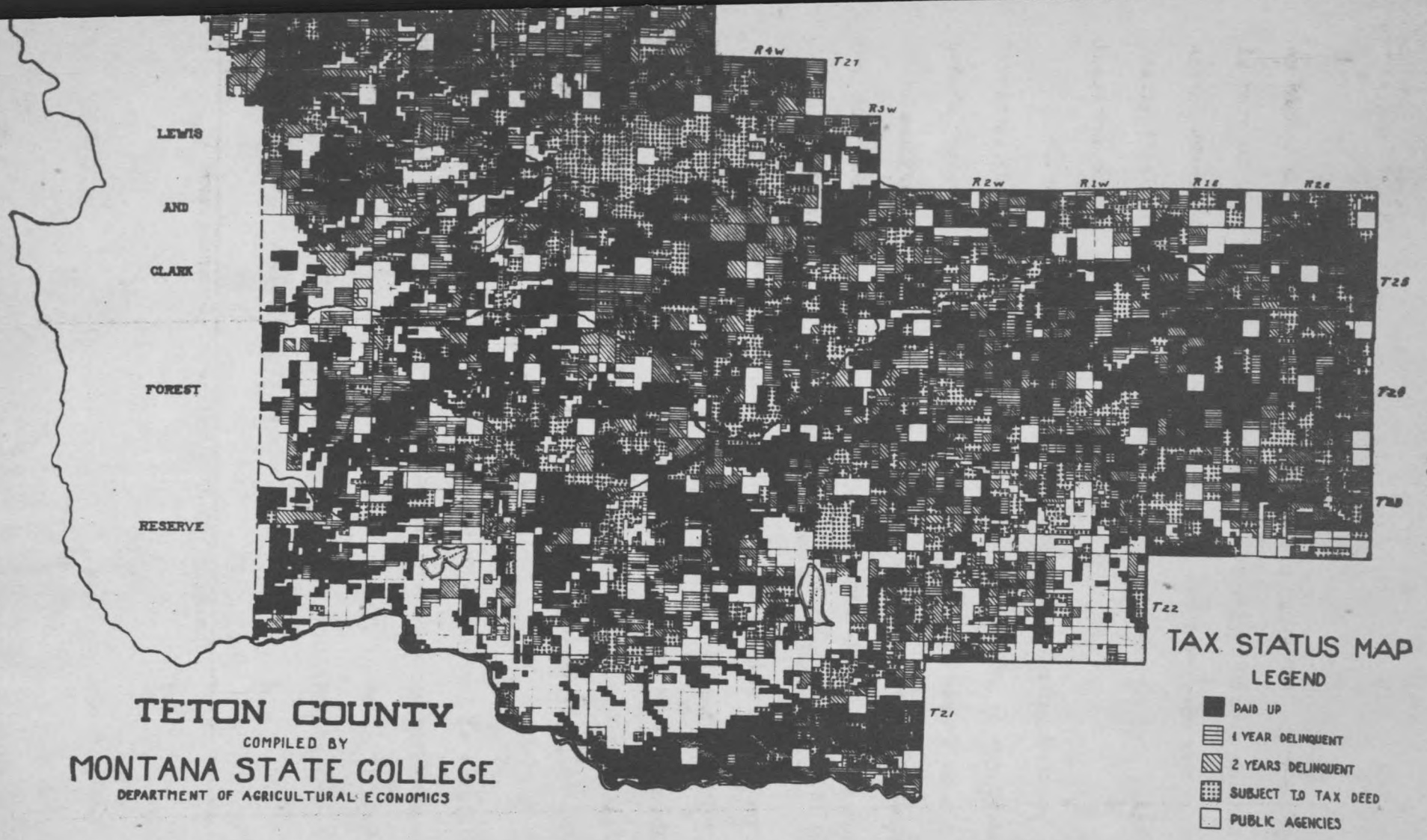
Source: Recap of Teton County Assessment Books.

section on valuation, the concern of Assessor Gilbert Lee regarding the need for preserving a balance in assessment between various classes of property was noted. When one remembers that both valuation of assessment classes and reclassification affect taxable value of land, one can appreciate the care exercised by the County officials.

Appraisal of Delinquency

Certain factors complicate an economic appraisal of the reclassification. Delinquency studies are of limited service for several reasons. First, delinquency has been cleared up on much land through tax title and foreclosure action. In other words, land delinquent in the early Thirties might show no delinquency a few years later, not because of any improvement in financial status but because taxes have gone by default. Second, much delinquency arises from charges other than land taxes. Water charges on irrigated lands are included in the tax and these charges are unrelated to the land classification. Third, economic conditions have profoundly affected delinquency. Periods of low prices and drought contributed to the building up of enormous delinquency; likewise periods of high prices as during the World War II contributed to a disappearance of delinquency. It is impossible to determine with great accuracy the part that reclassification played in remedying a critical tax situation.

That the tax situation was critical can be seen by examining the tax status map. (See figure 2.) A comparison of the tax status map with the land classification map, figure 1, page 35, shows that delinquency was most prevalent on lower grade lands. Dark areas on the land classification map tend to be dark on the tax status map, indicating relatively little delinquency



The tax status is continually changing but recent changes in tax delinquency has been largely a result of Government loaning activities, A.A.A. and the adoption of certain measures designed to give relief to taxpayers. The above map shows the tax status as of March 1, 1934, or prior to the major emergency activities and should be particularly helpful in indicating adjustments needed.

FIGURE 2. TAX STATUS MAP

on higher grade lands. The area centered in Range 5 West, Township 26 North is part of the Bynum irrigation section. Heavily delinquent lands centered around Range 2 West, Township 22 North were not low grade but rather were mostly first class farm land. Irrigation costs entered into delinquency on these two areas.

Gordon Monkman, County Treasurer of Teton County, related cases of taxpayers who were unable, or in some cases unwilling, to pay their taxes before reclassification. Often these taxpayers were owners of sod land that was classified as farm land. After reclassification, some of these people met their tax bill. Some lands went through tax title and have since been restored to private ownership with no recurring delinquency.1/

Table XI shows that delinquency was appreciable in the early Thirties. The fact that delinquency declined markedly already in 1933 might indicate that reclassification was achieving some of its objectives. The bulge in delinquency from 1937 to 1941 indicates that reclassification had not prevented delinquency from assuming sizable proportions.

Appeals for Equalization of Assessment

Another approach to the evaluation of assessment is possible through an examination of appeals for equalization of assessment which were made to the County Board of Equalization. Appeals listed, in table XII, are those given in minutes of meetings of County Board of Equalization from the records of Teton County Commissioner's Proceedings.

1/ From personal interview with Mr. Monkman.

TABLE XI. TETON COUNTY TAX DELINQUENCY, AMOUNT, AND PERCENTAGE 1930-1945

Year	Total Tax Charge	Delinquent Tax[a]	Percentage of Tax Collected[a]
1930	$500,290	$130,394	74.09
1931	470,883	162,191	65.61
1932	446,139	175,852	60.59
1933	355,229	80,157	77.46
1934	403,629	81,062	82.39
1935	345,430	40,031	88.41
1936	336,824	53,825	84.02
1937	380,057	76,205	78.38
1938	378,826	75,178	80.15
1939	396,665	71,457	81.99
1940	388,852	70,750	81.81
1941	431,282	71,248	83.55
1942	418,885	40,937	90.23
1943	394,533	27,820	92.95
1944	438,849	25,188	94.26
1945	498,207	22,089	95.57

a/ As of June 30 of the following year.

Source: From the Treasurer of Teton County.

TABLE XII. TAX APPEALS TO TETON COUNTY BOARD OF EQUALIZATION
1918-1945

Year	Total Appeals	Lowered	No Change	Raised	Denied	Not Disposed
1918	7	7				
1919	13	8		5		
1920	4	4				
1921	202	175[a]		27		
1922[b]						
1923	7	7				
1924[c]	90	66		14		10
1925	16	13		1		2
1926	21	21				
1927	7	6				1
1928[b]						
1929	33	32				1
1930	24	20				4
1931	28	23				5
1932	59	47			1	11
1933	43	32			9	2
1934	52	48			4	
1935	44	35		2	2	5
1936	22	16	4			2
1937	12	11	1			
1938	8	4	4			
1939	9	7			1	1
1940	5	3			1	1
1941	4	0			4	
1942	6	4			2	
1943	2	1	1			
1944	0					
1945	0					

a/ $284,933 net reduction in land assessment.

b/ Nothing recorded

c/ This note used for indeterminate number of applications: "Application for reduction of land values denied until reclassification can be made."

Source: Minutes of Teton County Commissioner's Proceedings.

It will be noticed that the number of appeals increased markedly in 1921. To assume that this increase was a consequence of the land classification of 1919 and 1920 is not wholly warranted. By 1921 taxpayers were experiencing the full impact of falling prices and thus may have experienced difficulty in meeting their tax bill.

The steady number of appeals from 1929 to 1937 in part reflects the trying times that farmers experienced. The dropping off in appeals after 1937 is undoubtedly related to improved assessment. An examination of the number of appeals by year indicates that reclassification removed an appreciable amount of the objectionable features of the tax base.

Before 1926 the usual method of handling appeals for reassessment was for one of the County Commissioners to investigate the appeal and to decide on action to be taken. Beginning in 1926, most of the appeals were referred to the County Surveyor. His duty was to investigate the appeal and to make recommendations to the County Board of Equalization. An examination of the Board's action failed to disclose any case when the treatment of an appeal by the Surveyor was not approved.1/

Assessed Value Compared With Productivity Value

A usual approach to the economic analysis of assessment is the comparing of assessment value to sales value for a number of farms. Assessment is usually supposed to reflect "cash value" or "full value" of property. Therefore, comparing assessment value with sales value would seem to be a valid method of evaluating the assessment.

1/ From minutes of Teton County Commissioner's Proceedings.

There are objections to the use of sales value as a criterion upon which to appraise assessment. Sales are often too few in number to provide a sound basis for determining value of property. Sales are made under varying conditions, between relatives, seller in distress, buyer influenced by other than economic considerations, etc.

Following is a criticism of "sales value" as a base for tax assessment:

> "With scientific soil survey and land classification supplemented with other productivity data and with farm price and cost data now available, it is possible to compute the "productivity value" of Montana's dry farming and grazing lands. "Productivity value" is more satisfactory than "sales value" as a basis of assessment because (1) it may be more readily determined, (2) it may be adjusted more scientifically to changes in earning capacity of the land which might result from long-time changes in price levels or change in production due to drouth, insect pests, and other factors, and (3) it corresponds more nearly to the true tax paying ability of the land."1/

Murray stated, "Productivity is the most important factor influencing the value of agricultural land."2/ He set up requirements which, if met, made the use of productivity valuation of land feasible.3/ Montana agricultural lands meet the requirements that Mr. Murray outlined in the following ways:

(1) bulk of farm income is from soil

1/ Renne, R.R., and Lord, H.H., Assessment of Montana Farm Lands, Montana Agricultural Experiment Station Bulletin 348, October 1937, p. 51.

2/ Murray, William G., and Meldrum, H.R., A Production Method of Valuing Land, Iowa Agricultural Experiment Station Bulletin 326, March 1935, p. 2.

3/ See Murray, William G., Farm Appraisal, "Classification and Valuation of Farm Land and Buildings", The Iowa State College Press, Ames, Iowa, 1940, p. 182.

(2) wheat lends itself to capitalization value

(3) fertilizer is little used

(4) sufficient rentals to provide a check

(5) taxable value being 1/3 of assessed value, the objection to big percentage change in value of low priced land by small change in capitalization rate is partially overcome.

From the foregoing references, we may conclude that a productivity valuation of land is the best figure that we can get upon which to base assessment, or upon which to base a criticism of assessment.

Correlation of Productivity Value to Assessed Value of Land

Procedure in Determining Values. The productivity values of 87 farms, all in the East Range, were calculated. These were correlated with 1930 assessed values and with 1945 assessed values.

Assessed values were readily obtained from Teton County assessment books. Productivity values were derived, for each farm, by applying a scale of values to measured acres of various land classes.[1/] In order to measure the number of acres of various classes of land, the outline of each holding was traced from County ownership plats. This tracing was superimposed upon

---

1/ The following values were used in calculating productivity values:

Farm Land		Grazing Land	
First Class	$35.00 per acre	First Class	$3.00 per acre
Second Class	18.00 per acre	Second Class	2.50 per acre
Third Class	3.00 per acre	Third Class	1.50 per acre
Fourth Class	1.50 per acre	Fourth Class	1.00 per acre
		Fifth Class	.75 per acre

Source: Renne and Lord, op.cit., p. 19 to 21.

the Land Classification Map (similar to figure 1 but on a scale of two inches to one mile) and the acreage of each class was measured with a planimeter.

Productivity Value and Assessed Value in 1930. Figure 3 is a scatter diagram of assessed values plotted against productivity values. The regression line[1/] was calculated from the equation $Y = A + BX$. The scatter about the regression line indicates that the correlation between productivity value and assessed value was very low. With a perfect correlation all plotted points would fall on the regression line.

A coefficient of correlation assessed values and productivity values from the 87 farms was calculated to be .354.[2/] The coefficient of determination was .125. This means that only 12.5% of the variability in assessed

---

1/ Calculation of the regression line for figure 3.

Farm No.	1930 Assessed Value (X)	Equation $Y = A + BX$	Y
1	4500	$Y = 1247 + .864 \times 4500$	= 5035
2	2005	$Y = 1247 + .864 \times 2005$	= 2979.3
3	6219	$Y = 1247 + .864 \times 6219$	= 6620.2

2/ Let X = assessed value of individual farms, 1930, and
Let Y = productivity value, 1930. Then,

$$r = \frac{\Sigma XY - AX \cdot \Sigma Y}{\sqrt{\Sigma X^2 - AX \cdot \Sigma X}\ \sqrt{\Sigma Y^2 - AY \cdot \Sigma Y}}$$

$$r = \frac{1,304,881,400 - 3,072.79 \times 339,789}{\sqrt{1,123,043,040 - 3,072.79 \times 267,333}\ \sqrt{3,120,777,438 - 3,905.62 \times 339,789}}$$

$$r = \frac{260,781,159}{\sqrt{301,584,871}\ \sqrt{1,793,690,724}}$$

$$r = \frac{260,781,159}{17,366.5 \times 42,352}$$

$$r = \frac{260,781,159}{735,506,008} = .3545$$

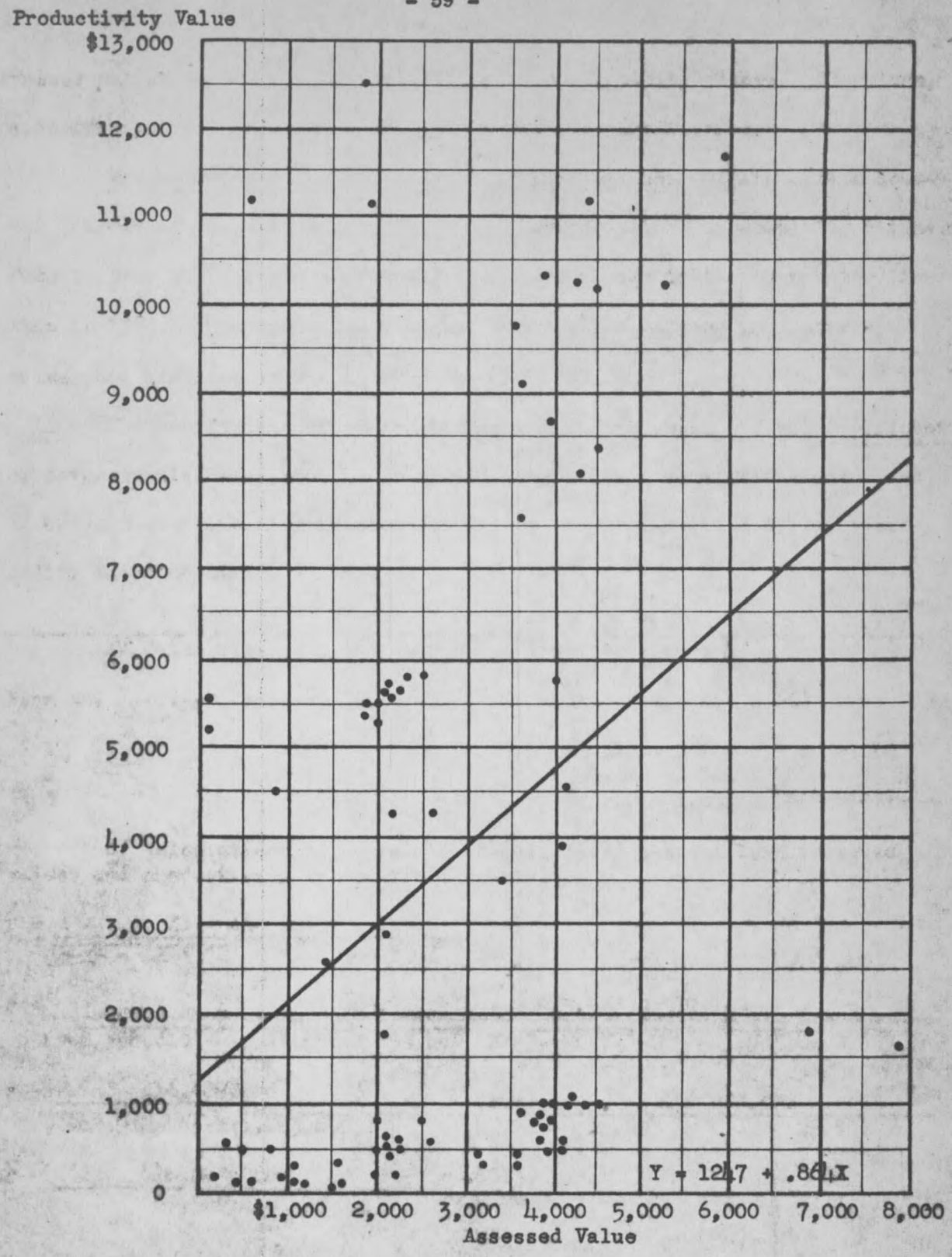


FIGURE 3. CORRELATION OF PRODUCTIVITY VALUE WITH ASSESSED VALUE, 1930

Observations omitted:

X=8595; Y=1920
X=8378; Y=1848
X=6386; Y=14,732
X=7945; Y=22,400
X=6219; Y=16,800

values was accounted for by variability in productivity values. Therefore, a coefficient of correlation of .354 is without significance.

Productivity Value and Assessed Value in 1945. Figure 4 is a scatter diagram of assessed values for 1945 plotted against productivity values.1/ Much scatter still occurred but the dots were closer to the regression line than in 1930. This indicates a higher correlation between productivity values and assessed values in 1945 than in 1930.

The coefficient of correlation for 1945 was .621, and the coefficient of determination was .384.2/ This correlation has some significance since 38.4% of the variability in assessed values can be explained by the variability in productivity values.

1/ Calculations of the regression line for figure 4.

Farm No.	1930 Assessed Value (X)	Equation Y = A + B (X)	Y
1	2160	Y = -944.12 + 1.664 X 2160 =	2650
2	4800	Y = -944.12 + 1.664 X 4800 =	7038
3	7005	Y = -944.12 + 1.664 X 7005 =	10712

2/ Calculations of correlation coefficient between 1945 assessed values and productivity values for 87 farms.

$$r = \frac{\Sigma XY - AX \cdot \Sigma Y}{\sqrt{\Sigma X^2 - AX \cdot \Sigma X}\ \sqrt{\Sigma Y^2 - AY \cdot \Sigma Y}}$$

$$r = \frac{1,405,953,410 - 2,913.356 \times 339,789}{\sqrt{988,336,010 - 2,913.356 \times 253,462}\ \times \sqrt{3,120,777,438 - 3,905.62 \times 339,789}}$$

$$r = \frac{416,027,088}{\sqrt{249,912,483} \times \sqrt{1,793,690,724}} \qquad r = \frac{416,027,088}{15,808 \times 42,352}$$

$$r = \frac{416,027,088}{669,500,416} = .6213$$

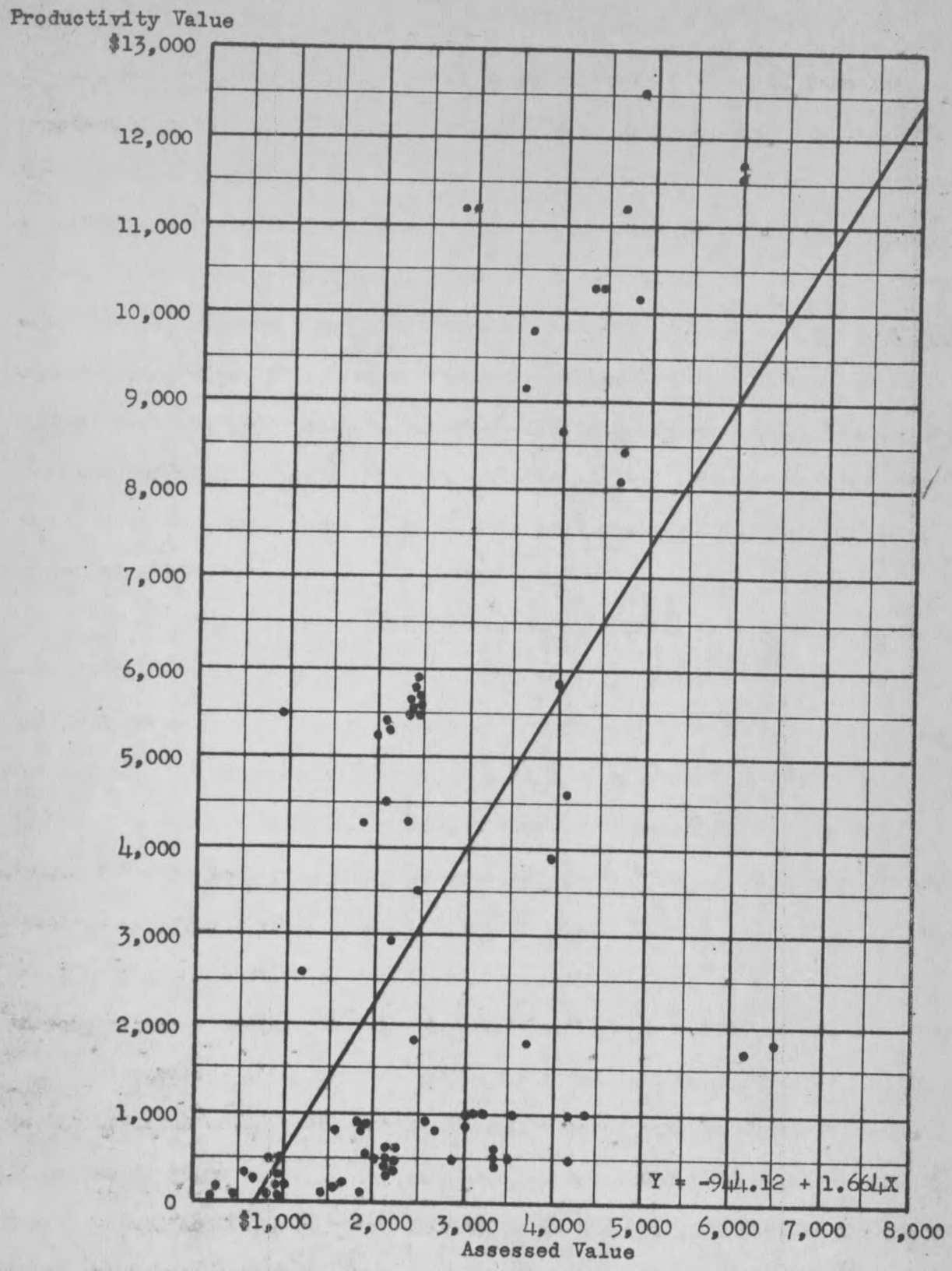


FIGURE 4. CORRELATION OF PRODUCTIVITY VALUE WITH ASSESSED VALUE, 1945

Observations omitted:

X=8256; Y=1920
X=7200; Y=16,800
X=7383; Y=22,400
X=7005; Y=14,732

Evaluation of Findings. The acres in each of these 87 farms was constant from 1930 to 1945; so the sample is no doubt a selective one. Units that survived the years of low prices and drought conditions would undoubtedly show less improvement in assessment than would units that failed. The assumption made here is that lands assessed at several times their productive value became delinquent and often were not maintained as a unit and therefore were affected more by reclassification than other lands. The conclusion follows that the .367 increase in the coefficient of correlation between the 1930 and the 1945 assessment on the 87 farms is less than the increase that occurred on all farms. The 87 farms were used simply to facilitate the comparison.

This correlation of assessed values with productivity values clearly reveals inequitable assessment. In 1930, farms of low productivity were uniformly overassessed in comparison with farms of higher productivity value. For example, a group of farms have productivity values of approximately $5,500. Another group of farms have productivity values of approximately $500. Farms in both groups are assessed at about $2,000. This same illustration can be made at the $4,000 assessed value. Many of the farms in this group have productivity values of under $1,000, and another group of farms in this assessment class have productivity values of from $7,500 to $10,500.

Inequality of assessment still persisted in 1945. Farms of low productivity value are overassessed. Generally farms with productivity value in excess of $3,000 have an assessed value appreciably lower than productivity value, and farms of productivity value under $1,000 have an assessed value appreciably greater than productivity value. However, improvement is

shown in 1945, for the plotted points have moved a little closer to the line of regression.

The conclusion from this correlation of productivity value with assessed value is that assessment was improved. The increase of values on better lands did not proceed far enough. The reduction of assessment values on lands of low productivity was insufficient. Farms with a productivity value of less than $3000 generally had assessed values greater than their productivity values. Farms with productivity values of more than $3000 generally had assessed values less than their productivity values.

PART V. CONCLUSION

The findings of this study led to the following conclusions:

(1) The major benefit of the Teton County reclassification was that assessed values were more closely correlated with productivity values. In 1930, the coefficient of correlation between assessed values and productivity values for a sample of 87 farms was .354. In 1945, the coefficient of correlation was .621 for the same sample.

(2) As a result of the Teton County reclassification (a) the number of appeals for equalization of assessment was reduced, and (b) tax delinquency was less severe.

(3) The procedure used in reclassifying Teton County was desirable in the following respects:

(a) The classification was based on a map derived from a soils reconnaissance survey supplemented with information on yield histories and personal experience of operators.

(b) The interval between land classes was established in terms of productivity and not in terms of dollar valuations.

(c) The classification was conducted by two men whose interest and ability resulted in a thorough and uniform treatment of the County.

(d) The classification was gradually introduced as it became available. Changes in assessment as a result of changes in values assigned to classes came later.

General conclusions from this study of land reclassification for assessment purposes follow:

(1) A productivity classification of land is essential as a basis for equitable land assessment. The classification must be based on a detailed soils survey. Historical yield data, personal experience of operators,

and physical factors not reflected in the soils survey but affecting productivity should be taken into account.

(2) A schedule of dollar values must be adopted and applied to land classes in order to arrive at a productivity value of land for assessment purposes.

(3) Advice given to Illinois assessment officials in 1939 is timely for Montana assessment officials in 1947.

> "With soil rating maps already available for one-fourth of the counties in Illinois, assessment officials should acquaint themselves with the basic steps in the use of these maps--first, how the productivity ratings are ascertained, and second, how this more or less unchanging rating can be translated into the current local dollar value.
>
> "The germ of the idea is to get a non-dollar rating which reflects the relatively unchanging basic valuation and which can then be turned into dollar valuations for one date after another as the dollar goes dancing along--now up, now down, in its power to buy farm land. The county that introduces a land productivity rating for its tracts of farm land and then revises from time to time the dollar valuation per acre that goes with each rating number will have served not only the needs of the year in which the system is introduced but future needs as well. Like the sets of index books that progressive county offices maintain, those who introduce the system and do the pioneering put future users and officers into debt to them for generations to follow."1/

A productivity classification of land provides "a non-dollar rating which reflects the relatively unchanging basic valuation" of land, thus fulfilling one of Mr. Stewart's requirements. In converting this rating into dollar valuations for assessment purposes, the question of the best

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1/ Stewart, Charles L., Illinois Assessor's Manual, Illinois Tax Commission, 1939, p. 134.

means to employ arises. Unless farm income becomes relatively stable, some provision should be made for relating farm taxes to farm income. The assessed valuation should be related to the productivity valuation of land instead of to the price of land, as was suggested in the quotation. This can be done fairly well by applying a suitable schedule of values to land classes based on productivity.

(4) A State-wide classification similar to that done in Teton County may result in the following:

(a) A more equitable apportionment of the tax bill within the County.

(b) A more equitable apportionment of State-wide levies.

(c) An economy in administration.

Suggestions for Future Action

On the basis of the above conclusions, an assessment program for Montana should include the following:

(1) A productivity classification of land should be developed for every county in the State. Main dependence should be put on a detailed soils map, but other factors affecting productivity should be considered. State supervision of the classification is recommended.

(2) Productivity classes should be State-wide and values assigned to classes should be uniform throughout the State.

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