
CHAPTER II. USES OF AGRICULTURE
CENSUS STATISTICS IN EDUCATION

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USES OF AGRICULTURE CENSUS STATISTICS IN EDUCATION

Farm Census sets up ideal of service.—"Production for use" is such an intriguing slogan that we want to borrow it and apply it to the gathering and distributing of Census information. Many persons still think of the Census volumes as huge tomes of thousands of pages of column upon column of figures, difficult to obtain and still more difficult to use.

With the help of educational magazines and radio stations, we are trying to put this vast store of knowledge into actual everyday use and to publish it in such way that everyone may get some good from it. Businessmen, manufacturers, merchants, advertisers, and bankers utilize the data in numerous ways, mostly to help earn or save dollars, but this is not sufficient. The everyday citizen has a right to and a need for this Census information, but he is handicapped by unfamiliarity with statistics and appalled by long columns of figures.

Many farm statisticians, through years of experience, have come to the conclusion that there is just one way by which the everyday man will become accustomed to statistics, and be able to use them correctly and to his own advantage—that is, to bring him up with the figures, teach him the use in connection with each stage of education, and make the figures and what they represent a part of everyday life and thought. This may sound like a Utopian dream, but our sister republic to the south—Mexico—has been using, in the elementary grade schools for several years, colored charts and diagrams displaying in color essential and interesting agricultural facts.

Use of Census data in visual education.—Mr. Henry E. Childs, Supervisor of Visual Education in the public schools of Providence, Rhode Island, in an article entitled "America's Resources Symbolized in Color" shows how Census statistics may be used in visual education. In an attempt to visualize the diversity of the Nation's wealth, a series of maps of small sections of the United States was prepared and intriguing symbols and attractive color schemes were devised. The maps were designed for use in the schools of Providence so the specifications were drawn up to meet local conditions. The Census reports by counties were used as source material for making the maps. The plan adopted is such a simple and interesting one that it could be adapted for use in the lower grades or it could be greatly extended in presenting agricultural information to the higher grades; and for the use of the public. This method could be used in numerous ways in teaching many of the subjects of the grammar schools and it could also be used to advantage in various types of advertising, commercial art, and commercial work. Illustrations of the maps are shown on accompanying pages.

Minor civil division tabulations.—The Bureau of the Census, recognizing the need of having detailed agricultural figures on a geographic area smaller than the county, secured the major items of the 1940 Census of Agriculture on the basis of townships or other minor civil divisions, which are the most convenient political subdivisions for use in an enumeration. There are about 50,000 such units in the United States in which agricultural operations are carried on and there are several thousand more if city territory is included. It is possible, in studying either the production or marketing within such areas, also to obtain farm statistics for the 1935 Census so that a general understanding of the current trends may be obtained.

Other developments that can be used to advantage with minor civil division data are the aerial photographs which are now being used on a large scale by governmental and private agencies for numerous purposes, and the farm address system by

which all farms can be designated just as houses are in cities, thus giving to each farm the equivalent of a "local habitation and a name."

With all these improvements now at the command of every school teacher, it is easily possible to develop a system of local land-mapping with records of the acreage of crops, number of livestock, and other farm information which is in constant demand. The ideal project of this kind would provide for the following uses:

1. The local mapping project as an agricultural exercise.
2. The recording and tabulating of agricultural statistics, familiarizing the students with the entire subject.
3. The determination of boundaries of minor civil divisions and counties which are not always definitely known at present.
4. The tabulation of agricultural information by soil types, distance from market, population characteristics, and other social and economic data which are of use, not only for school purposes, but for the country at large.

Such close study of local farm statistics would:

- (a) Make it possible for the Bureau of the Census and the Department of Agriculture to obtain reports more easily through trained enumerators, developed by this method.
- (b) Do away with difficulty encountered in unknown boundary lines, particularly minor civil divisions.
- (c) Educate the general public and thus lessen the resistance which enumerators encounter in areas where methods and purposes of the Census are not generally understood.
- (d) Finally result in very accurate and complete statistics for the United States as a whole, beginning with the minor civil division.

This phase of the subject can not be emphasized too strongly from the standpoint of national statistics. It has been the universal experience of the farm statisticians that the greater the knowledge of agricultural conditions and the wider the publicity of the Census, the more accurate and complete the data which will be obtained, whether they be those of a national census or of a limited agricultural survey.

Subjects in which Census data may be used by schools.—Without going into detail in regard to each, here are a few of the subjects in which Census material may be used to advantage by the schools:*

Agriculture	Sociology
Arithmetic, algebra, and higher mathematics	History
Geography	Extension
Drawing and drafting	Home economics
Mapping	Journalism
Economics	Statistics
Farm management	Reference home work

A few of the examples of the use in common school exercises are—calculation of percentage of increase and decrease of various items from census to census, or the percent of the total in each crop or class of livestock; in higher mathematics, calculation of coefficients of correlation or variance, etc.; in mapping, the making of dot, cross-hatch or shaded maps for townships, counties, or States, in connection with geography, drawing, etc. Illustrations of some of the maps and charts which are included in the Census publications are shown on succeeding pages.

*Agricultural Education—Issues August and September 1937—describes methods used.

MAP OF CALIFORNIA MADE IN PUBLIC SCHOOLS OF PROVIDENCE, RHODE ISLAND

AGRICULTURE KEY



- | | | | |
|----------------|--|-------------|--|
| WHEAT | | SHEEP | |
| CATTLE | | CORN | |
| POULTRY | | FRUIT | |
| FISH | | GRAINS | |
| DAIRY COWS | | CITRUS | |
| VEGETABLES | | FORESTS | |
| DAIRY PRODUCTS | | NUTS | |
| LIVE STOCK | | COTTON | |
| | | FORAGE | |
| | | SUGAR BEETS | |
| | | POTATOES | |

CALIFORNIA

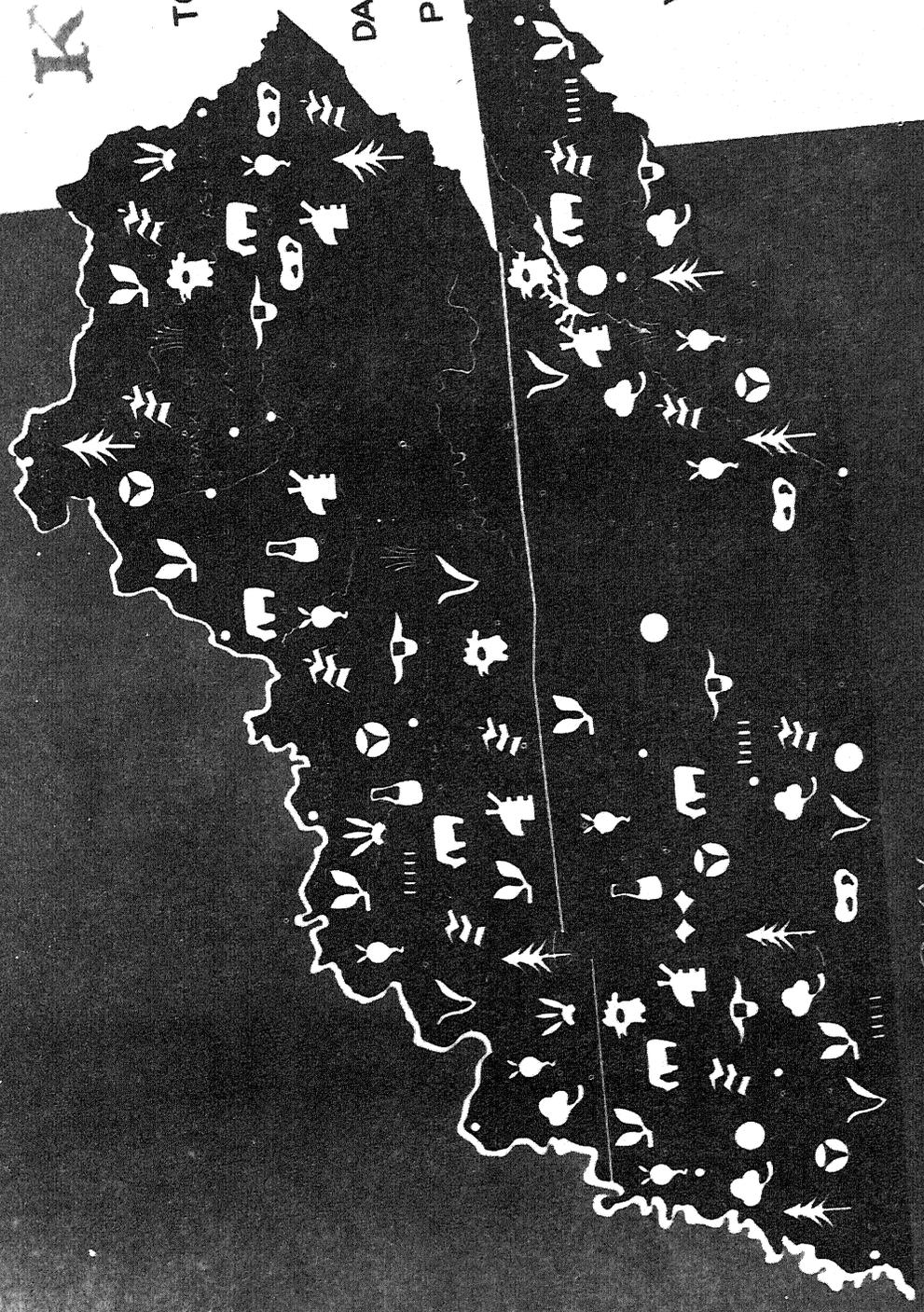
A PACIFIC STATE

MAP OF KENTUCKY AND TENNESSEE MADE IN PUBLIC SCHOOLS OF PROVIDENCE, RHODE ISLAND

EAST SOUTH CENTRAL STATES

AGRICULTURE

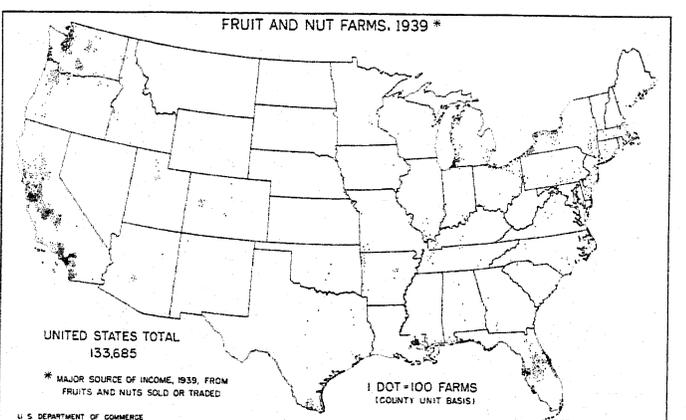
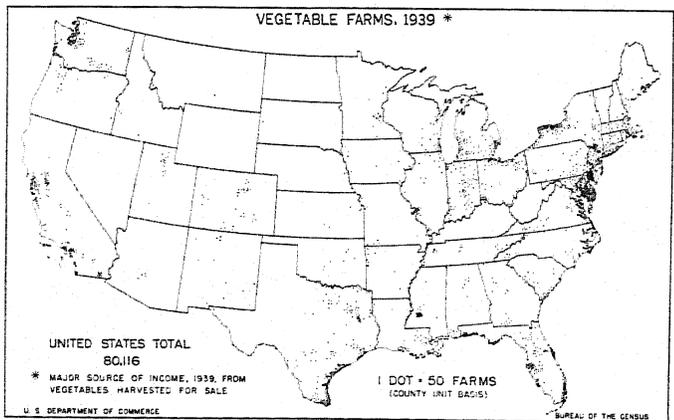
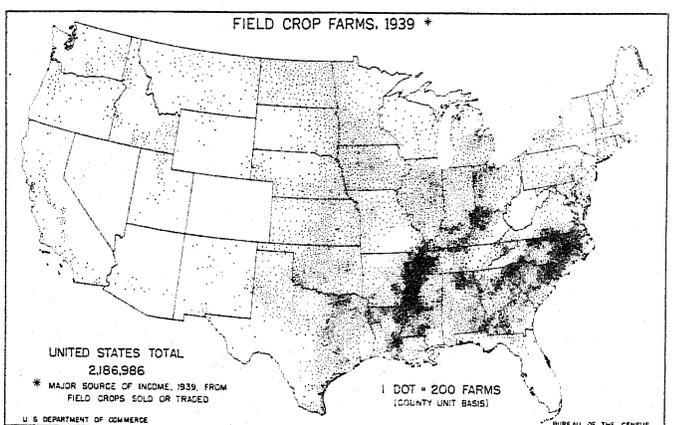
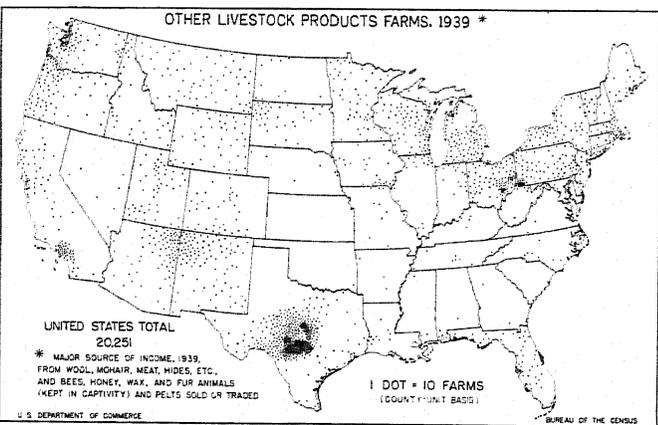
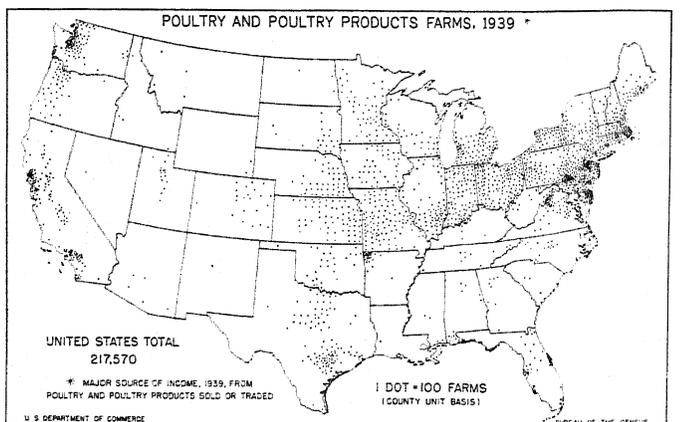
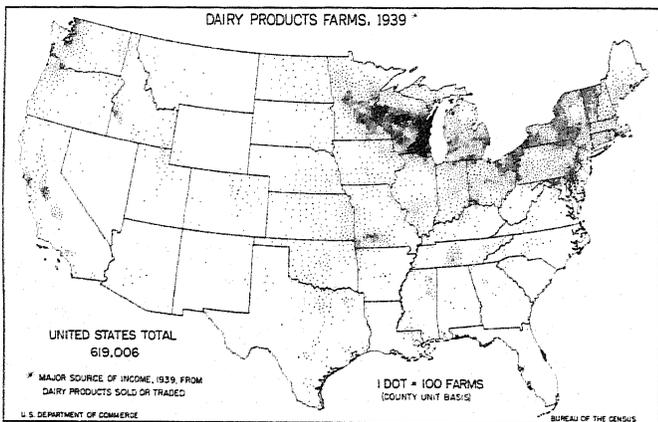
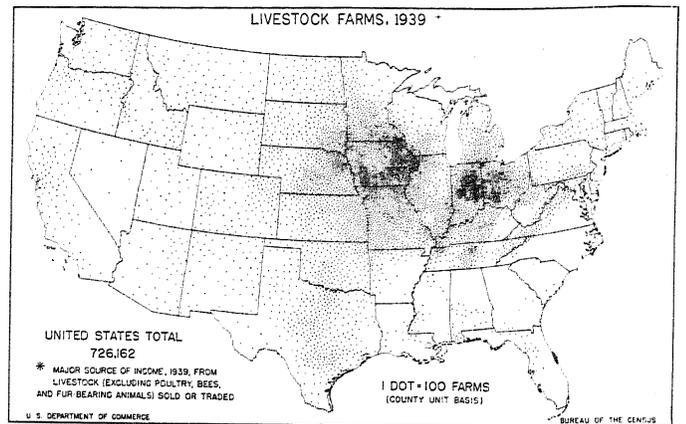
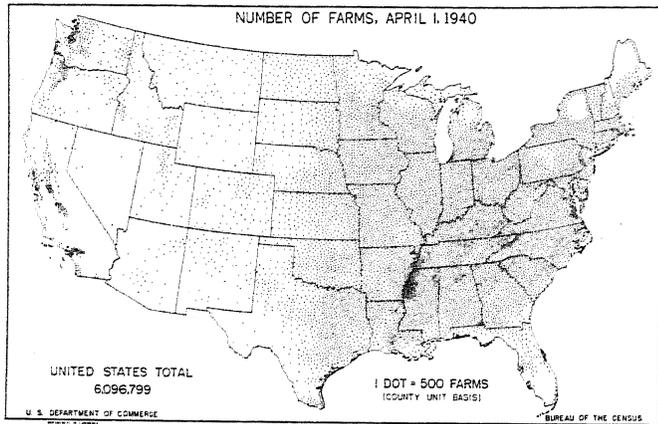
KENTUCKY

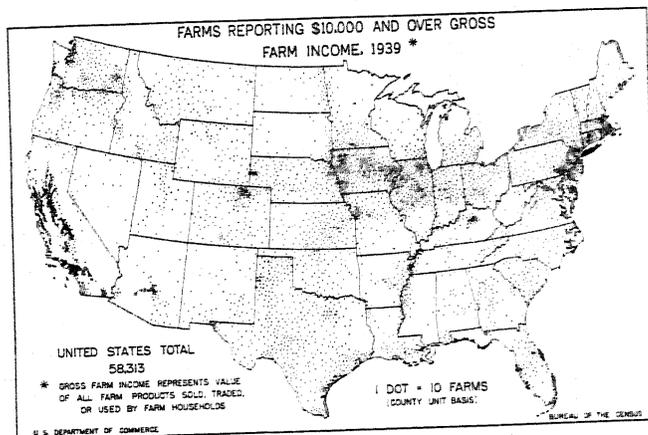
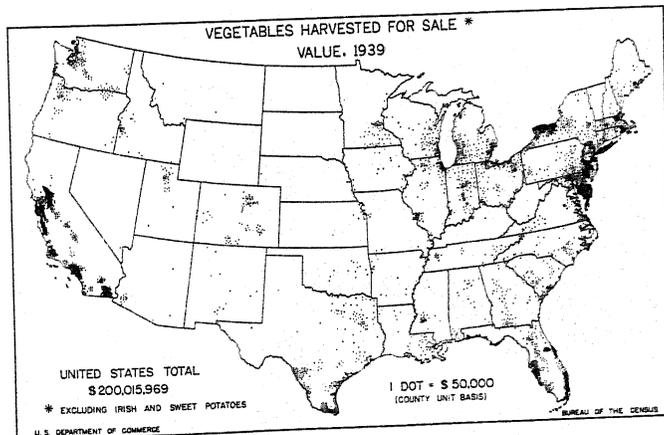
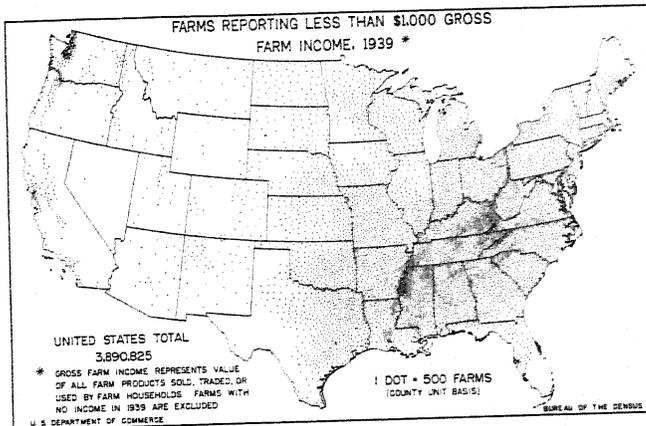
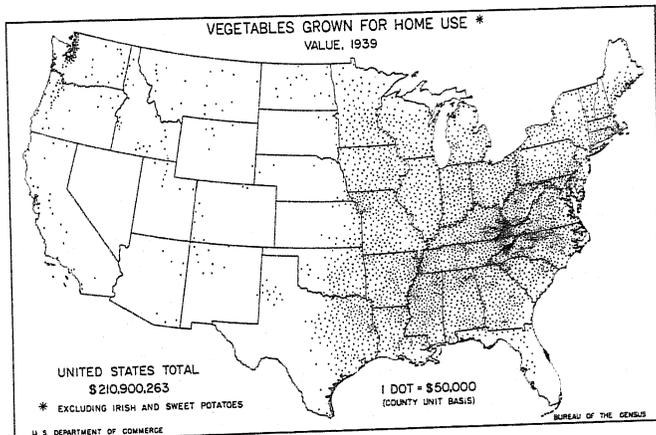
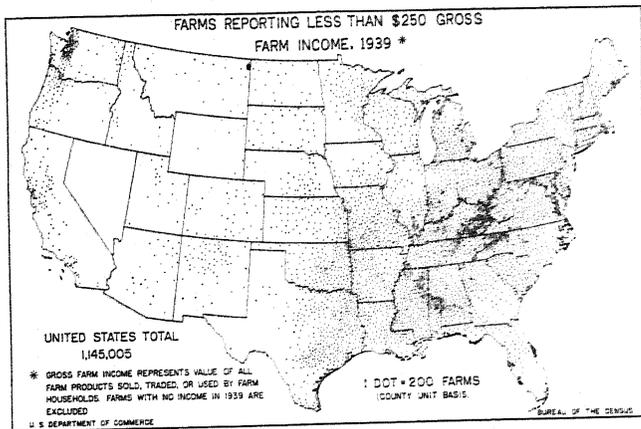
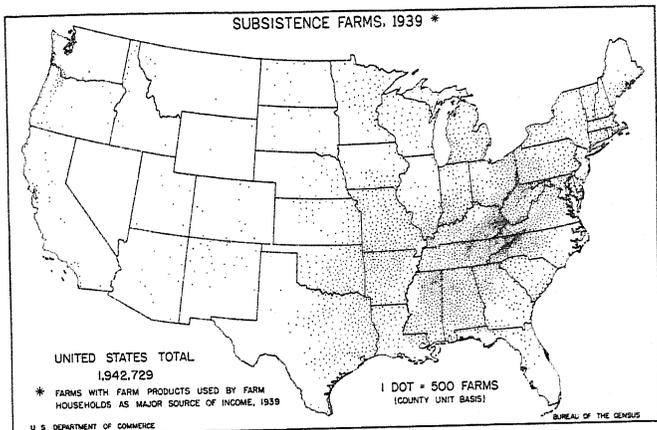
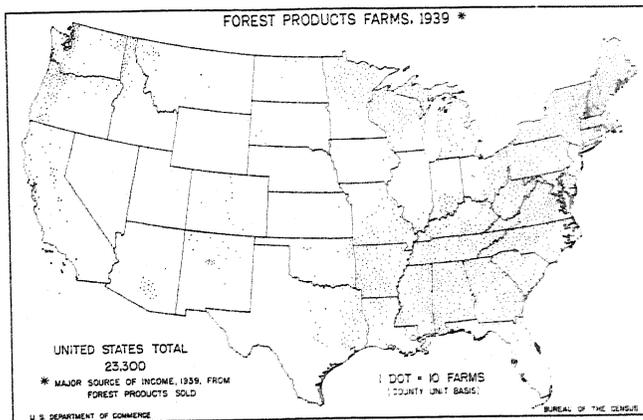
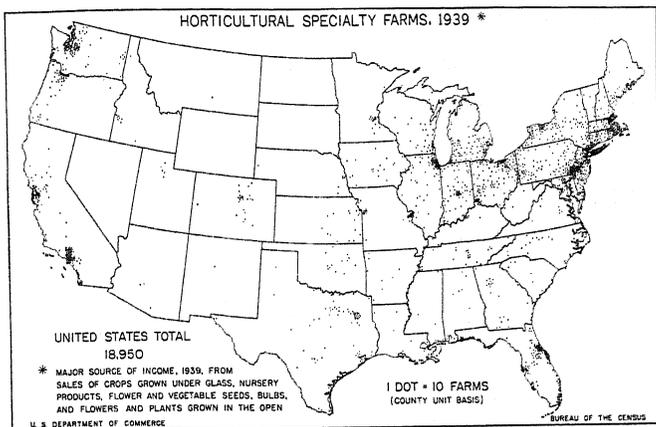


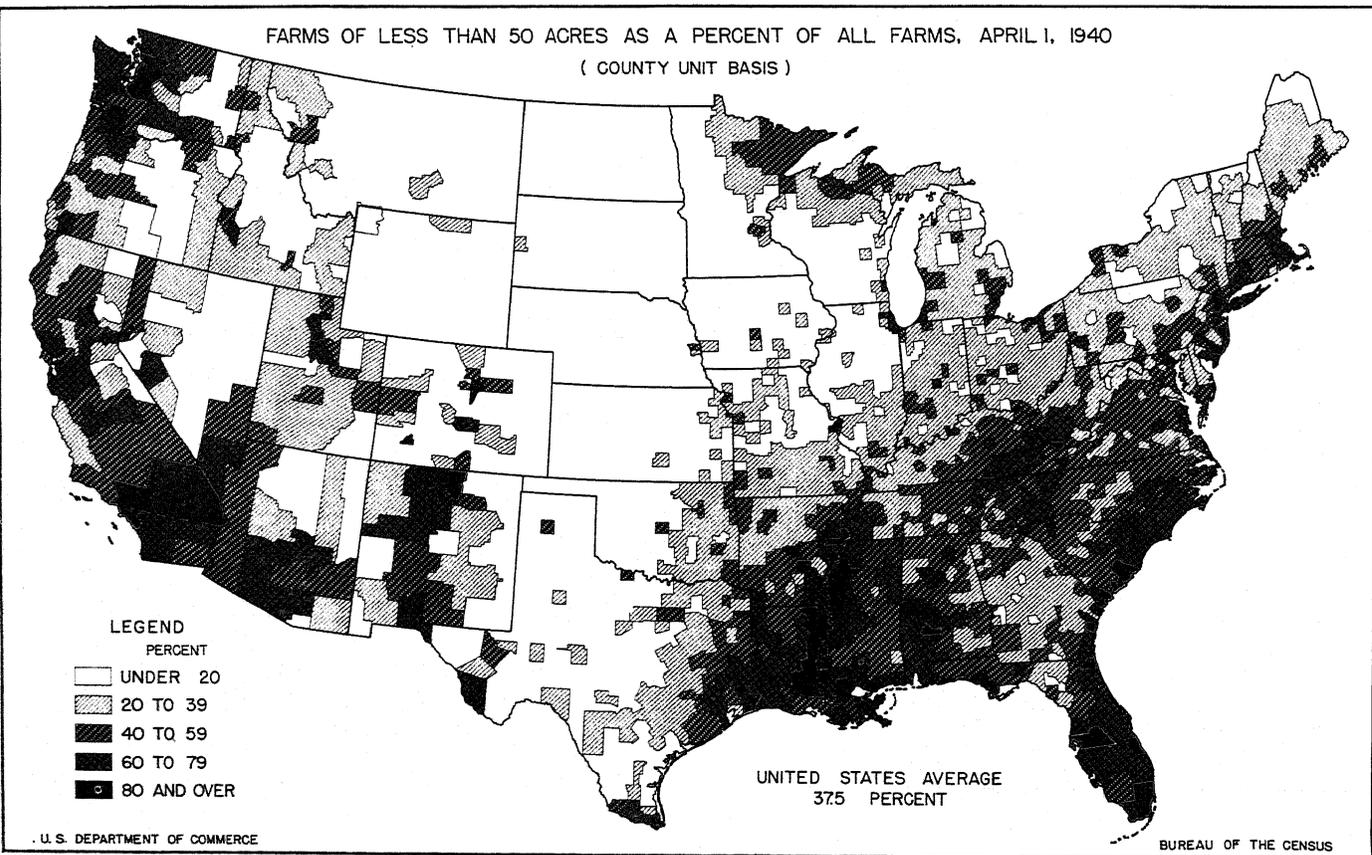
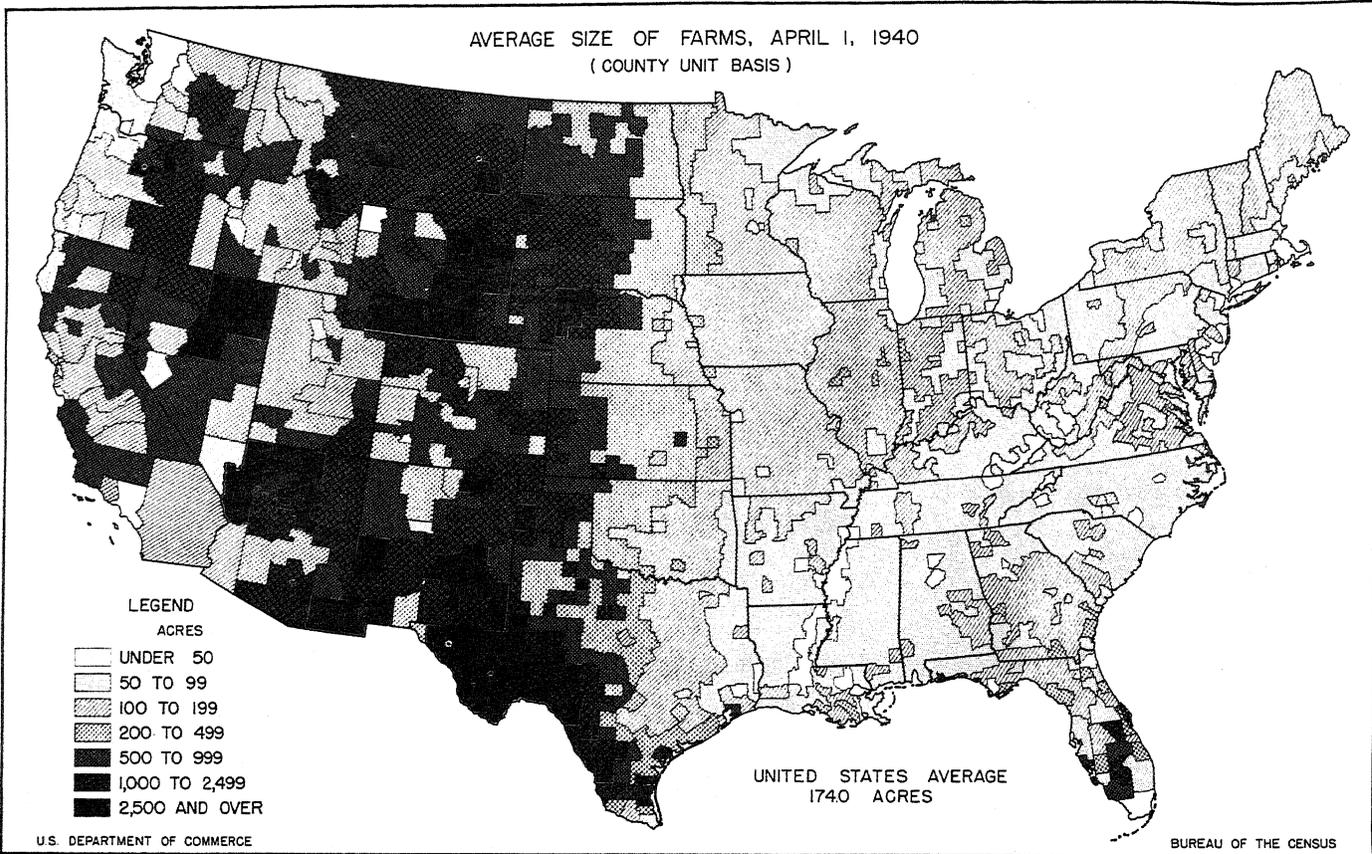
KENTUCKY TENNESSEE

TOBACCO	
FRUIT	
CORN	
SHEEP	
DAIRY COWS	
DAIRY PRODUCTS	
GRAIN	
WHEAT	
COTTON	
CATTLE	
VEGETABLES	
SORGHUM	
FORAGE	
LIVESTOCK	
FORESTS	
POULTRY AND EGGS	
POTATOES	
PEANUTS	

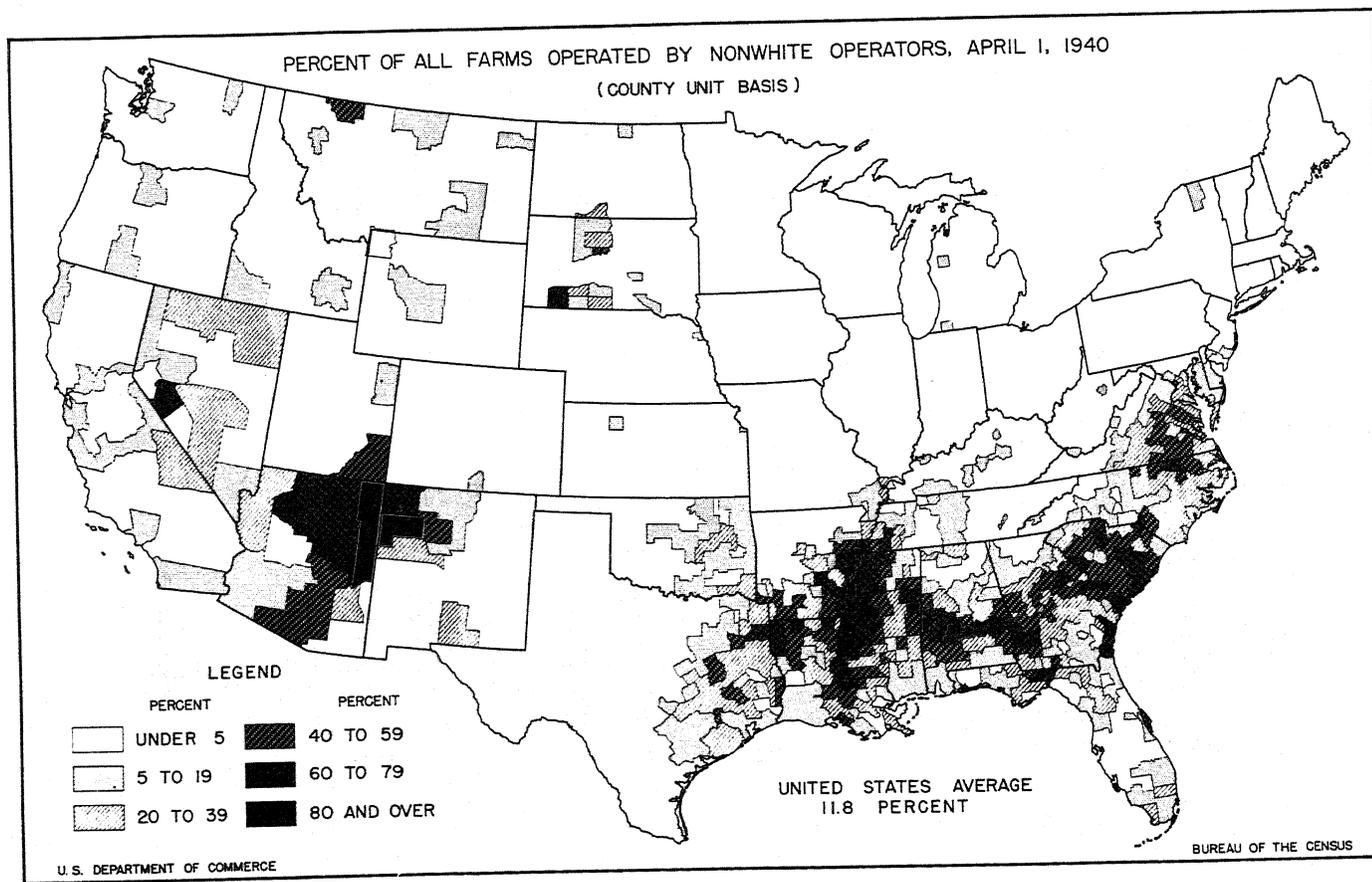
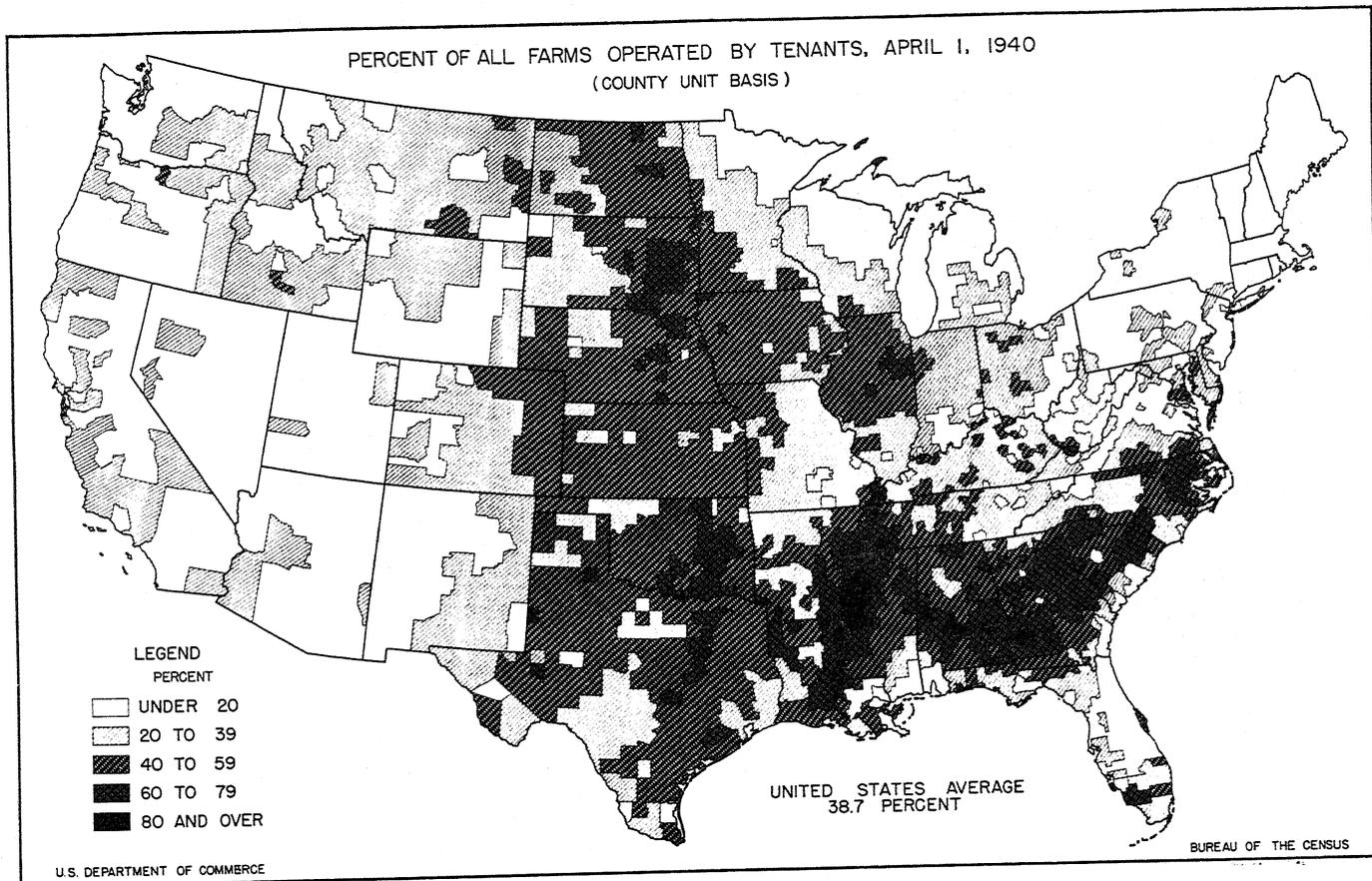
VISUAL EDUCATION DEPT. & WPA PROJECT, 1935-38



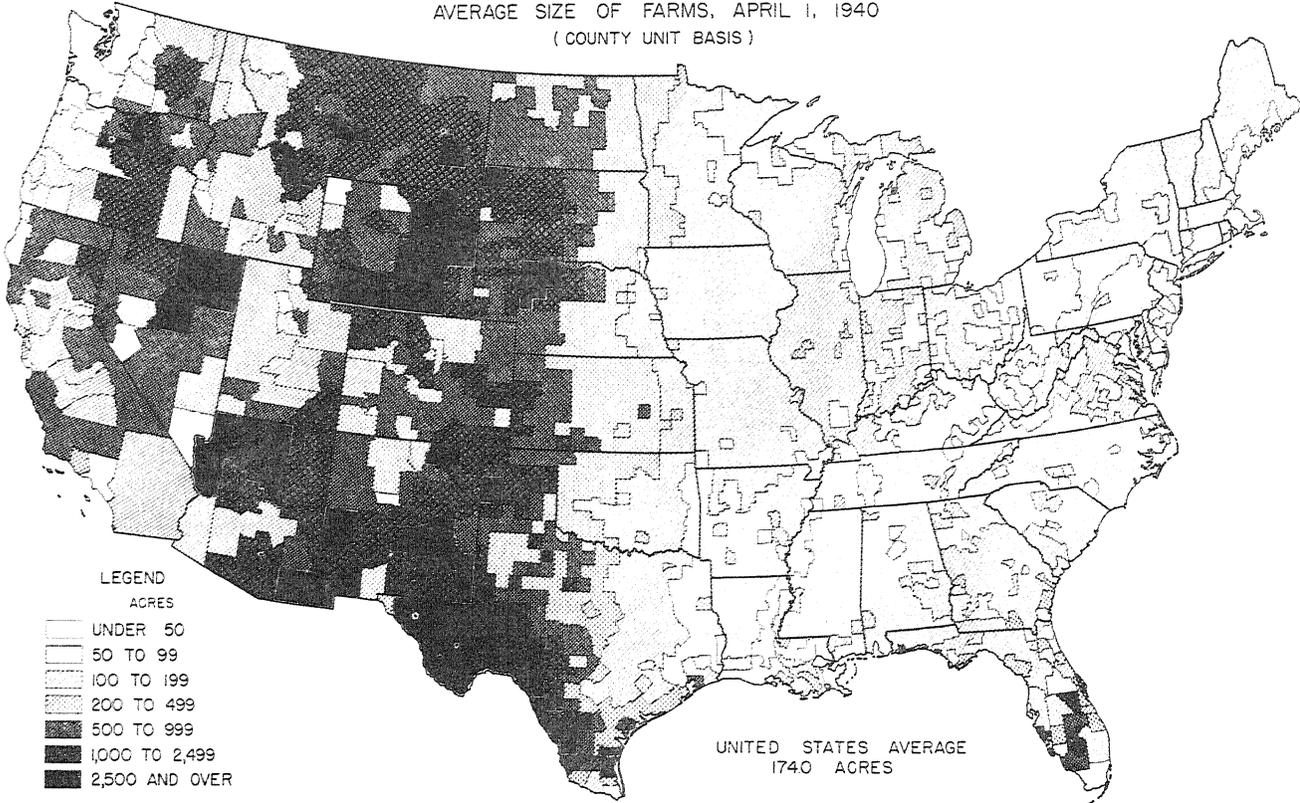




SAMPLE MAPS FROM CHAPTER III OF VOLUME III



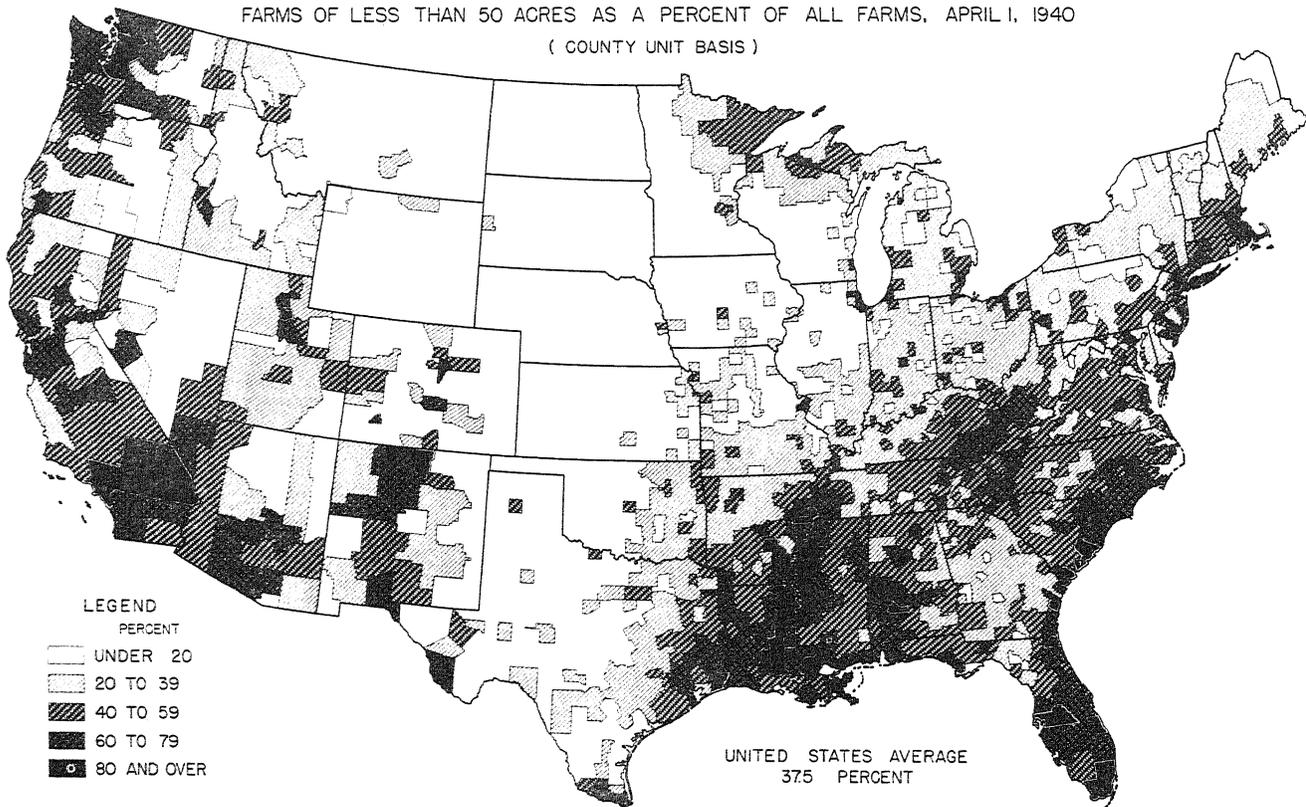
AVERAGE SIZE OF FARMS, APRIL 1, 1940
(COUNTY UNIT BASIS)



U.S. DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

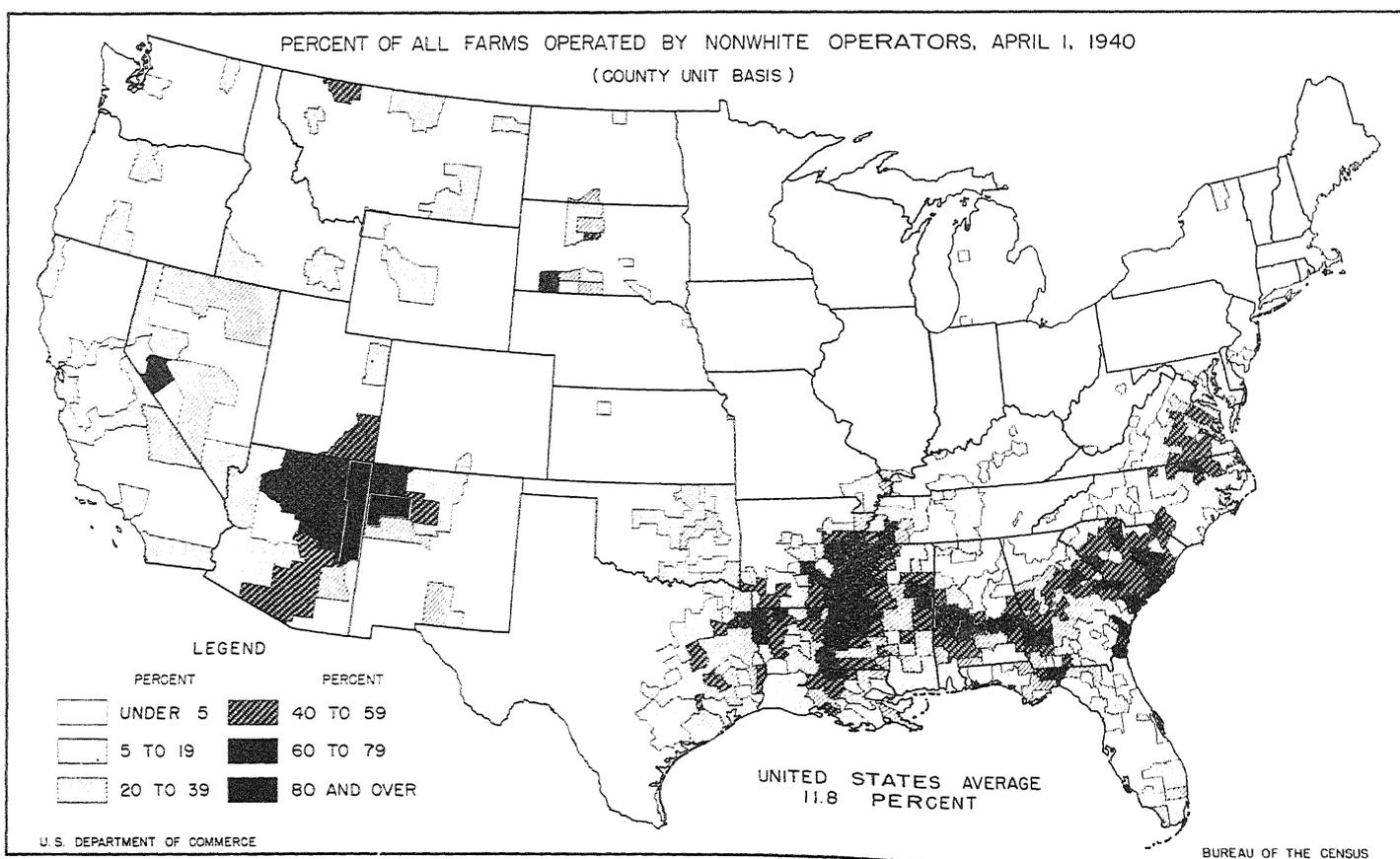
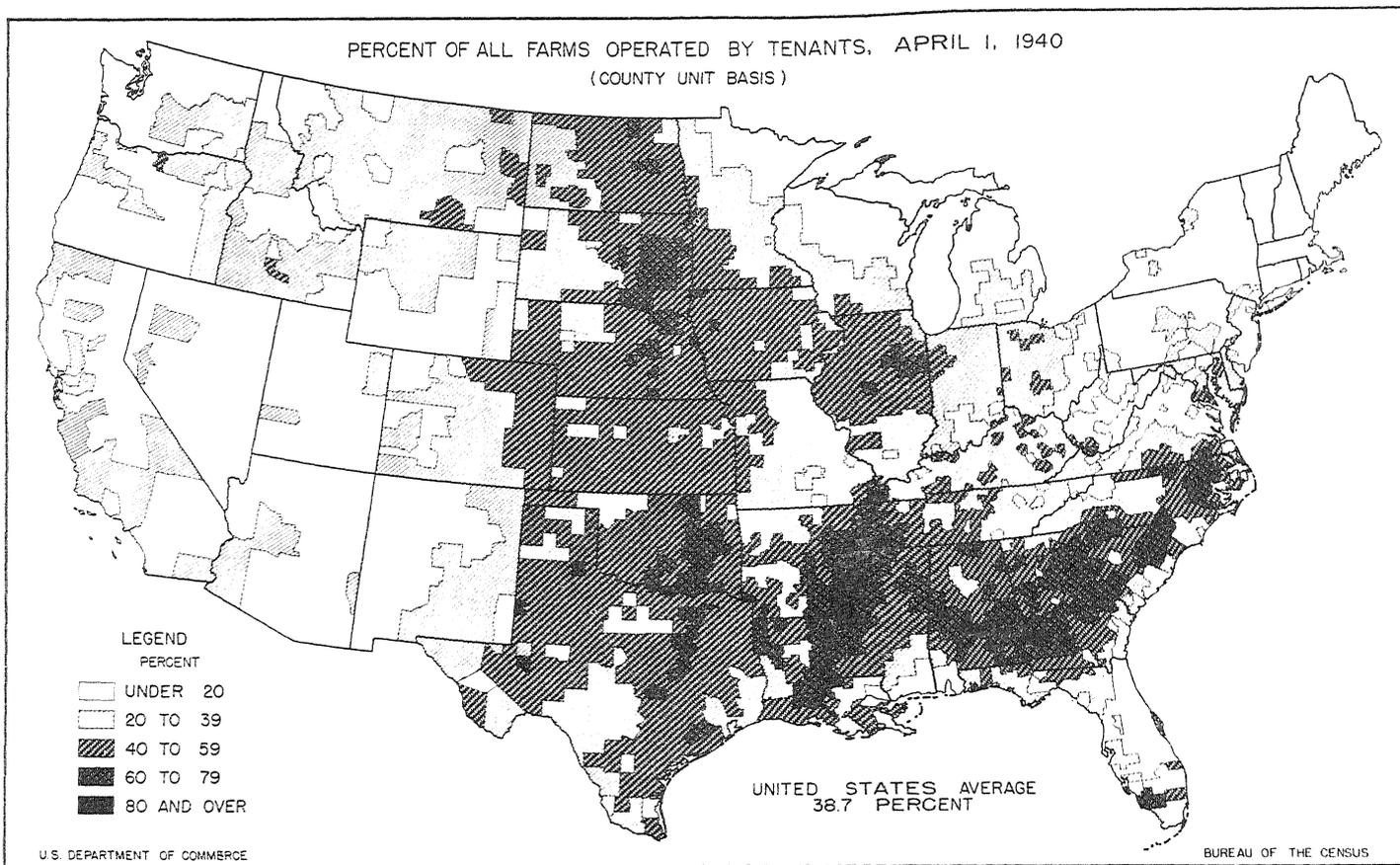
FARMS OF LESS THAN 50 ACRES AS A PERCENT OF ALL FARMS, APRIL 1, 1940
(COUNTY UNIT BASIS)



U.S. DEPARTMENT OF COMMERCE

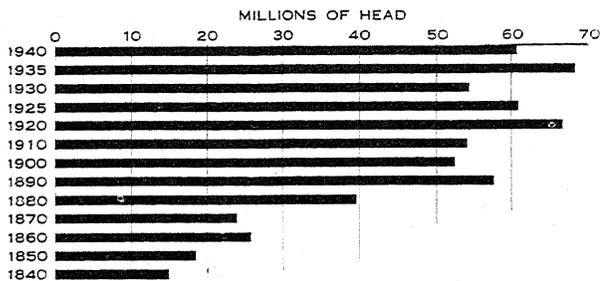
BUREAU OF THE CENSUS

SAMPLE MAPS FROM CHAPTER III OF VOLUME III

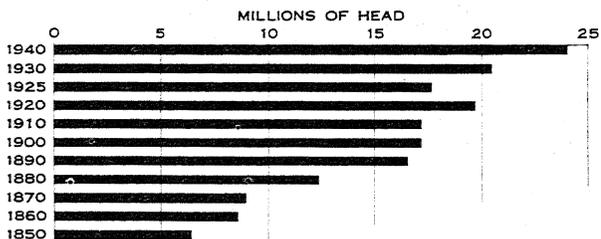


SAMPLE CHARTS FROM SPECIAL REPORT—COWS MILKED AND DAIRY PRODUCTS...

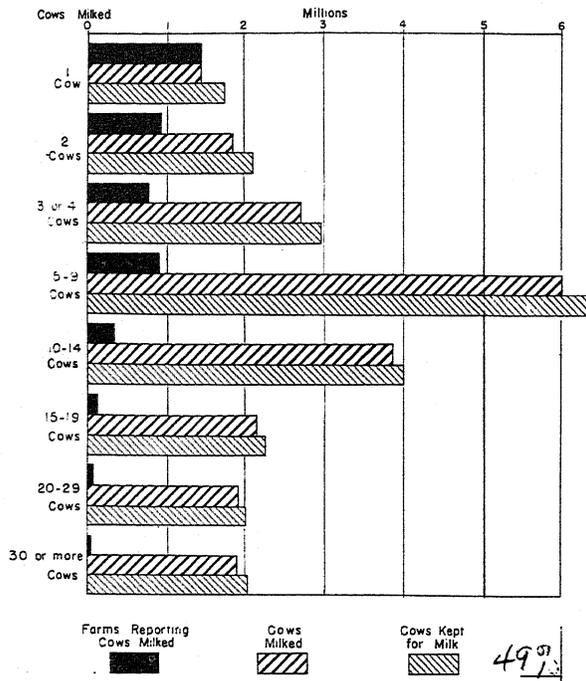
CATTLE - NUMBER IN THE UNITED STATES: 1840 - 1940



COWS KEPT MAINLY FOR MILK PRODUCTION - NUMBER IN THE UNITED STATES: 1850 - 1940



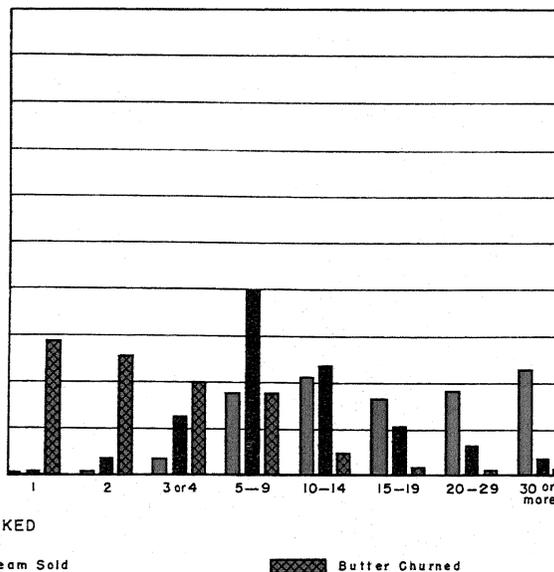
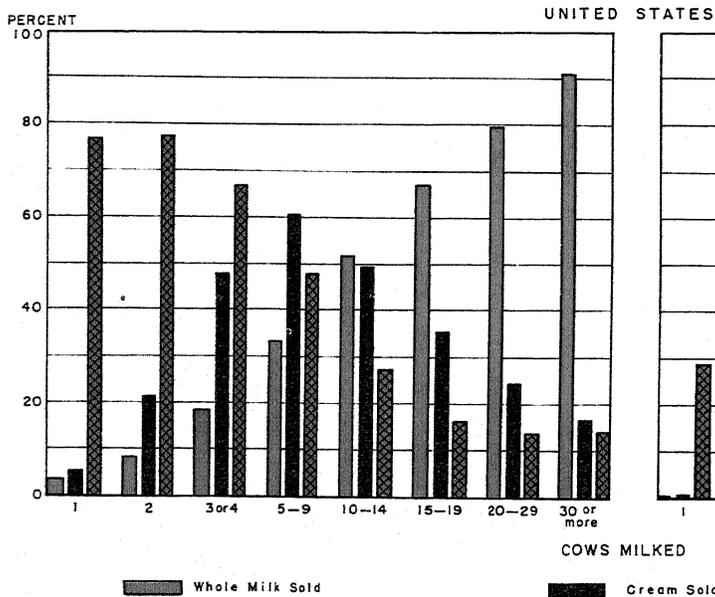
Classification by Number of Cows Milked - Farms Reporting and Number of Cows Milked, 1939, with Number of Cows Kept for Milk, April 1, 1940; for the United States



CLASSIFICATION BY NUMBER OF COWS MILKED IN 1939 FOR THE UNITED STATES AND SELECTED STATES

(a)---Percent of Total Farms in each Group Reporting Milk Sold, Cream Sold, and Butter Churned

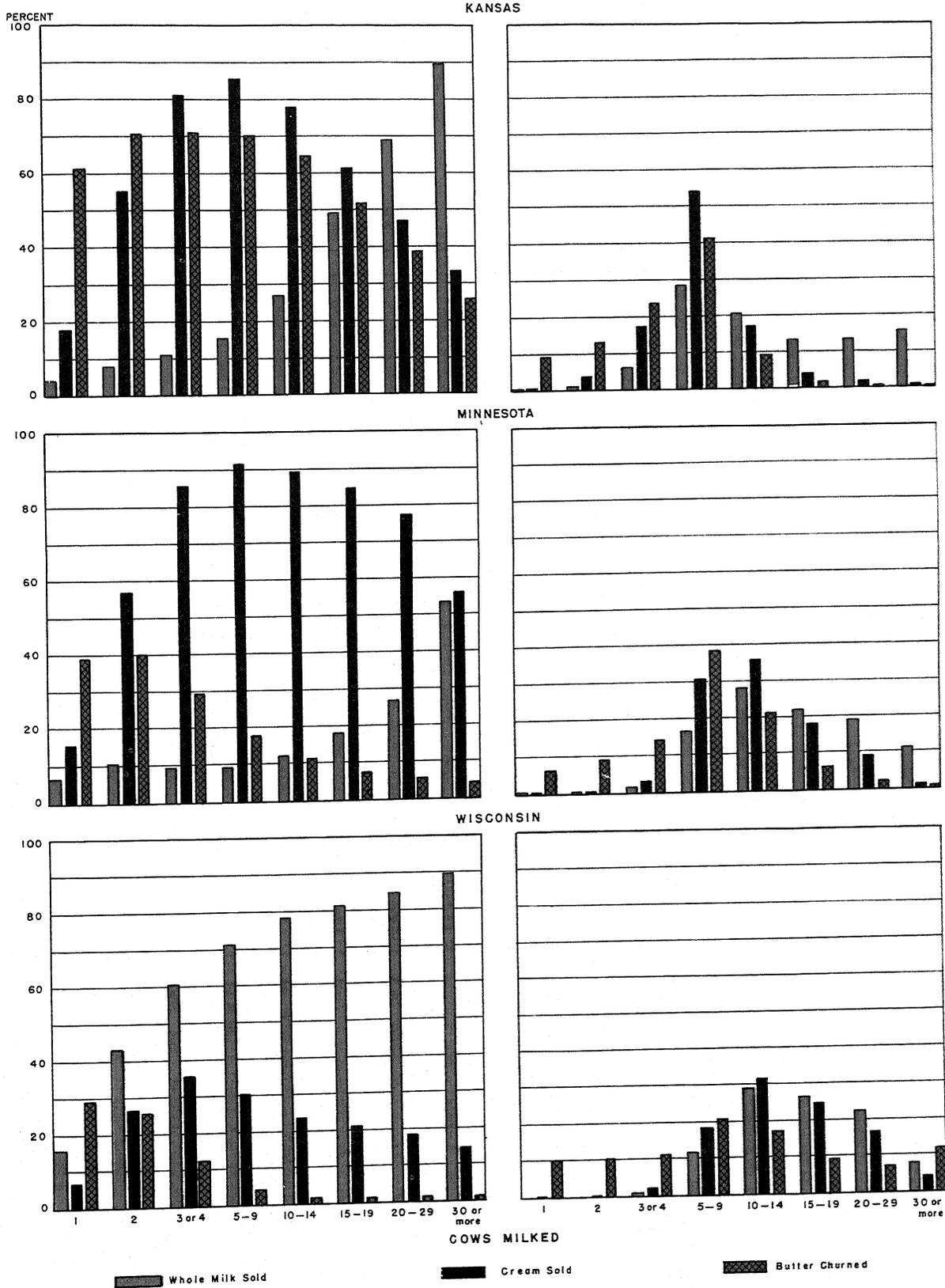
(b)---Percent Distribution of Total Quantities of Milk Sold, Cream Sold, and Butter Churned



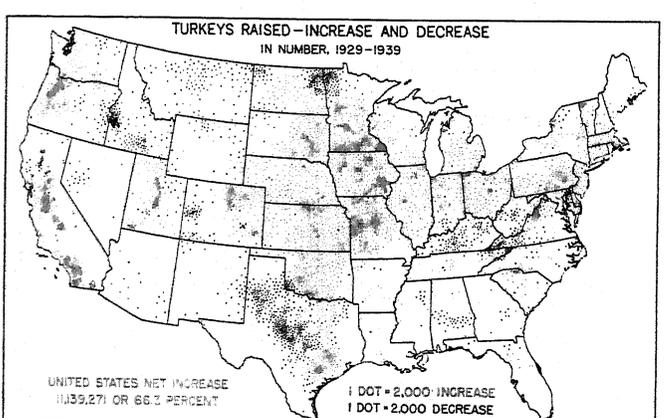
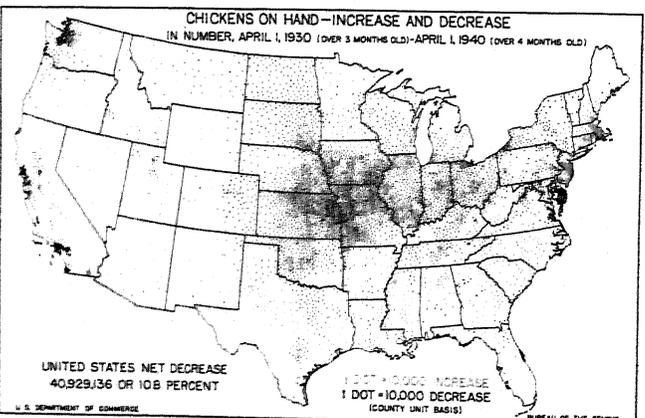
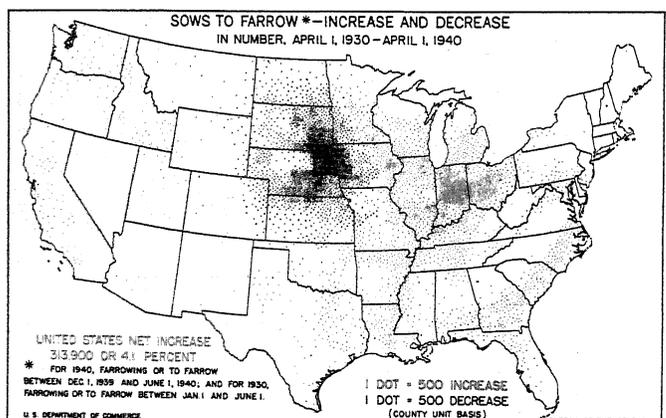
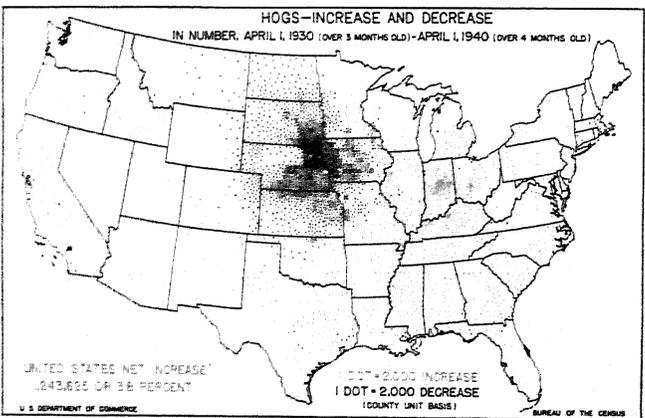
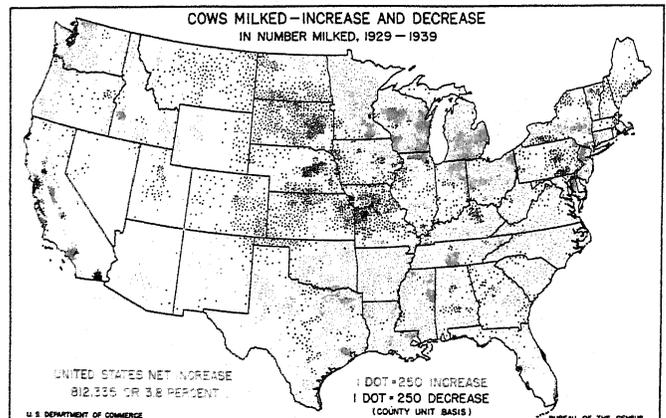
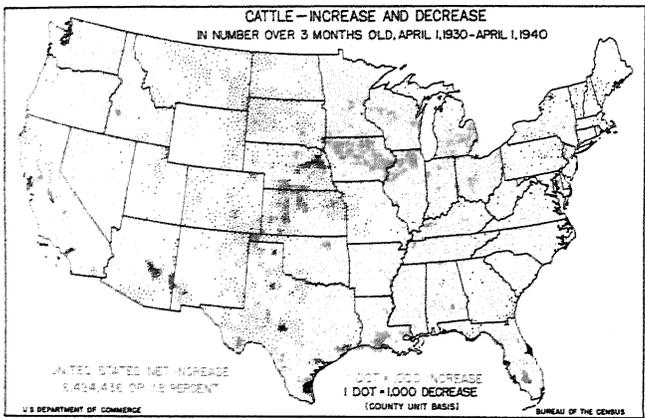
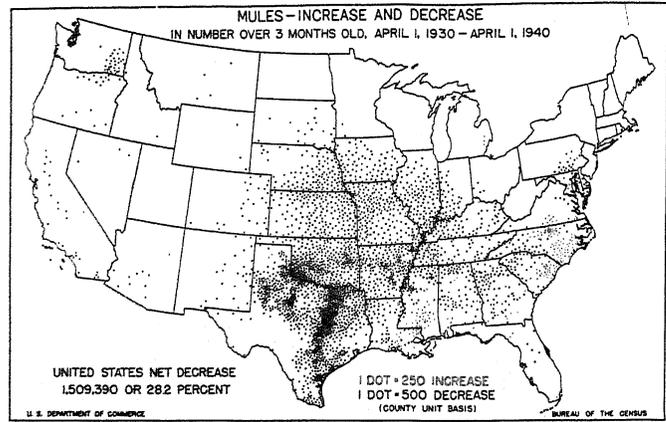
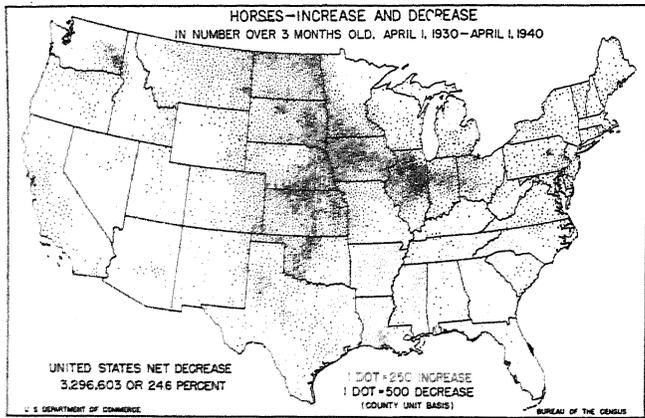
CLASSIFICATION BY NUMBER OF COWS MILKED IN 1939 FOR THE UNITED STATES
AND SELECTED STATES--Continued

(a)--Percent of Total Farms in each Group Reporting Milk Sold, Cream Sold, and Butter Churned

(b)--Percent Distribution of Total Quantities of Milk Sold, Cream Sold, and Butter Churned



SAMPLE MAPS FROM CHAPTER VII OF VOLUME III



Two excellent examples of special uses of Census data in schools follow: (1) A monograph entitled "Uses of the 1940 Census Data in Schools" by F. W. Lathrop, Specialist in Agricultural Education (Research) and E. J. Johnson, Regional Agent, Western Region, both of the United States Office of Education, Federal Security Agency. (This monograph, published in pamphlet form, is the result of informal cooperation between the Bureau of the Census and the Office of Education. The pages on which the publications of the 1940 Census were listed have been detached and a more complete list, with a brief description of the publications, is included at the end of this chapter.)

(2) An article entitled "Census Data and Farm Management Teaching" by E. B. Hill, Farm Management Department, Michigan State College.

The primary purpose of the monograph "Uses of 1940 Census Data in Schools" is to meet urgent requests for illustrative examples of the uses of agricultural census data in grade schools, and for information regarding the availability of such material.

The minor civil division tabulations which it contains illustrate how Census statistics are available for each locality, and lend themselves readily to simple computations and interpretations set forth in the discussions.

F. W. Lathrop, Specialist in Agricultural Education (Research) and E. J. Johnson, Regional Agent, Western Region, United States Office of Education, Federal Security Agency

Each time the Census is taken, more thought is given to the kinds of information which will further the local study of agriculture. The 1940 Census contains a tremendous amount of valuable information. Much of this information affords valuable teaching materials for the schools.

The Minor Civil Divisions

The Census publications have presented their arrays of figures using State and counties as units. Such figures are useful and essential but frequently they do not give an accurate picture of a particular section of a county or State. Ordinarily, a school service area is part of a county. It usually consists of several minor civil divisions.

The term "minor civil division" is used to designate the political units in which a county is divided for local administrative or judicial purposes, other than any type of independent municipality. These divisions are given various designations in different States and sometimes even in the same county.

In most States the designation is "townships," "towns," or "election precincts," and often a combination of two or more forms or unusual types as follows:

Alabama, Colorado, Florida, Idaho, New Mexico, and Oregon—election precincts
 Arizona—supervisory district
 California—judicial townships
 Connecticut, Massachusetts, New York, Rhode Island, and Wisconsin—towns
 Delaware—representative districts
 Georgia—militia districts
 Illinois, Nebraska, and Washington—election precincts and civil townships
 Kentucky, Virginia, and West Virginia—magisterial districts
 Louisiana—police jury wards
 Maine—gores, grants, islands, plantations, points, strips, towns, surpluses, and tracts
 Maryland and Wyoming—election districts
 Mississippi—beats
 Montana—school districts, election precincts, and civil townships
 Nevada—judicial districts and civil townships
 New Hampshire—grants, locations, purchases, and towns
 South Carolina—school districts and civil townships
 Tennessee—civil districts
 Texas—commissioners and justices precincts
 Utah—election districts and precincts
 Vermont—gores and towns
 All other States have civil townships only.

Following the 1935 Agriculture Census, the Bureau of the Census made photostatic copies of certain minor civil division tables. Several thousand of these copies were sold to schools and especially to teachers of vocational agriculture. The same plan will be followed with relation to the 1940 Census. Photostatic copies of the six tables, headings of which are shown in the illustrative tables of this publication, will be made available. There are six sheets (18" x 24") which can be obtained for \$0.35 per sheet. Half size sheets containing the same amount of data cost \$0.17½ per sheet. If a school service area is in parts of 2 counties two sets will be required. When ordering, it should be stated in what county or counties the school service area is included. Persons desiring to purchase a set of photostats should use money orders made payable to the Photostat Corporation and mail the same to the Bureau of the Census, Washington, D. C., for handling.

Specific Uses of Minor Civil Division Tables

The data for the minor civil divisions of a school area constitute a survey of that area insofar as the tables relate to the crop and livestock enterprises which are important in that community. This information has many of the uses of a farm survey made by a teacher of agriculture. However, the census data cover all the farms in the community whereas the teacher's farm survey would usually be a sampling of the farms in the community.

These tables might serve as a basis for the study of such production changes as are needed in relation to wartime needs. A study of the acreages and yields of crops and the numbers of livestock and the amounts of livestock products important in the war effort might show how certain essential foods might be increased. The amount of pasture land which is tillable is quite significant in this connection.

In revising courses of study, these tables will be valuable because they will indicate whether crop and livestock enterprises should receive more or less emphasis than they do at present and sometimes whether they should be included at all. If corresponding data from the 1935 Agricultural Census are available, some indication of trends may appear. Some enterprises will appear to be growing in importance, other enterprises will appear to be declining.

The minor civil division data are invaluable in the study of farm management. This will shed light on such questions as:

1. What are the types of farming?
2. Is there a good balance between livestock and crop production?

3. How can land use be made more effective? (The data would be of value in connection with the land use survey of a minor civil division.)
4. How well balanced is the investment in land, buildings, and equipment?
5. How do individual farms compare with minor civil division averages?
6. How widely diversified is the farming of the area?
7. What kinds and amounts of farm products are marketed?
8. What are the seasonal demands for farm labor and equipment?
9. What are the causes and extent of crop failure?

The information on number of farms in the different minor civil divisions will help school administrators and teachers to determine to what extent schools are reaching the farms in their service area.

Several teachers of agriculture located in the same county or in nearby counties, who have the minor civil division tables for their area, may well use this information as the basis of an informal cooperative study in relation to annual programs of work and course of study revision.

An Illustration

The illustrative sample shows the headings of tables 1 to 6 together with the data from the service area of the vocational agricultural department of the Gorham High School, Gorham, Maine. In this State, most minor civil divisions are called towns. The instructional program of the department extends over five towns, Gorham, Scarborough, and Windham in Cumberland County, and Buxton and Hollis in York County. The minor civil division data for these five towns constitute a farm survey of the service area of this agriculture department. This survey is not complete in that the tables which relate to fruit and vegetables are not included. It happens that fruit and vegetables are rather important in certain parts of this service area. Additional tabulations showing information for fruits and vegetables, and many other items, are in the process of preparation and, when completed, will throw more light both on farm characteristics and farm operator characteristics in the area.

The data show that this is an area of rather small farms. The average acres per farm are 66 as compared with 108 for the State. The more important livestock enterprises are dairying and poultry. The more important field crops are corn and hay.

The following table (table A) consists of averages for this service area which are based on tables 1 to 6 in the folded insert. Included also are corresponding averages for the State. Averages per farm in all cases are based on the number of farms reporting.

TABLE A.—SELECTED AVERAGES FOR THE STATE OF MAINE AND FIVE TOWNS COMPRISING THE SERVICE AREA OF GORHAM HIGH SCHOOL, 1940 CENSUS

ITEM	State	Total Service Area	Gorham	Scarborough	Windham	Buxton	Hollis
Percentage of total land used for crops	27.5	36.9	44.0	29.6	39.0	34.4	29.5
Percentage of plowable pasture	7.6	15.3	9.8	13.8	31.2	15.4	6.9
Percentage of woodland	42.2	28.4	28.8	28.8	20.1	36.4	38.4
Value, farm buildings per farm	\$1,777	\$2,158	\$2,505	\$2,883	\$1,905	\$1,692	\$1,876
Value, implements and machinery per farm	\$647	\$483	\$520	\$557	\$491	\$435	\$317
Horses and colts over 3 mo. old per farm reporting	1.95	1.81	2.19	1.66	1.60	1.69	1.50
Hogs and pigs over 4 mo. old per farm reporting	3.25	3.95	4.48	5.26	3.67	2.44	1.67
Cows and heifers kept for milk per farm reporting	4.90	6.11	7.75	4.66	6.22	5.98	4.15
Milk produced (gals.) per cow	532	619	642	553	658	598	547

The following statements seem to be justified:

Land Use

More than one-third, or 36.9 percent, of the farm land in this area is in crops as compared with one-fourth, or 27.5 percent, of the farm land of the State. Within the area, the town of Gorham has 44 percent of its farm land in crops. The towns of Scarborough and Hollis have only 29 percent in crops. These figures indicate a variation in the types of farming within the area.

Plowable pasture in the area is 15.3 percent of the farm land as compared with a State figure of 7.6 percent. There is much variation among the towns in the percentage of plowable pasture. The town of Windham has 31.2 percent as compared with the town of Hollis which has 6.9 percent. A land-use survey would no doubt reveal the reasons for this variation and would also indicate how much of the plowable pasture could be profitably devoted to crop production.

A very large percentage, 42.2 percent, of the farm land in the State is in woodland. The percentage in the area is 28.4 percent. The farm wood lot could be an important enterprise on many farms and deserves inclusion and emphasis in the course of study.

The towns are quite different in respect to land use as illustrated by a comparison of the towns of Windham and Gorham. Windham is high in cropland and pasture and low in woodland. Gorham is high in cropland, low in pasture, and average in the percentage of woodland.

Value of Buildings and Equipment

Buildings are better than the average for the State. The value of farm buildings per farm in the area is \$2,158, the average for the State is only \$1,777. Averages within the area range from \$1,692 in Buxton to \$2,883 in Scarborough.

The value of buildings in this area is a high proportion of the value of the farms. From table 1 it is ascertained that buildings are valued at 63.3 percent of the total value of farms. The corresponding figure for the State is 54.8 percent. The housing requirements of the dairy and poultry enterprises are factors in the high building investment. Both dairy herds and poultry flocks average larger than in the State as will be shown below. The small size of farm suggests that some of the farms are part-time farms. The value of dwellings on these part-time farms is usually supported by nonfarm income. The number of part-time farms in this area will appear in a later tabulation.

The value of implements and machinery per farm is smaller in the area than in the State, \$647 in the State and \$483 in the area. This again may be due to the small size of the farms in the area. Averages ranged from \$317 in Hollis to \$557 in Scarborough. A further study of these figures may have some significance for the farm mechanics instruction which is offered.

Horses and Colts

The State average per farm is 1.9 horses and the area average per farm is 1.8 horses. These figures by themselves have little significance because in recent years the farm tractor has come into the picture.

Hogs

The area average per farm is 3.9 hogs and pigs. The swine enterprise in this area is mainly for the home supply of pork.

Cows and Heifers Kept for Milk

The State average per farm is 4.9 cows and the area average is 6.1 cows. The size of dairy herd ranges from 4.1 cows in Hollis to 7.7 in Gorham. Dairy cows are reported by 60 percent of the farms in the area. Dairy cows are reported by 69 percent of the farms in Windham. There is a relationship between the percentage of farmers reporting dairy cows and the percentage of plowable pasture as is illustrated by the Windham and Hollis figures.

Milk Produced

The cows in this area are considerably better producers than those in the State as a whole. The State average production of milk was 532 gallons per cow, and the average production in the area was 619 gallons per cow. The town of Windham shows the best production per cow or 658 gallons. The average production per cow in the United States was 524 gallons.

Poultry

The best index of the size of the laying flock is "chickens on hand over 4 months old." The average for the area was 121 birds as compared with the State average of 77 birds. It should be noted that these averages particularly in small areas can be greatly affected by a few large flocks in the area. Within the area the flocks in the town of Gorham average 170 birds as compared with the average of 56 birds for the town of Hollis. About half of the farms in the area report chickens on hand. Poultry has become an important enterprise in this area.

Field Crops

As mentioned previously, tables 1 to 6 do not include vegetables and fruits. The most important field crops included are corn and hay. These are contributory to the livestock enterprise. The manure from the livestock enterprise is probably an important factor in the high yields of certain of the crops.

Corn for Grain

Corn harvested for grain averaged 1.9 acres for the State and 2.9 acres for this area. Gorham farms averaged 4.8 acres of corn for grain per farm. This is much greater than the average for any of the other towns.

Corn for grain yielded 46 bushels in this area and 41 bushels in the State as a whole. In the town of Hollis the yield was 49.5 bushels.

Corn for Silage

The average acreage of corn for silage in the State was 4.3; for this area it was 6.2. Corn for silage yielded 10.9 tons per acre in the State and 10.8 tons in the area. Silage corn yielded above the average of the area in the towns of Gorham and Scarborough.

Only 6 percent of the farmers in the area grew corn silage and 27 percent of the farmers sold whole milk. Dairymen in this area seem to get good milk production despite the small percentage of dairymen who grew silage corn.

Clover or Timothy Hay, Alone or Mixed

Of the 1,089 farms in the area slightly more than half, or 564, grew clover or timothy as compared with 49 percent of the farms in the State. The farms of the State grew 21.3 acres per farm; the farms of the area grew 24.5 acres per farm. The towns varied less in the amount of clover and timothy grown per farm. The yield of hay is somewhat lower in the area than in the State, 0.93 tons per acre as compared with 1.1 tons per acre. Timothy and clover both because of its large acreage and its rather low yield would seem to merit emphasis in the course of study.

Teachers who desire to use this plan should go carefully over every detail. In writing for any of the material he should attend the needs for the entire class in order to avoid unnecessary correspondence and to be sure the proper items are secured.

¹ A description of the 1940 Census publications, together with a list of the material available, is shown at the end of the chapter.

TABLE 1.—NUMBER OF FARMS, LAND IN FARMS CLASSIFIED ACCORDING TO USE, AND BY COUNTIES AND MINOR CIVIL DIVISIONS:

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

COUNTY AND MINOR CIVIL DIVISION	Number of Farms	LAND IN FARMS, APR. 1, 1940, CLASSIFIED ACCORDING TO USE IN 1939									
		All land in farms (acres)		Cropland harvested		Crop failure		Cropland idle or fallow		Plowable pasture	
		Total	Average per farm	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres
Gorham	340	22,084	65.0	335	9,898	5	16	41	439	96	2,174
Scarborough	192	12,440	64.8	155	3,226	24	459	55	927	120	1,716
Windham	230	14,674	63.8	225	5,721	—	—	8	111	197	4,585
Buxton	195	14,758	75.7	192	5,056	6	16	23	251	100	1,978
Hollis	132	8,097	61.3	128	2,591	—	—	9	62	38	562
Total	1,089	72,055	66.2	1,029	26,092	35	491	136	1,790	551	11,015

¹ Cropland harvested and crop failure.

² Cropland harvested, crop failure, idle or fallow cropland, and plowable pasture.

TABLE 2.—HORSES, MULES, HOGS, AND CATTLE, ON FARMS AND RANCHES, APR. 1, CREAM, AND BUTTER, 1939; BY COUNTIES AND MINOR CIVIL

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

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COUNTY AND MINOR CIVIL DIVISION	Farms reporting horses and/or mules	HORSES AND COLTS OVER 3 MO. OLD				MULES AND MULE COLTS OVER 3 MO. OLD				HOGS AND PIGS OVER 4 MO. OLD			
		Total		Colts 3 to 27 mo. old		Total		Colts 3 to 27 mo. old		Total		Sows and gilts to farrow ¹	
		Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number
Gorham	127	127	278	5	13	—	—	—	—	44	197	10	29
Scarborough	76	74	123	—	—	3	6	—	—	38	200	7	22
Windham	92	92	147	1	—	—	—	—	—	36	132	2	—
Buxton	69	66	115	1	—	2	—	—	—	16	39	7	12
Hollis	37	36	54	—	—	2	—	—	—	18	30	5	5
Total	401	397	717	7	13	7	6	—	—	152	598	31	68

¹ Sows and gilts that farrowed since Dec. 1, 1939 or to farrow before June 1, 1940.

TABLE 3.—SHEEP ON FARMS AND RANCHES, WOOL SHORN, AND BY COUNTIES AND MINOR CIVIL DIVISIONS:

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

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COUNTY AND MINOR CIVIL DIVISION	SHEEP AND LAMBS OVER 6 MO. OLD								SHEEP AND LAMBS SHORN		
	Total		Ewes						Farms reporting	Number shorn	Wool shorn (pounds)
	Farms reporting	Number	Farms reporting	Number	Yearling ewes ¹		Other ewes				
Code	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number shorn	Wool shorn (pounds)
Gorham	7	73	4	52	4	16	4	36	7	55	348
Scarborough	4	17	3	8	2	—	1	—	4	26	154
Windham	3	40	1	—	1	—	1	—	3	51	262
Buxton	8	55	8	47	6	31	6	16	7	48	322
Hollis	2	—	1	—	1	—	—	—	1	—	—
Total	24	185	17	107	14	47	12	52	22	178	1,066

¹ Between 6 and 18 mo. of age.

**VALUE OF LAND AND BUILDINGS, BUILDINGS, AND IMPLEMENTS AND MACHINERY;
FEDERAL FARM CENSUS, APR. 1, 1940**

stub or notes. In general, deletions were made to avoid disclosures)

LAND IN FARMS, APR. 1, 1940, CLASSIFIED ACCORDING TO USE IN 1939—Con.							FARM VALUES						
Woodland		All other land in farms		Land used for crops ¹		Farms reporting Land available for crops ²	Land and buildings			Buildings		Implements and machinery	
Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres		Amount (dollars)	Average per farm	Average per acre	Farms reporting	Amount (dollars)	Farms reporting	Amount (dollars)
207	5,440	317	4,317	333	9,714	338	1,221,402	3,592	55.31	334	769,727	273	142,061
128	3,578	149	2,534	154	3,685	190	823,600	4,290	66.21	188	541,950	158	88,072
140	2,943	211	1,314	223	5,721	227	751,700	3,268	51.23	230	437,700	210	103,305
157	5,379	192	2,078	192	5,072	195	520,410	2,669	35.26	194	328,310	165	71,808
78	3,107	132	1,975	128	2,391	131	348,440	2,640	43.03	130	243,900	98	31,040
710	20,447	1,001	12,218	1,030	26,583	1,081	3,665,552	3,366	50.87	1,076	2,321,587	904	456,287

**1940; AND COWS MILKED, PRODUCTION OF MILK AND BUTTER, AND SALES OF MILK,
DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940**

stub or notes. In general, deletions were made to avoid disclosures)

CATTLE AND CALVES OVER 3 MO. OLD				COWS MILKED AND DAIRY PRODUCTS, 1939										
Total		Cows and heifers 2 yr. old and over Jan. 1, 1940		Cows and heifers milked		Milk produced (gallons)	Butter churned		Whole milk sold		Cream sold		Butter sold	
Farms reporting	Number	Farms reporting	Number kept for milk	Farms reporting	Number		Farms reporting	Pounds	Farms reporting	Gallons	Farms reporting	Pounds of butterfat	Farms reporting	Pounds
196	2,358	129	1,465	196	1,350	866,730	60	55,022	81	673,576	4	3,700	29	28,444
118	859	116	540	110	494	273,275	47	12,418	45	181,819	3	1,320	19	7,210
161	1,355	158	982	159	933	614,427	58	50,224	88	477,754	3	2,908	29	24,218
120	1,164	117	700	118	679	406,437	66	18,799	56	296,355	10	4,728	32	12,036
73	475	73	303	74	276	151,177	36	8,557	34	103,102	3	343	16	4,311
668	6,211	653	3,990	657	3,732	2,312,044	267	105,020	304	1,742,606	23	12,999	125	76,219

**SPECIFIED CLASSES OF POULTRY ON HAND, RAISED, AND SOLD,
FEDERAL FARM CENSUS, APR. 1, 1940**

stub or notes. In general, deletions were made to avoid disclosures)

ANY POULTRY		CHICKENS						TURKEYS				DUCKS			
On hand, farms reporting	Raised, farms reporting	On hand over 4 mo. old		Raised		Sold		On hand over 4 mo. old		Raised		On hand over 4 mo. old		Raised	
		Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number
165	160	157	26,651	153	35,257	88	56,403	12	94	12	954	11	59	3	54
113	96	111	16,576	82	36,060	36	24,978	4	172	2	■	3	18	2	■
122	92	120	12,830	81	31,195	68	21,779	5	40	3	41	2	■	1	■
114	102	112	8,320	99	21,574	82	13,113	10	64	12	577	■	■	■	■
65	57	61	3,419	56	11,112	34	8,157	5	27	2	■	3	8	1	■
575	507	561	67,776	491	135,198	288	124,430	36	397	31	1,572 +2 ■	19	85 +1 ■	7	54 +3 ■

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TABLE 4.—CORN, SORGHUMS, MIXED GRAINS, AND WHEAT; BY COUNTIES

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

COUNTY AND MINOR CIVIL DIVISION Code	CORN										SORGHUMS	
	Harvested for all purposes		Harvested for grain			Cut for silage			Hogged or grazed or cut for fodder		Harvested for all purposes except sirup	
	Farms reporting	Acres	Farms reporting	Acres	Bushels	Farms reporting	Acres	Tons	Farms reporting	Acres	Farms reporting	Acres
Gorham	60	372	31	150	7,128	33	214	2,424	7	8	5	7
Scarborough	53	156	12	17	617	8	32	384	37	107	—	—
Windham	19	72	4	7	290	8	54	530	7	11	—	—
Buxton	37	151	14	20	891	14	107	1,139	11	24	—	—
Hollis	26	52	9	12	594	6	27	250	11	15	—	—
Total	195	803	70	206	9,520	69	454	4,727	73	165	5	7

¹ Other than a flax and wheat mixture.

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TABLE 5.—OATS AND HAYS; BY COUNTIES AND MINOR

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

COUNTY AND MINOR CIVIL DIVISION Code	OATS						ALL HAY, EXCLUSIVE OF SORGHUMS						
	Farms reporting any oats ¹	Threshed for grain			Cut and fed unthreshed		Farms reporting any hay	Annual legumes saved for hay			Alfalfa hay		
		Farms reporting	Acres	Bushels	Farms reporting	Acres		Farms reporting	Acres	Tons	Farms reporting	Acres	Tons
Gorham	29	27	178	6,051	3	28	—	—	—	—	—	—	—
Scarborough	31	7	36	1,580	24	47	1	—	—	—	1	—	—
Windham	9	—	—	—	9	36	—	—	—	—	1	—	—
Buxton	13	2	—	—	11	55	—	—	—	—	1	—	—
Hollis	5	—	—	—	5	10	—	—	—	—	—	—	—
Total	87	36	214 { +1	7,631 { +1	52	176	1	—	—	—	3	—	—

¹ Includes oats threshed for grain and oats cut for grain when ripe or nearly ripe and fed unthreshed but does not include oats cut for hay.

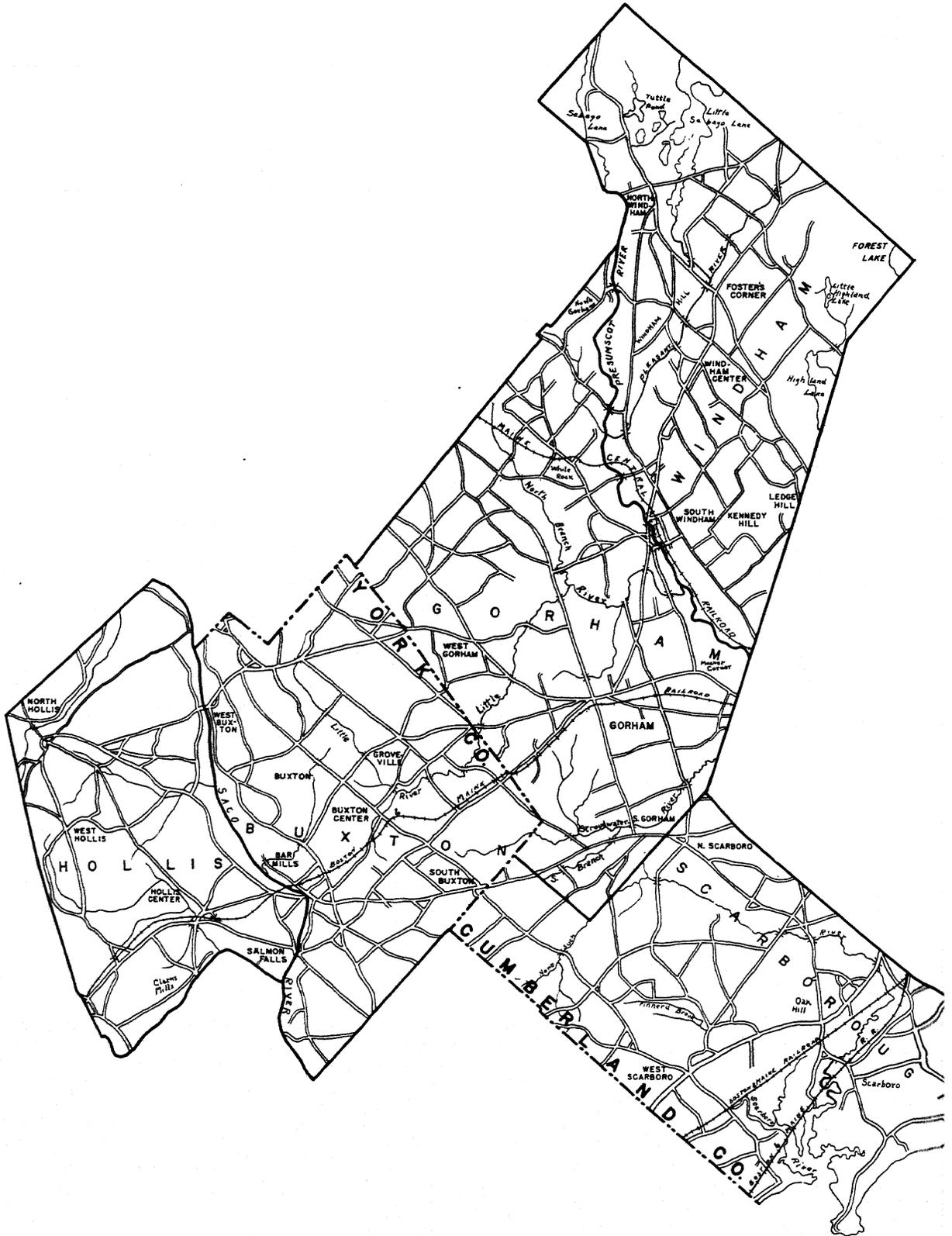
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TABLE 6.—BARLEY, RYE, FLAX, BUCKWHEAT, RICE; AND IRISH POTATOES, BY COUNTIES AND MINOR CIVIL DIVISIONS:

(No farms were reported in 1940 for Minor Civil Divisions not shown in either

COUNTY AND MINOR CIVIL DIVISION Code	BARLEY THRESHED			RYE THRESHED			FLAX THRESHED			BUCKWHEAT THRESHED		
	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels
Gorham	1	—	—	—	—	—	—	—	—	—	—	—
Scarborough	1	—	—	—	—	—	—	—	—	—	—	—
Windham	—	—	—	—	—	—	—	—	—	1	—	—
Buxton	—	—	—	—	—	—	—	—	—	—	—	—
Hollis	—	—	—	—	—	—	—	—	—	—	—	—
Total	2	—	—	—	—	—	—	—	—	3	—	—

SCHOOL SERVICE AREAS



CENSUS DATA AND FARM MANAGEMENT TEACHING

By E. B. Hill, Farm Management Department, Michigan State College

One of the objectives of Farm Management is to serve as an integrating subject in the field of agriculture. In this subject, the student has an opportunity to study what each part of the farm, such as the soil, crops, livestock, labor, machinery, and buildings contributes to the farm as a whole.

In attaining the desired objectives in farm management teaching, the selection and use of available source material is of first importance. Among the many valuable sources of information to use in this subject, the published Census Reports are of primary importance in providing a good background of what constitutes the agriculture of the nation, state, County, and township. The census reports serve to provide this background and to orient the student with respect to the use of land and the distribution of livestock in the community in which he lives as compared to other communities and regions.

The extent of the use of the census reports in farm management teaching would depend to some extent on the nature of the particular subject and the number of credits which the subject carries. Reference in this article is made with respect to the use of census material in a "first" course in farm management which carries three credits on the "quarter-year" basis.

In this course of two lectures and one two-hour laboratory period a week, the first two laboratory periods are spent on census data. The corresponding lecture periods are devoted mostly to the introduction to the field of farm management and to a discussion of types-of-farming in Michigan. If time permitted, additional laboratory and lecture time would be allotted to the study of census data and types of farming for the United States.

The Basis for the Agriculture of the State

The first laboratory exercise in this course is entitled "What Constitutes the basis for Michigan's Agriculture?" The exercise is divided into three sections as follows: (1) The farm; (2) the land and crops; and (3) the livestock. Each of these sections is divided into two or three subsections which are designed to bring out the most important points of each section. The data are arranged in such a manner as will permit a ready comparison of the items which constitute the agriculture of the United States with those of the State and County in which the student resides. Each student is provided with a copy of the census reports for the state; from these reports he obtains the information which is needed to complete the exercise and to provide information for the comparisons.

Land Use

Since "land use" is being given so much importance at the present time, the section on "the land and crops" is designed to show in three columns how the farm land is utilized in the United States, Michigan and "your County" by means of acreage and percentage figures. The items in this section are divided into four main headings as follows: (1) Number of farms; (2) approximate land area in acres; (3) all land in farms (in acres) and a break-down into five classes; and (4) land available for crops and a break-down into the main uses including plowable pasture, the different harvested crops, crop failure and the acreage of idle or fallow land.

After the acreage table has been completed, another table is filled in to show, in order of their importance, the six major crops for the United States, Michigan, and "your county." The order of importance is based on the acres in the crop. Plowable pasture is included as one of the crops.

Livestock Numbers and Production

Livestock data and comparisons are shown by means of two tables, one to show livestock numbers, and the other to show livestock production for Michigan and "your county." The average numbers of the different classes of livestock per farm are computed on two bases, one average is based on "all farms" and the other is based on the "number of farms reporting" the item. Average numbers are computed for (1) "horses and mules over 3 months old"; (2) "cows and heifers milked"; (3) "ewes over 18 months old"; (4) "sows and gilts"; and (5) "chickens over 4 months old April 1."

Use of Mimeo Maps

In the second laboratory exercise, the student is provided with a set of thirty-one mimeographed maps of Michigan which help to present by another method the general "land use" picture as well as the distribution of the most important crop and livestock enterprises in the state. Through the use of these maps and supplementary information, the student becomes better informed in regard to the factors which determine types of farming.

Instruction sheets are provided which give directions for the shading of seventeen of the thirty-one maps. This shading of the maps brings out very clearly the varying degrees of the intensity of land use in the state as well as the areas of concentration of the different crops and livestock.

Township Census Data

Both graduate and undergraduate students have made much use of the photostatic copies of census data for townships which were available for the 1935 census. These data were particularly useful to

students and teachers of vocational agriculture who were interested in statistical information regarding the agriculture of the community in which they were either teaching or planning to teach.

As an aid in making the best use of these laboratory exercises, the student is given a list of study questions, some of these questions are included in one of the tests given during the term.

Results Obtained

Most of the students enjoy these exercises relating to the census reports and are of the opinion that they are well worthwhile. In addition to achieving one of the major objectives of the course, these exercises incidentally provide many students with their first opportunity to learn the contents of the census reports and how to use them. This item alone would justify the use of these laboratory exercises. As a matter of convenience, the instructor offers to collect the money and order census reports for members of the class. In this manner many students obtain the census reports for their own files.

Unit: What Determines the Types of Farming in Michigan?*

Problem I. Where is the major portion of tillable farm land found in Michigan?

- Ex. 1. Shade in the counties in Michigan which have over 150,000 acres of tillable land in 1934; 50,000 acres to 150,000 acres inclusive. Leave balance of the counties unshaded. (In shading in the counties use the darker shading or color to indicate the largest amounts, percentages, or areas of greatest concentration, and then use lighter shades for the next group etc., until the last group is reached which will be left white or unshaded. Indicate by means of a code on each map what the different shadings represent.)
- Ex. 2. Shade in the counties where the percent of total land area in farms in 1935 was above 50; 16 to 50 inclusive; less than 16 leave unshaded.
- Ex. 3. Shade in the counties where the average size of farms in 1935 was above the average size for the state.
- Ex. 4. Shade in the counties where the percent of farm land operated by nonowners in 1929 was 30 or above.

Problem II. Where are the major areas of concentration of the different crops in Michigan?

- Ex. 1. Shade in the counties where the percent of tillable land in corn in 1934 was 15 or more; 10 to 14 inclusive. (Write on each crop map in order of their importance the factors which account for the concentration of the crop in the particular area. Consider only five factors: (1) climate, (2) soil, (3) topography, (4) markets, and (5) lack of competing crops.)
- Ex. 2. Shade in the counties where the percent of tillable land in potatoes in 1934 was 5 percent or more.
- Ex. 3. Shade in the counties where the percent of tillable land in beans in 1929 was 12 or more; 4 to 11 inclusive.
- Ex. 4. Shade in the counties where the percent of tillable land in sugar beets in 1934 was 2 percent or more.
- Ex. 5. Shade in the counties, except Crawford, where the percent of tillable land in tree fruits and vegetables in 1929 was 4 percent or more.
- Ex. 6. Shade in the counties where the percent of tillable land in barley in 1934 was 3 percent or more.
- Ex. 7. Shade in the counties where the percent of tillable land in wheat in 1934 was 10 percent or more.
- Ex. 8. Shade in the counties where the percent of tillable land in hay in 1934 was 45 percent or more; 30 to 44 inclusive.
- Ex. 9. Shade in the counties where the percent of tillable land in hay and tillable pasture in 1934 was 60 percent or more; 40 to 59 percent inclusive.

Problem III. Where are the major areas of concentration of the different livestock enterprises in Michigan?

- Ex. 1. Shade in the counties where the number of cows and 2-year old heifers on January 1, 1935 per 100 acres of tillable land was 9 or above. (The livestock maps do not show the relative number of the different kinds of livestock. They show the relation of livestock numbers to the acres of tillable land. List the factors on each livestock map which explain the localization of each class of stock.)
- Ex. 2. Shade in the counties where the number of hogs and pigs on January 1, 1935 per 100 acres of tillable land was 5 or more.
- Ex. 3. Shade in the counties where the number of sheep on January 1, 1935 per 100 acres of tillable land was 15 or more.
- Ex. 4. Shade in the counties where the number of chickens on January 1, 1935 per 100 acres of tillable land was above 130.

*References: Agricultural Census Data for Michigan.
Michigan Special Bulletin on Types of Farming in Michigan.

Farm Management Department

Mimeo (E. B. H.)

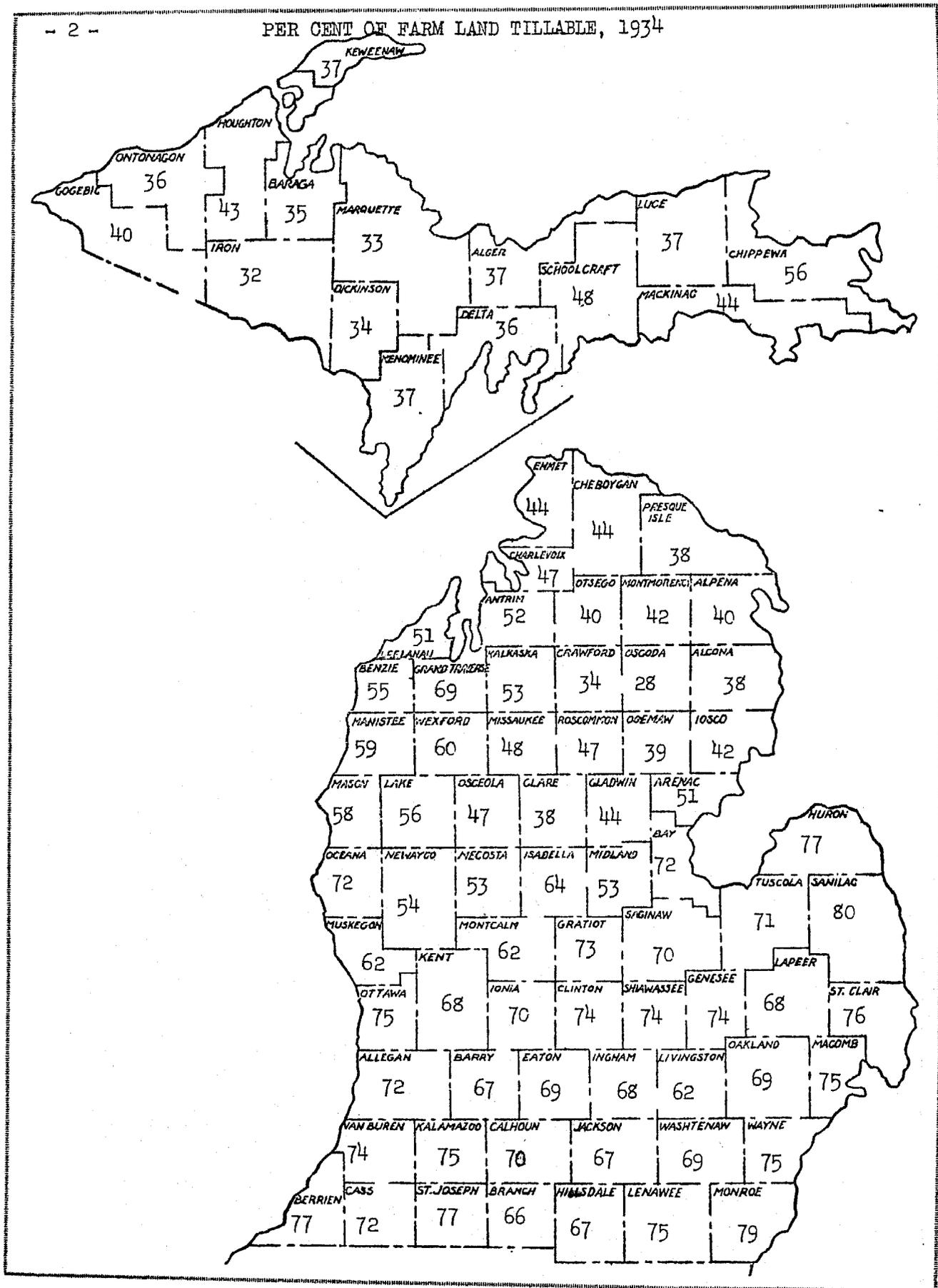
MICHIGAN MAPS SHOWING 1935 CENSUS DATA BY COUNTIES

1.	Acres of tillable land . . . . .	.1934
2.	Per cent of farm land tillable . . . . .	.1934
3.	Per cent of total land area in farms . . . . .	.1935
4.	Number of farms 1935 and per cent change from 1930	
5.	Number of farms 1935 " " " " " 1925	
6.	Average size of farms 1925 and 1935	
7.	Per cent of farm land operated by non-owners . . . . .	.1929
8.	Corn, per cent of tillable land. . . . .	.1934
9.	Potatoes, " " " " . . . . .	.1934
10.	Field beans " " " " . . . . .	.1929
11.	Sugar beets " " " " . . . . .	.1934
12.	Tree fruits and vineyards. . . . .	.1929
13.	INTERTILLED CROPS, TOTAL " . . . . .	.1929
14.	Oats . . . . .	.1934
15.	Barley . . . . .	.1934
16.	Wheat . . . . .	.1934
17.	Rye . . . . .	.1934
18.	Field peas . . . . .	.1929
19.	SMALL GRAINS, TOTAL. . . . .	.1929
20.	Hay crops total. . . . .	.1934
21.	Plowable pasture . . . . .	.1934
22.	HAY AND PLOWABLE PASTURE, TOTAL . . . . .	.1934
23.	Idle or fallow crop land . . . . .	.1934
24.	Cows and heifers, 2 yrs. old and over, No. per 100 Til. A. .1935	
25.	Hogs and pigs, No. per 100 acres tillable land. . . . .	.1935
26.	Sheep " " " " " " . . . . .	.1935
27.	Chickens over 3 mo." " " " " " . . . . .	.1930

Farm Management Department
 Michigan State College
 3/15/36

- 2 -

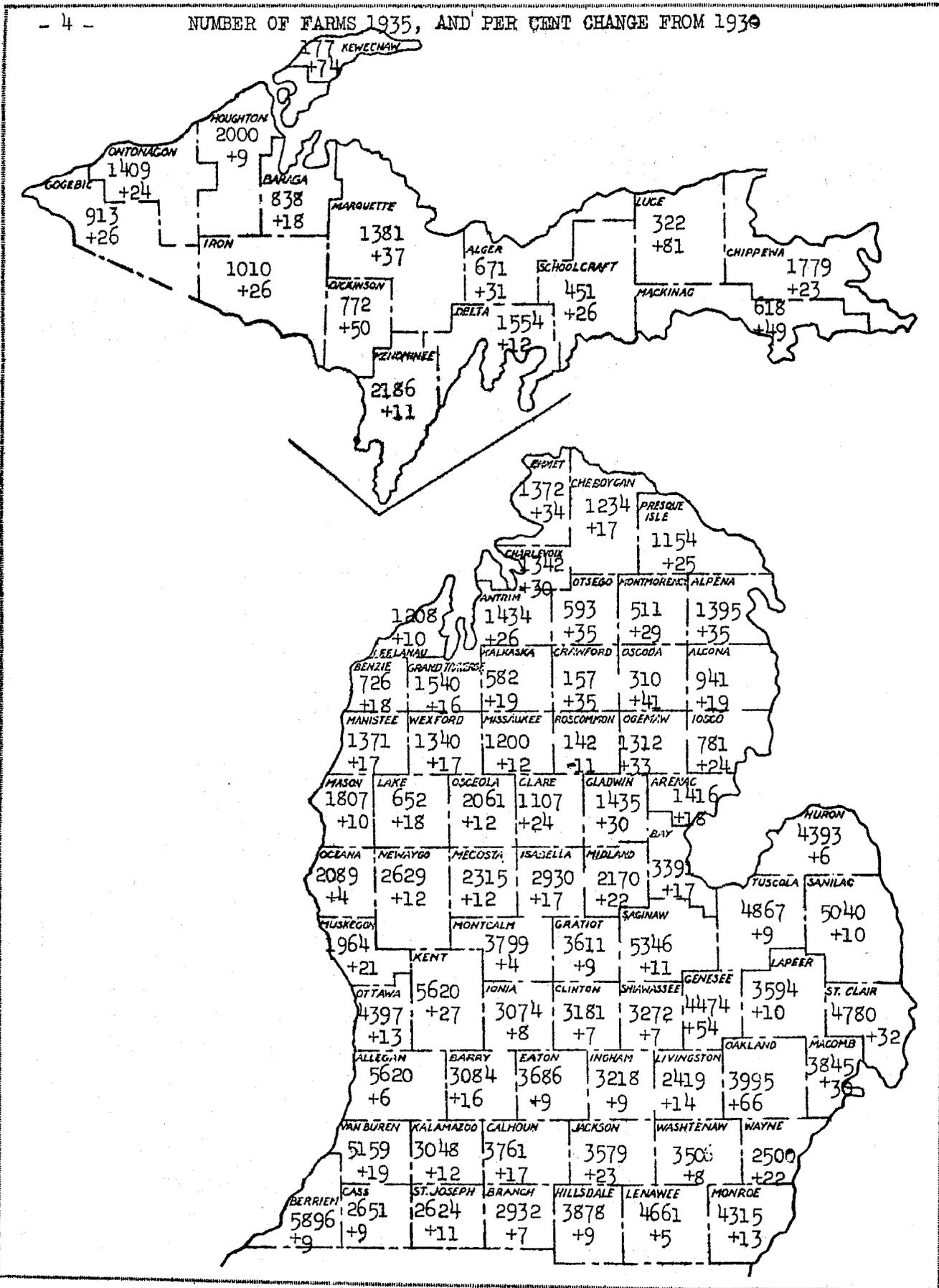
PER CENT OF FARM LAND TILLABLE, 1934



Average for Michigan, 64 per cent

- 4 -

NUMBER OF FARMS 1935, AND PER CENT CHANGE FROM 1930

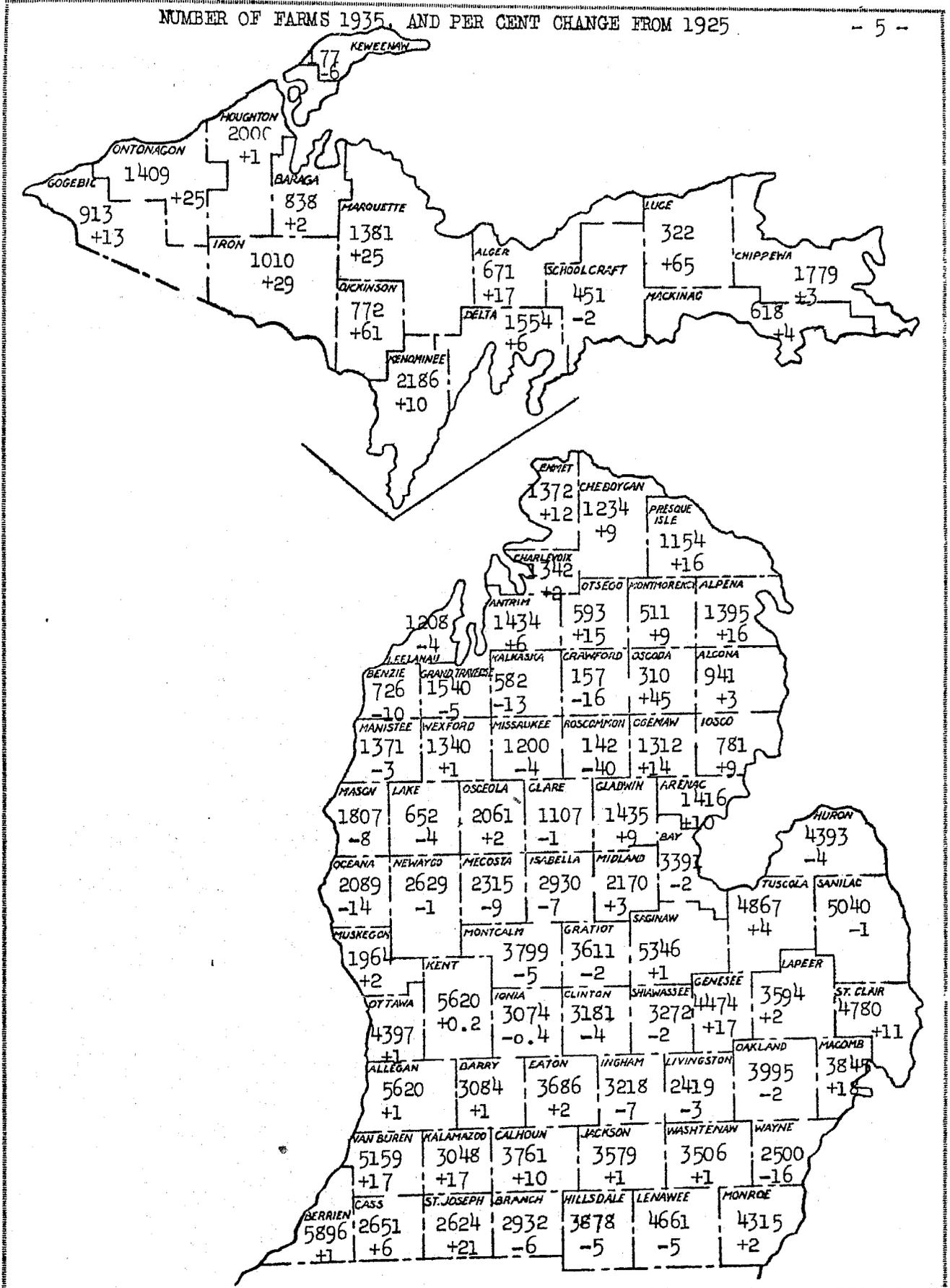


Upper figure - Number of farms 1935
 Lower figure - Per cent increase (+) or decrease (-) in number of farms since 1930

1935 Total for Michigan, 196, 517
 1930 Total for Michigan, 169, 390

NUMBER OF FARMS 1935, AND PER CENT CHANGE FROM 1925

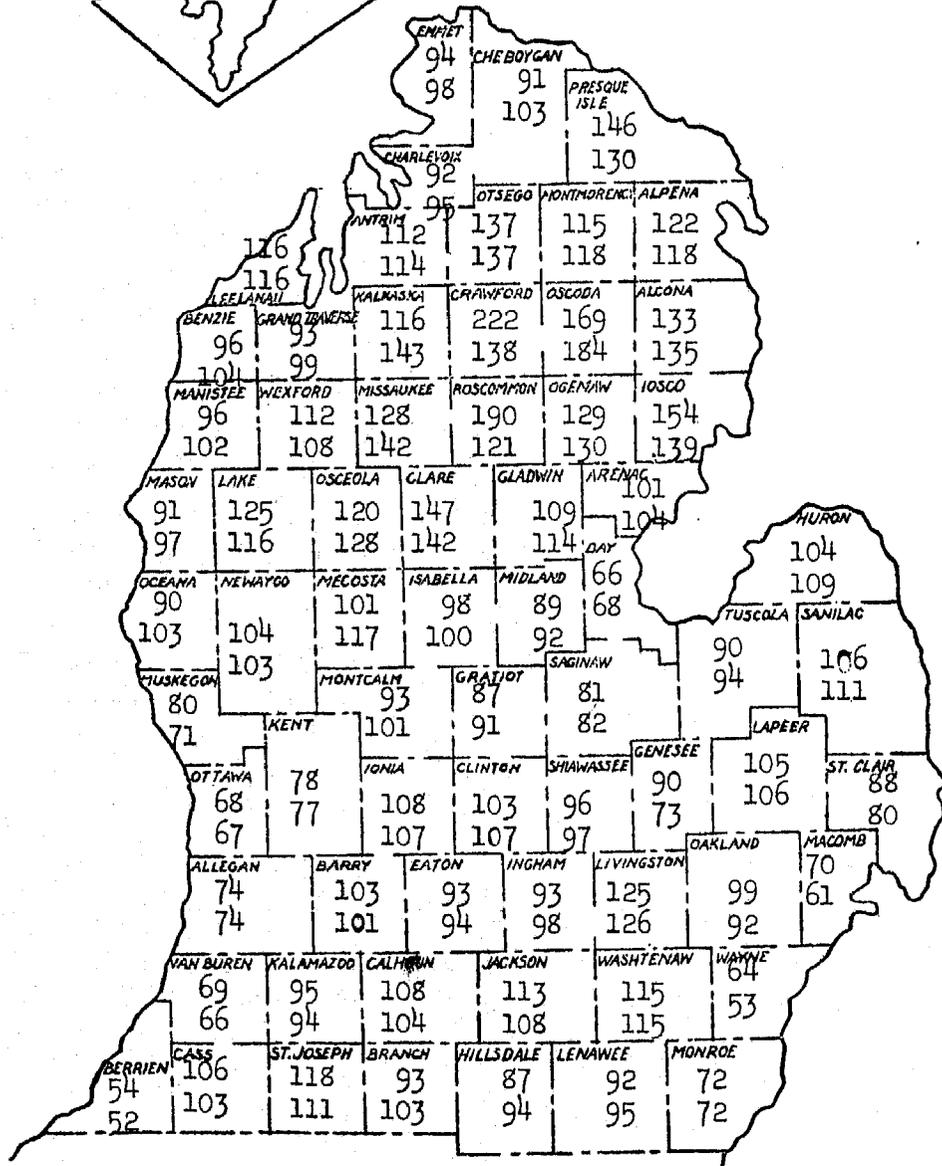
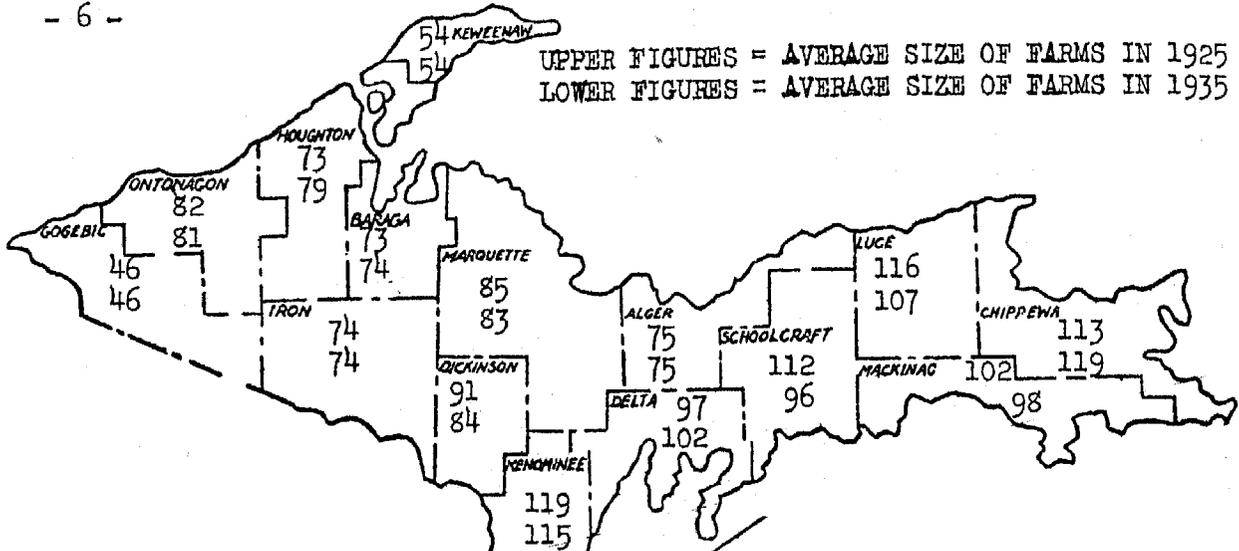
- 5 -



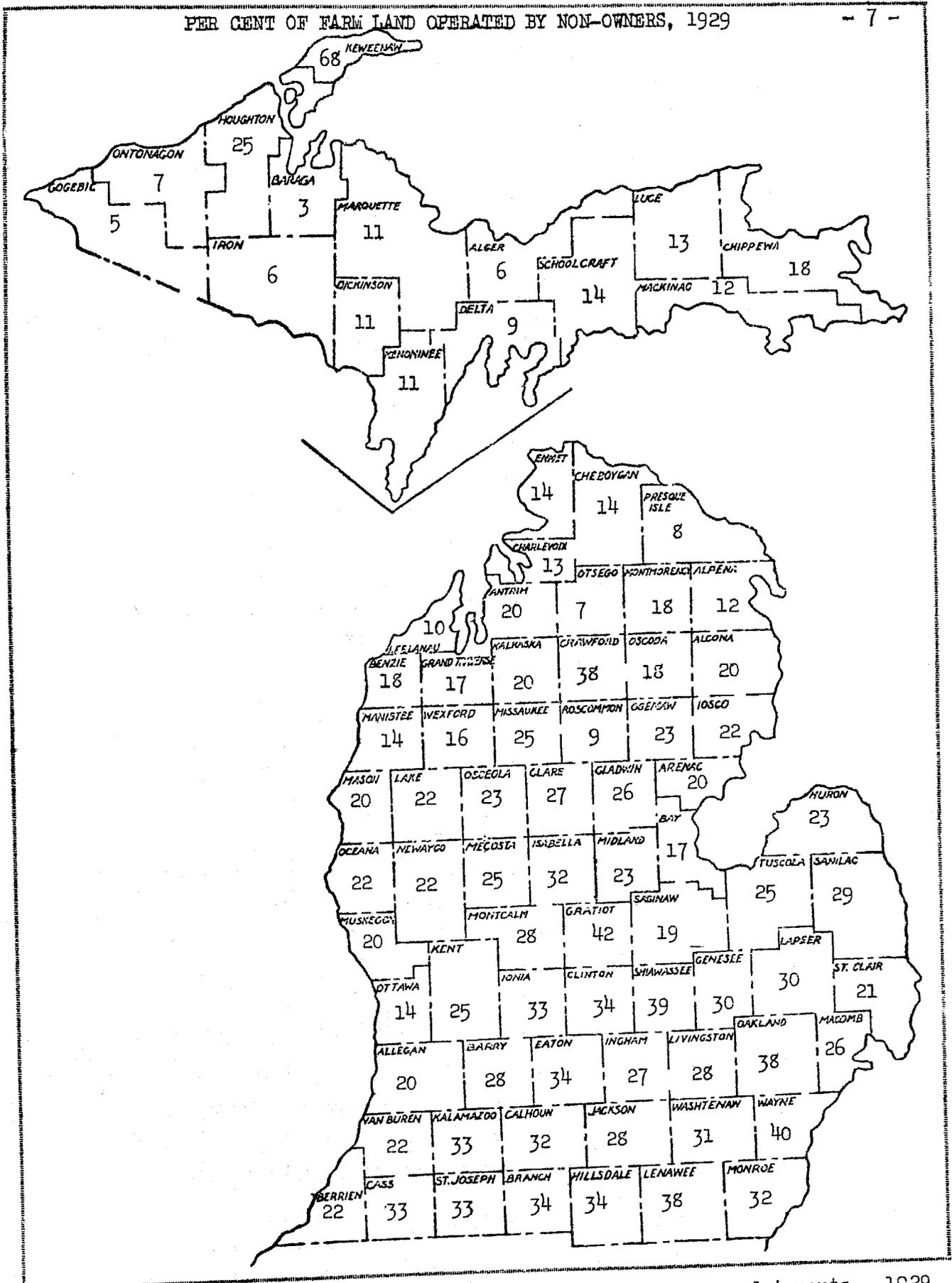
Upper figure = Number of farms, 1935
 Lower figure = Per cent of increase (+), or decrease (-) in number of farms since 1925.

1935 Total for Michigan 196,517
 1925 Total for Michigan 192,327

- 6 -

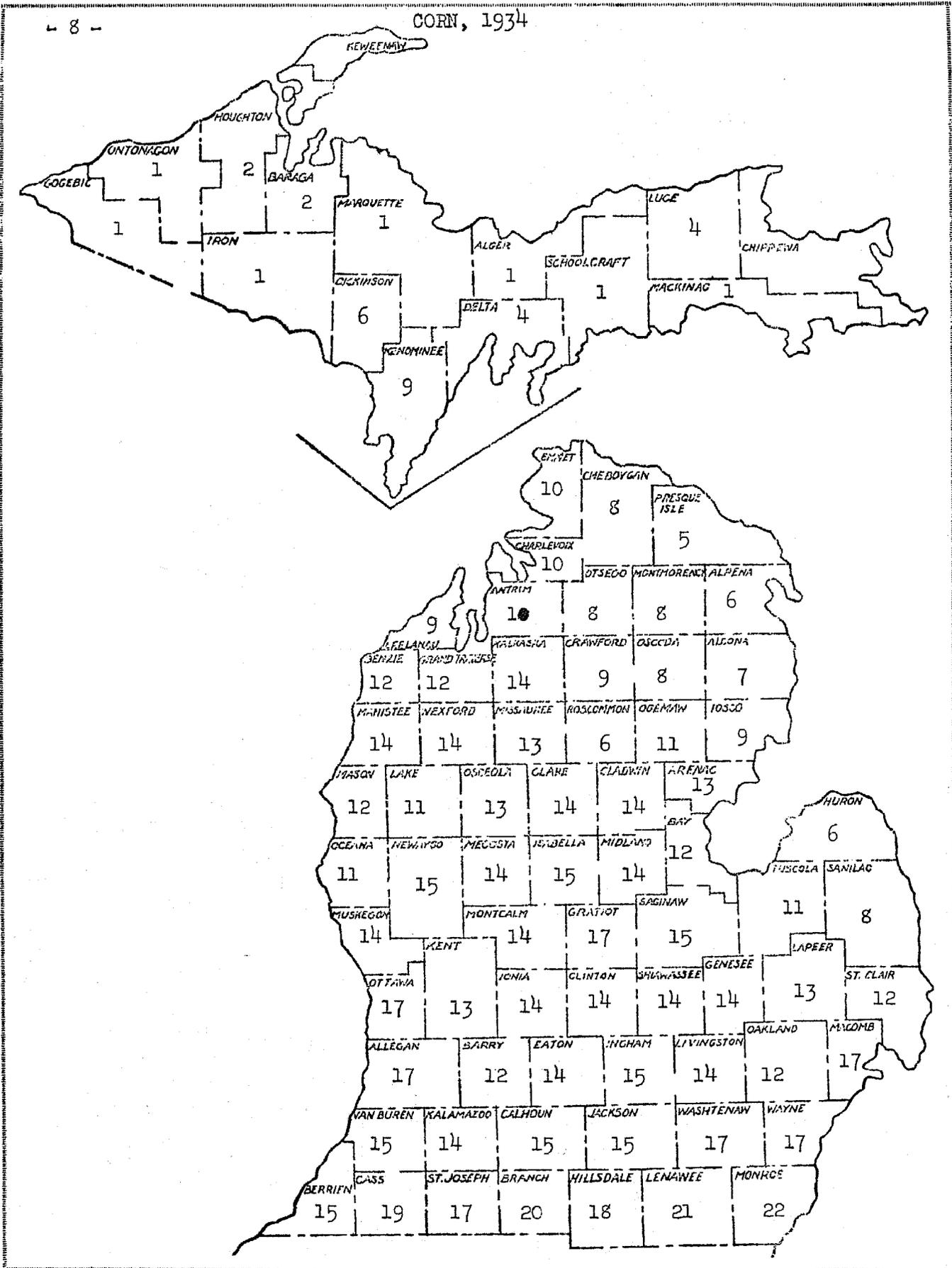


1925 Average for Michigan 93.8
1935 Average for Michigan 93.9



Per cent of land in farms rented and operated by part owners and tenants - 1929.
 (1935 census figures for the item were not available 3/16/36)

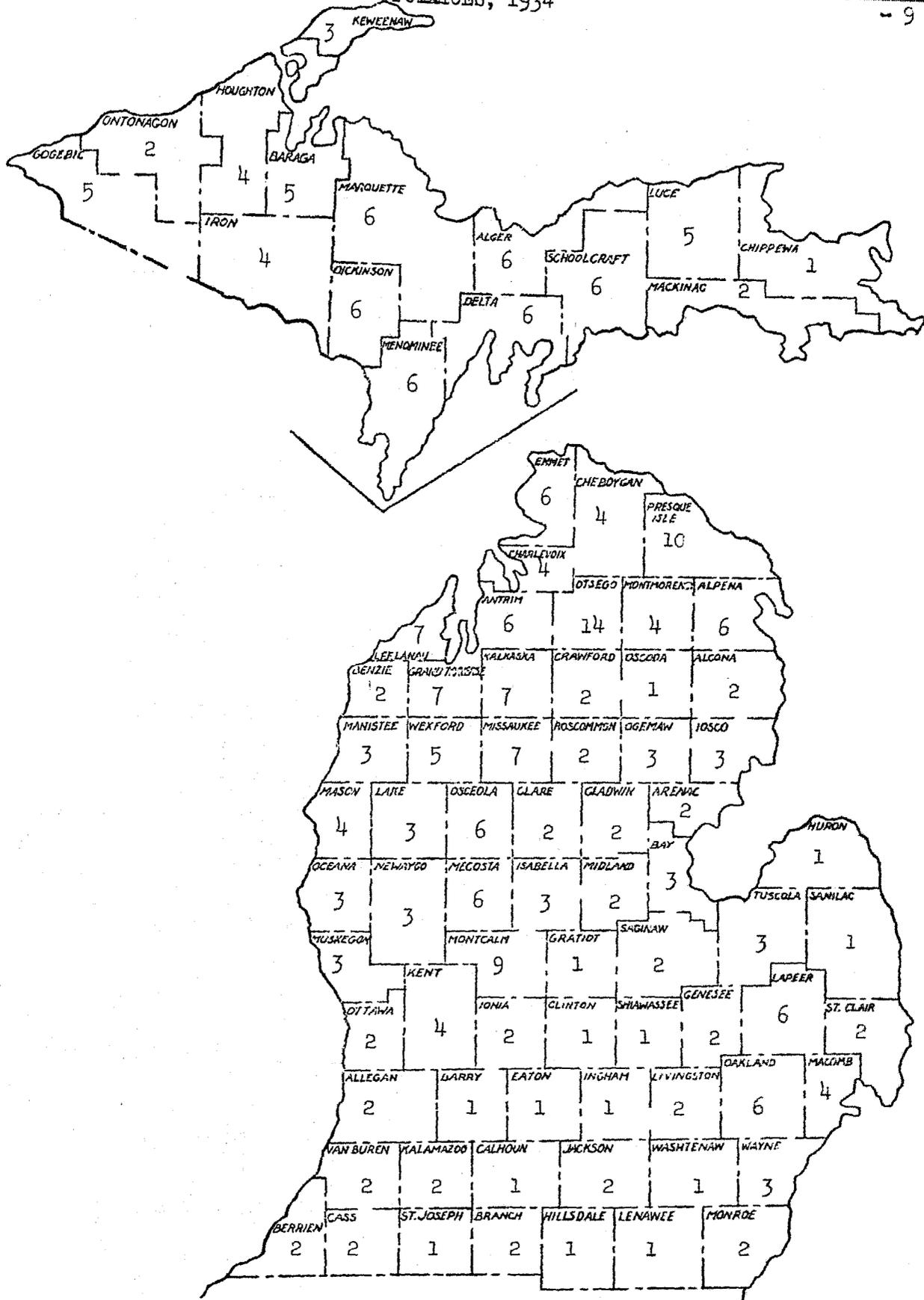
Average for Michigan 25.6 per cent.



Per Cent of Tillable Land in Corn by Counties - 1934.

Average for Michigan, 13.4 per cent

POTATOES, 1934

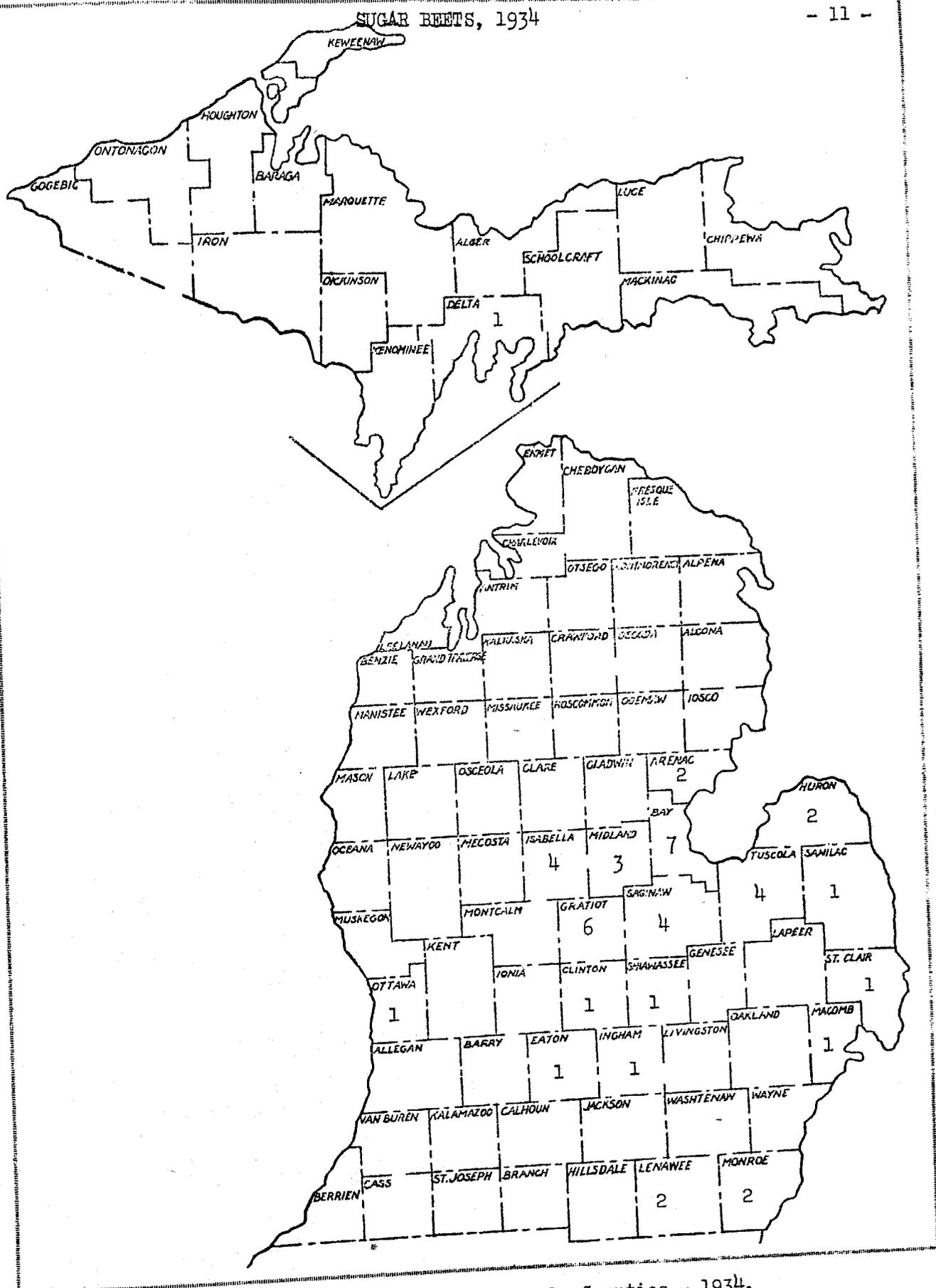


Per Cent of Tillable Land in Potatoes by Counties - 1934.

Average for Michigan 2.7 per cent.

SUGAR BEETS, 1934

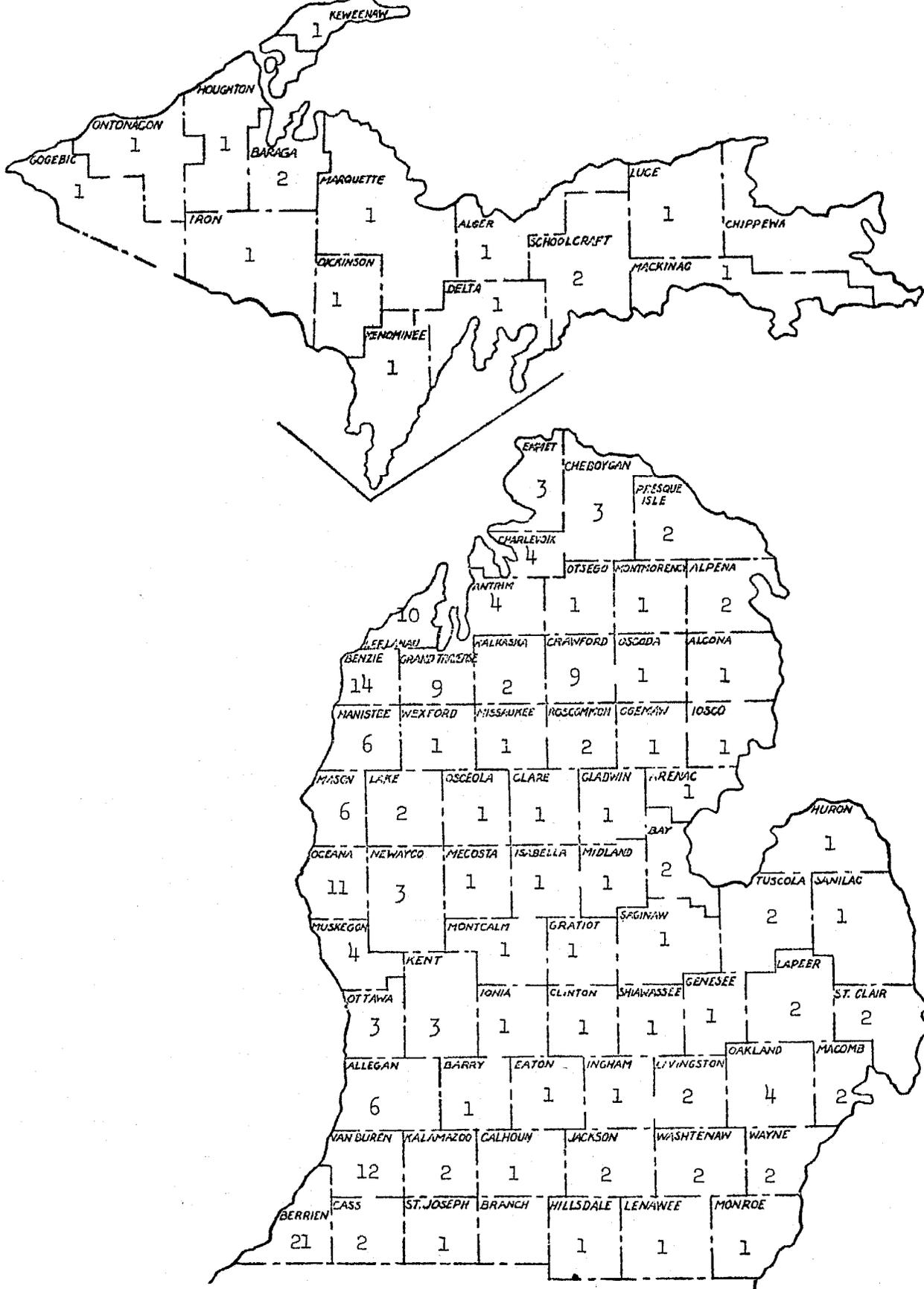
- 11 -



Per Cent of Tillable Land in Sugar Beets by Counties - 1934.

Average for Michigan 0.9 per cent

TREE FRUITS AND VINEYARDS, 1929

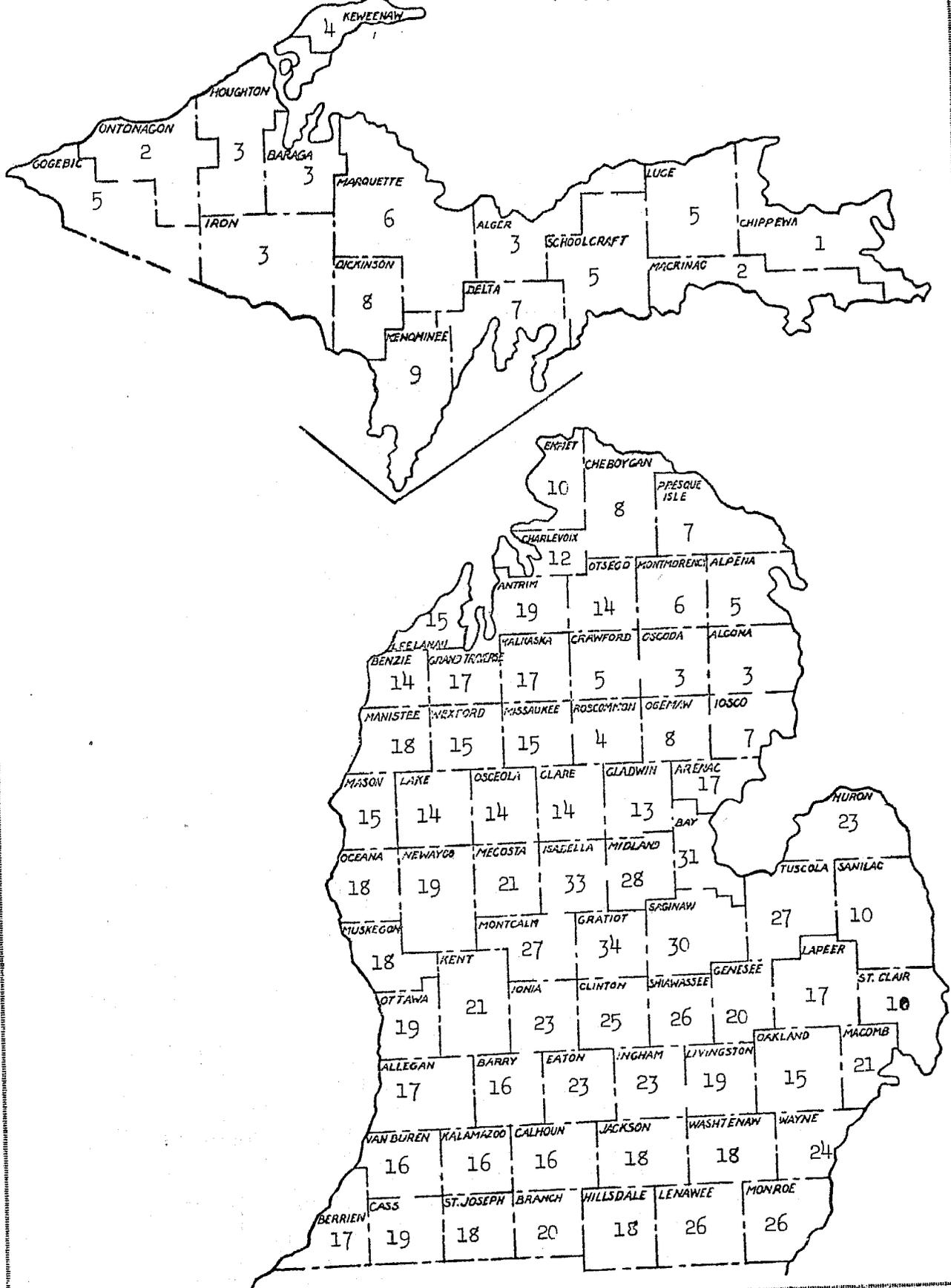


Per Cent of Tillable Land in Tree Fruits and Vineyards by Counties - 1929.
(1935 Census figures not available for the item 3/15/36.)

Average for Michigan 2.6 per cent.

INTERTILLED CROPS TOTAL, 1929

- 13 -

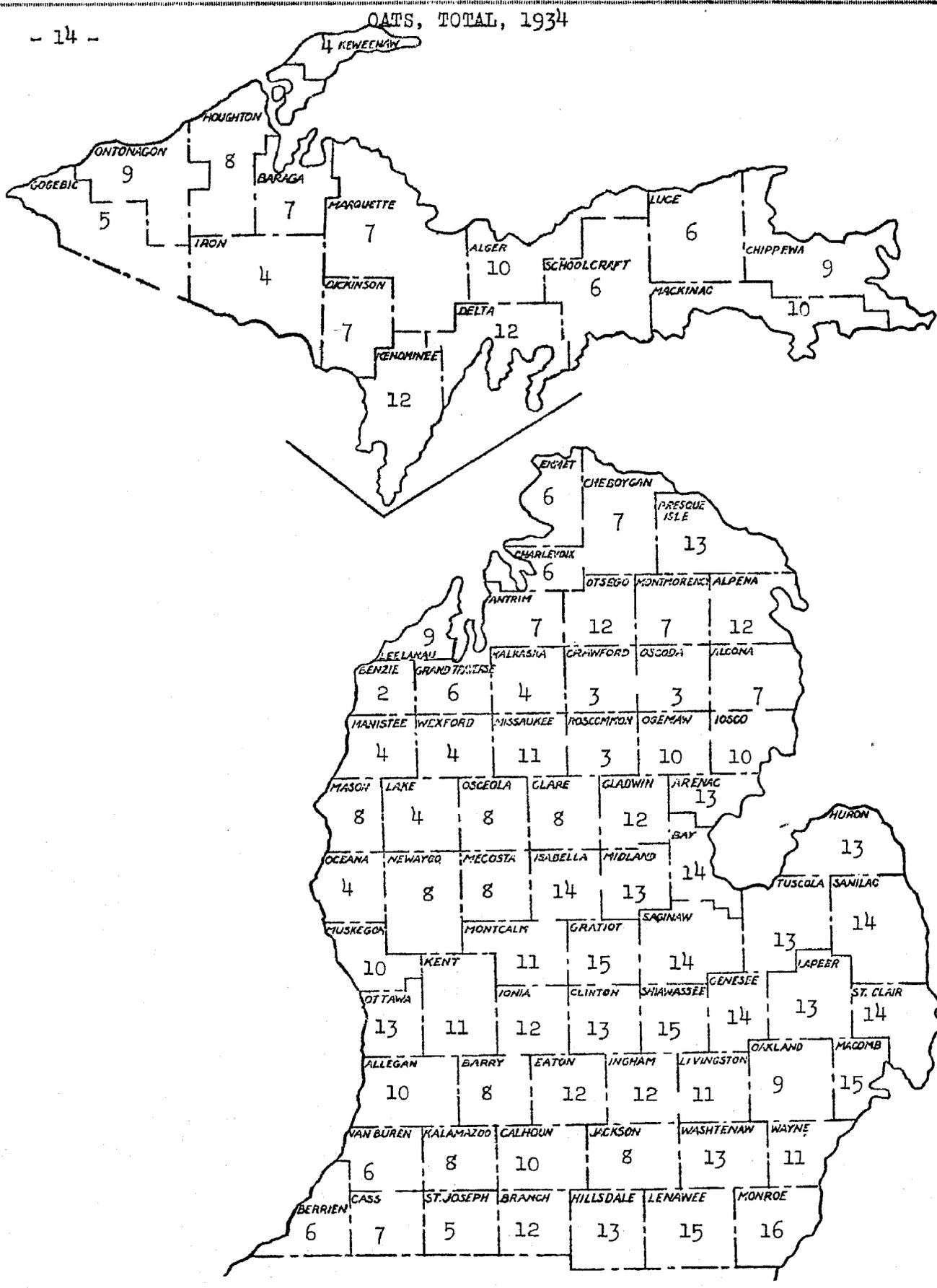


Per Cent of Tillable Land in Intertilled Crops by Counties - 1929.
 (1935 Census figures not available for this item 3/15/36)

Average for Michigan, 19 per cent

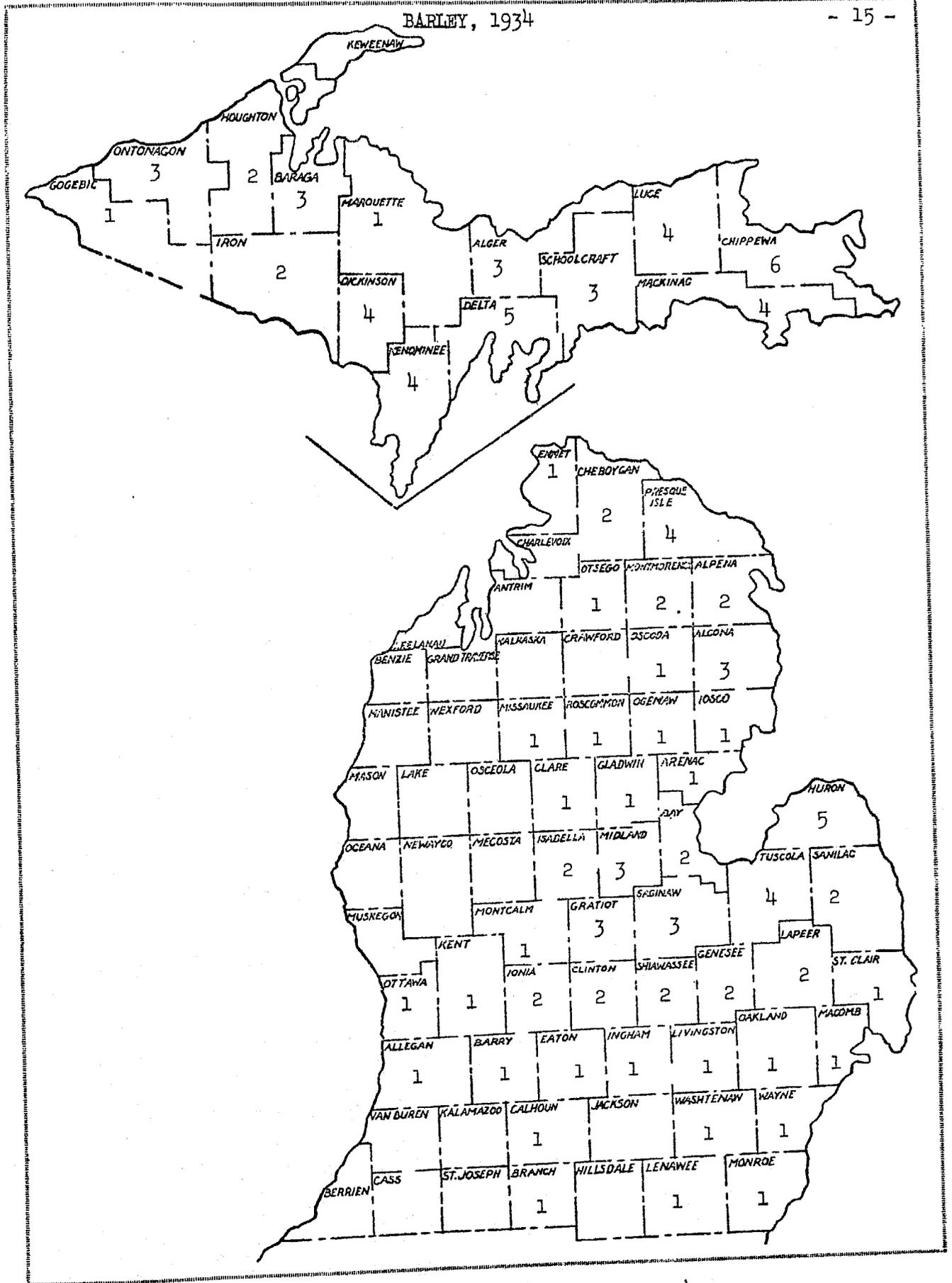
OATS, TOTAL, 1934

- 14 -



Per Cent of Tillable Land in Oats by Counties -- 1934.

Average for Michigan 10.9 per cent.

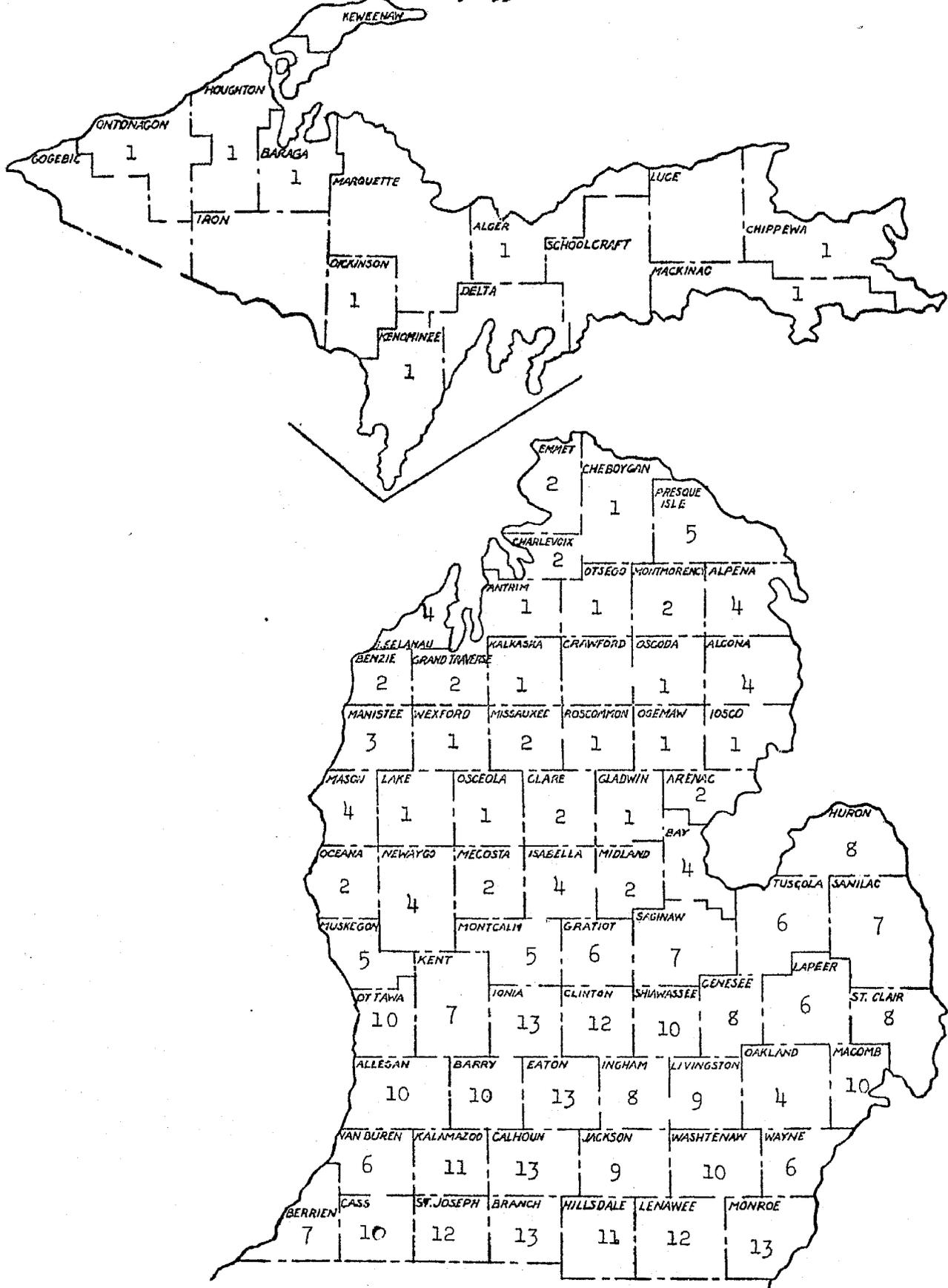


Per Cent of Tillable Land in Barley by Counties - 1934.

Average for Michigan 1.4 per cent.

- 16 -

WHEAT, 1934

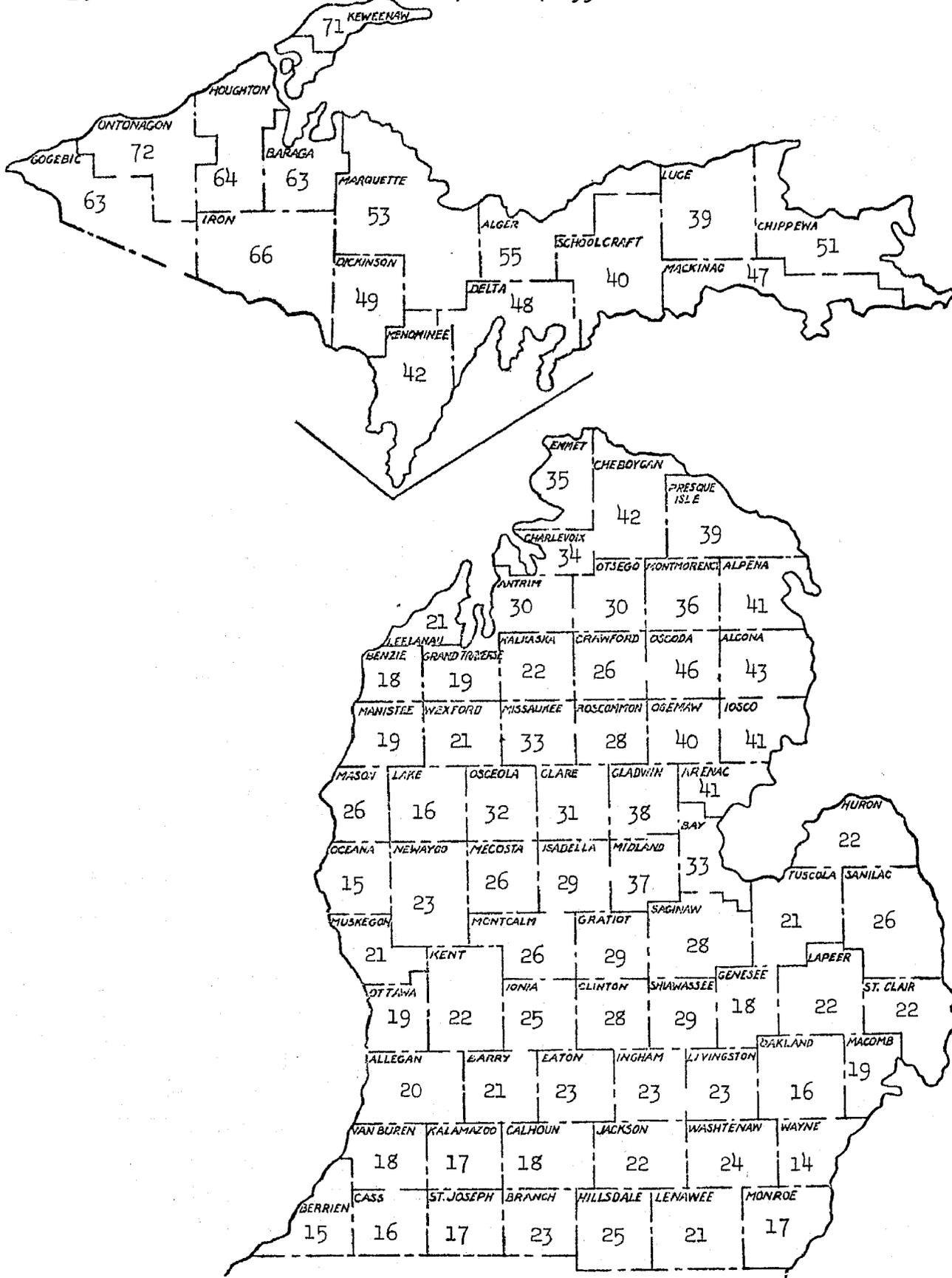


Per Cent of Tillable Land in Wheat by Counties - 1934.

Average for Michigan 7.2 per cent

- 20 -

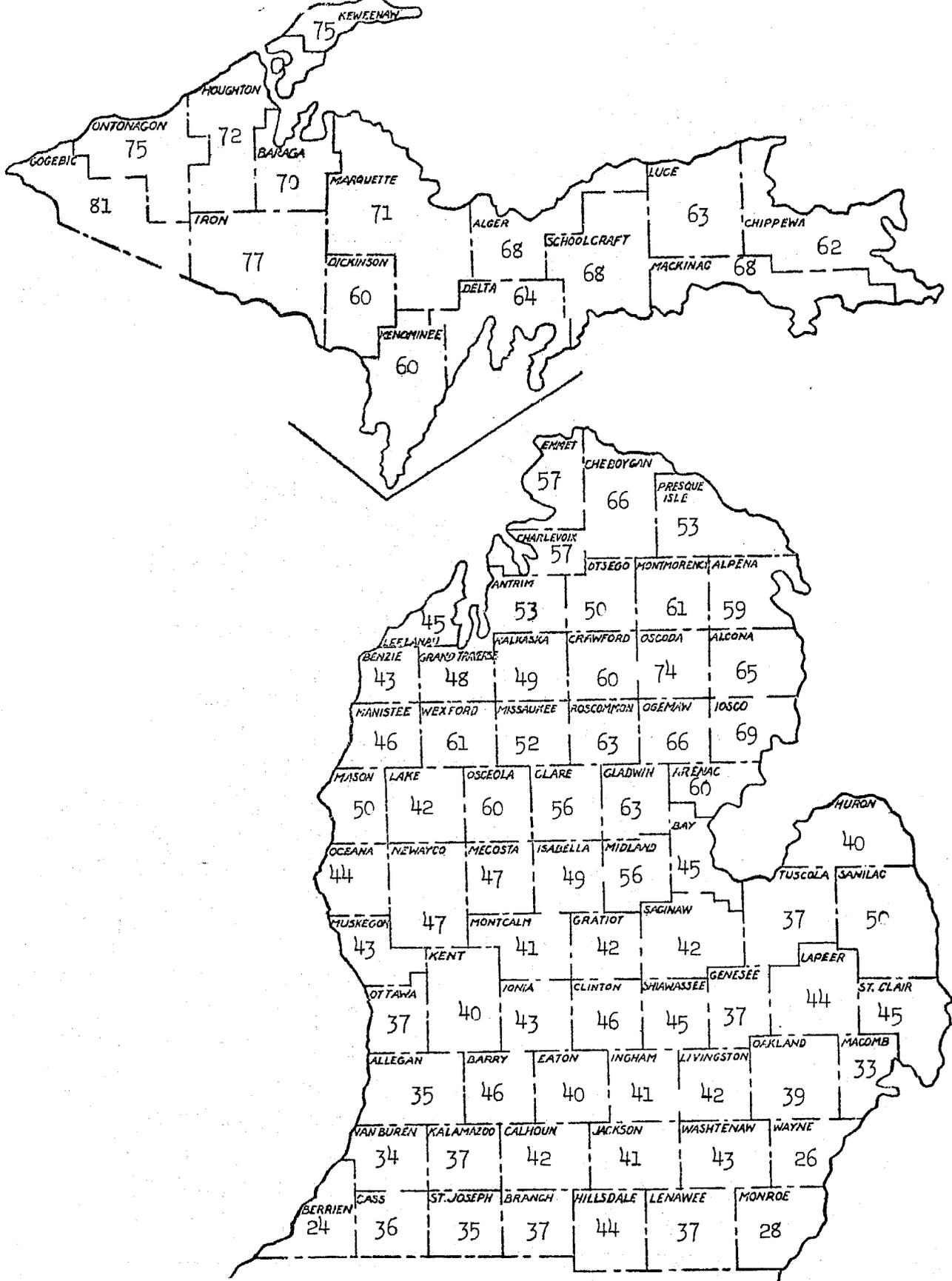
HAY CROPS, TOTAL, 1934



Per Cent of Tillable Land in Hay by Counties - 1934

Average for Michigan, 25 per cent

TOTAL HAY AND PLOWABLE PASTURE, 1934



Per Cent of Tillable Land in Hay and Plowable Pasture by Counties - 1934

Average for Michigan, 44 per cent.

Publication of 1940 Census data.—Because of the vast amount of information included on the 1940 Farm and Ranch Schedule, the work was divided into three phases. In so doing the precedence of tabulation was based primarily on the relative importance of items, and also on their arrangement on the schedule and their relationship to other items. Thus, United States totals for some of the more important individual items were made available at a much earlier date than would have been possible otherwise.

The first series of tabulations covered the number, acreage, and value of farms; the value of buildings and of implements and machinery on farms; farm land according to its utilization; some of these items were classified by the color of the farm operator, some by the tenure of the farm operator, and some by the size of the farm; farms reporting and numbers of specified classes of livestock and poultry, with some of their products; and farms reporting with the acreage and quantity of specified field crops harvested.

The second series of tabulations included: Mortgage debt for farms of operating owners (full owners and part owners); taxes on farm property owned (full owners and part owners); work off their farms by farm operators for pay or income; age of operator; year of occupancy translated into the number of years the operators had been working their present farms; whether the farm operators reside on their farms; cooperative selling and purchasing of goods and services; farm labor employed at specified times; expenditures for selected items; inventories of automobiles, motortrucks, and tractors, with the year of latest model of each general class; the availability, use, and source of electric current; farms with telephones; kinds of roads adjoining farms; race of farm operators; inventory of goats; mohair production; goats milked; farm slaughter, purchases, and sales of various classes of livestock; miscellaneous poultry; fur-bearing animals kept in captivity and pelts; and information for those crops which were not reported in the first series, namely, the individual annual legumes, clover and grass seeds, miscellaneous field crops, farm gardens, vegetables harvested for sale, horticultural specialties, small fruits, tree fruits, nuts, and grapes.

The third series of tabulations covered the calculated values of the livestock inventory, livestock products, and crops harvested; and the reported value of farm products sold, traded, or used by farm households, with statistics for farms classified by major source of income and by total value of products, 1939.

The results of each of these three series of tabulations were first released in the form of preliminary reports for the separate States and later for the United States reports.

Following these releases there was a series of three bulletins, showing county and State totals for each State. In general, the subject matter of these bulletins followed the order of the tabulation as has been described above. The first and second series of State bulletins, which contain the statistics as described for the tabulations, were later bound and published as volume I (in 6 parts) of the Reports on Agriculture. The third series of State bulletins, presents county and State statistics on value of products and farms classified by major source of income and by total value of products. These bulletins were bound and published as volume II (in 3 parts) of the Reports on Agriculture.

Three United States summary bulletins, presenting United States, geographic division, and State figures, were also published. In subject matter, these correspond to the first, second, and third series of State bulletins; but they were not bound and published in volume I or II. The United States, geographic division, and State figures in these three summary bulletins, and additional tabulations for many other items, are all arranged by subjects to make the General Volume (volume III) of the Reports on Agriculture. These reports relate to the Agriculture Census of the continental United States only.

Comparative figures, when available, are presented for the earlier Census years. Some of the comparative data are shown for the United States only, but most of them are given by States.

There is also a census for Irrigation, covering 20 States and one for Drainage, covering 38 States. These enumerations furnish basic data in the engineering fields. Also, there are censuses of agriculture for Alaska, American Samoa, Guam, Hawaii, Puerto Rico, and the Virgin Islands of the United States.

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