GENERAL REPORT
AND ANALYTICAL TABLES

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INTRODUCTION

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INTRODUCTION.

SCOPE AND METHOD OF THE CENSUS.

Fourteenth Census reports on agriculture.—In order to expedite the publication of the most important of the statistics, the returns for the 1920 census of agriculture were tabulated in two groups. The first group, which was termed the "major tabulation," contained most of the important fundamental subjects of the census; the second group, which was termed the "minor tabulation," contained 11 subjects which were considered to be of less importance.

The first publication of the results of the 1920 farm census took the form of a bulletin giving the number of farms in the United States, by states and counties, for 1920, 1910, and 1900. The 1920 figures in this bulletin were based on a count of the number of schedules received.

The results of the tabulation of the major subjects for the several states were published as separate bulletins as fast as the tabulations were completed. These bulletins (which are reproduced in Volume VI of the Fourteenth Census Reports, Parts 1, 2, and 3) contain the principal data obtained in the 1920 farm census, giving not only state totals but also detailed statistics by counties.

In advance of their publication in the state bulletins, preliminary county figures for a few major subjects—farms, farm acreage, value of farm land and buildings, domestic animals on farms, and crops—were issued in the form of county press summaries; and state press summaries giving the most important figures for farms, farm property, live stock, live-stock products, and crops were issued for each state as soon as the preliminary figures were available. United States press summaries, also, were published from time to time, giving data by geographic divisions and states for each of the most important items in the farm census.

The subjects in the minor tabulation, not included in the state bulletins, were as follows:

Farmers classified by age.
Farmers classified by number of years on farm.
Cooperative marketing and purchasing.
Motor vehicles, telephones, water, and light on farms.
Pure-bred live stock on farms.
Calves, pigs, and lambs raised on farms.
Domestic animals slaughtered on farms.
Sales of selected crops.
Fruit products of farms.
Forest products of farms.
Nursery and greenhouse products.

All the above subjects except the first two were covered by press summaries issued as fast as the tabulations were completed; and all are now included, of course, in the present volume, as well as in the summary of the census of agriculture for the United States which was issued as a separate bulletin and is now reprinted in each "part" of Volume VI.

In addition to the United States summary bulletin, in which statistics are presented, by geographic divisions and states, for farms, farm property, live stock, live-stock products, crops, and miscellaneous farm products, a small handbook was issued, giving United States totals only for the principal items.

Two separate bulletins, one pertaining to "Farm animals" and the other to "Farm vegetables," were issued to supplement the data given on these subjects in previous publications. The bulletin relating to farm animals contains data on cattle, swine, and chickens, giving by counties the number of each class on hand in 1920, the number of farms reporting, and the number of farms not reporting, together with the number of calves, pigs, and chickens raised, and eggs produced in 1919. The bulletin relating to farm vegetables contains detailed statistics for states and principal counties on potatoes, sweet potatoes, miscellaneous vegetables raised for sale, and value of farm-garden products, for the calendar year 1919.

In the present volume, which contains the general report and analytical tables, the general results of the census of agriculture (not including irrigation or drainage) are presented in chapters arranged according to subjects. The information is presented by geographic divisions and states. Summary tables are also given, showing United States totals only, and accompanied by explanatory text.

In the series of final reports the state bulletins on agriculture are bound in three volumes, or rather in three separate "parts" of Volume VI. Part 1 of Volume VI contains the states of the New England, Middle Atlantic, East North Central, and West North Central divisions, which are designated "The Northern States." Part 2 of Volume VI contains the states of the South Atlantic, East South Central, and West South Central divisions, which are designated "The Southern States." Part 3 of Volume VI contains the states of the Mountain and Pacific divisions, which are designated "The Western States," and also the reports for the outlying possessions of the United States—Alaska, Hawaii, Porto Rico, Guam, American Samoa, and Panama Canal Zone. In each of these three parts is also bound the summary bulletin giving the United States totals, and a brief series of tables giving totals for the North, the South, and the West—divisions of the country corresponding to the three parts into which Volume VI is divided.

Separate bulletins embodying the results of the census of irrigation were prepared for 19 states, and similar bulletins giving the results of the census of drainage of agricultural land were prepared for 29 states. These bulletins, with the general reports on irrigation and drainage, make up Volume VII of the Fourteenth Census Reports. All of the formal reports of the Fourteenth Census which relate to agriculture (including irrigation and drainage) are thus contained in Volumes V, VI (Parts 1, 2, and 3), and VII.

In addition to the 11 volumes which constitute the complete reports of the Fourteenth Census, there is published an abstract which gives in abbreviated form the most important of the results of the census of population, agriculture, manufactures, and mines and quarries. The information with regard to the census of agriculture in this abstract is sufficient, perhaps, for most persons who wish to use it only in an incidental way.

For the convenience of readers who are especially interested in the statistics for their own state, the several bulletins relating to population, agriculture, manufactures, and mines and quarries for each state are bound together in the form of a compendium. This compendium contains the results of the minor tabulations of the census of agriculture, as well as the major subjects covered by the original state bulletins.

Area of enumeration.—Besides the 48 states and the District of Columbia, which make up the United States in the ordinary understanding of that term, the area of the enumeration at the Fourteenth Decennial Census included Alaska, Hawaii, Porto Rico, Guam, American Samoa, and the Panama Canal Zone.[1] The census of agriculture in Hawaii and Porto Rico was made in considerable detail, but in the other dependencies, where agricultural operations are relatively unimportant, it was very much abbreviated.

The totals printed in this volume for the United States do not include the data for Alaska, Hawaii, Porto Rico, or any of the other dependencies. Separate reports for these dependencies appear at the end of Part 3 of Volume VI.

Method of tabulation.—After the agricultural schedules were filled out by the enumerators they were examined by the supervisors and forwarded to the Bureau of the Census at Washington, D. C., where a large force of trained clerks in the Division of Agriculture were assigned to the task of editing them, to make sure that the items had been properly entered on the schedules.

At the census of 1920 the punch-card system of tabulation was used, by reason of the large volume of data to be tabulated and the limited time. Under this system, as used for the tabulation of the agricultural statistics, the various details as to color, tenure, sex, and age of farmer, size and value of farms, live stock, crops, etc., were transferred from the schedules to a series of 17 cards (prepared so as to cover different fields of the schedule) by means of mechanical punches, the position of the holes on the cards indicating the facts to be recorded. The cards thus punched were separated into classes or groups by automatic sorting machines, and then run through electric tabulating machines which recorded and totaled the several items punched on the cards. The totals shown by the tabulating machines were transferred to some one of a series of 38 result slips; and these result slips, after they were verified and certain computations made, formed the source from which the data were taken for the tables published in the reports of the census of agriculture. The following statement gives some idea of the magnitude of the work:

The total number of farm schedules received and tabulated in 1920 was 6,448,343, or one for each farm in the United States. In addition there were 84,939 schedules for live stock not on farms, representing 1,802,900 inclosures reporting such animals; 63,298 irrigation schedules, each representing one irrigation enterprise; and 56,345 drainage schedules. Seven different punch cards were used for irrigation, 6 for drainage, and 1 for live stock not on farms; and 8 different total cards were used for consolidating county totals to obtain state totals. Thus, including the 17 cards punched from the farm schedule, 39 different cards were used in the tabulation work.

The number of cards punched for each of the four branches of the work, and the equivalent number sorted and tabulated (counting the number of times the cards were run through the machines), are shown in the following table:

BRANCH OF WORK.	Cards punched.	Cards sorted.	Cards tabulated.
Total[1]	147,937,129	1,045,427,598	269,550,165
Agriculture (the farm schedule)	147,091,097	1,036,711,912	264,109,809
Live stock not on farms	390,213	740,426	427,100
Irrigation	228,131	3,421,500	2,281,000
Drainage	227,688	4,553,760	2,732,256

[1] Revised figures. The figures given in the introduction to Volume VI, indicating a total of 144,000,000 cards, were preliminary, as the tabulation had not been entirely completed when that material was prepared for publication.

During the time when the maximum number of card-punching machines were in use, the Division of Agriculture had in operation 576 punching machines, 61 verifiers, and 18 gang punches, making a total of 655 machines for punching and verifying cards. The maximum number of cards punched in any one day was 1,087,807. The maximum equipment of machines comprised 69 sorters, 58 tabulators, and 5 counting machines.

Law providing for the census of agriculture.—By the terms of the act of Congress approved March 3, 1919, the Bureau of the Census was charged with the duty of collecting statistics showing the status of the agricultural industry on January 1, 1920, and also showing the acreage of crops and the quantities of crops and other farm products for the calendar year 1919. The information to be collected was described in the second paragraph of section 8, as follows:

The schedules relating to agriculture shall include name, color, sex, and country of birth of occupant of each farm, tenure, acreage of farm, acreage of woodland, value of farm and improvements, and the encumbrance thereon, value of farm implements, number of live stock on farms, ranges, and elsewhere, and the acreage of crops and the quantities of crops and other farm products for the year ending December 31 next preceding the enumeration. Inquiries shall be made as to the quantity of land reclaimed by irrigation and drain-

[1] No provision was made by the Fourteenth Census Act for the enumeration of the Philippines, a census of those islands having been taken by the Philippine Government as of Dec. 31, 1918, nor of the Virgin Islands, for which a special census was taken as of Nov. 1, 1917.

age and the crops produced; also as to the location and character of irrigation and drainage enterprises, and the capital invested in such enterprises.

Schedules and method of canvass.—The general farm schedule was prepared in accordance with the provisions of the Census Act and was designed for the exclusive purpose of collecting data relating to farm operators, farm land, farm property (including live stock), and farm products. A schedule was also prepared for the exclusive purpose of collecting data relative to domestic animals not on farms. These schedules and the instructions to the enumerators are reproduced in Appendix A, at the end of this volume.

Special schedules were also prepared for securing information with regard to irrigation and drainage enterprises. Further information with regard to these schedules and the method followed in their use is given in connection with the reports on irrigation and drainage in Volume VII.

The two general schedules (the general farm schedule and the schedule relating to domestic animals not on farms) were carried by the enumerators who collected the statistics of population. The terms of the Census Act prescribing the method of securing the data are in part as follows:

> That each supervisor of census shall be charged with the performance within his own district of the following duties: To consult with the Director of the Census in regard to the division of his district into subdivisions most convenient for the purposes of the enumeration, which subdivisions or enumeration districts shall be defined and the boundaries thereof fixed by the Director of the Census; to designate to the director suitable persons and with his consent to employ such persons as enumerators, one or more for each subdivision; to communicate to enumerators the necessary instructions and directions relating to their duties; to examine and scrutinize the returns of the enumerators, and in the event of discrepancies or deficiencies appearing in any of the said returns, to use all diligence in causing the same to be corrected or supplied; to forward the completed returns of the enumerators to the director at such time and in such manner as shall be prescribed.
>
> That each enumerator shall be charged with the collection in his subdivision of the facts and statistics required by the population and agricultural schedules and such other schedules as the Director of the Census may determine shall be used by him in connection with the census, as provided in section 8 of the act. It shall be the duty of each enumerator to visit personally each dwelling house in his subdivision and each family therein and each individual living out of a family in any place of abode, and by inquiry made of the head of each family, or of the member thereof deemed most competent and trustworthy, or of such individual living out of a family, to obtain each and every item of information and all particulars required by this act as of date January 1 of the year in which the enumeration shall be made; and in case no person shall be found at the usual place of abode of such family or individual living out of a family competent to answer the inquiries made in compliance with the requirement of this act, then it shall be lawful for the enumerator to obtain the required information as nearly as may be practicable from the family or families or person or persons living nearest to such place of abode who may be competent to answer such inquiries. It shall be the duty also of each enumerator to forward the original schedules, properly filled out and duly certified, to the supervisor of his district as his returns under the provisions of this act; and in the event of discrepancies or deficiencies being discovered in these schedules, he shall use all diligence in correcting or supplying the same.

It will be seen from the above paragraphs that the enumerators who carried the general farm schedules personally visited each farm and obtained either from the farmer himself or from a member of his family or other competent individual, the information with regard to the farm, which information he at once entered upon a farm schedule. Likewise, the enumerators who carried the schedules relating to domestic animals not on farms visited the persons in charge of stables, barns, and other inclosures in cities, towns, and villages, and secured from them the facts desired.

Date of enumeration.—The act to provide for the fourteenth and subsequent decennial censuses, approved March 3, 1919, provided that the enumeration of population, farms, and live stock should be made as of January 1, 1920. The Census Office Committee on Legislation for the Fourteenth Decennial Census gave the following reasons for the change of date:

> The change of date to January 1 was made to meet the requirements of the agricultural census, which, because of the house-to-house canvass, must be taken in connection with the enumeration of population. The 15th of April, the date of the previous census, is not a good time of year in which to take a census of crops and live stock. At that date several months have elapsed since the crops of the preceding year were harvested, and in the interval the farm may have changed hands, so that the information is supplied by some one who has not direct personal knowledge of the facts. It is, moreover, the season of the year when farm animals are born, and therefore it is a poor time at which to count live stock. Probably the best time for a census of agriculture is the fall, say October or November. But the census of population must be taken at the same time, and a serious objection to taking the decennial census in the fall is that every other census would coincide with a presidential election. Obviously, there would be difficulties in the way of conducting a successful, impartial, and scientific census in the midst of the excitement of a political campaign. So, all things considered, the committee came to the conclusion that January 1 was the best date for the census. The only objection suggested to that date is that in rural districts heavy falls of snow may retard the progress of the enumeration. There may be a few districts in which, for this reason, the work can not be completed within the 30 days which the law allows, but in such cases the director, under the provisions of this section, has discretionary authority to defer the enumeration, and some extension of the time in a few isolated instances will not be a matter of any serious consequence.

The Director of the Census, in his annual report to the Secretary of Commerce for the fiscal year ending June 30, 1920, made the following statement:

> The date January 1, 1920, was fixed by the Fourteenth Census act as that to which the census should relate. This census is the first which has been taken in the winter, all previous enumerations having been made in the spring or summer. January 1 was recommended by the Bureau for incorporation in the law as the census date in deference to the wishes of the Department of Agriculture and of the various interests making use of agricultural statistics. In some respects this date has decided advantages over any other for the purposes of an agricultural census. The past year's work on all farms has been finished by January 1, and the coming year's work has not as a rule been begun. Practically all farmers are occupying the farms which they operated during the preceding

year, whereas a few months later many of the renters will have removed to other farms. Again, young farm animals are born in large numbers during the spring and early summer but not in December or January, and therefore a live-stock census referring to January 1 is of far more value than one taken several months later.

But against these manifest advantages must be offset the pronounced disadvantage due to the inclement weather which is apt to prevail in many sections of the country in January. It happened that the weather in January, 1920, was worse than usual. In some of the enumeration districts the cold was so extreme and the snow had drifted to so great an extent as seriously to delay the work in the rural districts, and farther south the rains were so heavy as to make the country roads well-nigh impassable.

As a result of the delays due to the severity of the weather which characterized the early months of the present year, the field work of the Fourteenth Census was protracted through a longer period than had been anticipated, although the returns began to reach the Bureau early enough and rapidly enough to make it possible to organize and train the force of clerks and machine operatives and to get the work of compilation well under way at an earlier date than had been possible at any preceding census. In this way also the change in the census date is advantageous to the Bureau, since it permits a materially earlier commencement of the work of compiling and tabulating the returns preparatory to their publication, which, under the law, must be made not later than June 30 of the second year following that in which the enumeration is made.

The census of 1910 was taken as of *April fifteenth*, while all previous censuses of agriculture were taken as of *June first*. As a result of the change of date to *January first* for the census of 1920, it should be noted that the live-stock figures are not strictly comparable either with those of the census of 1910 or with those of earlier censuses. A more complete discussion of this subject will be found in Chapter IX. The census enumeration of farms and live stock began on January 2, 1920, and in most districts was completed within the 30 days allowed by law.

REASONS FOR DECREASE IN NUMBER OF FARMS AND IN FARM ACREAGE.

In Appendix B, at the end of this volume, are presented extracts from letters received from a considerable number of the supervisors of the census, in reply to a question as to the reason for the decrease between 1910 and 1920 in the number of farms or in the farm acreage in their respective districts. The explanations most frequently given in these letters are summarized below.

Scarcity of labor.—In many states, especially in the eastern part of the country, the number of farms and the farm acreage reported in 1920 were less than the figures reported in 1910. And even where the state totals showed an increase, there were decreases in many of the counties. The most important single reason for this condition appears to have been the scarcity of farm labor, which made it necessary for many farmers to reduce the acreage which they operated, and even induced considerable numbers of farmers to give up their farming operations altogether, at least for the time being. In addition to its effect on the available supply of labor which could be hired for farm work, the relatively high wages paid in manufacturing centers frequently induced the farmers themselves to leave their farms.

Consolidation of farms.—In many cases there was a considerable reduction in the number of farms reported in 1920, as compared with 1910, while the acreage remained the same, or at least declined much less than the number of farms. This situation frequently resulted from the consolidation of farms, the acreage of certain farms no longer operated as separate units being taken over by other farmers and added to their farms.

Permanent abandonment of low-grade land.—The present census shows a continuation of the tendency which has been evident for several decades, especially in New England, toward the abandonment for agricultural purposes of low-grade land; that is, of what the economists might term marginal or submarginal land. A considerable part of the land in the so-called abandoned farms of these sections is used for pasture, and as such would of course be included in the acreage of unimproved farm land. Large areas, however, have been permitted to grow up to brush or forest and are no longer used even for pasture.

Cotton boll weevil.—In certain parts of the cotton belt the spread of the cotton boll weevil has interfered so seriously with profitable cotton farming as to result in a reduction in the number of farms and in the farm acreage. Even when other crops are grown on the land, the number of farmers required for their cultivation is smaller than when cotton was raised, since cotton requires intensive cultivation and is largely raised by tenant farmers operating small areas.

Oil and mining development.—In a considerable number of localities large areas of farm land have been taken over by development companies for oil wells or for mining operations. The area thus lost to the total farm acreage includes, of course, land purchased and held by speculators as well as that actually developed for mineral production.

Extension of city areas.—The extension of the areas of cities and manufacturing towns, while not a very important factor, has been sufficient to affect seriously the figures for a number of individual counties. In many cases, of course, the land has simply been surveyed and cut up into building lots. This process, however, usually removes it just as effectively from the class of farm land as if it had actually been used for building purposes.

DEGREE OF ACCURACY OF STATISTICS.

It is believed that most of the agricultural statistics secured by the method described above are accurate enough for all general purposes. They are based on information secured directly from all the individual farmers and should not be considered in any sense as estimates. On the other hand, it can not be said that they are absolutely accurate. Several reasons may be given why this can not be expected.

Data relating to 1920.—The statistics which relate to the status of the agricultural industry on January 1, 1920, are without doubt more accurate than those which relate to the products of farms in 1919. The former relate to a date not long prior to that on which the enumerator visited the farm and secured the information. There is room for error, of course, even in these statistics. Among the large number of enumerators, some naturally proved to be more or less incompetent. A few of the inquiries on the census schedule were not fully understood in some districts, either by the enumerators or by the farmers. In the case of certain inquiries, particularly those relating to mortgage indebtedness, some farmers were unwilling to give the facts required. Again, some of the enumerators occasionally failed to ask all the questions on the schedules, omitting particularly those which seemed to them of minor importance or those to which they usually received a negative answer.

Some mistakes of minor importance have doubtless crept into the statistics because of duplication between the reports given by owners of land and by tenants of the same land. A considerable number of cases were discovered in which farm operators who owned some land which they did not operate, but leased to others, reported for all the land which they owned rather than for that part only which they operated, while the tenants in turn reported, frequently to other enumerators, for the land which they hired and operated. Under such conditions there was duplication of farm acreage, of value of farm property, and sometimes of farm products. Methods were devised to remedy this defect in the office, and it is believed that most of the serious duplications of this type were eliminated.

Altogether, the statistics showing the status of the agricultural industry on January 1, 1920, may be said to be as nearly accurate as can be expected under the present system of using large, complicated schedules and employing temporary enumerators.

Data relating to 1919.—The question of the accuracy of the statistics which relate to the acreage and production of crops and the production of other farm products during the year 1919 requires further consideration. At best it can not be claimed that these figures are as accurate as those showing the status of agriculture on January 1, 1920. The statistics of the major crops are doubtless substantially accurate, but those relating to minor crops and to live-stock products leave a good deal to be desired.

The principal source of error doubtless lies in the fact that large numbers of farmers did not operate in 1919 the farms which they occupied on the date of enumeration in 1920. Nevertheless, in order to avoid duplication and confusion, it was necessary to ask each farmer to report on the activities in 1919 of the farm which he occupied in 1920.

The 1920 farm schedule contained the question, "How long have you operated this farm?" Of the 6,448,343 farms in the United States, 6,227,539, or 96.6 per cent, reported the number of years they had been on the farm, apparently in proper form, the other 220,804 either failing to answer or reporting a figure inconsistent with their age. Of the 6,227,539 farmers who reported the number of years which they had operated the farm, 660,713 reported "less than 1 year." This was 10.6 per cent of the total number reporting. A very large proportion of these, of course, were tenant farmers. In many cases the farmers who had occupied their farms less than a year had had little or nothing to do with those farms in 1919, and consequently had no direct personal knowledge with regard to the farm products of that year. In such cases they would often judge the acreage of the principal crops from the stubble but would have greater difficulty in furnishing information as to the yield or production of the crops or the production of live-stock products. In some cases, of course, such farmers had fairly definite information because they had lived during 1919 on some farm near the one occupied in 1920, or because they had secured such information from the previous occupant.

It is believed that the statistics of the minor crops are less accurate than those of the major crops. Not all of the minor crops were listed by name on the farm schedule and it was left for the enumerator to ask the farmer whether any crops had been raised besides those listed on the schedule or for the farmer to volunteer information. Doubtless many farmers raised small quantities of such unlisted crops but failed to report them. The unlisted crops, however, are of very little importance, taking the country as a whole; and in those counties where such crops were of considerable local importance, the returns were relatively complete.

Even among the crops listed on the schedule, less attention apparently was given to those of little importance than to those which constituted the principal crops of the locality. It should be noted, moreover, that a crop which is very important in some sections of the country may be unimportant in other sections. In a district where apples, for example, are seldom grown, the enumerators would be more likely to omit asking farmers whether they had raised any

apples than in districts where apples are an important crop.

The probable incompleteness of the returns for crops unimportant in all parts of the country and of the returns for important crops in parts of the country where they were unimportant has very little effect, however, either upon the statistics of the total production of any of the principal crops in the country as a whole, or upon those showing the combined value of all crops for any given county or state.

What has just been said with reference to the returns for crops is equally true with reference to those for live-stock products, young animals raised, and domestic animals slaughtered on farms. But here an added difficulty appears. The number of acres of a crop harvested in a given year is a reasonably definite thing; and even if the exact quantity can not be recalled by the farmer, he can make a fairly good estimate by applying an approximate average yield per acre to the known acreage. Further, in the case of most crops the entire product is harvested or gathered at one season of the year and generally within a very few days or weeks; and at least, so far as concerns the principal crops, the farmers usually have clearly in mind not only the acreage harvested but also the quantity of each crop produced.

With regard to most of the live-stock products the conditions are quite different. For example, the farmers know, of course, the number of dairy cows on their farms at the time the farm is visited by the enumerator, but on many farms the number varies from one season of the year to another; and after the close of the year, the farmer may not recall all of the changes. Any attempt to calculate the production of milk or other dairy products from the number of cows, therefore, encounters difficulties.

Most of the live-stock products are secured in small amounts day by day throughout the year. During some seasons of the year the average production (such as the number of dozens of eggs or the number of gallons of milk) per day, per week, or per month is very small, while at other seasons it is much larger. Farmers in general do not keep books and have no definite system of accounts. It is usually necessary, therefore, for them to estimate the amount of live-stock products secured during the preceding year. Many farmers, particularly those who make this branch of farming an important business, are able to estimate closely, but some make very unsatisfactory estimates, even with the help of the enumerator, and a considerable number are unwilling to make any estimates at all.

At censuses prior to 1910, rules were adopted for making estimates in the office for schedules on which the data for live-stock products were partly missing or were obviously incorrect. Beginning with the census of 1910, however, this practice of making estimates for the individual schedules was abandoned and a special tabulation was carried, showing the number of animals or the number of fowls on the farms for which no product was reported or none tabulated. On the basis of the average production shown by the complete schedules, estimates were made by states for those farms reporting animals or fowls on hand but no product. These figures were expressly designated as estimates and their basis clearly stated in the reports.

EXPLANATION OF TERMS.

To assist in securing comparability for its statistics of agriculture, the Bureau of the Census provided the enumerators with instructions covering the more important terms employed on the schedule. This was necessary, first, in order that the statistics secured by enumerators in the different parts of the country should be comparable; and second, in order to secure as far as possible statistics comparable with those of former censuses. An effort was made to furnish a set of rules which would be easily understood by the enumerators. It can not be supposed that in all cases the enumerators understood the instructions and followed them accurately, but it is safe to assume that most of them did so.

Definition of a "farm."—The definition of a farm furnished to the enumerators at the census of 1920 was essentially as follows:

> A "farm," for census purposes, is all the land which is directly farmed by one person managing and conducting agricultural operations, either by his own labor alone or with the assistance of members of his household or hired employees. The term "agricultural operations" is used as a general term, referring to the work of growing crops, producing other agricultural products, and raising domestic animals, poultry, and bees.
>
> A "farm" as thus defined may consist of a single tract of land or of a number of separate and distinct tracts, and these several tracts may be held under different tenures, as where one tract is owned by the farmer and another tract is hired by him.
>
> When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a "farm."

In applying the foregoing definition of a farm for census purposes, the enumerators were instructed to report as a farm any tract of 3 acres or more used for agricultural purposes, no matter what the value of the products raised on the land or the amount of labor involved in operating the same in 1919. In addition, they were instructed to report as farms all tracts containing less than 3 acres which either produced as much as $250 worth of farm products in the year 1919, or required for their agricultural operations the continuous services of at least one person. The enumerators were also instructed to return farm schedules for all institutions which conducted agricultural operations, but to report as the farms of such institutions only the land which was actually used by them for agricultural purposes.

The Bureau of the Census did not attempt to secure a report of the acreage and value of all land suitable

for agriculture. It did not take any account of such land when held solely for speculative purposes and not actually utilized for agricultural production. It did not account for land owned by states or by the United States, unless actually used for agricultural purposes, nor for land occupied by forests or woodland, if not in the same tract with land used for agricultural purposes.

There was also some land actually used for agricultural purposes which was not covered by the farm census. Thus, in cities, towns, and villages, probably tens of thousands of families used vacant lots or parts of residence lots for small agricultural operations. Considerable numbers of small tracts outside of such places are similarly used. These small agricultural operations usually consist in raising vegetables or in keeping small numbers of fowls or domestic animals, and even in the aggregate (with the possible exception of poultry products) are of no very great importance.

There have been some changes from census to census in the definition of a farm. The first comprehensive census of agriculture was taken in 1850. The authorities in charge of that census recognized the necessity of establishing a limit below which no tract of land should be considered a farm, even though used for agricultural purposes. The instructions upon this point issued to the marshals collecting the data in 1850 were as follows:

> The returns of all farms, or plantations, the produce of which amounts to $100 in value are to be included in this schedule; but it is not intended to include the returns of small lots, owned or worked by persons following mechanical or other pursuits, where the productions are not $100 in value.

No instructions upon this subject were given to the enumerators in 1860. In 1870, and again in 1880, the instructions were as follows:

> "Farms," for the purposes of the agricultural schedule, include all considerable nurseries, orchards, and market gardens, which are owned by separate parties, which are cultivated for pecuniary profit, and employ as much as the labor of one able-bodied workman during the year. Mere cabbage and potato patches, family vegetable gardens, and ornamental lawns, not constituting a portion of a farm for general agricultural purposes, will be excluded. No farm will be reported of less than 3 acres unless $500 worth of produce has been actually sold off from it during the year. The latter proviso will allow the inclusion of market gardens in the neighborhood of large cities, where, although the area is small, a high state of cultivation is maintained and considerable values are produced. A farm is what is owned or leased by one man and cultivated under his care. A distant wood lot or sheep pasture, even if in another subdivision, is to be treated as a part of the farm; but wherever there is a resident overseer, or a manager, there a farm is to be reported.

These instructions were only slightly modified in 1890. In accordance with the instructions, therefore, tracts of land containing less than 3 acres were not reported as farms in 1870, 1880, or 1890, unless farm products to the value of at least $500 were sold in the census year.

The authorities in charge of the census of 1900 noted, upon comparing the statistics of occupations with the results of the farm census, that a considerable number of persons devoting their entire time to caring for small dairies, apiaries, florists' establishments, and the like were omitted from the farm census but were included in the occupation tables of the population reports as dairymen, apiarists, florists, etc. By reason of this fact the rule previously employed in reference to the amount of sales was omitted at the Twelfth Census and all agricultural enterprises were reported as farms, except that market, truck, and fruit gardens, orchards, nurseries, cranberry marshes, and city dairies were not to be so reported unless their operation or management required the constant services of at least one individual.

The instructions issued to the enumerators in 1900 were as follows:

> A farm, for census purposes, includes all the land under one management, used for raising crops and pasturing live stock, with the wood lots, swamps, meadows, etc., connected therewith, whether consisting of one tract or of several separate tracts. It also includes the house in which the farmer resides, and all other buildings used by him in connection with his farming operations, together with the land upon which they are located. If the individual conducting a farm resides in a house not located upon the land used by him for farm purposes, and his chief occupation is farming, the house and lot on which it is located are a part of the farm. If, however, he devotes the greater portion of his time to some other occupation, the house in which he resides is not a part of the farm. If the land owned by an individual, firm, or corporation is operated in part by the owner and in part by one or more tenants or managers, or if the land is wholly operated by tenants or managers, the portion of the land occupied by each is a farm, and must be reported in the name of the individual or individuals operating it. No land cultivated under the direction of others is to be included in the report of the land operated by the owner. For census purposes, market, truck, and fruit gardens, orchards, nurseries, cranberry marshes, greenhouses, and city dairies are "farms": *Provided*, The entire time of at least one individual is devoted to their care. This statement, however, does not refer to gardens in cities or towns which are maintained by persons for the use or enjoyment of their families and not for gain. Public institutions, as almshouses, insane asylums, etc., cultivating large vegetable or fruit gardens, or carrying on other agricultural work, are to be considered farms.

The definition of a farm used at the census of 1910 was practically identical with that used in 1920, which has already been given above.

The effect of the changes made from census to census in the definition of a farm appears most conspicuously in the statistics of the number of farms less than 3 acres in size. That number was published for the censuses of 1880, 1900, 1910, and 1920. In 1880 the number of farms under 3 acres in size was only 4,352, farms of this size being limited by definition to those from which at least $500 worth of products had actually been sold during the year.

In 1900 there were reported 41,385 farms of less than 3 acres. These figures would seem to indicate an enormous increase in the number of very small farms between 1880 and 1900. In 1900, however, as already

stated, the requirements with regard to the value of products of the tracts of less than 3 acres had been removed and all such tracts were reported as farms, provided their operation or management required the constant services of at least one person. A tabulation of these places, classified according to the value of products, showed only 7,853 out of the 41,385 with products valued at $500 or more.

In 1910 the number of farms of less than 3 acres was 18,033. For this census the requirement was that the tract of less than 3 acres must have employed the continuous services of at least one person or have produced agricultural products valued at $250 or over. This definition was similar to that used in 1900, with the additional requirement of a production value of at least $250. The number of farms of less than 3 acres in 1900 tabulated as having products valued at $250 or over was 12,328. This number may be considered fairly comparable with the number shown for 1910.

In 1920 the number of farms of less than 3 acres was 20,350. The instructions used in 1920 were practically identical with those used in 1910. At the prices prevailing for farm products in 1920, however, the actual quantities required to make up the value of $250 would be decidedly less than in 1910, and this change in the value of farm products per unit may be chiefly responsible for the larger number of farms in the under-3-acre class in 1920.

Definitions of the classes of farmers.—The instructions given to the enumerators in 1920 contain a definition of the term "farmer" or "farm operator." Various classes of farm operators were also carefully distinguished on the basis of the tenure under which they held or operated the land. The general definition was as follows:

> The term "farmer" or "farm operator" is employed by the Census Bureau to designate a person who directly works a farm as owner, hired manager, tenant, or cropper, conducting agricultural operations either by his own labor alone or with the assistance of members of his household or hired employees. Owners of farms who do not themselves direct the farm operations are not to be reported as farmers.

Contrary to the general practice at previous censuses, the enumerator at the census of 1920 was not required to classify the farmers according to tenure. The schedule contained simply the following questions, all except 3–*a* to be answered by "Yes" or "No:"

1. Do you *own* all of this farm?
2. Do you *rent* from others *part but not all* of this farm?
3. Do you *rent* from others *all* of this farm?
   - *a*. If you rent *all* of this farm, what do you pay as rent?
   - *b*. Does the person from whom you rent furnish all the work animals?
4. Do you operate this farm for others as a hired manager?

On the basis of the replies to these questions the schedules were grouped in accordance with the following tenure classification:

Farm owners include (1) farmers operating their own land only and (2) those operating both their own land and some land hired from others. The latter are sometimes referred to in the census reports as "part owners," the term "full owners" being then used for those owning all their land.

Farm managers are farmers who are conducting farm operations for the owner of the land for wages or a salary.

Farm tenants are farmers who, as tenants, renters, or croppers, operate hired land only. They were separated in 1920 into five classes, as follows: (1) Share tenants—those who pay a certain share of the products, as one-half, one-third, or one-quarter, for the use of the farm but furnish their own farm equipment and animals; (2) croppers—share tenants who do not furnish their work animals; (3) share-cash tenants—those who pay a share of the products for part of the land rented by them and cash for a part; (4) cash tenants—those who pay a cash rental, as $7 per acre of crop land or $500 for the use of the whole farm; (5) standing renters—those who pay a stated amount of farm products for the use of the farm, as 3 bales of cotton or 500 bushels of corn. In some cases the character of the tenancy was not ascertained by the enumerator; such tenants are designated "unspecified."

The tenure classification outlined above differs from that employed in 1910 in one respect only. In 1910 three specific classes of tenants were recognized; namely, share, share-cash, and cash. In 1920 two of these classes were further subdivided in the tabulation for the Southern states. Share tenants were separated into (*a*) croppers, or share tenants to whom the landlord furnished all work animals, and (*b*) share tenants proper, or all the remaining share tenants.

The basis of separation between croppers and other share tenants is doubtless somewhat arbitrary. There has been considerable demand for a number of years for the segregation of the croppers as a definite class for the Southern states, but an investigation of the local usage of the term "cropper" showed a good deal of variation as between one locality and another; hence it was found hardly practicable to frame a definition which would exactly conform to the local interpretations of the term in all parts of the South. While there were local differences in minor conditions of the cropper's tenure, however, the fact that the landlord furnished the work stock in any case seemed to be one common distinguishing point between the cropper and the more pretentious share tenant. Further, it provided a simple and workable definition for which the information could be gotten on the farm schedule with a reasonable degree of assurance of accuracy. On this basis, therefore, the croppers have been separated from the other share tenants for the Southern states. In many of the tables, however, especially those giving comparative figures for 1910, the two classes of share tenants have been combined and appear under the simple designation "share tenants."

The cash tenants also were divided into two groups, namely, (*a*) standing renters, or those who gave for the use of the land a specified quantity of some farm product or products in place of an actual cash payment, and (*b*) cash tenants proper, or those who paid for the use of the land a fixed amount in money. This separation, which was likewise made for the Southern states only, was based on the answer to the

question as to what was paid for the use of the land; and in the tables giving comparative figures for 1910, the standing renters of 1920 are included under the heading "cash tenants," in accordance with the practice at the earlier census.

In 1920, as in 1910, a certain number of schedules were received bearing information to the effect that the farmer was a tenant, but with no further data on which to base any classification as to the form of tenancy. These cases, which were much less numerous in 1920 than in 1910 (63,165 as compared with 113,993), are designated in the reports as "tenants, unspecified." The very considerable decrease in this class would seem to indicate that the method employed in 1920 for obtaining information in regard to form of tenancy was an improvement over that used in previous censuses.

Definitions of the classes of farm land.—In order to secure uniformity in the classification of farm land into (1) improved land, (2) woodland, and (3) other unimproved land, the following definitions of the different classes were given:

Improved land includes all land regularly tilled or mowed, land in pasture which has been cleared or tilled, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings.

Woodland includes all land covered with natural or planted forest trees which produce, or later may produce, firewood or other forest products.

Other unimproved land includes brush land, rough or stony land, swamp land, and any other land which is not improved or in forest.

Substantially the same classification of farm land has been employed at the different censuses beginning with 1880, except that in 1890 and 1900 no distinction was made between woodland and other unimproved land. There is one point of difference, however, between the definition of improved land as used in 1910 and that used in 1920. In 1920 the definition called for the inclusion as improved land of all pasture land which *had been cleared or tilled*, while in 1910 the only pasture land included as improved land was land *pastured and cropped in rotation*. This change might have been expected to make considerable additions to the area of improved land, particularly in New England and in other sections where old meadow land has been thrown into permanent pasture. A careful examination of the results of the 1920 census in comparison with those of 1910, however, indicates that the change in definition had this effect only to a very limited extent.

The census classification of farm land as improved land, woodland, or other unimproved land is one not always easy for the farmers or the enumerators to make. Difficulty is experienced in particular with regard to the classification of prairie land, as to whether it should be reported as improved, and with regard to the classification of land on which there is a scattered growth of trees, as to whether this land should be classified as woodland or "other unimproved land." The statistics for these three classes of land may be considered fairly close approximations, but the enumerators and the farmers in different parts of the country have interpreted the definitions somewhat differently; and at the different censuses they may have put slightly different interpretations upon them, even in the same locality.

GROSS VALUE OF FARM PRODUCTS.

There are many difficulties which stand in the way of obtaining a figure which will represent even approximately the *net* value of all farm products; that is, the actual amount added to the wealth of the country through the operation of the farms. It is possible, however, to make up directly from the census reports a total which may be termed the "gross value of farm products." This is obtained by adding together the value of live-stock products, domestic animals sold or slaughtered, farm crops, forest products of farms, and nursery and greenhouse products. These figures are given, by divisions and states, in the accompanying table.

This gross value of farm products corresponds approximately to the gross value of products for a manufacturing industry, while the net value of farm products, if it could be obtained, would correspond to the "value added by manufacture" which is shown in the reports of the census of manufactures. The gross value of products is very frequently used, however, in the discussion of manufacturing industries, even when the net figure (value added by manufacture) is readily available. This is probably done because value of products is a simpler term and one more readily understood than value added by manufacture. For many purposes the gross value of farm products likewise forms a very satisfactory index of the progress of agriculture or of the relative importance of the agricultural industry in different areas.

The principal argument against the use of the gross value of farm products lies in the fact that it contains two serious elements of duplication. In the first place, a very large part of the total production of crops is fed to live stock, so that when the value both of the crops and of the live-stock products resulting from the feeding of the crops are included in the same total, there is duplication to the extent of the value of the crops fed. Second, there is duplication in the reported value of live stock sold, where the live stock is sold by one farmer to another and again sold by the second farmer. These elements of duplication are offset to a small extent by the incompleteness of

returns for minor crops, to which reference has already been made. As compared with the amount of duplication, however, this element is of little importance.

Keeping these limitations in mind, the gross value of farm products may fairly be used as a basis for comparing the agricultural production of 1919 with that of 1909, and for comparing the production of one state or geographic division with that of another. In making comparisons between states or geographic divisions, however, some allowance should be made for the fact that the gross value of farm products exceeds the net value to a greater extent in those states where live-stock products form an important part of the total than in those states where crops predominate. In other words, the duplication is greater where crops are raised and fed on the farms and less where money crops like wheat and cotton are raised and shipped to market.

GROSS VALUE OF AGRICULTURAL PRODUCTS, BY DIVISIONS AND STATES: 1919 AND 1909.

DIVISION AND STATE.	GROSS VALUE OF FARM PRODUCTS.		Live-stock products, 1919	Domestic animals sold or slaughtered, 1919 (estimated).	Crops, 1919	Forest products, 1919	Nursery and greenhouse products, 1919
	1919	1909					
United States	**$21,425,623,614**	**$8,494,230,307**	**$2,667,072,273**	**$3,511,050,000**	**$14,755,364,894**	**$394,321,828**	**$97,814,619**
GEOGRAPHIC DIVISIONS:							
New England	505,397,039	245,324,983	132,411,030	55,500,000	275,175,536	31,352,700	10,957,773
Middle Atlantic	1,561,158,784	690,940,531	412,960,705	170,200,000	914,499,927	37,118,348	26,379,744
East North Central	4,410,240,680	1,837,378,383	721,387,402	784,200,000	2,818,367,792	57,817,314	28,468,112
West North Central	5,531,297,432	2,406,517,487	550,742,614	1,312,600,000	3,676,902,149	30,490,160	10,592,509
South Atlantic	2,629,345,466	933,535,056	204,301,963	221,550,000	2,083,808,429	113,624,917	6,060,157
East South Central	1,795,544,716	755,030,256	159,643,789	256,500,000	1,309,179,989	70,410,506	2,810,432
West South Central	2,739,481,559	889,110,743	181,346,648	352,200,000	2,168,622,649	34,396,936	2,915,326
Mountain	921,882,633	319,880,602	121,132,969	230,700,000	562,954,399	4,855,047	2,240,218
Pacific	1,231,275,305	410,512,266	183,145,033	127,600,000	948,854,024	14,285,900	7,390,348
NEW ENGLAND:							
Maine	154,076,196	61,318,188	26,075,219	15,700,000	100,152,324	11,728,114	420,539
New Hampshire	51,771,331	28,883,566	14,681,368	7,700,000	23,509,665	5,532,115	348,183
Vermont	99,473,142	49,706,224	31,573,340	13,300,000	47,999,600	6,377,580	222,622
Massachusetts	109,223,194	59,874,639	33,350,892	10,900,000	53,709,925	4,491,522	6,279,855
Rhode Island	13,682,138	8,085,780	5,367,881	1,300,000	5,340,378	470,077	1,203,802
Connecticut	77,171,038	37,456,580	20,862,330	6,600,000	44,472,644	2,763,292	2,482,772
MIDDLE ATLANTIC:							
New York	743,823,392	352,306,646	225,465,739	71,000,000	417,046,864	19,311,211	10,999,578
New Jersey	135,000,544	62,804,826	31,482,945	8,700,000	87,484,186	1,219,810	6,113,603
Pennsylvania	682,334,848	281,649,059	156,012,081	90,500,000	409,968,877	16,587,327	9,266,563
EAST NORTH CENTRAL:							
Ohio	941,729,697	388,190,729	155,587,919	159,400,000	607,037,562	11,364,709	8,339,507
Indiana	782,101,167	341,312,962	99,350,023	171,100,000	497,229,719	10,955,856	3,465,569
Illinois	1,298,900,947	580,483,959	142,351,202	274,800,000	864,737,833	6,259,154	10,752,698
Michigan	606,886,581	253,749,286	111,076,235	75,600,000	404,014,810	12,649,621	3,545,915
Wisconsin	780,616,288	267,941,447	213,022,023	103,300,000	445,347,808	16,587,974	2,358,423
WEST NORTH CENTRAL:							
Minnesota	734,485,441	279,063,342	113,236,965	104,000,000	506,020,233	9,007,015	2,161,228
Iowa	1,447,938,473	598,798,749	130,250,447	420,300,000	890,391,299	4,404,555	2,592,172
Missouri	962,663,253	429,669,778	105,601,436	270,800,000	559,047,854	13,938,458	3,275,505
North Dakota	338,055,889	204,914,024	30,979,932	34,900,000	301,782,935	206,317	186,705
South Dakota	411,111,307	177,513,492	35,739,209	63,700,000	311,006,809	238,462	426,827
Nebraska	784,677,206	327,145,309	54,612,075	208,700,000	519,729,771	933,276	702,084
Kansas	882,365,863	389,412,793	80,322,550	210,200,000	588,923,248	1,672,077	1,247,988
SOUTH ATLANTIC:							
Delaware	32,182,526	13,355,761	5,778,747	2,400,000	23,058,906	777,176	167,697
Maryland	168,178,779	64,171,069	25,522,172	16,800,000	109,858,608	4,673,536	1,324,463
District of Columbia	1,019,770	713,126	119,263	50,000	807,614	200	542,693
Virginia	425,199,212	150,872,040	46,311,494	61,100,000	292,824,260	24,142,423	821,035
West Virginia	169,066,516	70,770,172	26,332,970	34,600,000	96,537,459	11,340,421	249,666
North Carolina	614,084,854	176,261,942	35,860,056	41,600,000	503,229,313	32,735,203	660,222
South Carolina	489,979,710	156,350,420	20,354,000	18,000,000	437,121,837	14,256,764	247,049
Georgia	638,430,053	257,351,095	36,401,316	39,000,000	540,613,626	21,657,200	757,911
Florida	101,204,046	43,089,425	7,621,885	8,000,000	80,256,806	4,035,934	1,289,421
EAST SOUTH CENTRAL:							
Kentucky	512,459,424	218,456,263	50,928,217	90,800,000	347,338,888	16,606,621	785,698
Tennessee	492,407,214	192,931,905	50,960,694	101,000,000	318,285,307	20,868,262	1,292,951
Alabama	383,178,279	170,939,250	30,426,993	29,100,000	304,348,038	18,803,353	499,295
Mississippi	407,499,799	172,702,838	27,327,885	29,600,000	336,207,156	14,132,270	232,488
WEST SOUTH CENTRAL:							
Arkansas	424,436,802	153,834,875	30,083,950	39,400,000	340,813,256	13,805,907	333,689
Louisiana	237,628,052	90,401,867	13,613,465	12,100,000	206,182,548	5,480,619	251,420
Oklahoma	707,895,000	214,308,112	49,887,518	103,800,000	550,084,742	3,508,813	613,927
Texas	1,369,471,705	430,005,899	87,761,715	196,900,000	1,071,542,103	11,001,597	1,666,290
MOUNTAIN:							
Montana	142,597,141	64,066,171	24,809,029	46,000,000	69,975,185	1,253,217	559,710
Idaho	181,709,556	54,903,112	22,225,355	30,500,000	126,495,111	2,329,244	159,846
Wyoming	68,153,818	34,480,518	14,004,109	23,700,000	30,270,630	156,837	22,242
Colorado	280,295,333	84,871,022	26,921,292	70,600,000	181,065,239	563,476	1,145,326
New Mexico	75,172,758	24,901,620	8,447,326	25,700,000	40,619,634	326,820	78,478
Arizona	59,771,694	13,112,666	6,294,886	10,900,000	42,481,230	67,754	27,824
Utah	87,764,314	30,801,598	13,735,823	15,600,000	58,067,067	120,202	241,162
Nevada	26,418,019	12,683,895	4,694,649	7,700,000	13,980,303	37,437	5,630
PACIFIC:							
Washington	301,271,159	104,688,032	44,066,349	23,900,000	227,212,008	4,738,116	1,354,686
Oregon	209,459,266	80,842,010	35,146,671	36,200,000	131,884,639	5,299,123	928,833
California	770,544,880	224,981,624	103,932,013	67,500,000	589,757,377	4,248,661	5,106,829

METHOD OF PRESENTING STATISTICS.

As already stated, the present volume is a summary and general presentation of the results of the census of agriculture, not including the special inquiries with regard to irrigation and drainage.

Statistics for divisions and states.—In most cases the tables in this volume give figures for each state, as well as for the United States as a whole. Because of the large number of states, however, and for other reasons, it is difficult to indicate the broad geographic conditions affecting the status of agriculture by means of the figures for individual states. In addition, therefore, to the presentation of statistics by states, this volume gives statistics for nine groups of states which are designated "geographic divisions." The figures for geographic divisions are given in practically every case at the head of the table which contains the figures for the individual states.

This plan reduces the comparisons necessary to a general understanding of the geographic differences in conditions to a number which can be readily grasped. The states within each of these divisions are for the most part fairly homogeneous in physical characteristics, as well as in the characteristics of their population and their economic and agricultural conditions, while on the other hand each division differs more or less sharply in these respects from most of the others.

The grouping of the states in geographic divisions has facilitated a geographical rather than an alphabetical order in the tables which present the statistics by states. The advantage of this geographical order lies chiefly in the ease with which figures for adjoining states can be compared.

Comparative and derivative figures.—In the tables of this volume an effort has been made to increase the value of the statistics for the census of 1920 by the introduction of comparative figures for earlier censuses, especially for the census of 1910, and by the presentation of important ratios, averages, and percentages. The full significance of the census data is brought out most effectively by comparisons between different censuses for the same area and between different states or geographical areas for the same census; and comparisons based upon absolute numbers are usually much less instructive and less readily grasped than those based upon the percentages and averages.

Text discussion of tables.—In this volume the text is limited for the most part to that which is absolutely necessary to explain the general features of the tables. It is confined in the main, therefore, to the presentation of the necessary definitions and a brief comment upon the most significant of the United States totals, with reference to other figures only where necessary to explain unusual conditions.

Maps and diagrams have been employed to present graphically some of the most important facts ascertained by the census. These maps and diagrams have so far as possible been printed in immediate connection with the tables giving the statistics upon which they are based.

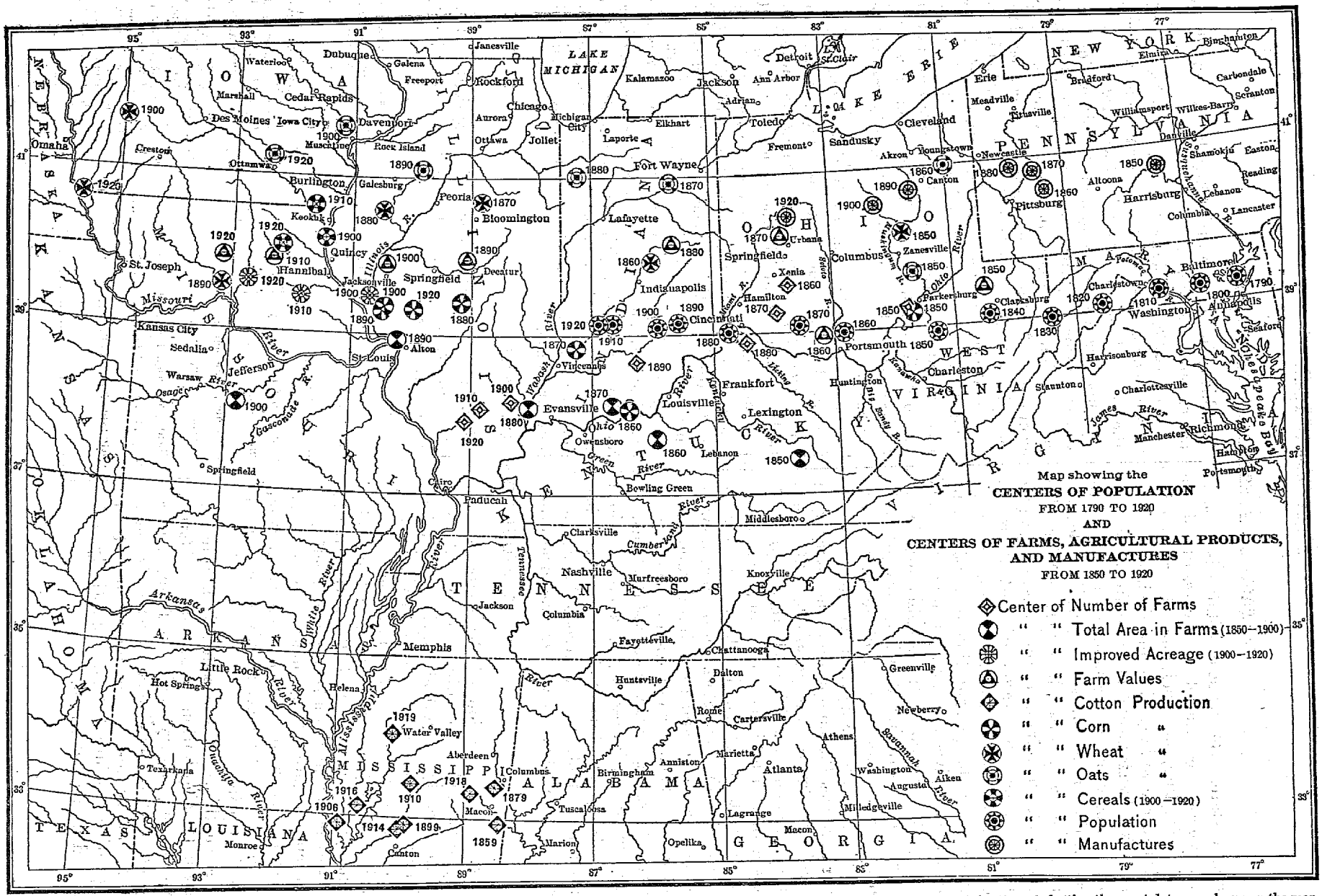
AGRICULTURAL CENTERS.

Explanation.—The location of the center of the number of farms, and of the other agricultural "centers," is computed by a method which gives weight to the figures for each county in proportion to its distance from an assumed approximate center. The basis of this computation may be explained through a physical analogy. For example, if the surface of the United States be considered a rigid plane, itself without weight, and the farms be assumed to be of equal weight, the center of the number of farms is the point where the plane would balance, if a pivot were placed under it at that point.

Computed in this way, the center is affected by any change in the distribution of the number of farms, in any part of the country, and thus forms a more sensitive index than the median point, which is simply the point of intersection of the lines which divide the number of farms into halves, respectively, east and west, and north and south.

Location of centers.—The various agricultural centers shown on the map on the next page were located in 1920 as follows:

ITEM.	Latitude.			Longitude.			Distance in miles from nearest town.
	°	′	″	°	′	″	
Number of farms	38	1	41	89	25	49	4.2 miles southwest of Pinckneyville, Perry County, Ill.
Value of all farm property	39	55	24	93	9	34	3.6 miles northeast of Linneus, Linn County, Mo.
Improved acreage	39	38	21	92	45	11	3.8 miles south-southwest of New Cambria, Macon County, Mo.
All cereals (production, 1919)	40	3	53	92	10	37	4 miles south of Edina, Knox County, Mo.
Corn (production, 1919)	39	20	33	89	59	12	2.8 miles southeast of Hettick, Macoupin County, Ill.
Wheat (production, 1919)	40	36	20	95	42	39	3.2 miles east of Hamburg, Fremont County, Iowa.
Oats (production, 1919)	41	12	27	92	20	21	3.7 miles north-northwest of Hedrick, Keokuk County, Iowa.
Cotton (production, 1919)	33	35	00	90	6	20	5 miles northeast of Greenwood, Leflore County, Miss.



NOTE.—The centers for manufactures and for all crops except cotton are based on data for the year preceding the census year indicated on the map; for the centers of cotton production the exact dates are shown on the map.