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LAND UTILIZATION AND THE FARM PROBLEM

UNITED STATES
DEPARTMENT OF AGRICULTURE
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BY

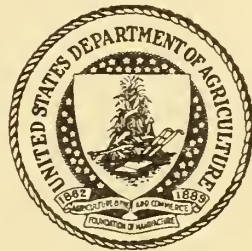
L. C. GRAY, Principal Agricultural Economist

and

O. E. BAKER, Senior Agricultural Economist

Division of Land Economics, Bureau of Agricultural Economics

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FOREWORD

It is widely recognized that American farmers in general are not receiving adequate returns. The well-being of farmers, of course, can not be measured by money incomes alone. In fact so many things enter into living on the farm that no adequate yardstick of rural prosperity has yet been devised. The signs are unmistakable, however, that all is not well with American agriculture. The income of agriculture as a whole, to be sure, moved upward somewhat between 1921 and 1929, and individual farmers scattered throughout the industry have bettered their position a little year by year. On the other hand, shrunken land values, large debts and mounting taxes, high costs, and low prices of farm products weigh heavily upon the industry, and thousands of capable farmers are unable to support the rising level of living that other groups of Americans enjoy.

The agricultural problem is the outgrowth of many conditions. War inflation followed by drastic deflation of agricultural values, the accumulation of debts at inflated prices that now must be paid off at deflated prices, high farming and living costs as contrasted with low prices of farm products, burdensome taxes, increased cost of distributing farm products, shifting or decreasing demand for agricultural products—these are some of the influences that account in varying degree for the difficulties experienced by farmers.

But there is perhaps no single element in the situation that has as much adverse influence upon farm incomes as maladjusted production and general and continuing overproduction. Agriculture is intensely competitive. The individual American farmer competes with millions of fellow farmers both at home and abroad. This competition has been further intensified by organized efforts both in this and in other countries to promote the settlement and cultivation of farm lands without due regard to the profitableness of such lands. This intense competition and this lack of foresight in agricultural planning contribute beyond measure to the production of periodic surpluses and to general overproduction with their disastrous effects upon the prices of agricultural products.

Thus the farm problem is not a single problem but a bundle of problems. It therefore must be attacked on many fronts. One line of attack is in the realm of individual and collective action by farmers; still another is in the domain of national and State policy and legislation. The remedy consists partly in lowering farm taxes, in reducing credit and other costs, and in eliminating waste in marketing. No small part of the solution of the farm problem, however, lies in production adjustments of one kind or another.

An economic program of agricultural production that will contribute substantially to agricultural betterment must cope with three major problems: (1) The adjustment of supplies both in quantity and quality to world competition and market requirements, (2) increasing efficiency in production and resulting lower costs of production, and (3) the elimination of submarginal land from cultivation and the maintenance of an economic balance between agriculture on the one hand and other economic activities on the other.

Prices of farm products are determined in large measure by the supplies of such products. The farmer can not control the weather and its effects upon the supply of his crops. Insect and disease pests are only partially within his control. But it lies within his power to plant more or fewer acres of various crops and to increase or decrease his livestock. The effective adjustment of acreages and breeding stock by farmers to the world outlook for all agricultural commodities would help maintain an economic balance in the production of various commodities and reduce periodic surpluses to more manageable proportions. The successful manufacturer appraises the demand for his products and the competition he must face and then shapes his output accordingly. Although it is far more difficult to estimate competition and to control production in the field of agriculture, there can be no doubt that incomes of farmers may be materially enhanced if production is planned in the light of world competition and demand. The outlook service of the Department of Agriculture and the State agricultural colleges is a first step in a nation-wide effort to assist farmers to adjust their production to world competitive conditions.

Excessive competition in agriculture, both at home and abroad, shows few signs of abating. How long prices of agricultural products will continue their downward course or remain at present levels no one can foretell. Some barriers may be erected that will moderate this competition, but the impact of world competitive forces can not be escaped, and we may as well prepare ourselves to meet competitors in the race for markets both at home and abroad. Although the American farmer takes second place to none in efficiency, there are still great possibilities of reducing costs of production. Better organization and management of farms and wider use of technical improvements in production will widen the margin between prices and costs and increase net incomes to more farmers.

It is sometimes objected that increasing efficiency in production augments the surplus and depresses the price. Frequently that is the immediate result. Advance in production technic, however, is a mark of progress in agriculture as in other fields of activity, and it would be a backward step to stay such improvements, even if we could. Moreover, a process of adjustment within the industry itself acts as a brake upon the continued production of excessive supplies. The degree of efficiency actually achieved by producers varies widely because of differences in farm lands, in personal ability, and in other factors that affect production costs. Excessively low prices resulting from excessive supplies tend to eliminate the high-cost producers, to retard or check the increase in total output, and to stay the downward course of prices, thus protecting the profits of the more efficient producers.

In this competitive struggle some fall by the wayside because their farms are poorly organized and managed. Others fail because they cultivate lands from which a profit can not be derived. Millions of acres of farm land have gone out of use, and millions more would go out of use but for a deep-seated reluctance on the part of owners to abandon property accumulated through years of toil and to start life anew in occupations for which they are not prepared. Continuance of farming on such lands contributes in some degree to the surpluses of farm products, creates areas of poverty agriculture, and intensifies the fiscal, political, and social problems of government.

Effective use of our land resources is thus a vital phase of the farm problem. What are the uses to which the various classes of agricultural land may be put most profitably? How can we divert to nonfarming uses the lands that, under present conditions, will not yield adequate returns to farmers? Submarginal lands that, under present conditions, can not compete with better lands are not confined to any one section of the country but are scattered throughout the North, the South, the East, and the West. Moreover lands that now are submarginal for crop production may perhaps another day, under changed conditions as to prices, farming methods, and operating costs, be farmed with a profit. Under a sound national policy of land utilization the lands that have natural and economic advantages over other lands will be brought into production whether located in the East or the West, and the submarginal lands that will not yield a profit will be gradually diverted to other uses.

Elimination of submarginal lands from our crop-producing area will not of itself provide a solution of the surplus problem. This fact should be emphasized. But the continuous withdrawal of such lands from crop production will contribute somewhat to the reduction of agricultural surpluses and will retard the expansion of the agricultural area while demand overtakes supply. Furthermore, the adoption of a constructive policy of facilitating the withdrawal of unprofitable lands from agricultural use, as contrasted with our present national policy of permitting and even encouraging planless agricultural expansion, would contribute to the mobility of population between country and city and would help to restore and maintain a better economic balance between agriculture and industry.

The gains to agriculture through the elimination of submarginal lands and inefficient producers will be slow at best. Neither will completely disappear from our agriculture. There will always be some who prefer to live in the country even under low economic standards of living. But the vast majority of those who live on the land, even in areas of poverty agriculture, will respond to every opportunity to better themselves. It is a service to them to point the way to agricultural reorganization for greater profits and better living wherever conditions permit. It is an equally valuable service to lay bare the hopeless handicaps under which they may labor in some sections. Discontented farmers who understand the hopelessness of their outlook will not farm at a loss indefinitely

but will seek other opportunities. In this manner we may speed materially the processes of adjustment in agriculture.

In the following brief summary the authors present, graphically and in a simple way, some of the high lights of existing conditions and tendencies in the use of land. No attempt is here made to formulate a concrete and specific policy of land utilization. The essential elements in such a policy are perhaps fairly well established, but there are many questions still to be answered. Are low farm incomes, tax delinquency, and farm abandonment in particular areas due to hopeless handicaps or can agriculture be restored through some form of reorganization? What lands now in farms are best adapted to supply the requirements of future agricultural expansion and under what conditions of utilization? What lands not adapted to crop production can be profitably reforested by private enterprise? What lands not adapted to crop production or to reforestation through private effort could advantageously be acquired by the public?

This Nation has incomparable resources in land, labor, and capital. These are assets of inestimable value in building a prosperous agriculture. No less important is the intelligence with which these assets are utilized. American farmers must acquire greater resourcefulness in anticipating and meeting changes in world economic conditions that affect their returns. They must adopt every economy of production and they must recognize handicaps, natural or economic, that foredoom them to failure. But it is no less vital that this Nation, in the interest of a profitable agriculture, and a balanced national life, adopt a national land policy that will help to divert lands to the uses for which they are best suited, be it agriculture, forestry, or still other uses. We need a land policy that will yield greater economic and social values from the use of our lands, and at the same time stay soil erosion and wasteful depletion of our natural resources. The Nation should replace without further delay the present policy of planless agricultural development with a program of research, education, and legislation that will facilitate essential adjustments in our agriculture and help to eliminate submarginal lands from the production of crops.

NILS A. OLSEN, *Chief of Bureau.*

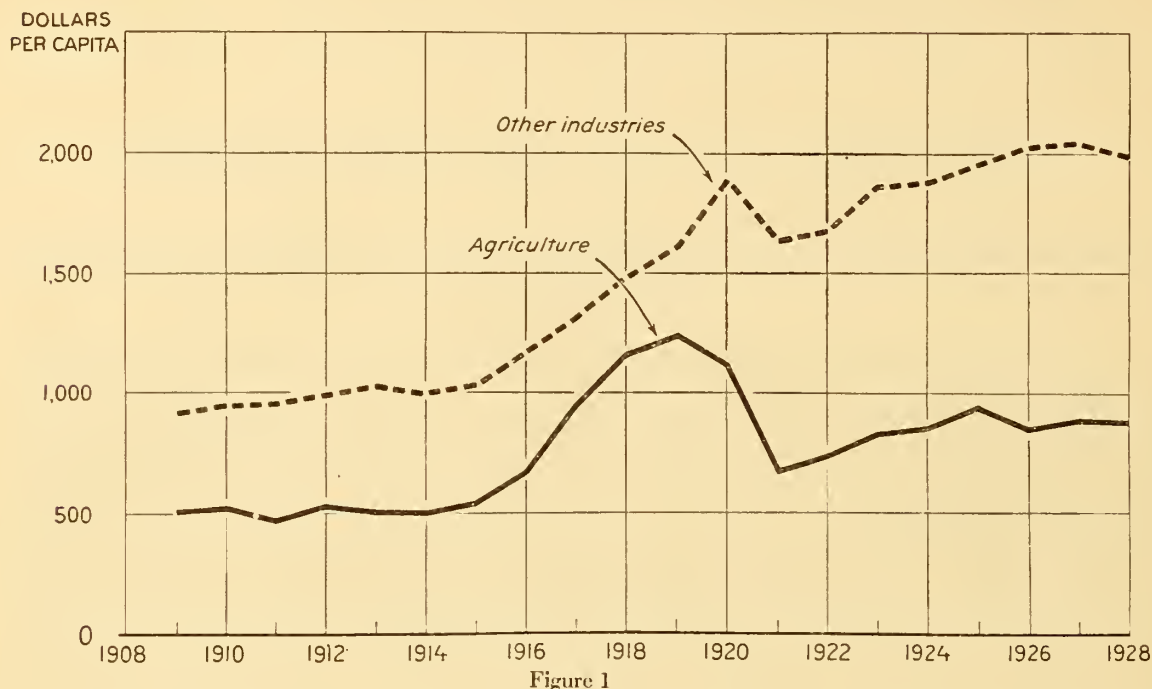
LAND UTILIZATION AND THE FARM PROBLEM¹

SOME INDICATIONS OF OVERPRODUCTION AND MALADJUSTMENT IN PRODUCTION

A decade of discussion of the farm problem has brought out a number of causes of the inadequate return to agriculture. That small-scale producers, whether farmers or small shopkeepers and manufacturers, are subject to certain handicaps has long been recognized. Such handicaps are not peculiar to the period of depression, though they have been important obstacles to economic readjustment. The increase of land values, mortgage indebtedness, and taxes during the World War, followed by a great decline in land values, but an increase in the burden of mortgage indebtedness and taxation, have constituted obvious and important conditions of agricultural distress since the collapse of prices in 1920-21. These conditions alone, however, are clearly inadequate explanations of the slowness of recovery. The difficulty of making a profit out of farming has not been confined to those who assumed the burden of land values that were inflated under war-time conditions. It is widely believed that under present conditions it is difficult, even for men of more than average ability and resources, to make a profit out of farming. This suggests the influence of overproduction—perhaps of general agricultural overproduction. During the past decade one crop and then another has enjoyed occasional good years, whereas other crops have been found unprofitable; farmers have shifted from one line of production to another in the endeavor to find a more profitable employment of their labor and capital. The occasionally high prices for a single crop, kind of livestock, or livestock product, have resembled only individual waves in an otherwise low level of prices.

¹ACKNOWLEDGMENT: Several of the charts used in this publication were prepared by Ward Shepard, of the Forest Service. Figure 33 was prepared by the Bureau of Chemistry and Soils. The following members of the technical staff of the Division of Land Economics, Bureau of Agricultural Economics, assisted in the preparation of charts: C. F. Clayton, W. A. Hartman, F. J. Marschner, Millard Peck, H. A. Turner, and E. O. Wooton. A number of the illustrations are reproductions of charts contained in manuscripts or publications prepared in cooperation with State experiment stations, notably those of West Virginia and Wisconsin. The first chart is based on data supplied by W. I. King, of the National Bureau of Economic Research and New York University, New York City. Data regarding acreage of public land entered and patented were supplied by C. L. Bullion, of the General Land Office, Department of the Interior. A few of the charts have been presented in earlier publications of the Department of Agriculture.

INCOME PER PERSON ENGAGED IN AGRICULTURE AND IN NON-AGRICULTURAL INDUSTRIES, UNITED STATES, 1909-1928



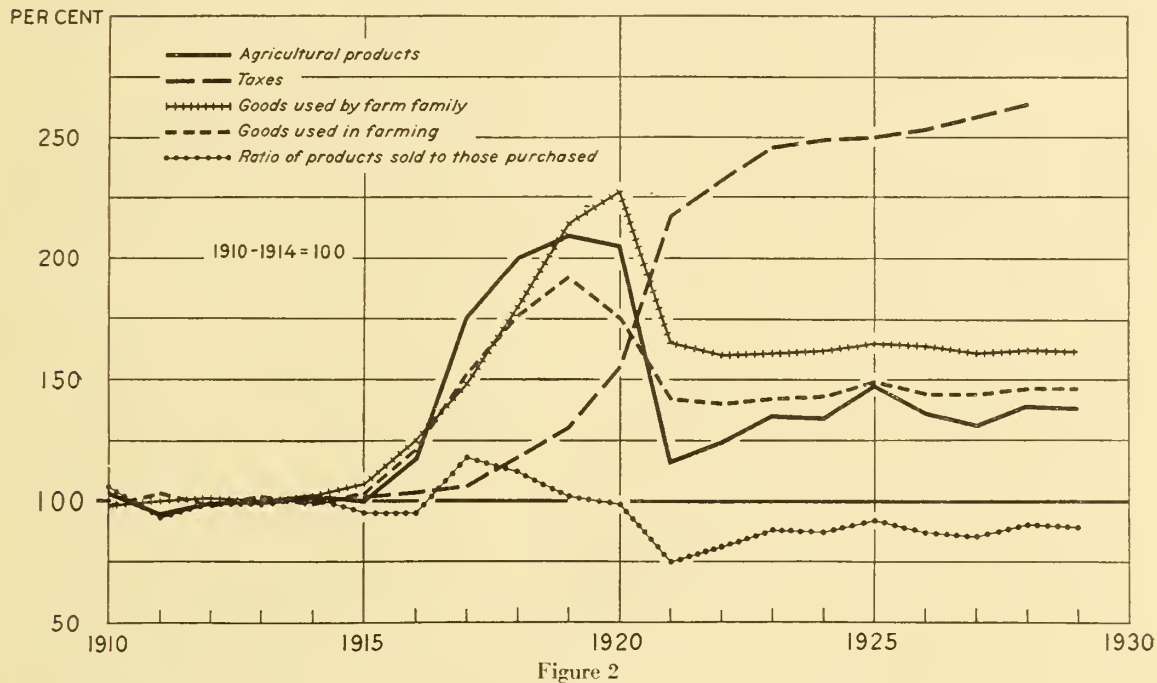
Among the various indications of the inferior economic position of agriculture since 1920 is the net income per person engaged, as compared with that of persons engaged in other industries. At the beginning of the period the average per capita income from industry was about 80 per cent greater than that from agriculture; by the end of the period the income from industry per person engaged had become 130 per cent greater.

The comparison, to be sure, is subject to a number of qualifications. For instance, a dollar of income in the country does not mean the same as in the city. While allowance has been made, in the curve of agricultural income, for the value of food obtained from the farm and for the use of the farmhouse, the demands on one's income in the country are in many ways different from the requirements which must be maintained by city workers. In the respective curves no allowance has been made for change in the purchasing power of money. This change has not affected real agricultural income to the same extent as income from other occupations because a part of agricultural income consists of food and other things consumed on the farm, the utility of which is not affected by changes in the value of the dollar. In the estimates of income these commodities were credited to the farmer's income at the current farm prices, which were higher in the post-war than in the pre-war years, but the increase in prices paid by urban workers for things which farmers enjoy as noncash items has been even greater, on account of higher costs of distribution, thus diminishing somewhat the apparent relative gain in per capita income of nonagricultural occupations.

It is not probable, however, that these qualifications offset more than a part of the increased spread between the two curves from 1919 to 1928.² The persistence of the greater divergence in the two curves since 1919 suggests continued overproduction in agriculture as one possible explanation.

² The estimates of income are from *The National Income and Its Purchasing Power*, by W. I. King, of the National Bureau of Economic Research, 1930. The income of persons engaged in agriculture includes the net return after deducting the cash expenses of the industry from its cash receipts, the estimated value of farm products consumed on the farm and the rental value of farm homes, and the estimated income received by farmers from nonagricultural sources. The rent and interest paid to nonfarmers is deducted.

FARM PRICES OF FARM PRODUCTS AS COMPARED WITH PRICES OF GOODS PURCHASED BY FARMERS AND WITH TAXES UNITED STATES, 1910-1929



The average level of farm prices of agricultural products since 1922—that is, the prices received by producers at local farm markets—has ranged from 30 to 40 per cent above the pre-war (1910-1914) level, except in 1925, when it was somewhat higher. On the other hand, since 1921 the average prices of things farmers buy for use in farming have ranged from 40 to 50 per cent above the pre-war level, and the prices of goods bought for use by farm families have averaged 60 to 65 per cent higher. Therefore, the average prices received by farmers for their products have been only 80 to 90 per cent of the prices of the things they have had to buy, as compared with prices in pre-war years. Total taxes on all farm property average about two and two-thirds as much as in 1914. Although the relatively low prices of farm products undoubtedly have been offset in part by increased production per unit of human labor, due largely to wide adoption of improved machinery and other forms of technical progress (figs. 9 and 12), the persistence of these relatively low prices for practically a decade may be regarded as another indication of general overproduction in agriculture.

ESTIMATED AVERAGE VALUE OF FARM REAL ESTATE, PER ACRE, AS OF MARCH 1, BY GEOGRAPHIC DIVISIONS, 1920-1929

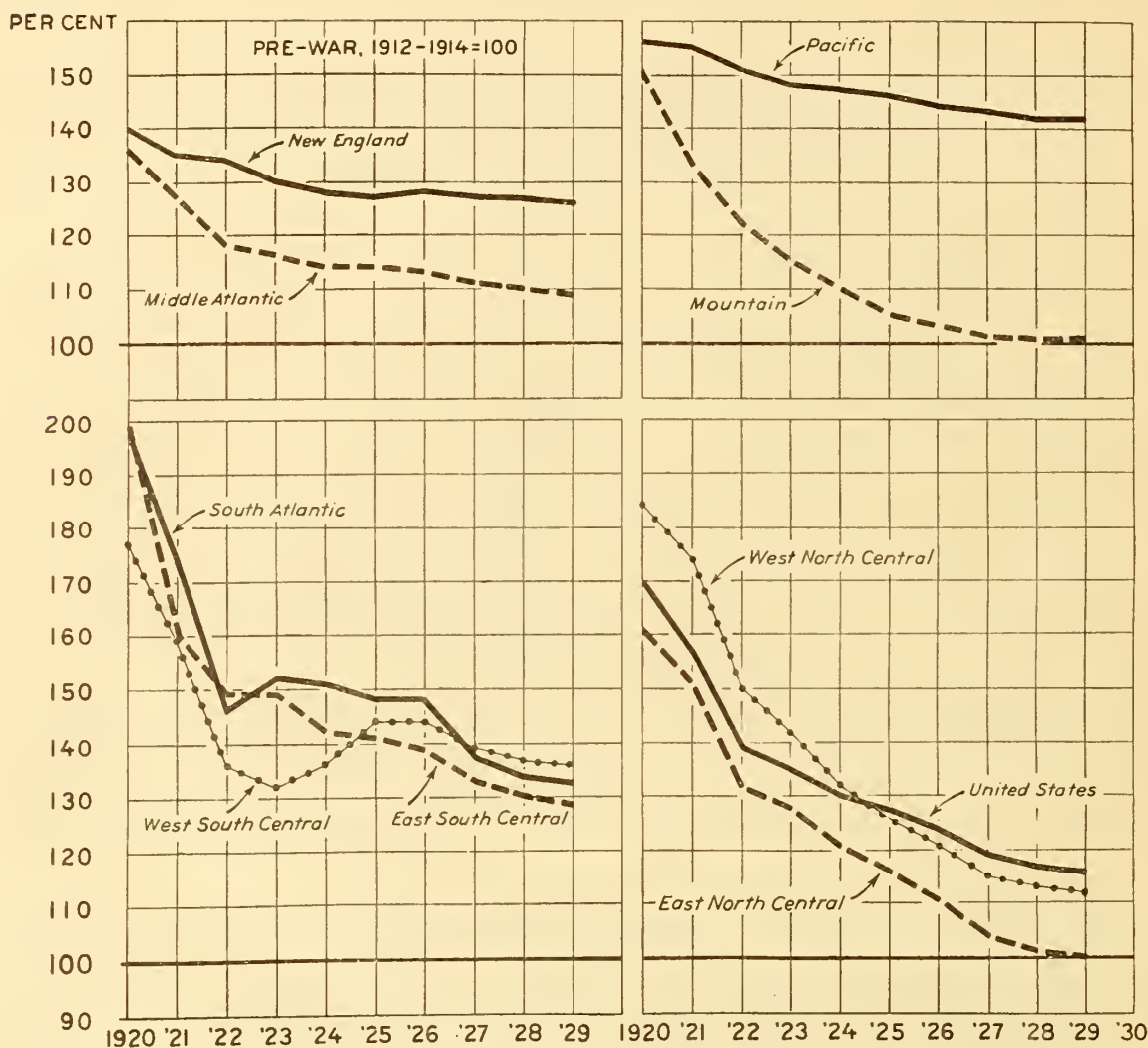


Figure 3

The drastic decrease in average prices per acre of farm real estate for the United States as a whole has been not only one of the major elements in the economic distress of the farming industry for more than a decade, but also probably another indication of the maladjustment of production to demand already mentioned. It is true, the decline reflects in part the process of deflation experienced by commodities in general due to the change in the value of the dollar, but the decrease in the average value of farm real estate in the United States as a whole has been greater than the change in the value of the dollar as indicated by the decrease in wholesale prices of commodities. In fact, when allowance is made on this basis for change in the value of the dollar, the values of farm real estate are still approximately 20 per cent below the average for the pre-war years, 1912-1914, although the decrease was very uneven in various sections of the country. These results, of course, reflect many influences other than the maladjustment in relationship of supply and demand referred to as overproduction, one of the most notable influences being the huge increase in burden of taxes on farm real estate in spite of the great decrease in its value.

SOME CONDITIONS RESPONSIBLE FOR OVERPRODUCTION AND MALADJUSTMENT IN PRODUCTION

General and continuous overproduction, as an explanation of the difficulties experienced by agriculture in this and other countries during the last decade, is popularly referred to as the agricultural surplus. This surplus is sometimes confused with an export surplus, but it is more correctly defined as a quantity of products in excess of what may be sold at prices yielding a net return to the generality of producers comparable with the return for equivalent labor and capital when employed by the generality of producers in other occupations. Three groups of causes appear to have operated to bring about overproduction:

(1) Expansion of agriculture in the United States, Canada, Australia, Argentina, and other parts of the world, into new areas of fairly level land adapted to the production of grain crops by machine methods, and gradual recovery of agriculture in European countries that participated in the World War. Along with these tendencies toward expansion, there has been a comparatively slow contraction of the agricultural area in regions where agriculture has become unprofitable.

(2) Increased production per acre and per man, which has taken the form of larger average yields per acre in certain important areas of production; greater relative importance of crops yielding a large product per acre and of kinds of livestock giving a large product per unit of feed; greater concentration of production in areas yielding a large product per acre, particularly in the case of livestock; selection of more productive animals and improved feeding methods; and increasing economy of human labor, achieved by progress in the mechanization of agriculture and by other means.

(3) Decreased requirements of certain agricultural products needed to supply the demands of the American people; in particular, large savings in feed due to decreased use of horses and mules, and a shift in the diet of the people, involving the consumption of less cereals and the consumption of more sugar which is mostly imported or brought from our insular possessions.

Some of these tendencies have become especially important since the World War, and all are significant in their bearing on our national problem of land utilization.

INCREASE IN ACREAGE OF ALL HARVESTED CROPS, 1909-1919

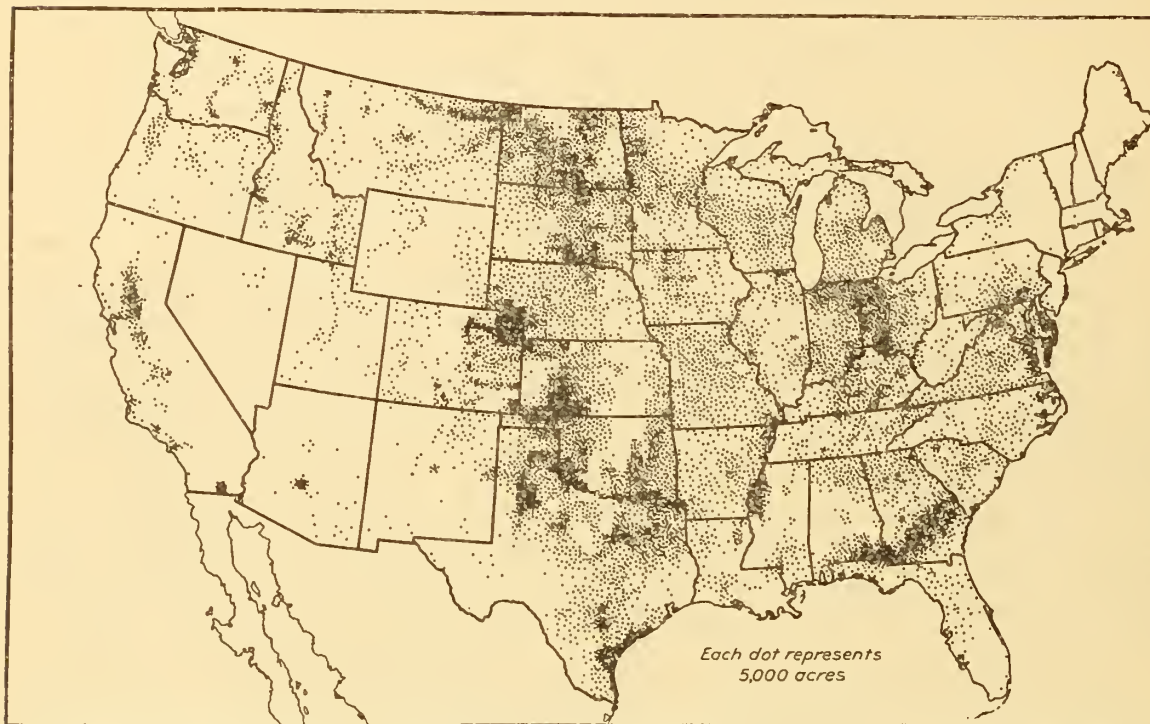


Figure 4. (Based on the Census)

The increase of crop acreage in the decade 1909-1919 was widespread, occurring in nearly all the important farming regions of the United States. It is notable that the increase is shown not only in areas suitable for cropping in the Great Plains and westward, but also in the eastern half of the country, a region that experienced a great decrease from 1919 to 1924. (Fig. 17.) In the western half of the United States (North Dakota to Texas, inclusive and westward) the aggregate net increase from 1909 to 1919 was 30,348,000 acres, and east of a line formed by the eastern boundary of that tier of States the net increase was 14,229,000 acres; a total of nearly 45,000,000 acres, or about 14 per cent of the estimated area of crop land for 1909. Important exceptions to this general increase in crop acreage were found in the black prairie of central Alabama and eastern Mississippi, a contiguous group of counties in western Georgia, and parts of north-central Mississippi, due largely to depredations of the boll weevil; in most of New England and a large part of New York and Pennsylvania, where contraction of the crop area had been taking place for several decades; and in a few scattered counties in other parts of the United States. The expansion of the crop area, on the other hand, was especially notable in the Great Plains area, facilitated by the adoption of large-scale production and introduction of drought-resistant varieties of crops, and in the sandy lands of the coastal plain of Georgia and Alabama, where the use of fertilizers was being rapidly extended.

INCREASE IN ACREAGE OF ALL HARVESTED CROPS, 1919-1924

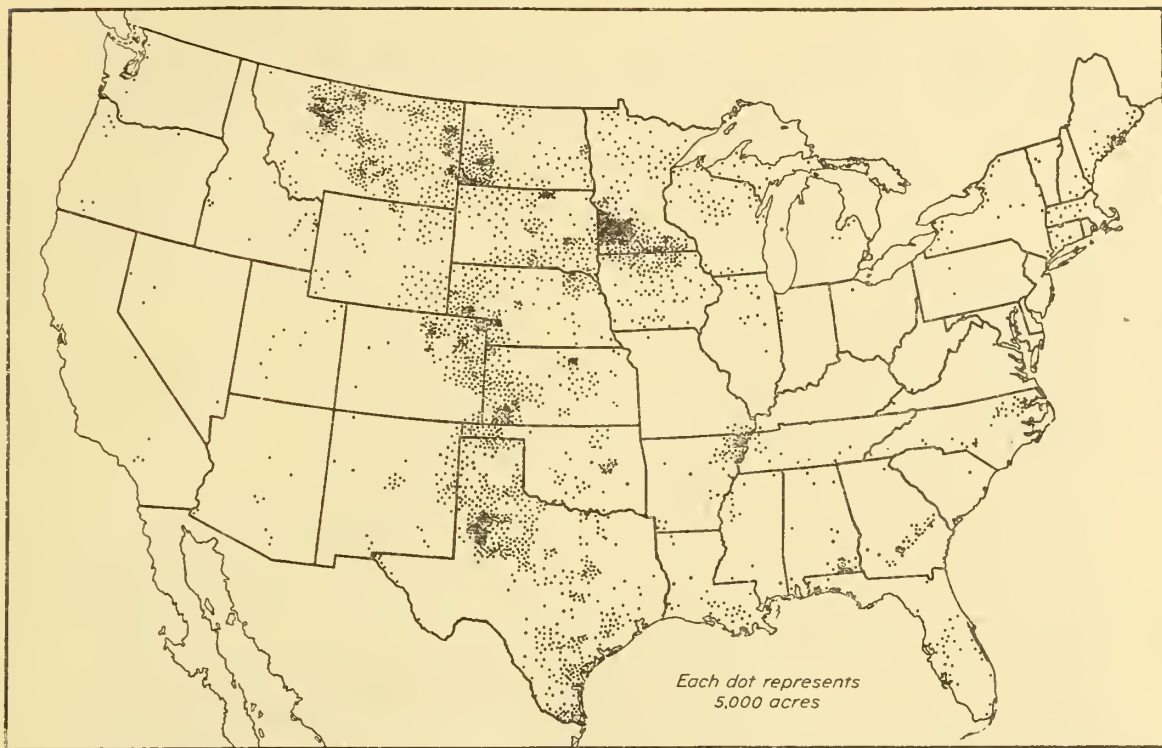


Figure 5. (Based on the Census)

The significant tendency toward expansion of agriculture into areas of low rainfall shown in Figure 4 was continued from 1919 to 1924 notwithstanding the low prices of farm products. It is made possible here and in other countries by new varieties of drouth-resistant crops, by dry-farming methods, and by mechanical inventions, such as the tractor and combine-harvester, that are adapted to the fairly level surface characteristic of most semiarid areas. Between 1919 and 1924 farmers in the semiarid sections of the Great Plains found it possible to increase the acreage of harvested crops although the eastern half of the country, for the most part, was experiencing a decrease of crop acreage. (Fig. 17.) In the western half of the United States (North Dakota to Texas, inclusive, and westward) there was a net increase of 3,503,000 acres in harvested crops between 1919 and 1924, a continuation of a corresponding tendency in the preceding decade.

The increase of harvested acreage shown in Montana, the Dakotas, and Minnesota appears greater than it really was because 1919 was an extremely dry year in those States, and as a result an enormous acreage was abandoned before harvest. On the other hand, the increase in Texas, Oklahoma, Kansas, Colorado, and Nebraska represents a definite expansion of the acreage in cultivation. Estimates of harvested crop acreage for 1929, available only by States, indicate a net increase since 1924 for the 17 Western States amounting in all to about 12,000,000 acres, and for the 31 Eastern States amounting to only 737,000 acres. But a material increase in crop acreage since 1924 is indicated for all the States south of the Potomac and Ohio Rivers and east of Oklahoma, except South Carolina and Virginia. This increase was almost balanced by a continued decrease in Missouri, Indiana, Michigan, Ohio, Pennsylvania, New Jersey, and New York.

PUBLIC LANDS ENTERED AND PATENTED, 1913-1929

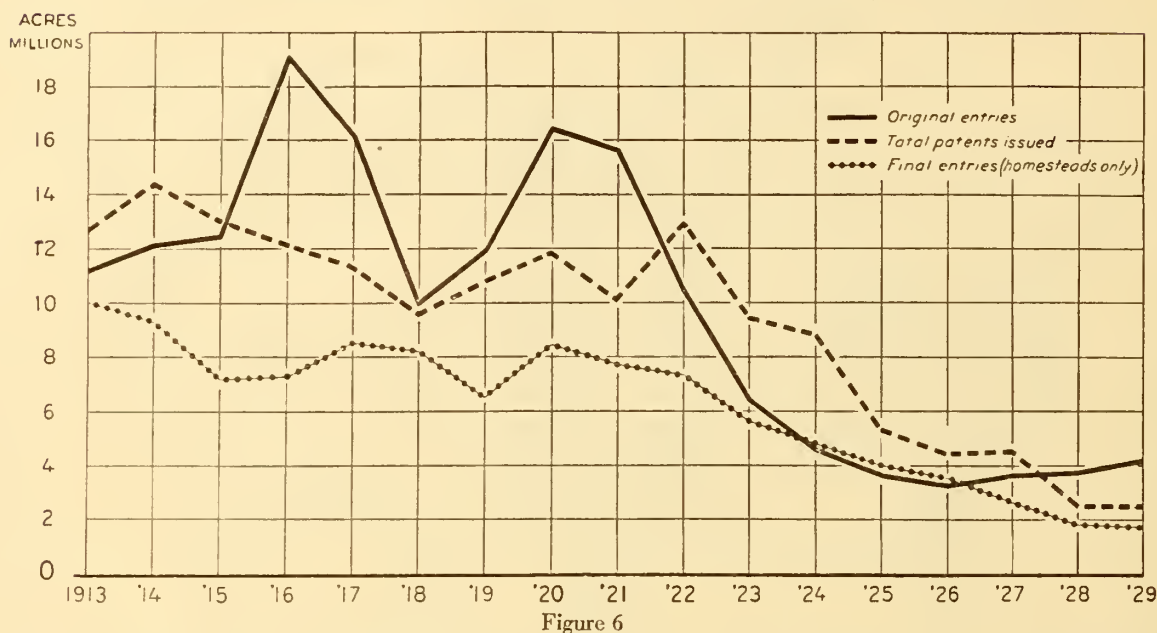


Figure 6

The rapid expansion of farming into western lands of low rainfall was greatly facilitated by Federal land policies. From 1913 to 1929, inclusive, original homestead entries were made for 165,103,587 acres, and final entries for 104,410,565 acres. Of these original entries, 52,009,192 acres were taken as stock-raising homesteads under the act of December, 1916, not intended to apply to lands suitable for cultivation; but only 20,232,594 acres of these stock-raising homestead entries had reached final proof prior to June 30, 1929. The acreage of final entries was considerably smaller than that of original entries, for many of the latter were relinquished, mainly because the entrymen found it impossible to make a living on the homestead. During the 11 years 1913 to 1923, inclusive, final homestead entries were made for 86,018,986 acres, or more than double the number for the preceding 11 years (commuted homesteads not included). The area patented comprises not only final entries of homestead lands that went to patent, but also all lands for which patents were issued under any of the various laws. Participation of the United States in the World War resulted in a temporary reduction in number of entries, as so many young men were in the service; but for two or three years after the war entries were very numerous, owing partly to special provisions enabling soldiers to prove up with a minimum of residence on the homestead. The gradual decrease in the area patented after 1922 was partly the reflection of unfavorable prices of farm products; but, probably even more, it was due to the fact that most of the public domain worth homesteading under the terms of existing acts had been taken.

WHEAT ACREAGE OF CANADA, ARGENTINA, AND AUSTRALIA, 1909-1929

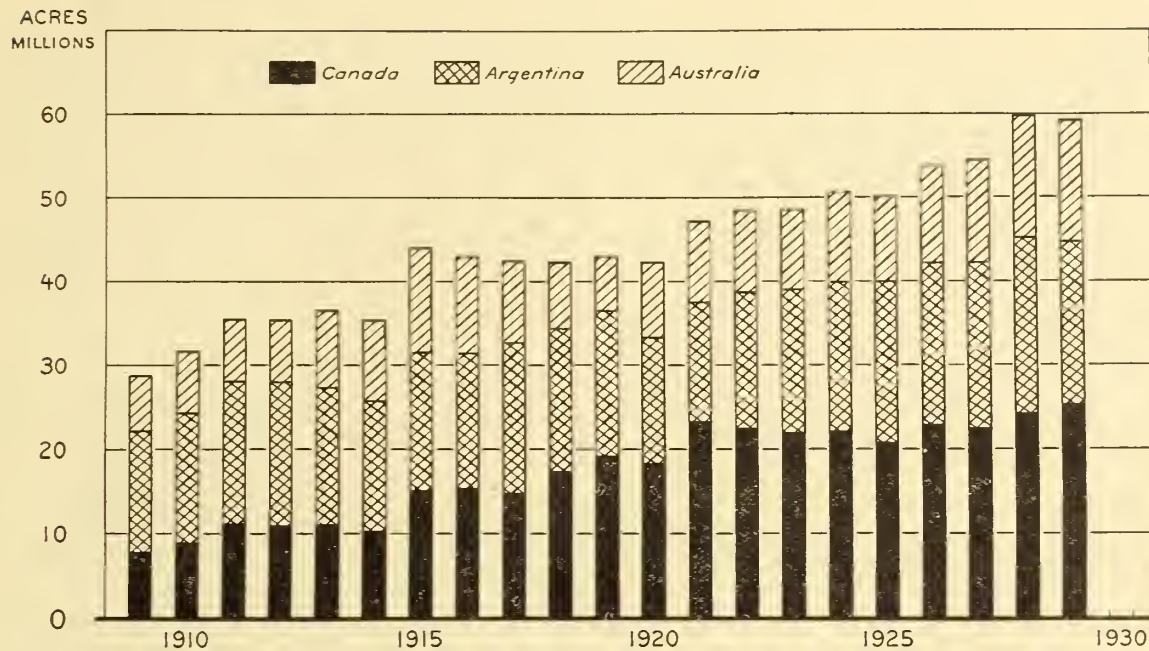
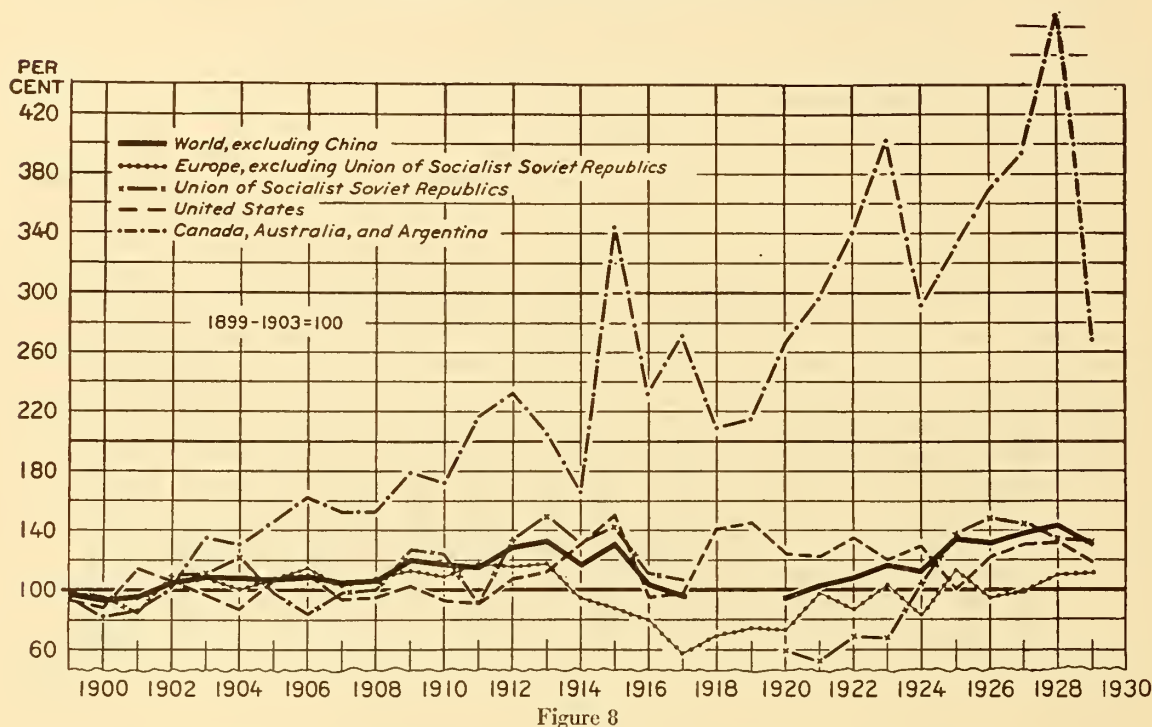


Figure 7

The tendency toward expansion into areas of low rainfall shown in Figures 4 and 5 is reflected in the increase of wheat acreage in Canada, Australia, and Argentina since the World War. These countries have large areas of level or gently rolling lands with low rainfall, and this expansion has occurred chiefly in areas of this character. There are extensive areas of fairly level semiarid land not yet in crops in the above countries, in the United States, and particularly in the Union of Socialist Soviet Republics of Russia. It is estimated that in western Canada conditions of climate and soil make it physically possible to double the acreage in crops. In Argentina the potential crop area is large, and in Australia, perhaps, still larger. None of these countries, however, compares in potential expansion of crop area with Russia, which in the five years 1909-1914 exported annually an average of 164,000,000 bushels of wheat without making extensive use of large areas of semiarid land in the steppes believed to be adapted to grain production under recently developed methods for using semiarid lands. Since the World War Russian exports have been negligible in most years, but the soviet authorities are making strenuous efforts to expand export production. Russia has a potential wheat area capable of producing an export surplus considerably above that of pre-war years.

**PERCENTAGE CHANGE IN THE PRODUCTION OF WHEAT AND RYE
IN THE WORLD AND IN PRINCIPAL PRODUCING
COUNTRIES, ANNUALLY, 1899-1929**



The population of the world has increased about 17 per cent since the beginning of the twentieth century; and the population of Europe, North America (excluding Latin America), and Australia, which continents account for most of the world's consumption of wheat and rye, has increased about 30 per cent.

Meanwhile the world's production of wheat and rye, considered jointly, has increased about 40 per cent. In Europe, excluding Russia, the production of these crops is now about 10 per cent larger than at the beginning of the century, whereas population has increased about 20 per cent. In Russia, there has been an increase of 35 or 40 per cent in production since the beginning of the century, as compared with an increase of about 25 per cent in population. In Canada, Argentina, and Australia, taken as a whole, production of the two grains (practically all wheat) has increased over 300 per cent since the beginning of the twentieth century, whereas population has increased 60 per cent. In the United States, on the other hand, production is only 20 to 30 per cent greater than at the beginning of the century, while population is about 60 per cent greater.

The aggregate production of corn, oats, and barley in the world as a whole (excluding China) has increased about a third since the beginning of the twentieth century, while population has increased about one-sixth.

CHANGES IN AGRICULTURAL PRODUCTION, CROP LAND, AND FARM LABOR, UNITED STATES, 1907-1929

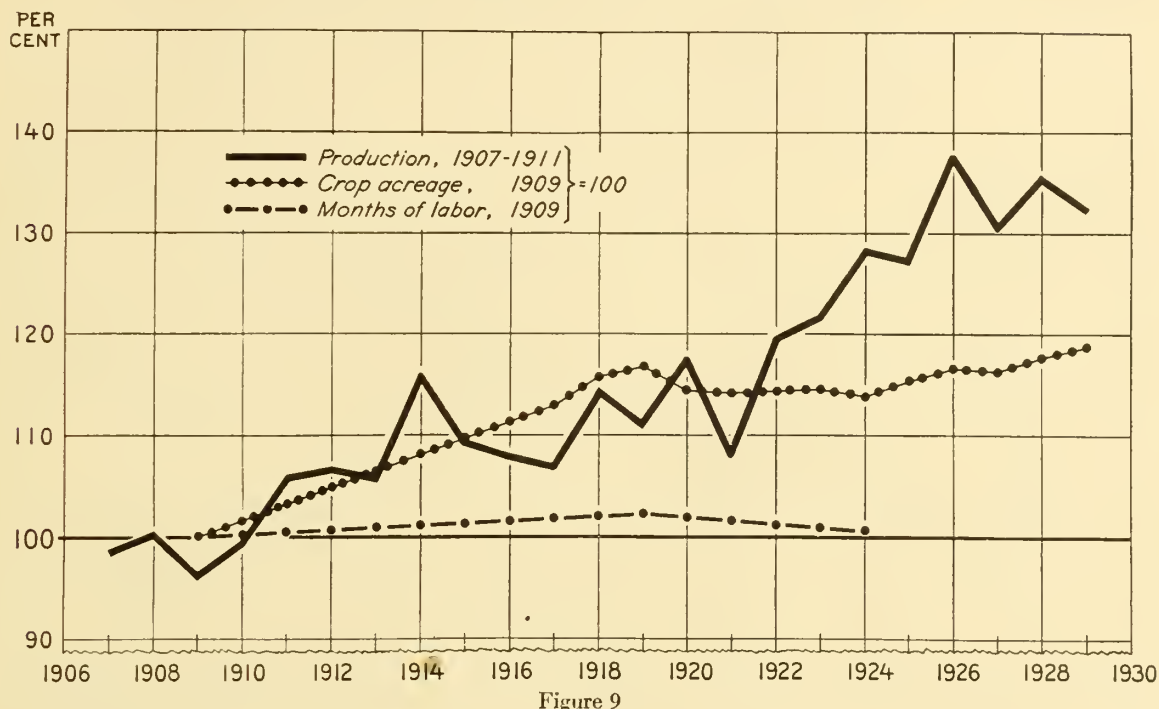


Figure 9

The estimated amount of labor employed for agricultural production in the United States in the last two decades has increased much less rapidly than has the quantity of products, and since 1919 the acreage of crop land has also increased less rapidly than production. Apparently there has been an increase in the efficiency of use of farm land and labor. Although increased efficiency may have contributed in a measure to overproduction, it is to be encouraged as a part of a long-time policy. However, the acreage and amount of labor and equipment will have to be correspondingly adjusted to the requirements for farm products if the farmer is to enjoy a higher average return and a better standard of living. The greater increase in volume of agricultural production than in area of crop land and quantity of labor reflects a number of forms of increasing efficiency, notably greater economy in feeding livestock and the more extensive use of machinery. Some of these elements are illustrated in charts immediately following.³

³ In estimating total production for successive years, the various livestock products and crops not fed to livestock have been combined into a single figure by multiplying production by the average farm price of the product for the period 1917 to 1926, inclusive. This causes the curve to reflect changes in physical volume of production in a given year, but not changes in prices. Figures that may be made the basis for estimating total quantity of labor are available only for census years 1909, 1919, and 1924. Expenditure for labor in each State, as reported in the census, has been divided by the monthly wage for that year, as reported to the United States Department of Agriculture. The number of farmers was multiplied by 12 and the product added to the estimated months of hired labor. Although some changes have occurred in relative quantity of family labor, it is believed these estimates of quantity of labor are reasonably comparable. The curve for crop area is based on the census for 1909, and beginning with 1917 on annual estimates of the United States Department of Agriculture. In the absence of data for the intervening years, a straight line has been drawn between 1909 and 1917.

SWINE ON FARMS JANUARY 1, AS COMPARED WITH PORK AND LARD PRODUCED, AND WITH POPULATION, 1900-1929



Figure 10. (Based on estimates)

The tendency toward greater efficiency in production suggested in this chart may be explained partly by the increasing production of pork and lard in proportion to the number of breeding animals, and, to a lesser degree, by increased output of meat and lard per unit of feed consumed. The chart compares the number of swine on farms January 1 of each year (a time when a large proportion of the number are breeding stock) with the production of pork and lard during the following year. The chart indicates that a notable increase in production of pork and lard per head of stock January 1 began about 1920 and continued throughout the period. Although these estimates are necessarily subject to some margin of error and should not be interpreted as measuring precisely the change in productiveness, it is believed that they do reflect a considerable increase during the period in the amount of pork and lard in proportion to number of hogs on hand January 1 of each year.⁴

Definite statistics of feed consumed by each class of livestock are not available, but it appears that the consumption of feed per hog has been greater since the World War, though the rate of increase was not so large as that for production of pork and lard. Consequently, there has been considerable economy in the quantity of feed required per unit of product.

The shift in production areas from the South, where the animals are less efficient in utilizing feed, toward the North, where they are more efficient; the cholera and sanitation campaigns, which have reduced the mortality among hogs, thus saving the feed that each dead hog represents; the greater use of minerals and legumes in feeding, which has resulted in a more economical use of feed—these and other improvements in animal husbandry have reduced by millions of acres the land needed for crops and pasture.

⁴ It is possible that the estimates of production of pork and lard were low until recently, and that these percentage figures should be reduced, perhaps by as much as a fourth. The authors have taken into consideration the possible influence of changes in time of marketing as they may have affected the number of hogs on hand January 1 in the various years.

CATTLE AND MILK COWS ON FARMS JANUARY 1, AS COMPARED WITH PRODUCTION OF BEEF AND VEAL, AND POPULATION, 1900-1929

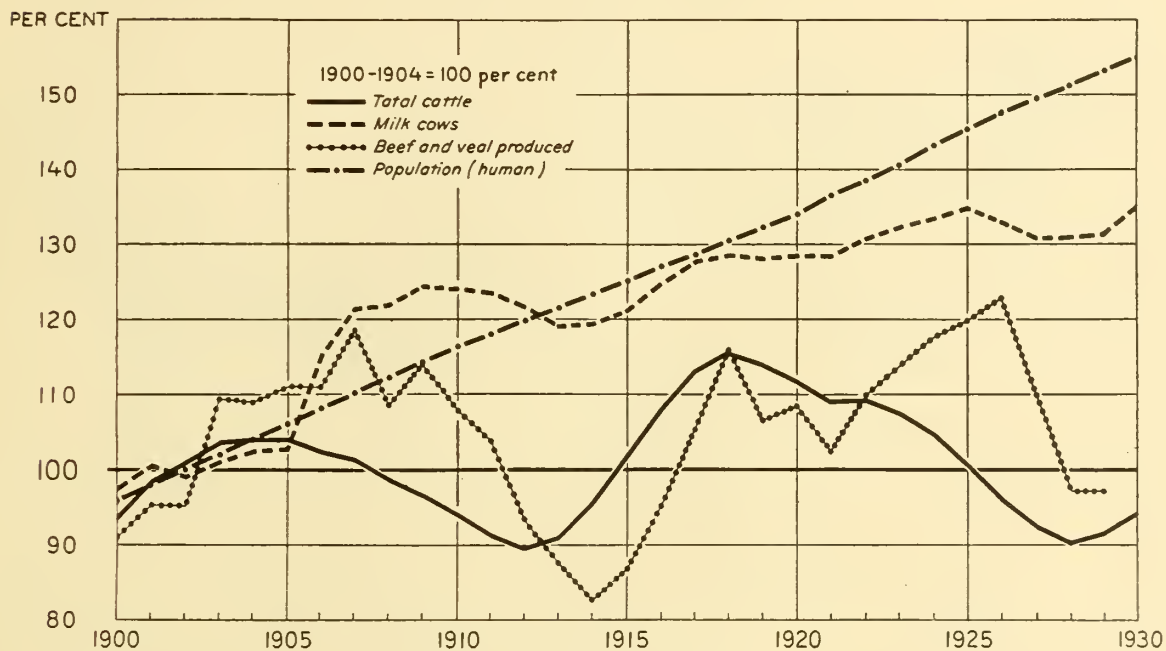


Figure 11. (Based on estimates)

Another development that accounts in part for the increasing efficiency of production, already illustrated, and has tended to reduce the area of land required to support a given population, is the shift from beef cattle, which require a relatively large acreage of land per unit of food product, to dairy cattle, which are more economical in the use of land. (Fig. 28.) The total number of cattle, including both beef cattle and dairy cattle (shown by a solid black line in this chart), has increased only slightly (as indicated by comparing 1904 with 1918, representing the tops of cycles, and 1912 with 1928, representing the bottoms of cycles). The proportion of the total number of cattle reported as milk cows has increased, and the production of milk has increased even more rapidly, particularly since about 1918. The slaughter of beef cattle and calves tends to increase temporarily in periods when the total number of cattle is decreasing, on account of the slaughtering of stock cattle, and to decrease in periods when the number of cattle is increasing, because of the tendency to withhold cattle from slaughter in order to build up the herds. The failure of the number of beef cattle to increase throughout as rapidly as population increases is reflected in part in declining exports. About the beginning of the century the net exports of beef and veal from the United States amounted to several hundred million pounds. During recent years, however, imports have somewhat exceeded exports.

INCREASE IN NUMBER OF TRACTORS ON FARMS, JANUARY 1, 1920- JANUARY 1, 1925

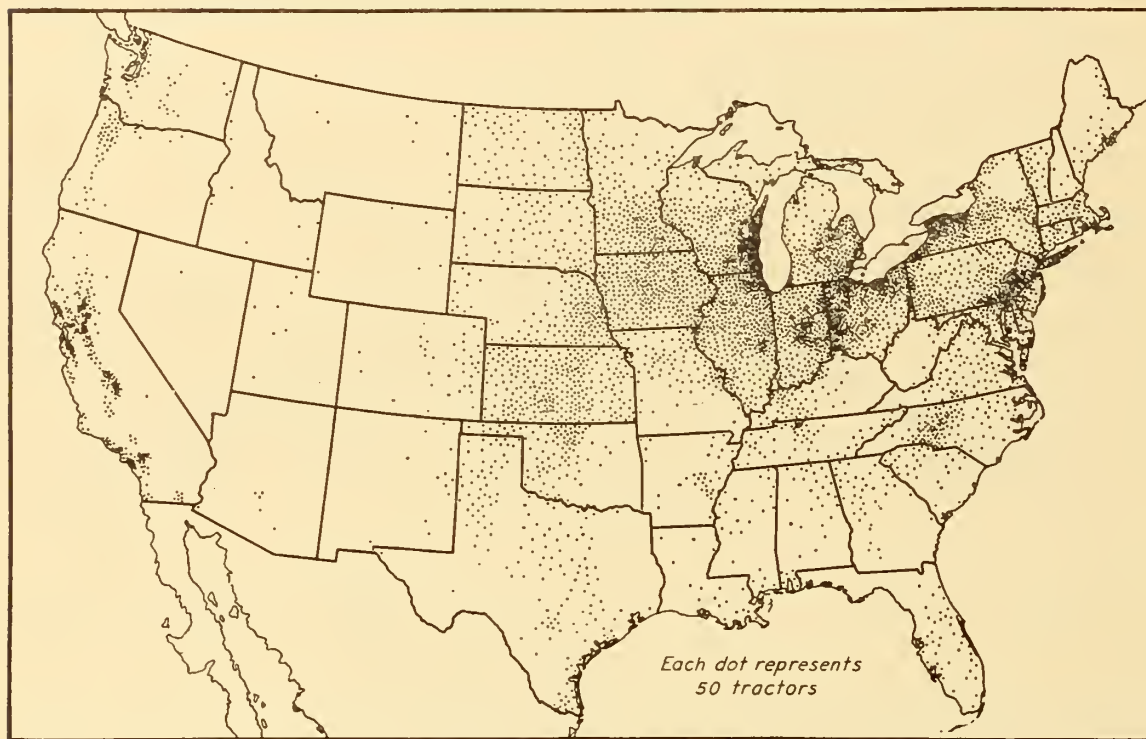


Figure 12. (Based on the Census)

Tractors have been adopted mostly in the Corn Belt and in the more fertile portions of the dairy belt to the north, in the wheat regions to the northwest and southwest, and in the Pacific Coast States. In the hard-wheat regions the tractor and combine have reduced cost of harvesting to one-half and even one-third of the former cost when the work was done with binders. This has made wheat production profitable on much drier land than could formerly be used with profit, and has pushed the margin of crop production many miles westward. Furthermore, the tractor and other mechanical devices have so greatly reduced the amount of human labor in farming that a smaller proportion of the population is required for farm production than formerly. (Fig. 9.) As the chart indicates, this economy of labor has been especially notable in most of the important agricultural areas of the northeastern quarter of the United States and in California.

DECREASE IN NUMBER OF HORSES AND MULES, 2 YEARS OLD AND
OVER, JANUARY 1, 1920-JANUARY 1, 1925

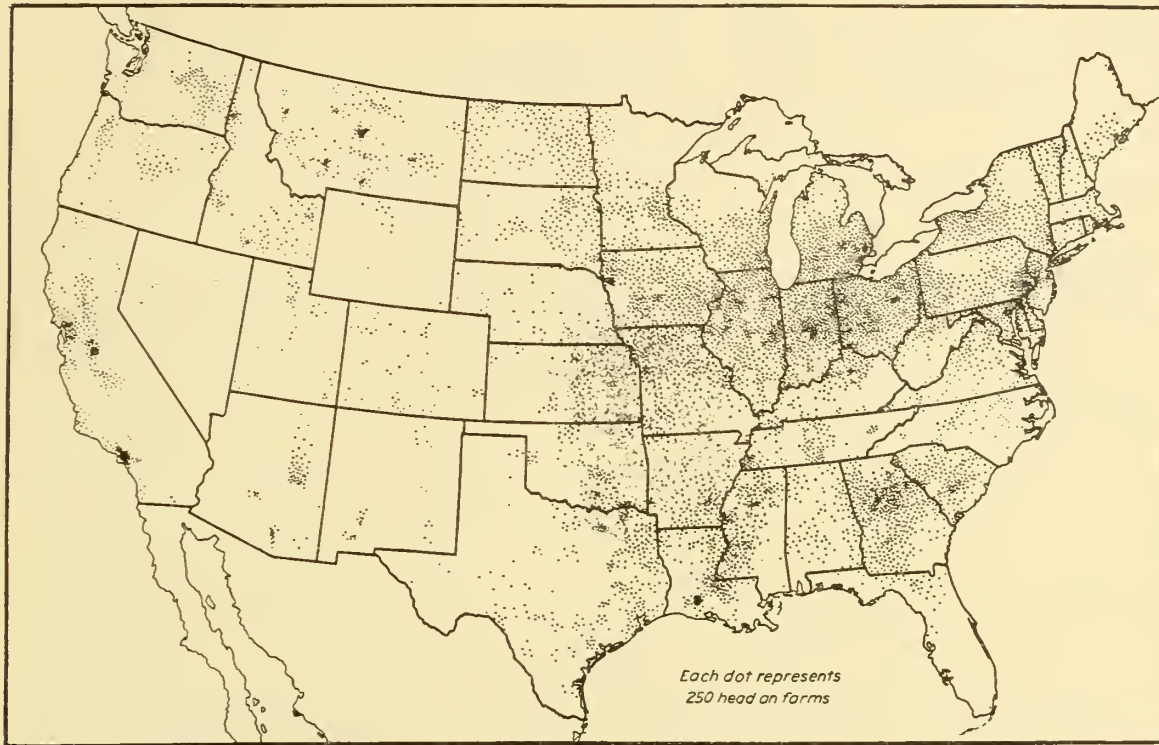


Figure 13. (Based on the Census)

The rapid adoption of tractors, trucks, and automobiles has had another profound effect on agriculture by reducing the number of horses and mules, and consequently releasing a large acreage of crop and pasture land formerly required to feed work animals. Although the number of horses and mules 2 years old and over, on farms, decreased only 1,254,000 between 1920 and 1925, or less than 6 per cent, the number of colts under 2 years of age decreased 56 per cent. From 1918 to 1929 the decrease in total number of horses and mules on farms and in cities, including colts, was about 7,000,000, or 25 per cent. As the consumption of crop feed per horse or mule has also declined, it appears that from 1918 to 1929, inclusive, 20,000,000 to 25,000,000 acres of crop land were released for other uses.

The decrease in horses and mules has taken place not only in the Corn Belt, in the dairy belt, and in California—areas in which tractors and automobiles are most numerous—but also in the South, where tractors and automobiles on farms are relatively less numerous. The increase of available cheap feed in the North apparently has been one of the factors responsible for decreases in number of livestock in the Southern States and for a heavy decrease in corn acreage over a large proportion of the South.

Since there are less than half enough colts now on farms and ranges to replace the horses and mules that die or are disabled annually, it appears inevitable that this substitution of mechanical power for animal power, and the resultant release of land for the production of feed for meat and milk animals or to grow cotton or crops for human food, will continue for several years at least. Moreover, it is not possible to say to what extent new improvements in agricultural machinery will still further stimulate the substitution of mechanical power for horse power.

CHANGES IN CONSUMPTION OF FOOD PRODUCTS PER PERSON, IN THE UNITED STATES, 1909-1929

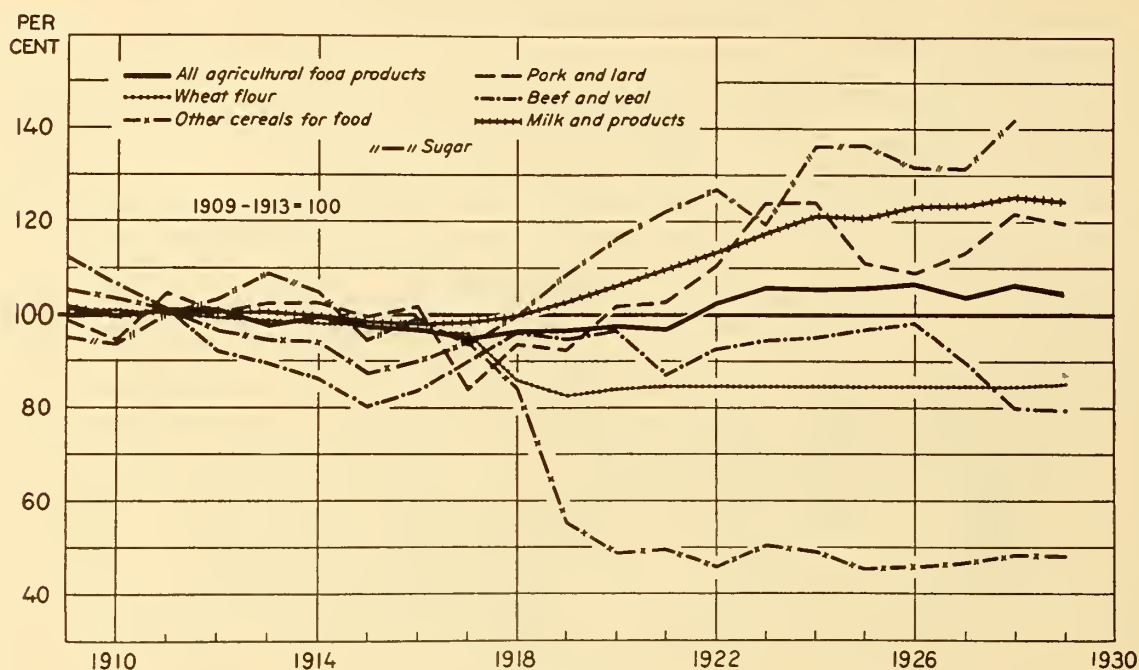


Figure 14

Marked changes are occurring in the food consumption of the American people. The per capita consumption of corn and the minor cereals (rye, oats, barley, and buckwheat) as human food is only from one-third to one-half what it was two decades ago. Only about 85 per cent as much wheat is consumed per capita. There has been, on the other hand, notable expansion in the per capita consumption of sugar, a crop chiefly imported, and to a less extent of vegetables. Important changes have occurred in the consumption of animal products. Since the period 1909-1913 consumption of mutton and lamb per person (not shown in the chart) has decreased more than a fifth. The consumption of pork and lard per capita has been about a fourth higher in the last five years than in the pre-war years. Consumption of beef and veal has fluctuated greatly, reflecting the cycle of production and the influence of alternating prosperity and depression on the purchasing power of consumers. At the beginning of the World War, per capita consumption in the United States was 80 to 90 per cent of the quantity at the beginning of the century. High wages in the cities during the war and the years immediately following, and low prices for beef, led to an increased per capita consumption, which continued high until 1926, when a declining trend began. Our per capita consumption of milk and pork is considerably greater than in the pre-war period, or even at the beginning of the century. Since beef requires more land per unit of product than does either pork or milk, the decreasing trend in per capita consumption of beef, if it should continue, would tend to reduce the per capita acreage of crop and pasture land required to maintain domestic consumption.⁵ The net result of the changes in diet does not affect greatly the per capita area of land needed for domestic food supply, but the changes indicated have notably influenced the demand for the products of particular regions.

⁵ The greater aggregate consumption of food products during the years 1922-1929 is owing to heavier consumption of animal products, particularly pork, which are weighted more heavily than plant products. (Fig. 28.) Although the commercial production of fruit has largely increased, there is no conclusive evidence of an increase in per capita consumption of fruit.

IMPORTS OF VEGETABLE OILS, EXCLUDING LINSEED, INTO THE UNITED STATES, 1909 AND 1919-1928; AND DISAPPEARANCE IN CONSUMPTION, 1920-1928

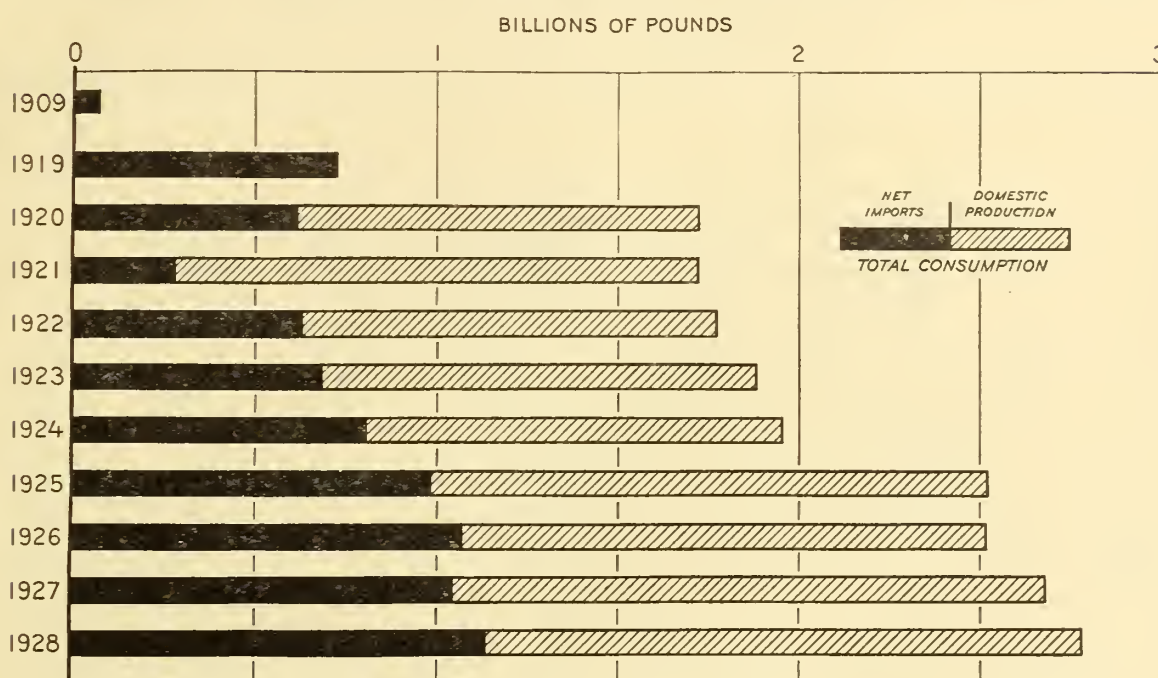


Figure 15

One of the most notable changes in consumption of agricultural products in the United States has been a large increase during the last two decades in the use of vegetable oils (not including linseed) in place of animal fats for human food, soap, and other purposes. In 1928 the imports of vegetable oils into the United States were nearly seventeen times what they were in 1909. Domestic production for consumption in the United States has also increased greatly since 1909, although complete statistics for the years prior to 1920 are not available. Domestic consumption was nearly 61 per cent greater in 1928 than in 1920, whereas the increase in population was only a little more than 12 per cent. Although this development has notably affected the demand for animal fats, it has led to an increased demand for certain crop products, particularly peanuts and cottonseed, but the animal products displaced require a larger acreage of land for their production than does the equivalent quantity of crops substituted.⁶

⁶ In preparing the chart, raw materials have been reduced to an oil equivalent and linseed oil is omitted because it is not used for human food.

CROP LAND REQUIRED TO PRODUCE AGRICULTURAL EXPORTS AS COMPARED WITH TOTAL CROP LAND

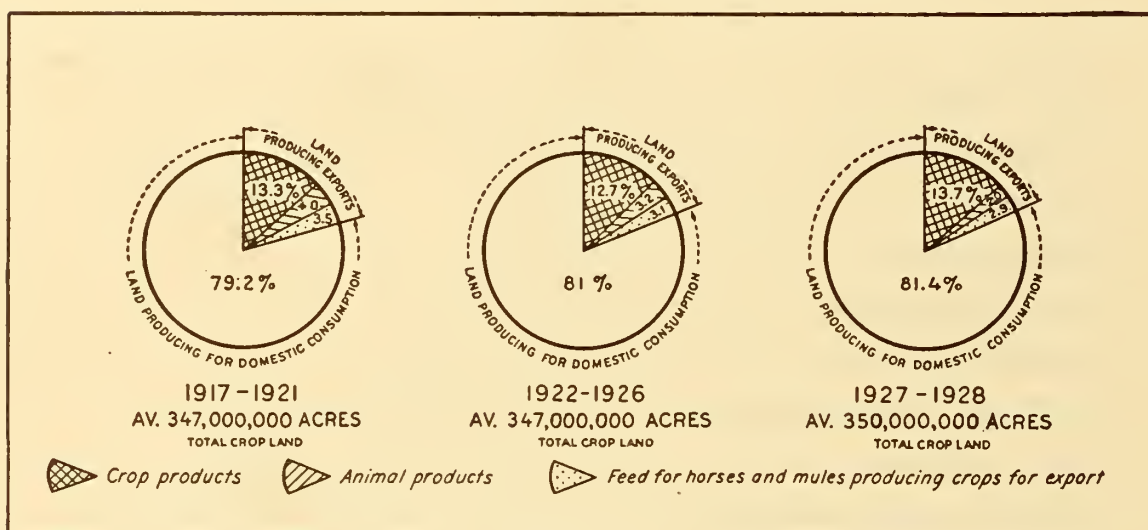


Figure 16

The proportion of crop land employed in production for export has not changed notably since the World War. The area used for the production of crops and animal products exported is estimated at about 60,000,000 acres for 1917-1921, inclusive, about 55,000,000 acres for 1922-1926, and 55,000,000 for the two years 1927 and 1928. Approximately 12,000,000 acres additional in 1917-1921, 11,000,000 acres in 1922-1926, and 10,000,000 acres in 1927 and 1928 were required to produce feed for the work stock used in producing our exported products. The total crop acreage for all three periods was approximately constant, varying only from 347,000,000 to 350,000,000 acres. Thus, it appears that, although there has been little increase during the decade in acreage of crop land harvested, we have been able to provide agricultural products for a population which has increased by about 15 per cent and still employ nearly as large an acreage for export production as we devoted to that purpose a decade earlier. This achievement has been made possible by the economies in production and changes in domestic requirements which are indicated in some of the preceding charts.

SOME RESULTS OF OVERPRODUCTION AND MALADJUSTMENT IN PRODUCTION

The previously indicated changes in basic conditions affecting agriculture have exerted a notable influence on land utilization in the United States. It has been suggested already that an important shift has occurred in the extension of the grain and cotton areas into the more nearly level lands of the semiarid territory. Severe competition in domestic and foreign markets has resulted from the addition which these and similar areas in Canada, Australia, and Argentina have made to the total output, and from the modifications noted in consumption. This competition has compelled a contraction of the acreage devoted to these crops in many long-settled areas characterized by a land surface less adapted to machine processes and handicapped in many cases by naturally low soil fertility or fertility impaired by erosion and by exhausting methods of cultivation. These areas, in which contraction of acreage has been or is being compelled by low returns, are confronted with difficult problems of economic readjustment, some of which are illustrated in the charts immediately following.

DECREASE IN ACREAGE OF ALL HARVESTED CROPS, 1919-1924

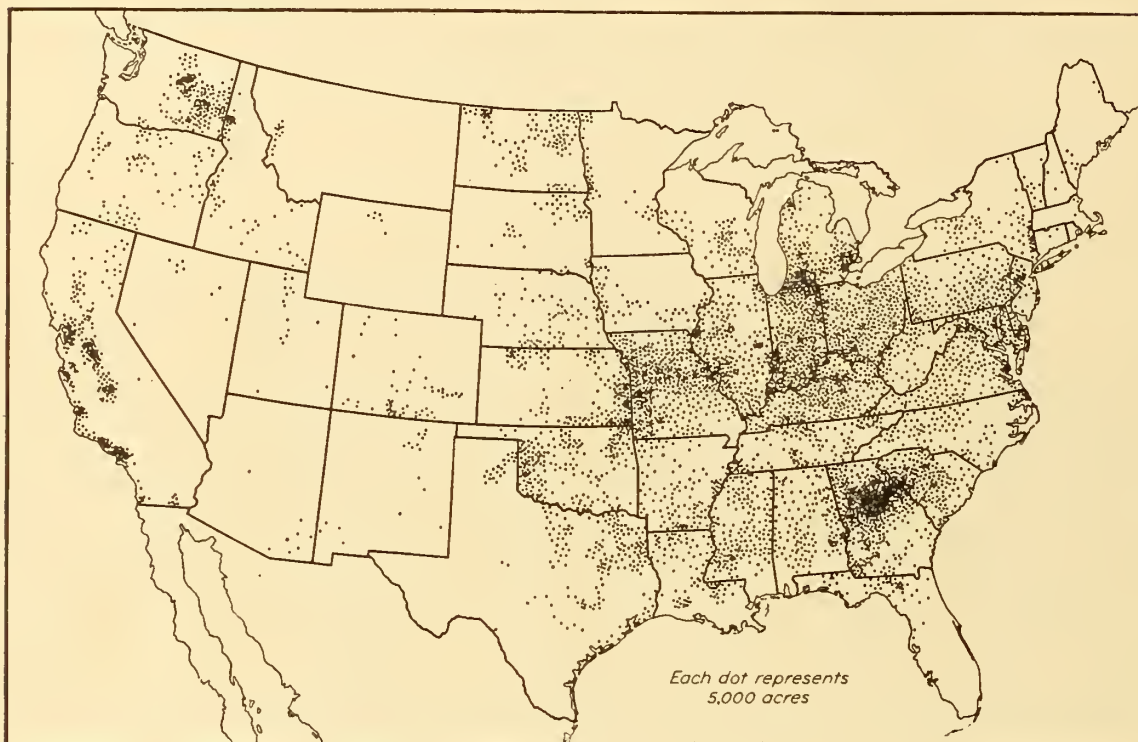


Figure 17. (Based on the Census)

The various forces of competition that have been mentioned caused a large acreage of crop land to go out of cultivation between 1919 and 1924, mostly in the eastern half of the United States, where the total decline amounted to 20,930,000 acres in counties showing a decrease in cultivated area. The net decrease for this part of the United States was about 17,000,000 acres. This change is the more notable when it is recalled that in the decade 1909-1919 the same half of the country showed a widely distributed net increase in crop acreage of 12,600,000 acres. Much of the crop land thus displaced suffers from serious handicaps due to low fertility or rough topography. In general, the percentage of decrease was greatest in counties of low average land value, and least in counties of high average value.

The trend in farming is toward the cultivation of the more fertile land that has a surface favorable to the use of machinery, and toward the abandonment, or use for pasture or forest, of the poorer lands. In many districts of poor land the young people are moving to the cities, leaving much of the land idle, to grow up to brush or inferior timber.

AVERAGE ANNUAL VALUE OF COTTON CROP IN CERTAIN PERIODS AS A PERCENTAGE OF VALUE FOR 1910

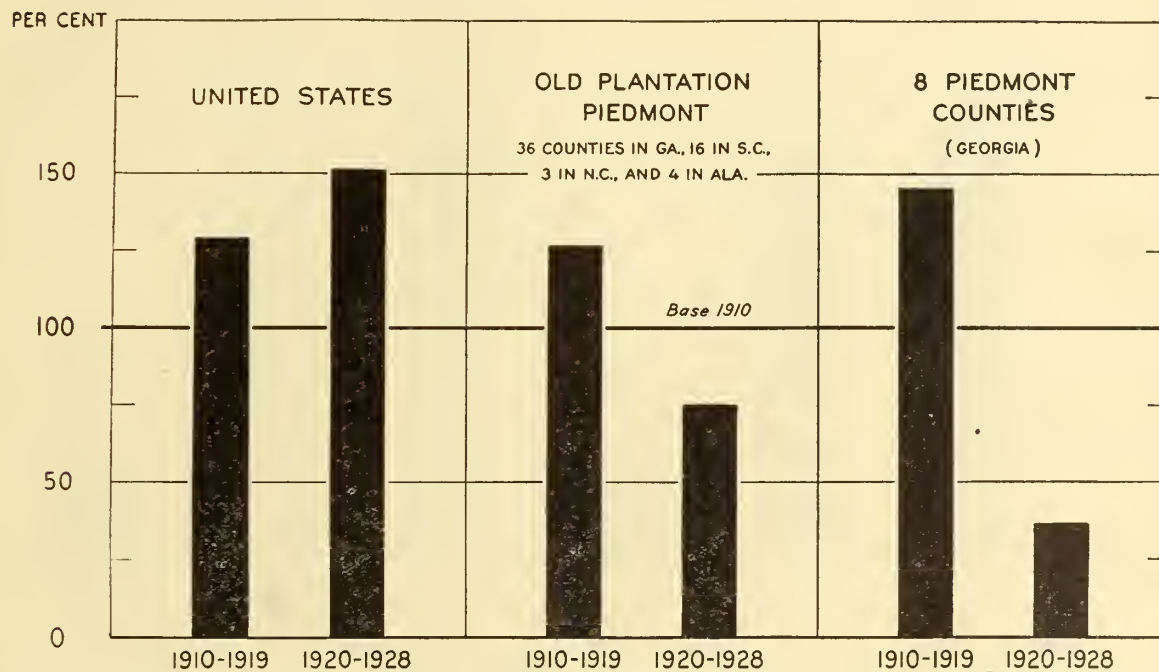


Figure 18. (Production based on the Census)

One of the areas that has been most notably affected by the tendency toward a decrease in number of farms and in crop acreage is the old plantation piedmont of the Southeastern States. The tendency is given special emphasis by the decrease in the total annual value of the cotton crop, for more than a century the principal money crop in this area. The third and fourth columns in this chart show the decrease in 59 counties, most of which are in Georgia, but a few of which are in North Carolina, South Carolina, and Alabama. The right-hand column shows the decrease in the eight counties of the Georgia piedmont in which the change was most extreme. In these counties the value of cotton produced during the latter period was little more than one-fourth the value of that produced during the earlier period. Since the low point in 1922 and 1923 there has been some increase in total value of the cotton crop; but average production is still scarcely half that of a decade and a half ago. In this southeastern territory a large part of the land lies idle, awaiting utilization under some policy suited to the new conditions. An abnormal amount of the land has reverted to creditors.

**AVERAGE INCOME FROM FARMING IN HILL DISTRICTS OF OHIO
AND KENTUCKY AS COMPARED WITH THAT FROM
FARMING IN THE NORTH ATLANTIC AND
EAST NORTH CENTRAL STATES**

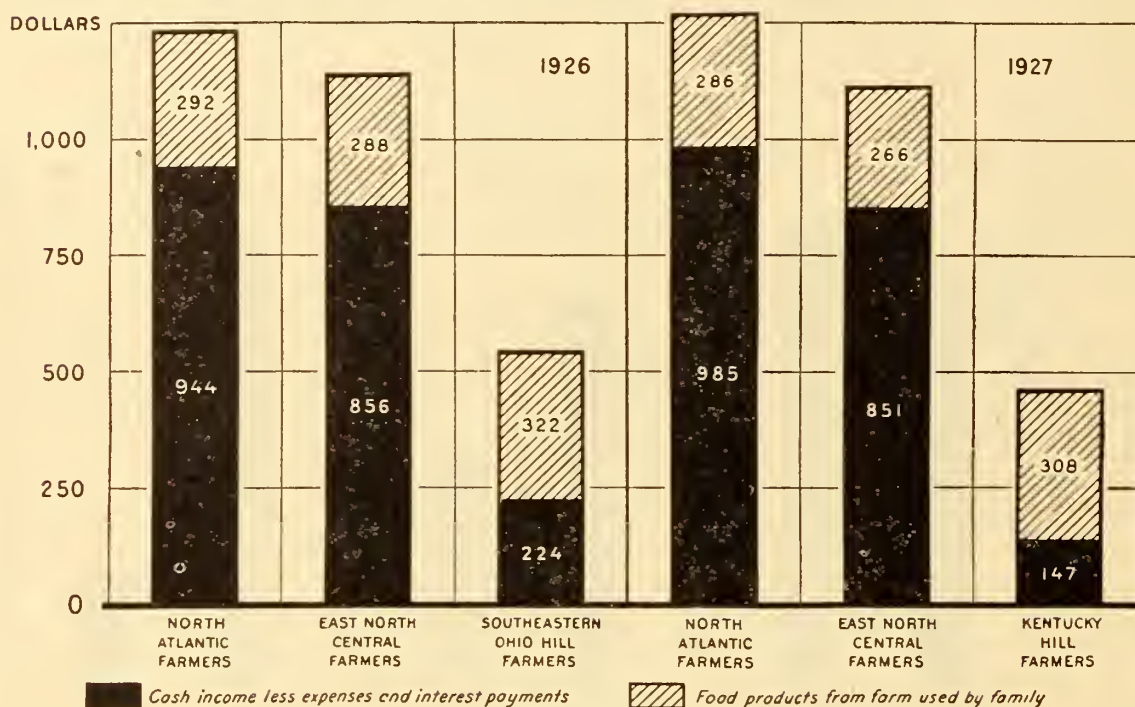


Figure 19

The decrease in crop acreage shown by the census of 1925 was rather general in the Appalachian and Ozark Mountain regions, where there are large numbers of farms too severely handicapped by rough land surface, or poor soil, or small size to maintain a reasonable standard of living for their operators. Many of these farms were originally settled by pioneer farmers partly dependent on hunting, grazing, and lumbering. The passing of game and merchantable timber, the competition of more favored districts, and opportunities to earn higher wages elsewhere, have caused thousands of these small farms to become incapable of maintaining for their operators an adequate standard of living or one comparable with the standards prevailing in areas where the physical environment is more favorable. In a hilly district of southeastern Ohio, in which a special survey was made, the average net cash income from farming was only \$224, and in a Kentucky foothill district only \$147. The figures for these farms, which are representative of large sections, may be compared with net cash incomes averaging about \$850 for farms in the east North Central area as a whole, and from \$950 to \$1,000 for farmers of the North Atlantic area. Necessarily, food produced on the farm for family consumption was an important element in the economy of the hill farmers, increasing the value of their available net income to the neighborhood of \$500, as compared with \$1,150 to \$1,250 for those of the North Atlantic and east North Central areas. Obviously the incomes of these mountain farmers are not sufficient to maintain standards of consumption that Americans should enjoy.

ACREAGE SOLD AT 1927 TAX SALE IN 17 NORTHERN WISCONSIN COUNTIES, BY TOWNSHIPS

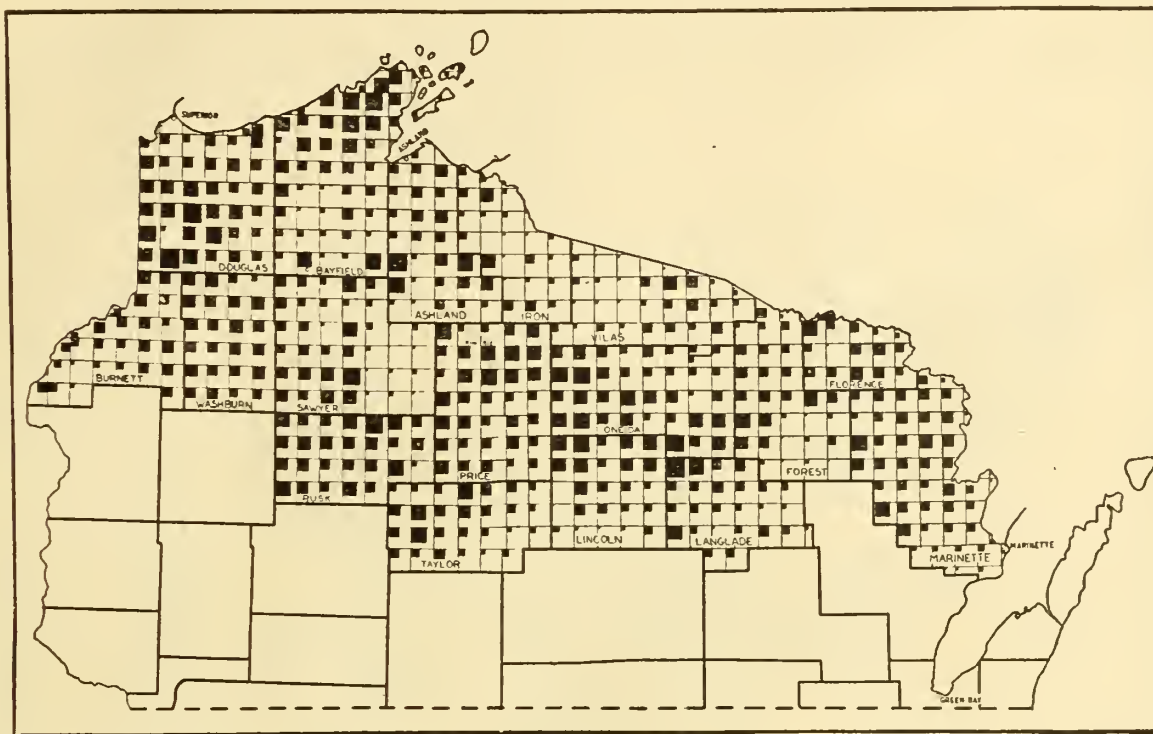


Figure 20

Tax delinquency is one of the indications of the maladjustments in the utilization of land which prevail throughout large areas east of the Great Plains. In part, such delinquency is due to the large number of cut-over farms, the owners of which have been struggling unsuccessfully to cope with severe handicaps, and in part to the fact that millions of acres of logged-off land became tax delinquent because the owners were tired of carrying it with little prospect of resale and because, having stripped off the timber without providing for reforestation, they had no inducement to hold it longer. In these 17 counties of northern Wisconsin, which are illustrative of a widespread tendency in many parts of the United States, a large proportion of the total acreage was sold at tax sale in the single year 1927, ranging as high as 32 per cent in 1 county, 30 per cent or more in 3 counties, and 20 per cent or more in 12 counties. More than two-thirds of the land sold (1,900,000 acres out of 2,600,000) was bought by the county governments in accordance with a law which provides that tax certificates not purchased by private parties must be bid in by the county. Consequently, most of the tax-delinquent land in northern Wisconsin, as well as in other States, is reverting to public ownership.

The enormous acreage that has become tax delinquent has created serious problems. These localities are confronted with such difficult questions as the following: Should the abandoned or tax-delinquent land be allowed to lie idle and grow up to inferior species of trees? Shall the land that does not revert to the State or county be acquired for reforestation by the county, by the State, or by the Federal Government? Shall another group of farmers be permitted to occupy the land? What shall be done with regard to the maintenance or extension of schools and roads? What measures shall be taken to prevent destructive fires? Wisconsin and other States are attempting to grapple with some of these questions, but they are handicapped by the magnitude of the problems and by general uncertainty as to prospective needs for land and the uses for which particular classes of land can be economically employed.

CLASSES OF FARMS IN NICHOLAS COUNTY, W. VA.

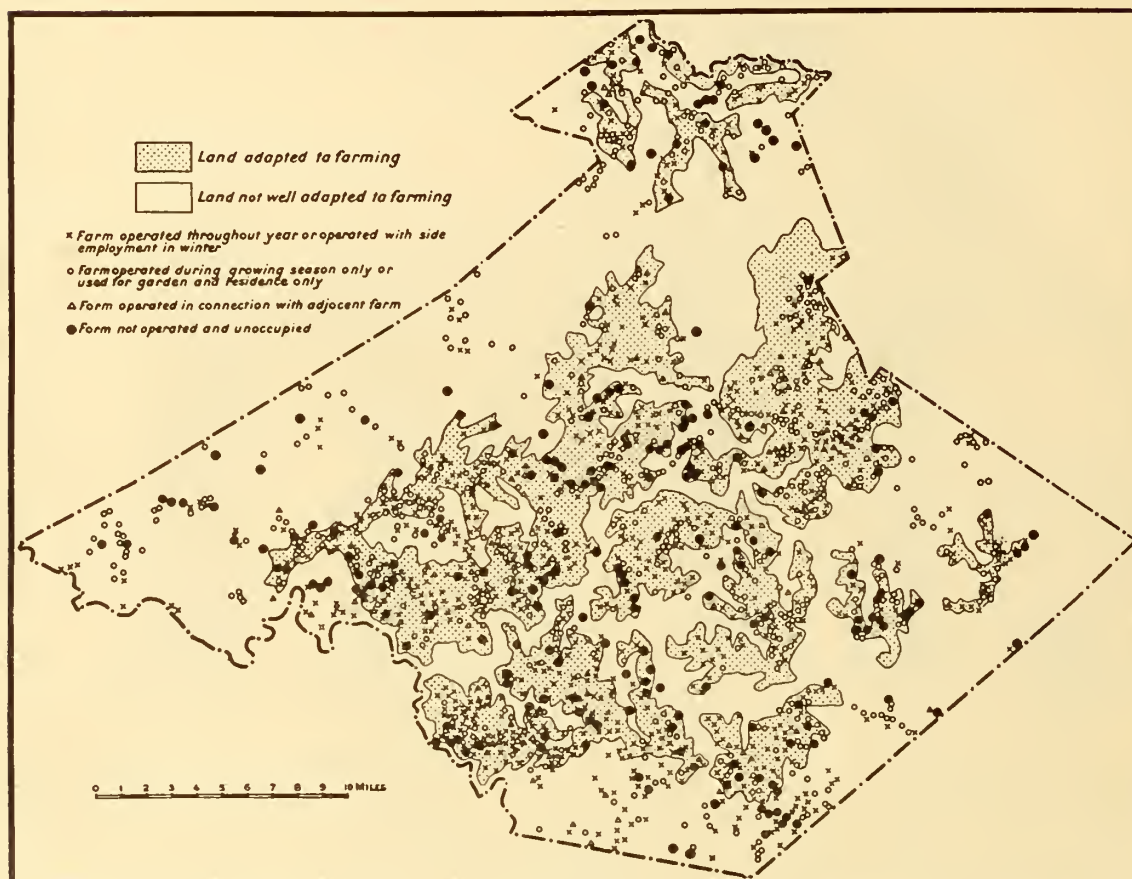


Figure 21

neg. 20177

Tax delinquency has its counterpart in the extensive tendency toward farm abandonment found over wide districts, particularly in the eastern half of the United States. There are many stages prior to complete abandonment. Sometimes the family remains on the farm but occupies the major part of its working time in some other occupation. Sometimes the old people remain, but the land is no longer actively cultivated. In many cases another farmer has undertaken to work all or part of the land, although the farmstead has been abandoned. This last tendency is sometimes a sound one in districts in which farms have been too small to support a reasonable standard of living. The white areas in the map are those considered unsuitable for farming. The areas shaded by small dots are those believed to afford the best opportunities for maintaining a reasonably ample standard of living in agriculture.⁷

⁷ The map is based on a study made by the Bureau of Agricultural Economics in cooperation with the West Virginia Agricultural Experiment Station.

CHANGE IN FARM POPULATION, JANUARY 1, 1920–JANUARY 1, 1925

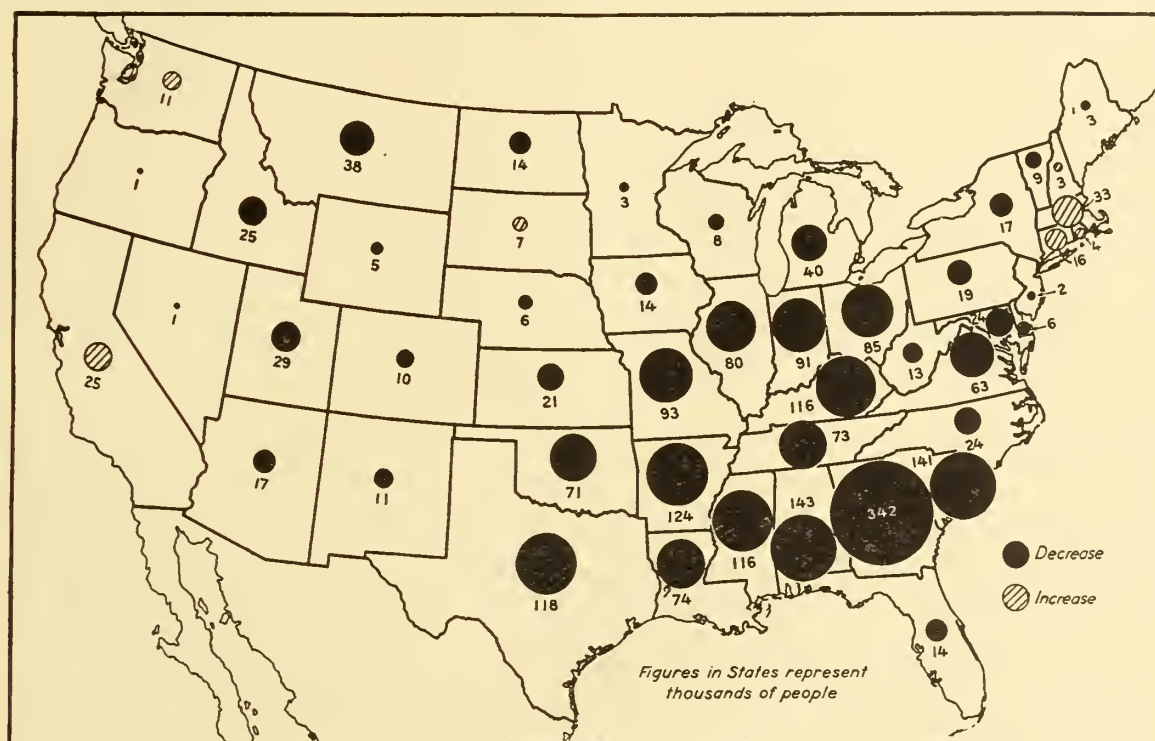


Figure 22. (Based on the Census)

The notable decrease in farm population since the World War leads to significant changes in the utilization of land—in total area required, kinds of land used, and intensity of utilization. Since the Nation was founded farm population has been declining relative to total population. The five years 1920–1924, however, constituted the first census period showing an absolute decline, amounting to over 2,000,000 people, or 7 per cent. Undoubtedly, the 1930 census will show a still further decrease. In fact, rough estimates made by the Bureau of Agricultural Economics indicate a decrease from 1925 to 1929 of nearly 1,500,000. Whatever the immediate motive in individual cases, this great migration has been rendered necessary by improvements in technic that have enabled the average farm worker to produce considerably more than previously. (Fig. 9.) Migration from the farms is also made necessary by the relatively high birth rate of the farm population (fig. 23); and the need for migration has been further intensified by the overproduction in agriculture due to the various changes already described. The movement of population away from the farms constitutes a necessary adjustment to those conditions—an adjustment retarded by the difficulty farmers encounter in making a sudden change of residence and occupation. However, the movement, particularly in areas where it was extensive, has resulted in the abandonment of thousands of farms and in serious problems in land utilization.



OUTLOOK FOR THE UTILIZATION OF LAND FOR AGRICULTURE

The significant changes presented in the preceding charts suggest the importance of considering the long-time outlook for the utilization of land for agriculture. Important among the many questions of private and public policy dependent on such an outlook are: Should additional land be brought into cultivation and if so, where and how much? Is public encouragement necessary to stimulate sufficient expansion? How much land will be available for pasture, and how much can be devoted to forests or other uses, after due provision shall have been made for crop requirements? To what extent should the lands not suited to or not required for crops and pasture be systematically devoted to growing timber through either private or public reforestation? What policy should be followed with respect to encouraging people to remain on farms or to leave the farms? What plans should be made with respect to location and construction of railways, highways, telephone lines, schools, and other utilities in particular sections, as they may be affected by the outlook for agricultural development? Some of these questions require looking ahead for a considerable period of time, and it is necessary to take into account such considerations as the trend of population, possible changes in consumption of farm products and in yields per acre, and the extent of land available for various uses. The following charts indicates several significant elements in such an outlook.

**BIRTH RATE PER 1,000 POPULATION IN THE REGISTRATION AREA
OF THE UNITED STATES, 1915-1928, AND IN SIX URBAN
AND SIX RURAL STATES, 1917-1928**

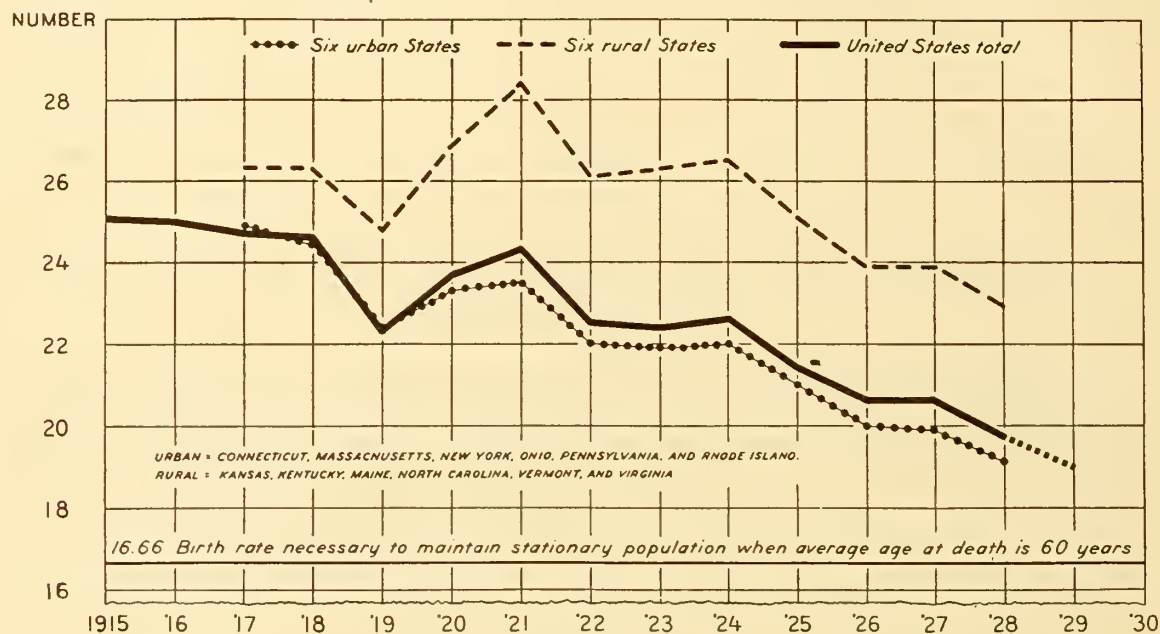
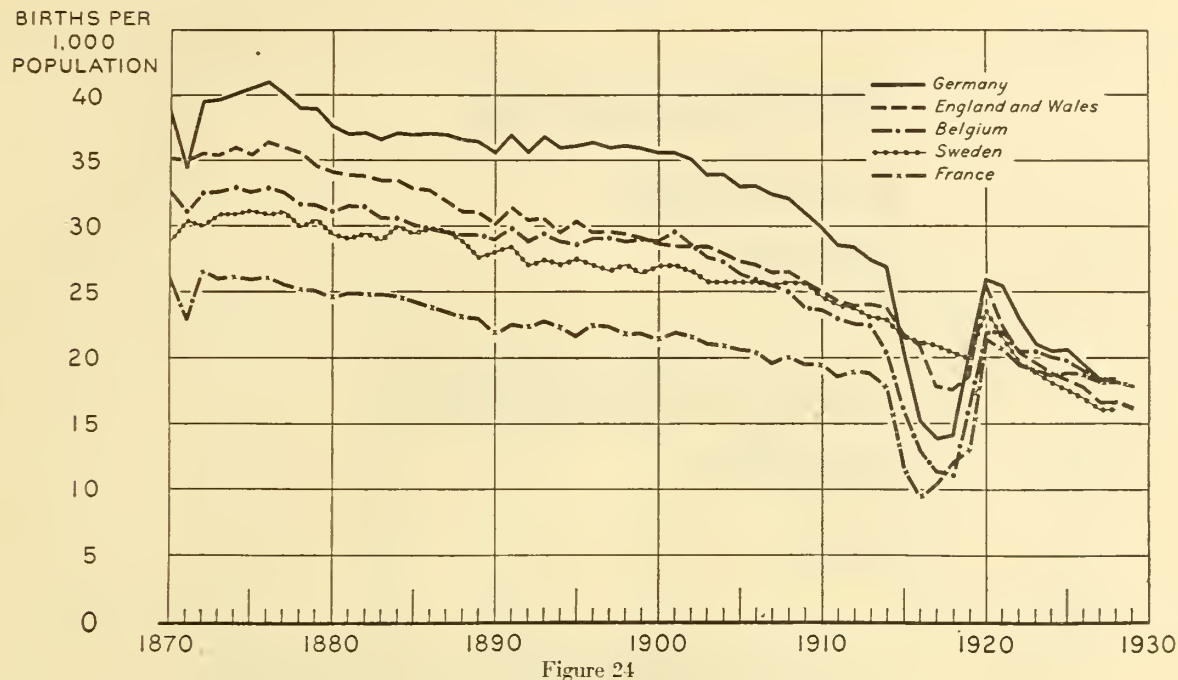


Figure 23

One of the most significant tendencies that is likely to modify profoundly the outlook for the acreage of farm land likely to be required in the next few decades, is the diminishing rate at which population is increasing in various countries. The trend is being notably affected by decreasing birth rates, and in the United States also by restriction of immigration, which has reduced the flow of newcomers to perhaps a fourth or less of its previous volume. Moreover, restriction of immigration has tended to reduce the average birth rate, since the foreign immigrants from rural areas consisted largely of young people, who brought with them the tradition of large families. Birth rates here and in other countries have been affected also by the large increase in the proportion of urban population, for, as indicated in the chart, the urban birth rate is much lower than the rural, and farm people are now less than 25 per cent of the population of the United States, as compared with over 75 per cent a century ago. The migration from country to city comprises an abnormally high percentage of young persons of marriageable age, who, for various reasons, have smaller families than people of similar age in the country usually have. The birth rate is declining so rapidly that if the rate of decline continues for another seven years the number of births will not be sufficient to maintain the population of the country when the children of to-day reach middle age. Assuming no important change in volume of immigration, our population appears to be gradually approaching a stationary stage, which may be attained in 30 to 40 years, when, it seems probable, the Nation's population will be between 150,000,000 and 170,000,000.

BIRTH RATES IN FIVE COUNTRIES OF NORTHWESTERN EUROPE, 1870-1928



The decrease in birth rates in the United States is paralleled by a similar trend in important countries of northwestern Europe, which have hitherto provided the principal export market for American farm products.⁸ The marked decrease in birth rate in these countries in the years of the World War was merely an exaggerated dislocation, due to war-time conditions, in an otherwise steadily declining trend. Apparently this tendency is occurring wherever industrialism and urbanization have become important. The rate of decrease in birth rates is greater than in death rates. If the trend continues, stationary population in the more highly industrialized countries appears inevitable.

In spite of declining birth rates, however, population will probably continue to increase in North America and northern Europe during the next 20 to 40 years, though at a decreasing rate. Moreover, the decrease in birth rates either is much less marked or does not exist among the peoples of southern and eastern Europe. In most of the countries of the Orient population continues to increase up to the limits set by the available means of subsistence. As these oriental populations become gradually industrialized, they may afford an outlet for foodstuffs and raw materials, provided agricultural production in these countries does not expand so rapidly as the demand for farm products. Since the population of the United States is still small in proportion to the available area of agricultural land, as compared with the industrialized nations of Europe and the densely peopled countries of the Orient, the future expansion of American agriculture appears to depend in considerable degree on our success in meeting foreign competition and our alertness in developing export markets and in creating conditions favorable to international trade.

⁸ Data in the chart are from *The Balance of Births and Deaths*, vol. 1, New York, Macmillan Co. (1928), by Robert R. Kuczynski, of the Brookings Institution, Washington.

PER CAPITA ACREAGE IN CROPS, HUMID PASTURES (AND EQUIVALENT), AND FORESTS USED FOR DOMESTIC CONSUMPTION
IN THE UNITED STATES, 1924, AND IN FRANCE
AND GERMANY IN PRE-WAR YEARS

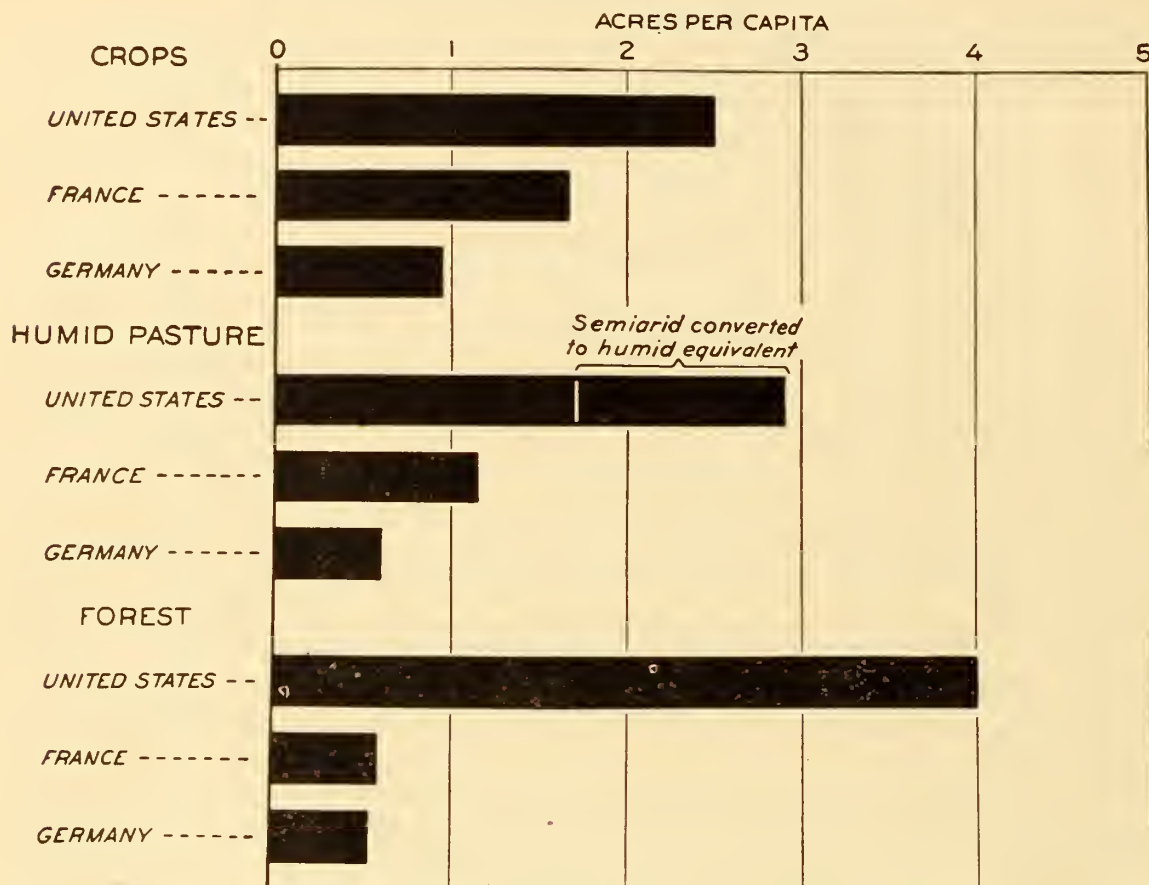


Figure 25

Should population increase greatly in the United States (contrary to present indications), resulting in pressure on our land supply, or should foreign demand for our products increase, it would be possible to make adjustments in consumption and economies in land utilization such, for instance, as have been effected in France and Germany, resulting in a much smaller per capita requirement for crops and pasture. In the United States a much larger proportion of pasture in relation to crop land is employed than is available in the two European countries shown in the chart. The number of acres of pasture per animal unit in the United States is nearly twice as large as in France, and about three times as large as in Germany. In the case of forests the extremely small acreage employed in Germany and France is due to great scarcity of available land. The per capita consumption in these countries would undoubtedly be larger if the supply were greater. The land employed for forests is intensively utilized. In the United States the so-called forest area includes a large acreage of cutover land left to reforest itself. In the United States, even if only the humid land too rough for crops were employed, there would be available for a population of 150,000,000 people about three times as much forest land per capita as in the two European countries. Moreover, for such a population, after providing for crops, there would be a large additional acreage of potential crop land that could be used either for pasture or for forests.⁹ In the case of the crop bars, about 7 per cent should be added for France and about 15 per cent for Germany to allow for the acreage that would be required to produce farm products imported, in order to make the bars more exactly comparable with those for the United States.

⁹ The figures for the United States exclude acreage employed in producing for export. The requirements of Germany and France were estimated on the basis of conditions prior to the World War.

AVERAGE YIELDS PER ACRE, 1909-1913, OF IMPORTANT CROPS IN
FOUR EUROPEAN COUNTRIES COMPARED WITH
YIELDS IN THE UNITED STATES

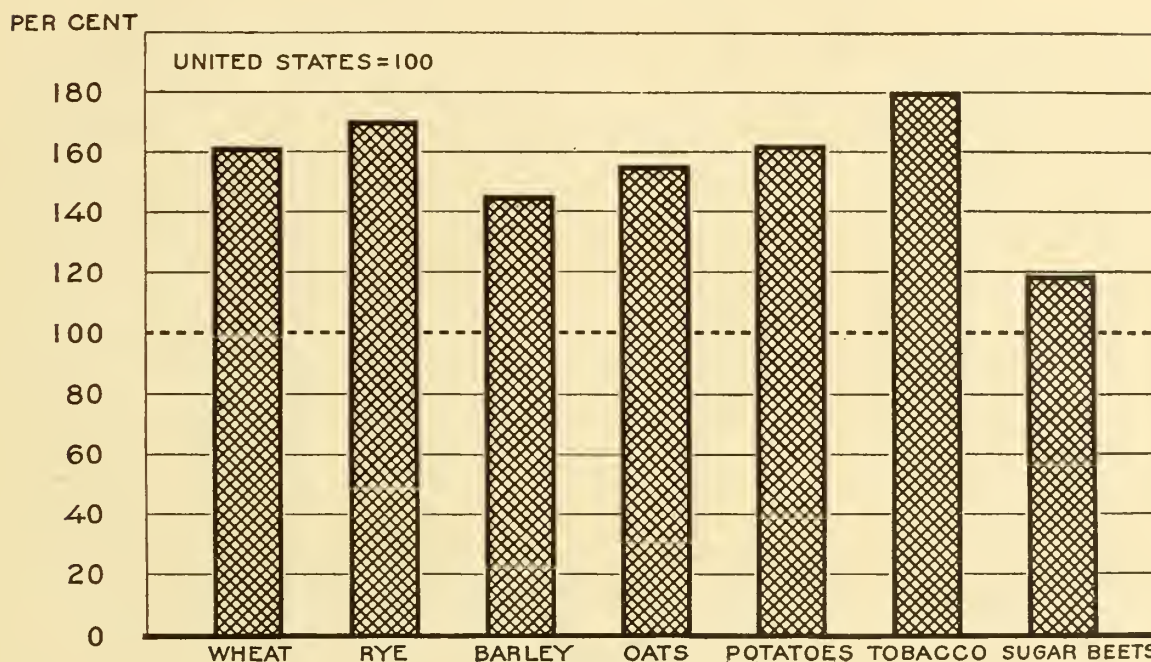


Figure 26

European experience indicates the possibility of much larger yields of crops in the United States whenever economic conditions shall justify the extra expense for fertilizers and labor. Thus, the average yields (1909-1913) in four countries of western Europe (Germany, France, Belgium, and the United Kingdom), as compared with the United States, were 60 per cent higher for wheat, 70 per cent higher for rye, 80 per cent higher for tobacco, and 58 per cent higher for the composite yield of seven important crops.

Such high yields are accomplished at high cost for labor and fertilizers, which would not be economical were it not for the relative scarcity of land and abundance and cheapness of labor in those countries. In the United States the lower yields per acre generally represent a larger return per unit of human labor than is obtained in European countries. The much higher yields in the European countries, however, are significant of one method of economizing land if we should find it desirable to do so on account of population pressure or increased foreign demand for our products. No doubt a material increase in yields could be effected without a great addition to costs of production, although still higher yields might, in some cases, entail a more than proportionate increase of costs.

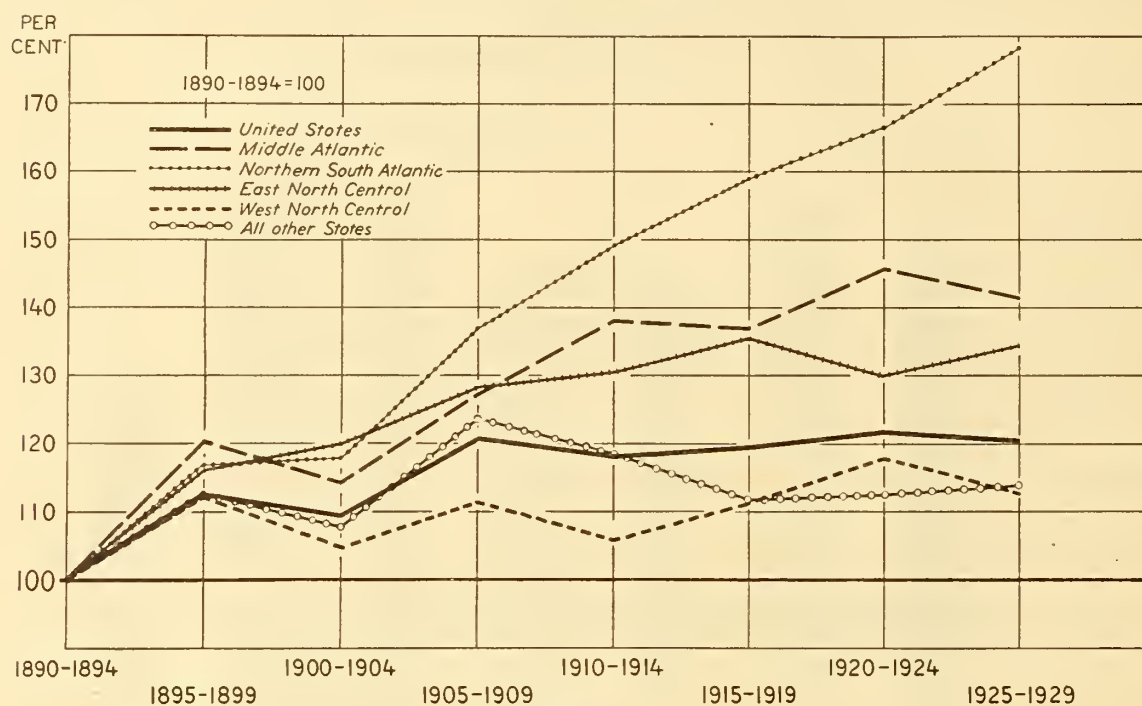
CHANGES IN COMPOSITE YIELD PER ACRE FOR CORN, WHEAT, OATS,
AND POTATOES

Figure 27

In the United States as a whole population pressure on the supply of land has not yet been great enough to stimulate a notable increase in yields per acre, although such a tendency is to be observed in some parts of the country. The composite yield of four important crops for the country as a whole has not changed greatly during the last two decades. In some of the earlier settled sections considerable increase has occurred in average yields.¹⁰ This increase is probably due to the passing of pioneer conditions which favored low yields, to the increased use of fertilizers, and to the abandonment of less productive acres. In many areas more recently occupied the practice still prevails of cultivating virgin soils under a one-crop system, with a resulting gradual depletion in fertility. In the older parts of the Cotton Belt (included mostly in "All other States") improvements in methods of handling soils have been offset in recent years by depredations of the boll weevil.

In endeavoring to increase average yields per acre in the United States to the European level, a handicap will be found in the fact that a considerable proportion of certain crops (particularly the cereals, flax, and cotton) is grown on semiarid land. On account of moisture limitation, heavy fertilization of such land to achieve high yields is not likely to be economical.

¹⁰ The Middle Atlantic States include New York, New Jersey, and Pennsylvania; the Northern South Atlantic include Maryland, Delaware, Virginia, West Virginia, and North Carolina; the East North Central include Ohio, Indiana, Illinois, Michigan, and Wisconsin; the West North Central include Minnesota, the Dakotas, Iowa, Nebraska, Missouri, and Kansas.

ACRES USED TO PRODUCE 1,400,000 CALORIES OF CERTAIN FOODS, UNITED STATES, 1922-1924 ¹¹

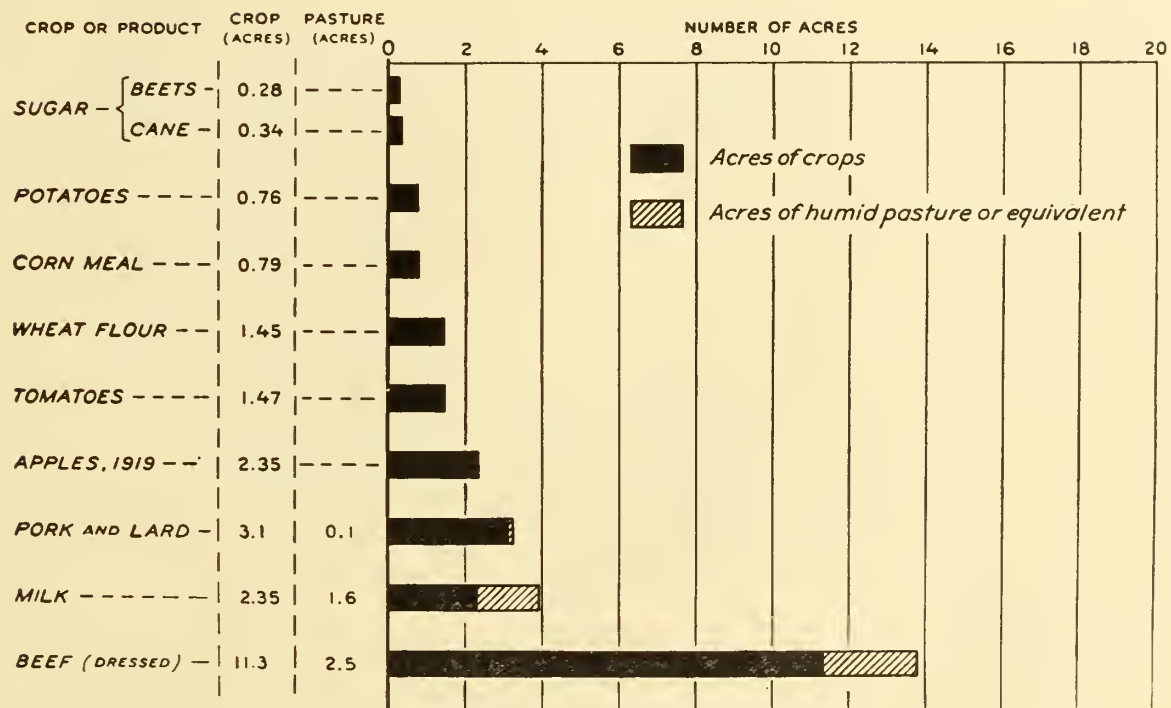


Figure 28

Changes in diet are likely to lessen considerably the area that would otherwise be needed to provide for the future increase in population. The small per capita area of crop land in European countries (fig. 25) is made to suffice in part by selecting foods that require a relatively small acreage for their production. If the average American diet should change to that prevailing in Germany before the war, about 50,000,000 fewer acres would be needed. Meat products require relatively more land for their production than do other kinds of food, and of the various meat products, beef requires the largest acreage for its production. Germany and certain other European countries have made extensive economies in the utilization of land by a greater proportionate use of cereals and potatoes, and of more milk and pork in proportion to beef. Some tendency in this direction may appear in this country, if the need for the greater economy of agricultural land should become important. On the other hand, the large per capita consumption of beef in England, in spite of density of population, suggests a tendency for Anglo-Saxon peoples to cling tenaciously to their customary diet.

¹¹ The yearly consumption of food per person averages 1,400,000 calories.

LAND CAPABLE OF USE FOR CROPS

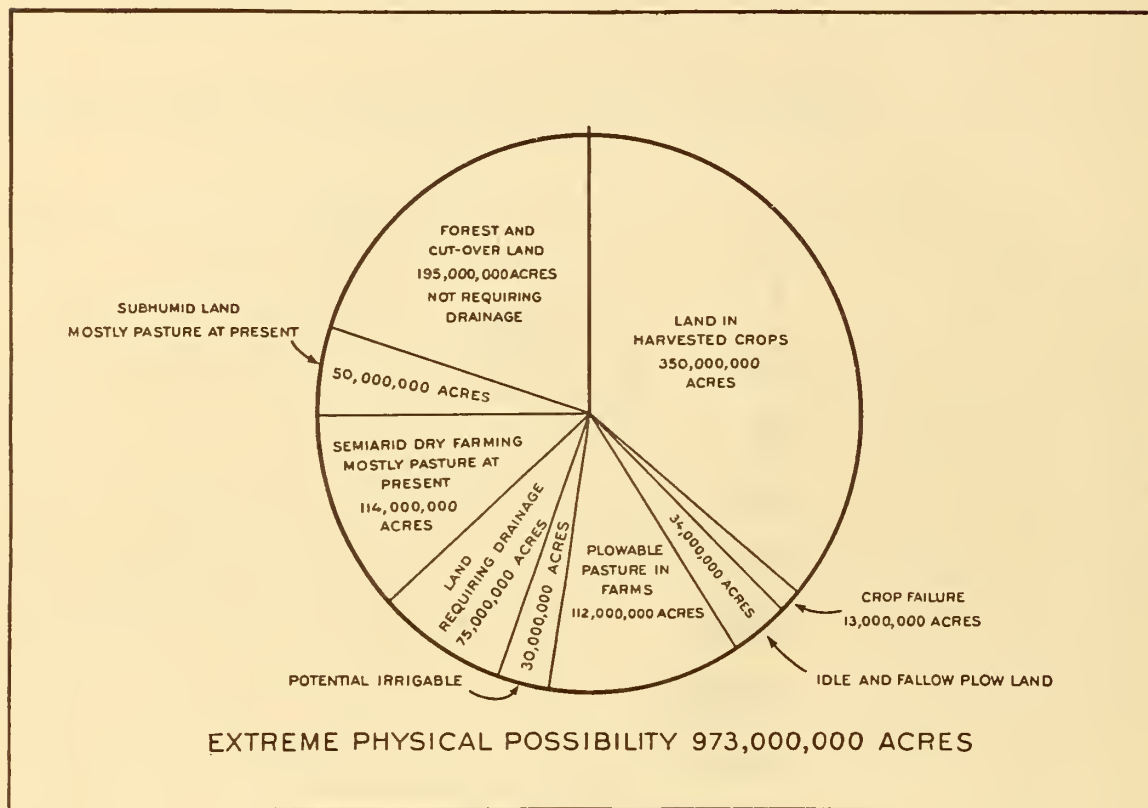


Figure 29

The area of land in harvested crops in the United States in 1924 was about 350,000,000 acres, or less than one-fifth the total land area, but it is estimated that in addition there are over 600,000,000 acres physically capable of use for crops, though consisting mostly of lands having hilly surface or poor soils, or requiring expensive improvement by clearing, draining, or irrigating. The problem of making a wise selection of the additional lands required for farming, as population increases, is extremely difficult, for the potential crop area not already utilized comprises many different kinds of land. It is estimated that about 30,000,000 acres are potentially irrigable, although mostly at high costs for reclamation. (Fig. 30.) About 75,000,000 acres, some of it very fertile, would require drainage, and much of this land would require both drainage and clearing; in many cases the work could be done only at prohibitive costs. There is still a large area of semiarid or subhumid land, now employed mainly for pasture, that could be devoted to crops. Much of this land is capable of only low yields on account of deficient moisture, but it can be operated at low cost per acre by the use of machinery. Its use would become profitable under somewhat higher prices for farm products and might prove profitable at ordinary price levels if further progress is made in technical improvements. There is also a large area of forest and cut-over land not requiring drainage, estimated at nearly 200,000,000 acres, the use of which for crops would be possible if prices of farm products justified cost of clearing, and, for much of the area, large outlays for fertilization. Finally, there is much improved pasture in farms that is capable of use for crops, and there are large acreages of idle crop land that might be restored to use if prices of farm products should warrant.¹²

¹² The acreages shown in the chart are mainly estimates.

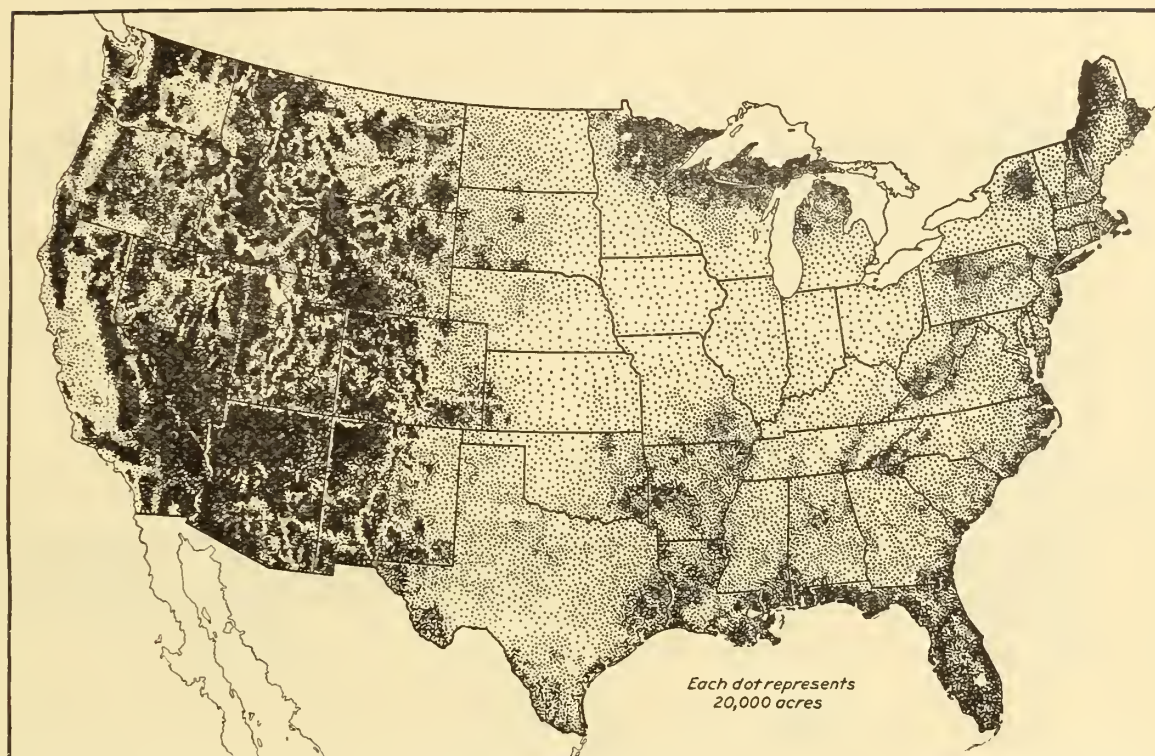
LAND NOT IN FARMS, 1920¹³

Figure 30. (Based on the Census)

A great deal of the land not now in farms is physically unsuited to crop production. In the West particularly, much of the area not in farms is desert or rough mountain land. In the eastern half of the country much of it is rough or swampy, or consists of cut-over lands where the soil is so poor that clearing is not economically justifiable. Some of the land not in farms, however, is of a character that leads to its being offered for sale as farm land. It is owned by railway companies and affiliated corporations, by timber and mining companies, by land companies, or by individual owners. Raw land is continually pushed into the farm-land market, partly to free the present owners from the burden of taxes and other carrying charges. The pressure to sell to farmers is increased and becomes more effective in periods of temporarily good prices for farm products, with the result that when prosperity passes, the area of farm land is found excessive. The pressure to expand the number of farms also results in the misdirection of expansion and the development of new poverty areas. Land is put into crops which is economically unsuited for the purpose and should rather be devoted to forests and grazing.

¹³ The chart is for 1920, but the changes since that time are not sufficiently extensive to affect materially the distribution of the dots in the chart.

**CROP LAND REQUIRED TO PRODUCE AGRICULTURAL IMPORTS
THAT COULD BE PRODUCED IN THE UNITED STATES,
AS COMPARED WITH TOTAL CROP LAND**

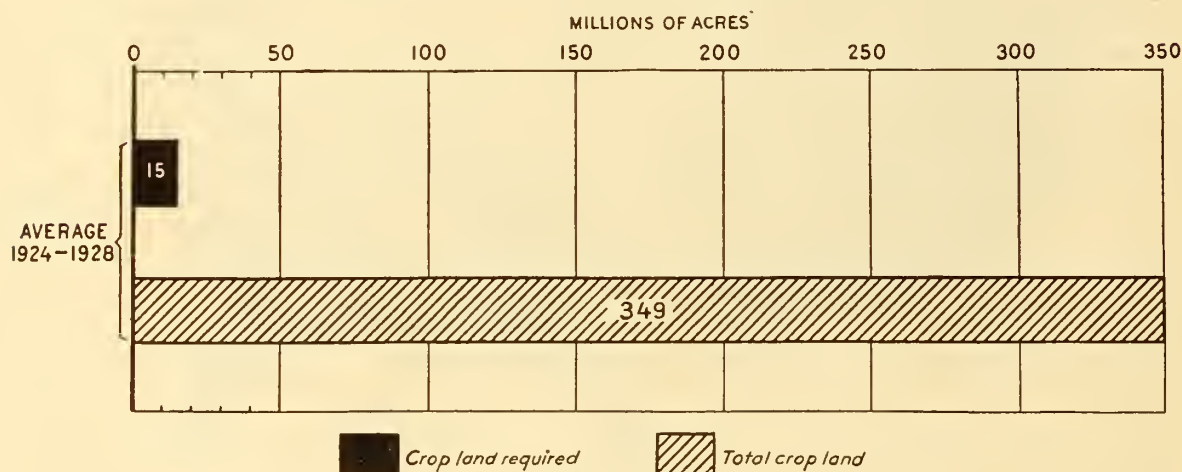


Figure 31

It is sometimes thought that further restrictions on importation would provide a much larger home market for American products, the production of which would permit a great expansion in the farming area. It is not advantageous, however, to undertake the commercial production of all the agricultural commodities imported, such as bananas, pineapples, and coffee. The area of land in crops required for the production of all the imported products that are capable of being produced in this country at costs that are not excessive would be less than 15,000,000 acres, which is a small proportion of existing crop acreage in the United States, and a much smaller proportion of the potential crop acreage. The area required for pasture would also be increased if these imported commodities were produced in this country, but to an extent that can not be readily estimated. On the other hand, our imports would probably be much greater were it not for tariff duties, and less land than at present would be required to produce our domestic supply of farm products.

AVERAGE INVESTMENT PER ACRE OF IRRIGABLE LAND ADDED IN EACH DECADE

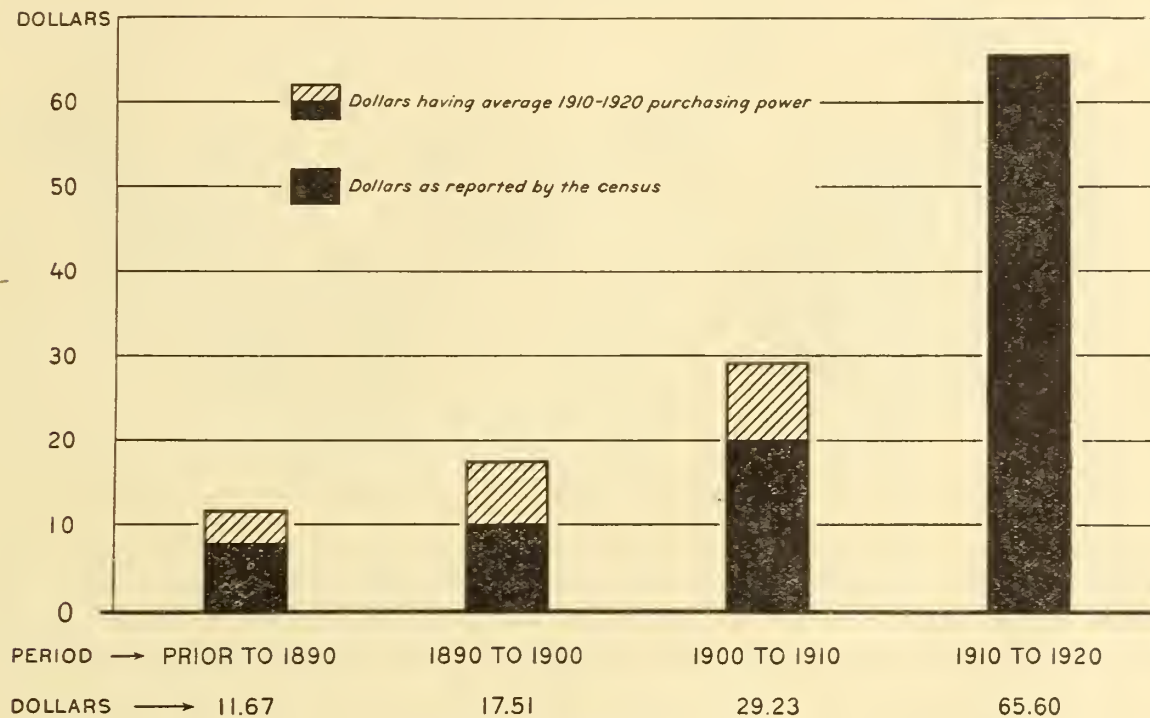


Figure 32. (Based on the Census)

Possibilities of expanding the area of crops by irrigation are limited by the high cost of most of the remaining opportunities for irrigation. As shown by this chart, the cost of reclamation for the irrigated acreage added in each decade has increased notably during the past 30 years. This increase is due largely to the fact that the opportunities that were least costly per acre were first selected, later opportunities were more costly, either because of difficult engineering or because they afforded a smaller irrigable acreage in proportion to total cost. The total height of the first three bars indicates the comparative investment per acre added in each decade when expressed in dollars of the same purchasing power as in the period 1910 to 1920. The amount shown in each column is only for the additional irrigable acreage reported in each decade by the Bureau of the Census, whether for private, State, or Federal projects. Apparently the cost of the acreage added from 1910 to 1920 was more than twice that of the acreage added from 1900 to 1910, and more than four times the cost of that brought in from 1890 to 1900. The high costs of the remaining opportunities for irrigation, together with the agricultural depression of the last decade, have resulted in a decrease in the volume of new construction.

REGIONAL SOIL-EROSION AREAS

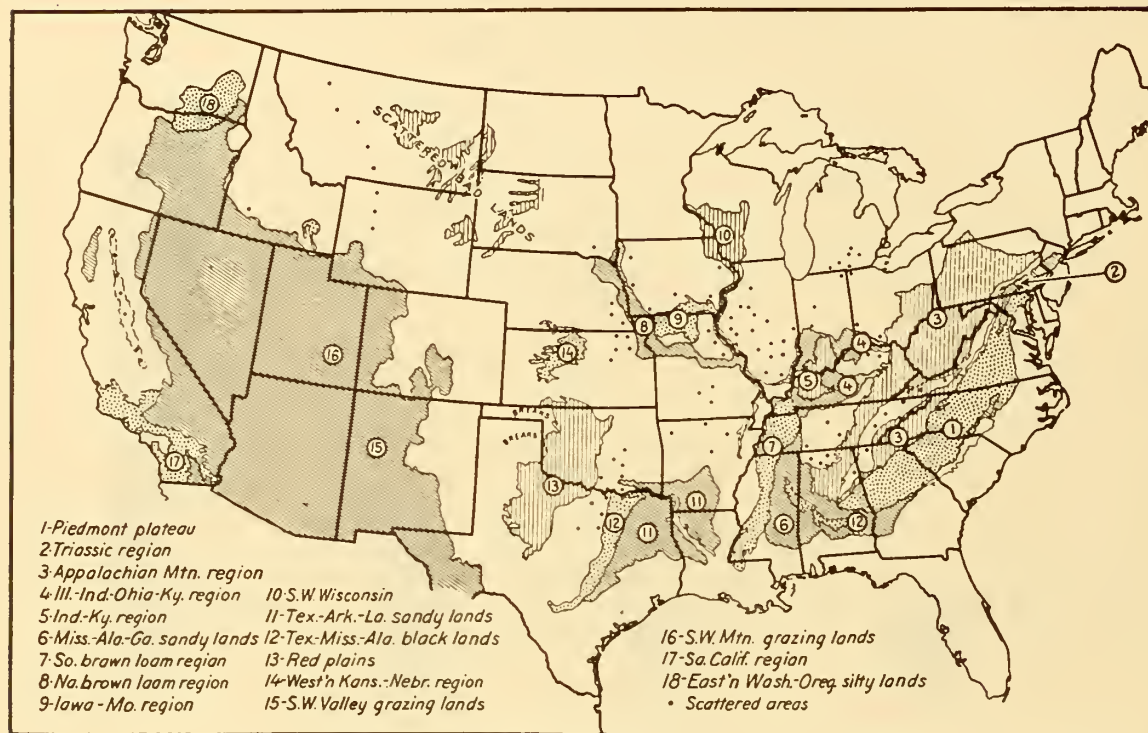


Figure 33

An important phase of the problem of land utilization is the menacing loss from soil erosion. The Bureau of Chemistry and Soils, United States Department of Agriculture, estimates that erosion costs North American farm owners about \$200,000,000 a year. The locations of the districts of principal significance from this standpoint, shown on the map, are determined mainly by rough relief or the presence of soils that are peculiarly subject to sheet erosion or gullyng, and they coincide largely with the districts in which the problems of land utilization are acute. In fact, in some districts erosion is greatly increased by improper methods of land utilization. In the West competition for the forage on the public domain has so largely impaired the natural cover that some of the land is being rapidly eroded, and the soil carried into the streams "silts up" irrigation reservoirs and canals. In districts of privately owned lands east of the Mississippi, erosion is responsible in many cases for soil depletion, unprofitable farming, tax delinquency, and farm abandonment. The denudation of forest areas has greatly increased the rate of erosion and the menace from floods. Studies of erosion have indicated the large influence on degree of erosion attributable to method of land utilization. Thus, in a special study of a soil known as Shelby loam, located near Columbia, Mo., it was found that in a period of six years land that was spaded 4 inches deep and fallowed lost by erosion 247 tons of soil per acre, in contrast with a loss of only 2 tons for bluegrass sod. Land that was annually spaded 8 inches deep and planted to corn lost 106 tons per acre, but land in a rotation of corn, wheat, and clover lost only 14 tons.

OUTLOOK FOR THE UTILIZATION OF LAND FOR FORESTS

The original forest resources of the United States were so enormous in relation to the requirements of the population in the early days of the Nation's history that there was little apparent need for timber conservation. At the present stage in the national development, however, a period of great scarcity of timber can be foreseen as likely to occur at a comparatively early date. Nevertheless, as long as a considerable supply of virgin timber is available, there is little inclination on the part of private owners, who control over 70 per cent of the total area of forest lands, to husband the remaining supply, and still less to provide adequately for reforesting the cut-over area. The timber reserves of the national forests, even with the best of care, will be far from sufficient to maintain a supply of timber that will satisfy the probable demand.

The problem of a wise utilization of land for forests is intertwined with the problem of agricultural-land utilization in a number of ways: (1) In determining the economic feasibility of agricultural expansion or reforestation, the relative advisability of the two alternative uses should be considered. Large districts of land in farms are being found unsuited for farming; whether they can be profitably devoted to forests by private owners is uncertain, and the problem is frequently affected by existing methods of taxation, unavailability of fire protection, the outlook for timber prices, and credit conditions. (2) In many districts the use of low-grade land for continuous timber growing would increase economic stability by providing markets for crops and supplementary employment for farmers and other rural people. (3) A program of forest management for farm wood lots, which contain about 30 per cent of the total forest area of the Nation, is intimately related to the general farm economy. (4) The progress of soil erosion and the control of floods, and in irrigated sections, the adequacy of water supply and the prevention of injury from silting in reservoirs and ditches, are affected in an important degree by the location of forest lands.

REGIONAL DECLINE IN LUMBER PRODUCTION, SHOWN BY THE 1927 CUT, AS COMPARED WITH PEAK CUT

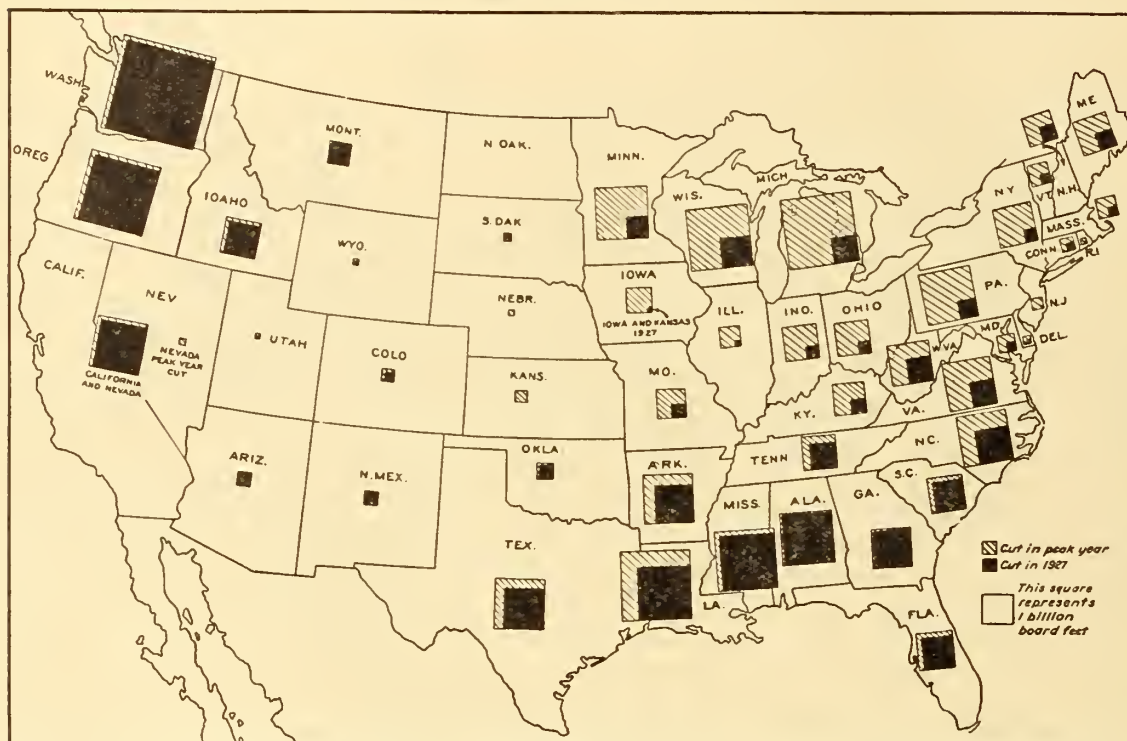


Figure 31

As lumbering advanced into each new area, the cutting of timber gradually approached a peak, and then declined as the more accessible tracts and the most desirable stands went down before the ax. In the northeastern quarter of the country, the peak was passed long ago, and the present cut is only a small percentage of the peak volume. The peak has also been passed, though more recently, in most of the Southern States. The present drain on the forest of that region is so rapid that the major portion of its forest resources will be exhausted apparently in about a decade, and the greater part of the timber supply of eastern consuming centers will have to be brought at heavy transport costs from the West, which is already contributing extensively to the lumber requirements of the country. A large proportion of the area cut over is not well adapted to crop production and is not likely to be required for that purpose for a long time, if ever. In the meantime, the cutting of the timber and resulting idleness of the land are associated with other important problems growing out of extensive tax delinquency, decline of cities and villages dependent on the lumbering industry for support, and increasing sparseness of population. These conditions, in turn, react unfavorably on the prosperity of near-by farming districts.

STAND OF TIMBER AND ANNUAL NET DRAIN

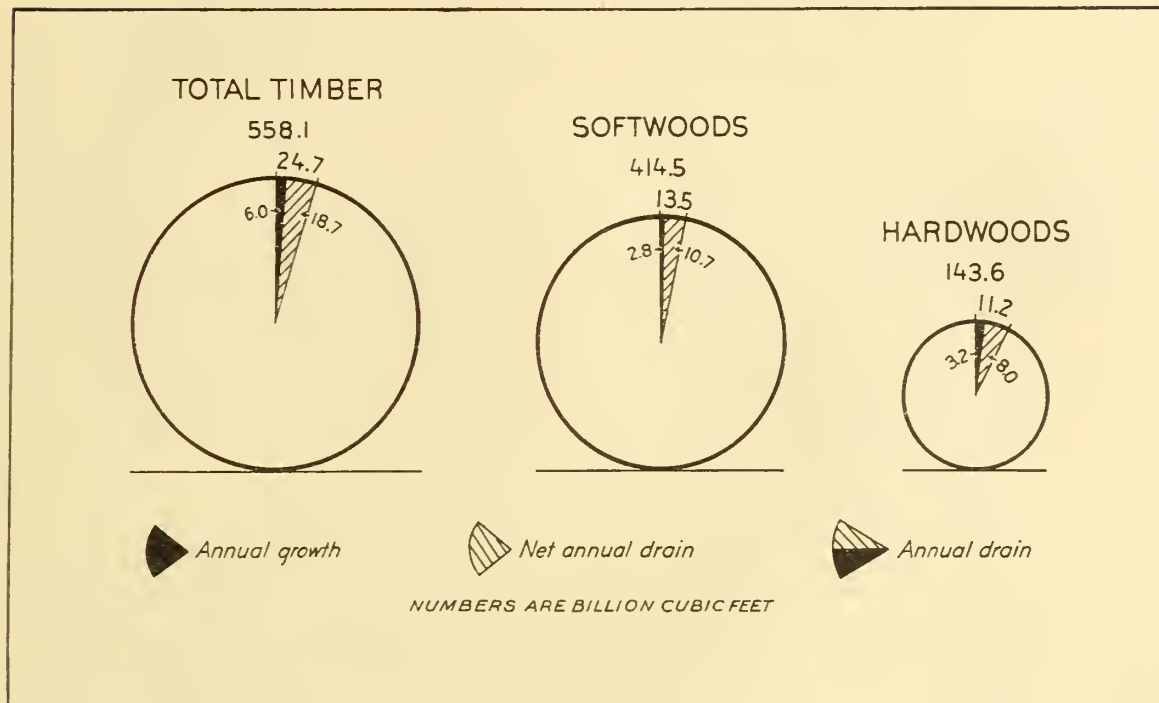


Figure 35

In 1920 the annual drain from all causes on the timber supply was estimated at about four times the annual growth. The proportion of drain to growth is much greater for softwoods than for hardwoods: but on the other hand, the remaining supply of the latter is much less than of the former. Unfortunately no careful estimate of total timber drain is available since that of 1920. More recent estimates for some of the elements of drain run lower than for corresponding items in the 1920 report. No official figures are available for two of the largest items—cordwood and fence posts—but it is believed that the quantities used per capita are less than were indicated for 1920 and, therefore, that the total drain is somewhat less than that indicated in the chart. If the rate of drain thus indicated should continue, it may be roughly estimated that the hardwood timber supply of the Nation would hold out only a little more than two decades, and the supply of soft woods little more than three. This includes the supply in national forests, where the rate of drain is less than rate of growth. Undoubtedly, as timber becomes scarcer and higher in price, it will be used less rapidly, and the actual duration of the total supply will be somewhat lengthened; but as long as there is a considerable reserve supply that can be cheaply cut, prices of timber are not likely to rise sufficiently to stimulate great activity by private enterprise in reforestation. Even allowing for the fact that the estimates probably involve a large margin of error, it appears probable that the United States is approaching a period of great scarcity of timber supply, although it is not possible to determine exactly how many years will elapse before the period will begin. Undoubtedly we shall gradually become conscious of an increasing scarcity as the more accessible supplies of timber are exhausted.

CLASSES OF FOREST AND CUT-OVER LAND, 1920

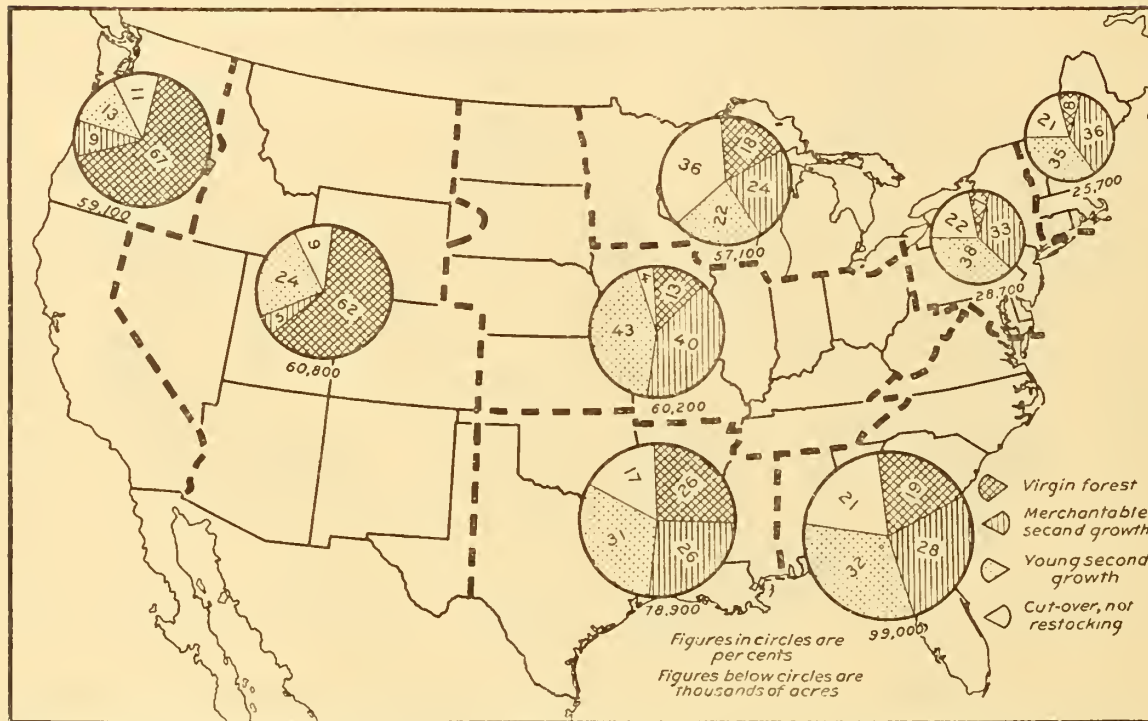


Figure 36

In six of the eight forest regions, all in the East, only about 40 to 53 per cent of the forest acreage, in 1920, consisted of merchantable timber. In these regions the acreage of virgin timber ranged from 7 to 26 per cent of the total. On the other hand, in the Rocky Mountain and Pacific coast regions the acreage of virgin timber constituted about two-thirds of the total. In the Pacific Coast States less than one-fourth of the area was nonmerchantable forest. Most of the remaining merchantable timber east of the Rocky Mountains is in the South, and the end of this supply is in sight. In a comparatively short time there will remain in the Eastern States, except for public forests and a few minor forest areas, mostly timber of cordwood size or of a size serviceable for posts, ties, and pulpwood. The rapid cutting of this class of timber is preventing its retention for growth to merchantable size. Undoubtedly the proportion of virgin timber in the various areas has decreased greatly since 1920, and probably the merchantable second growth has also decreased materially.¹⁴

¹⁴ This chart is based on estimates made for the Capper report of 1920, and no later adequate estimates are available, although a forest survey has been authorized and has been begun.

OWNERSHIP OF FOREST LAND IN THE UNITED STATES, 1925

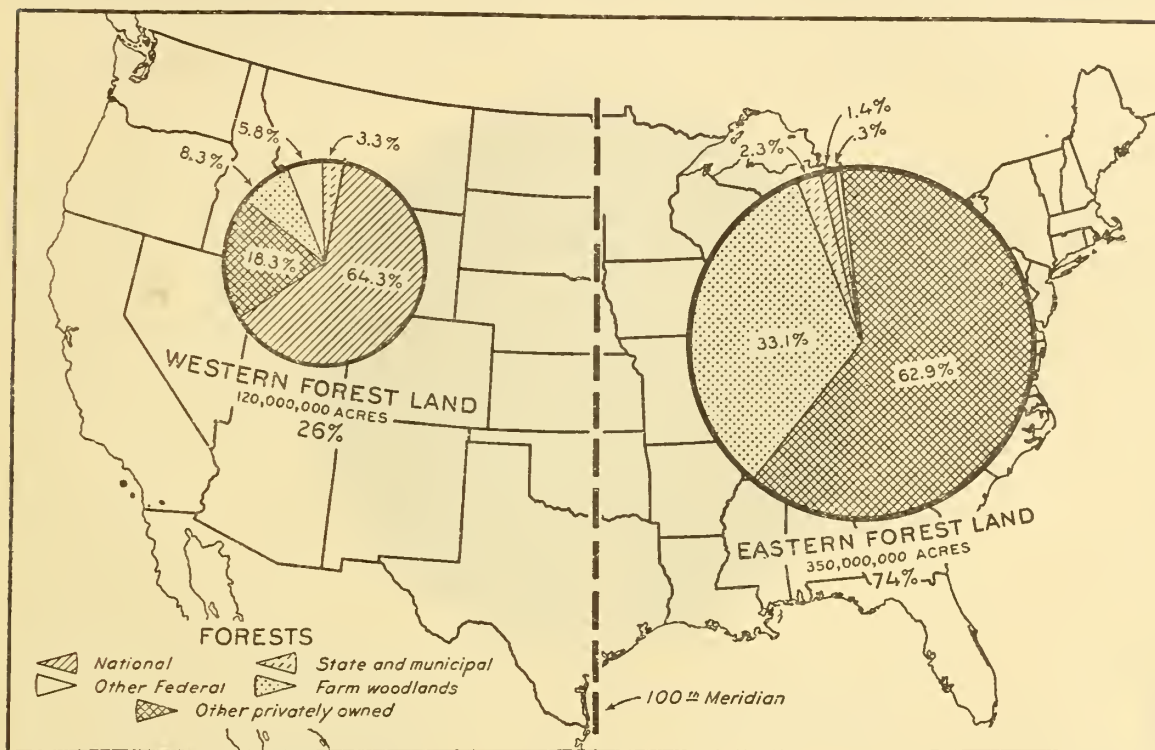


Figure 37

In the eastern forest region, which in 1925 comprised 74 per cent of the total forest area of the United States, national forests contained only 1.4 per cent of the area of forest land, and all publicly owned forest land in this region constituted only about 4 per cent. A third of the area was in farm wood lots, and the remainder consisted of privately owned forests. In the western region, about 70 per cent of the forest area was owned by the Federal Government, and nearly 27 per cent consisted of private forest land, less than a third of which was in farm wood lots.

It is estimated that the area of woodland in the United States in private ownership is 360,000,000 acres, of which not more than 20,000,000 acres are maintained under systematic forest management. Practically all the remainder is held for destructive cutting or consists of cut-over areas left to grow up to brush or inferior varieties of timber. The small extent to which systematic forest management has been introduced on privately owned land in the United States is attributable to a number of conditions: A large part of our virgin timber consists of mature stands, which deteriorate gradually if not cut. Investments that will not yield income until a remote date are subject to the accumulating costs of taxes and interest. These considerations are given greater emphasis by insufficient fire protection, discouraging systems of taxation, the abundance of timber in relation to immediate requirements, and the high costs of labor in this country in relation to prices of timber.

FEDERAL FOREST-PURCHASE PROGRAM AS CONTRASTED WITH AREA OF PRIVATELY OWNED FORESTS

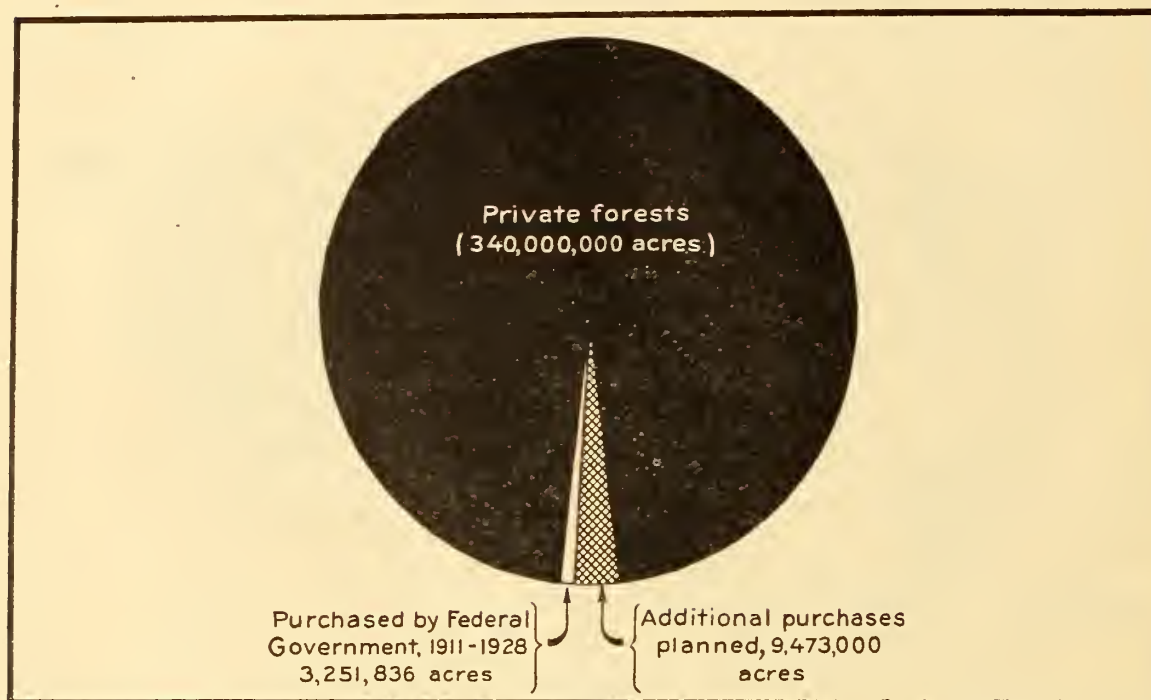


Figure 38

About three-fourths of the forest area of the country is still in private ownership, mostly subject to wasteful exploitation. The national forests have been created largely by reservations of timber-producing districts from the public domain, but little more timberland remains in the public domain, and that is not of the best quality. A notable expansion of the forest area in public ownership can occur, therefore, only by acquisition of lands now privately owned. Less than 1 per cent of the total area has been purchased by the Federal Government in nearly two decades, and purchases to be made under existing plans contemplate an addition of less than 3 per cent. The States are making some purchases and are acquiring some tax delinquent land. One State (New York) is initiating a policy of purchasing farms located on poor land, as a means of increasing its forest holdings and of retiring unprofitable farm units. The total area of State forest and parks, however, amounts to less than 7,000,000 acres, and is not being rapidly increased. Moreover, most of the present holdings and the greater part of the activity in acquisition are confined to a few States. New York and Pennsylvania have more than half of the total area of State forests. Many States in which a program of public acquisition is most desirable, either have not recognized its importance or have not cared to assume the financial burden of such a program.

PUBLIC OWNERSHIP OF FOREST LANDS IN COMPARABLE COUNTRIES
CONTRASTED WITH PUBLIC OWNERSHIP OF FOREST
LANDS IN THE UNITED STATES

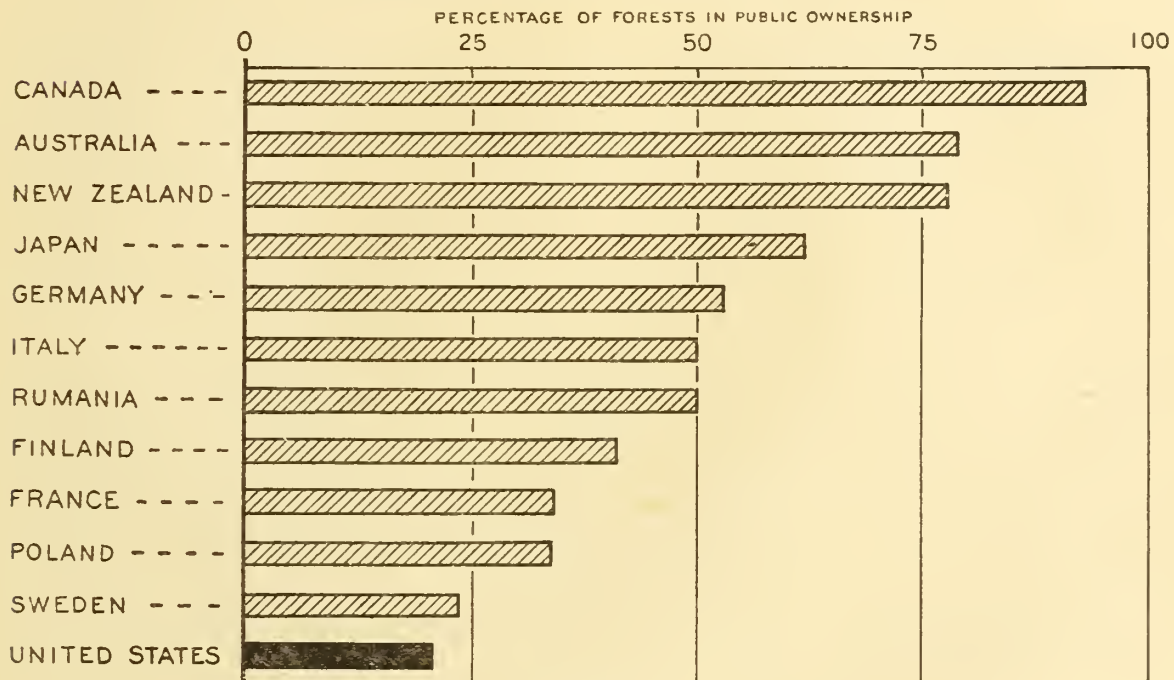


Figure 39

In many countries the percentage of forest land in public ownership greatly exceeds the proportion thus owned in the United States, and in a number of important countries it equals or exceeds the percentage in private ownership. This policy is probably due partly to the fact that control of utilization directly through public ownership is easier than indirect control through regulation. In some countries public ownership is also supplemented by public regulation of private forest utilization, not merely because of the recognized importance of insuring an adequate supply of timber, but also because of the recreational and scenic values of forests and the influence of forests on rainfall, on flood control, and on prevention of erosion. It is notable that even countries like Germany, France, and Italy, in which scientific forestry is more attractive to private enterprise than in the United States, have seen fit to acquire a larger proportion of their total forest area than is publicly owned in this country. When timber becomes scarce and high in price, conditions will be more favorable in the United States for less wasteful private methods of utilization and for private reforestation and systematic forest management.

LAND UTILIZATION ON THE PUBLIC DOMAIN

Until recently the public domain, by which is meant the lands still owned by the Federal Government and not reserved for special purposes, has grown steadily smaller as land was disposed of or reserved by the Government. Practically all of the remaining public domain is in the 11 Western States, and presents problems in land utilization different in many respects from the problems that characterize the other sections of the United States. But little of the public domain is suitable for cropping or for growing timber. The mineral deposits are believed to be much more valuable than is the surface, most of which can be used, if at all, only for extensive grazing under conditions requiring a very large acreage per head of cattle or sheep. The government has permitted the use of the range by all comers, without adequate restrictions, and this policy has given rise to many problems, some of which are suggested in succeeding charts. The President recently appointed a special commission for the purpose of studying the problems of the public domain.

FEDERAL LANDS UNAPPROPRIATED AND UNRESERVED, JULY 1, 1923

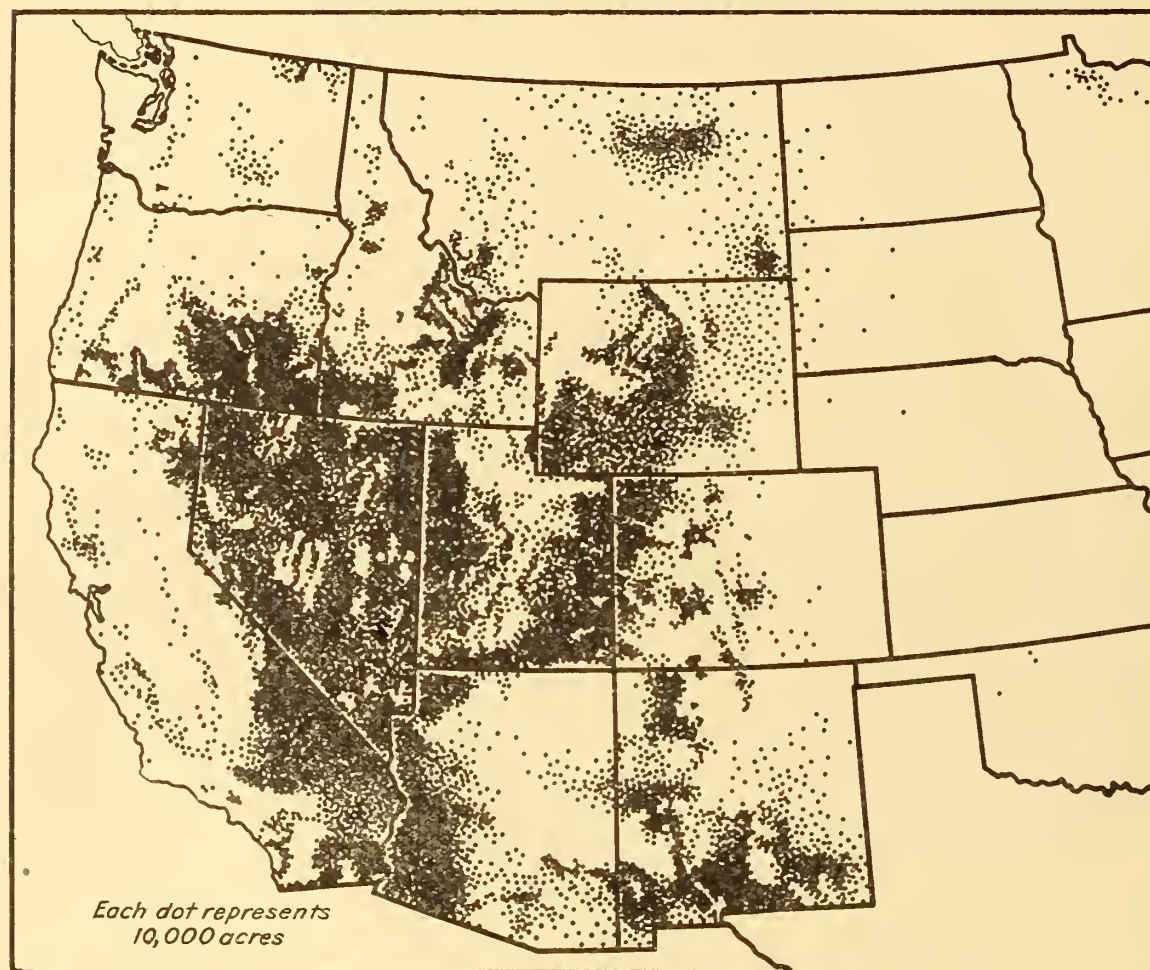


Figure 40

This map shows the approximate location and extent, in 1923, of the public domain; that is, the area not already appropriated or reserved for specific purposes. The only important change since the map was made is an increase of about 8,000,000 acres previously entered but never patented or withdrawn from entry and subsequently returned to the public domain. The public domain, on July 1, 1928, consisted of nearly 194,000,000 acres, practically none of which is economically suitable for crop production. Some of it is desert, and the best use of most of the remainder is for watershed protection and extensive grazing on land of low carrying capacity, varying generally from 25 to 75 acres per head of cattle. About 4,000,000 acres is believed to be more or less suitable for forests, and some of this area is being considered for inclusion in national forests. In much of the public domain grazing is feasible only part of the year, and during the remainder of the year the stock are dependent on grazing in the national forests or on other sources of forage. In many instances, use of the land for grazing is dependent on control of sources of water for stock, but this consideration becomes less important in the case of winter ranges where snow is available.

PRINCIPAL KINDS OF LAND OWNERSHIP IN THE 11 WESTERN STATES

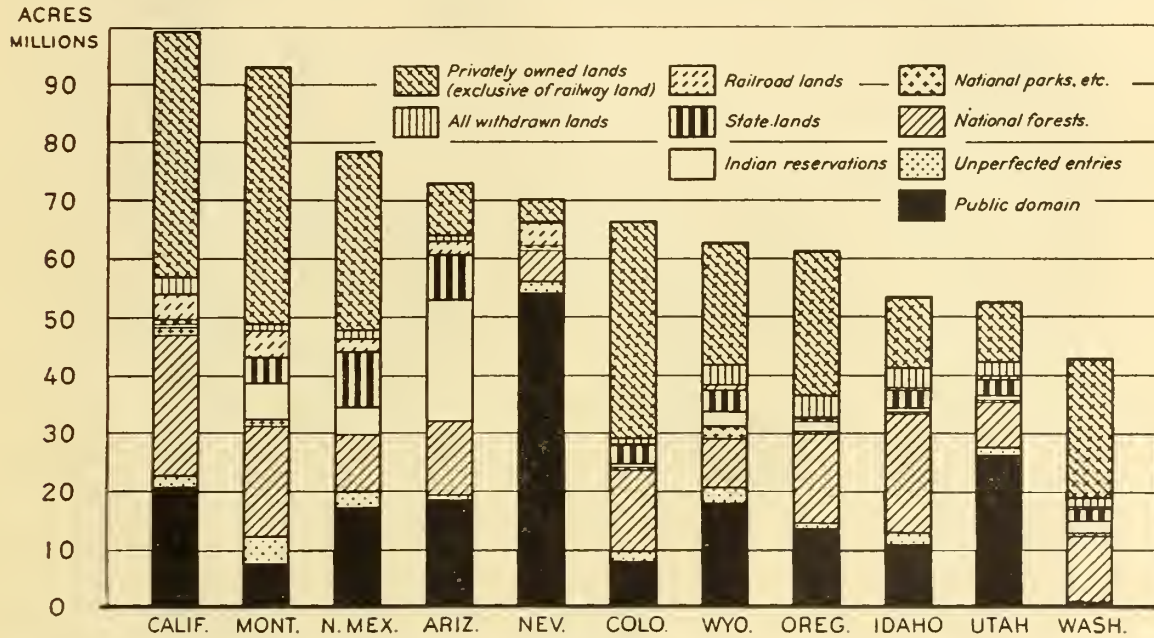


Figure 41

In the 11 Western States the relative importance of the public domain as compared with land in other forms of ownership varies widely. In Nevada, for instance, the public domain is over three-fourths of the total area of the State, and only about one-eighth (including railway land), is privately owned. On the other hand, in the State of Washington less than 1 per cent of the total area is public domain, and in Colorado about one-eighth. These contrasts cause the problem of a wise disposition of the public domain to assume different aspects in the various States, and even in parts of the same State.

Various degrees of control over the use of the public domain have been secured through the private ownership of certain lands, the right of use by permit in national forests, the lease of lands in Indian reservations or of land owned by States, and the ownership of water holes for stock. Over large areas, however, there is severe competition for the use of the public domain. This results in excessive grazing, impairment of the range, increased soil erosion, injury to watersheds, the silting up of irrigation reservoirs and ditches, failure to provide for reserves of range against seasons of drouth, and, as a consequence of these tendencies, financial instability of the range industry.

LAND TENURE AND TYPE OF UTILIZATION IN PART OF NORTH-CENTRAL NEVADA

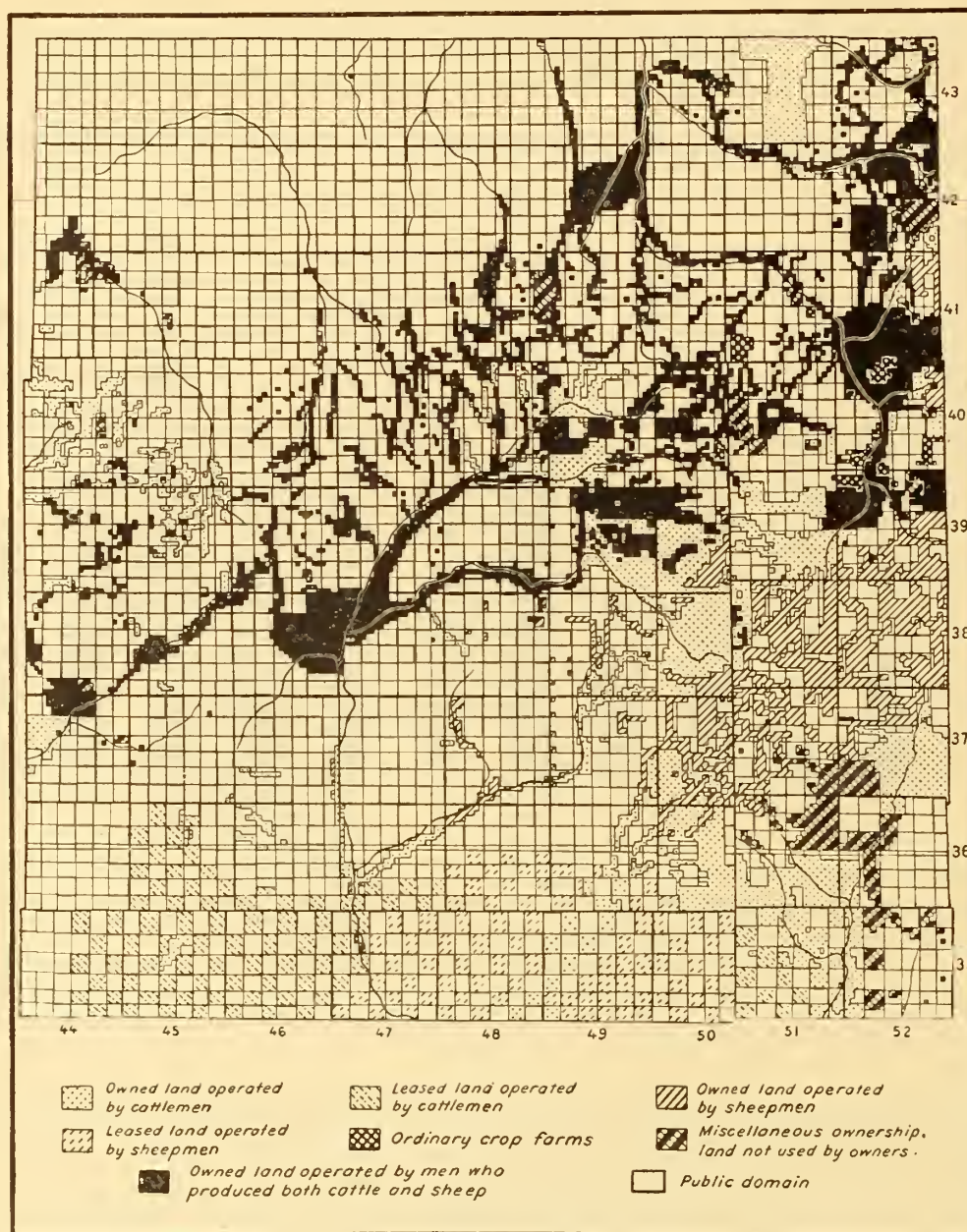


Figure 42

The complex relation of privately owned or leased land to the use and control of the public domain is suggested by this map of a portion of Elko County, Nev., based on a special survey made by the Bureau of Agricultural Economics. The public domain is shown by the white areas intersected by section lines. Some of the lands are occupied by cattlemen, and other lands by sheepmen, and some operators have both kinds of stock. The uses made of the public domain by the cattlemen and sheepmen are somewhat different in character, which often results in a conflict of interests. The map does not show individual holdings, some of which are large and some small. The different stockmen also vary greatly in the adequacy of their water supply and in degree of immunity from competition in the use of the public domain.¹⁵

¹⁵The phrase "owned land" in the legend of the map means owned by those who use the land.

LAND TENURE IN THE RAILROAD LAND-GRANT AREA OF NORTH-WESTERN NEW MEXICO

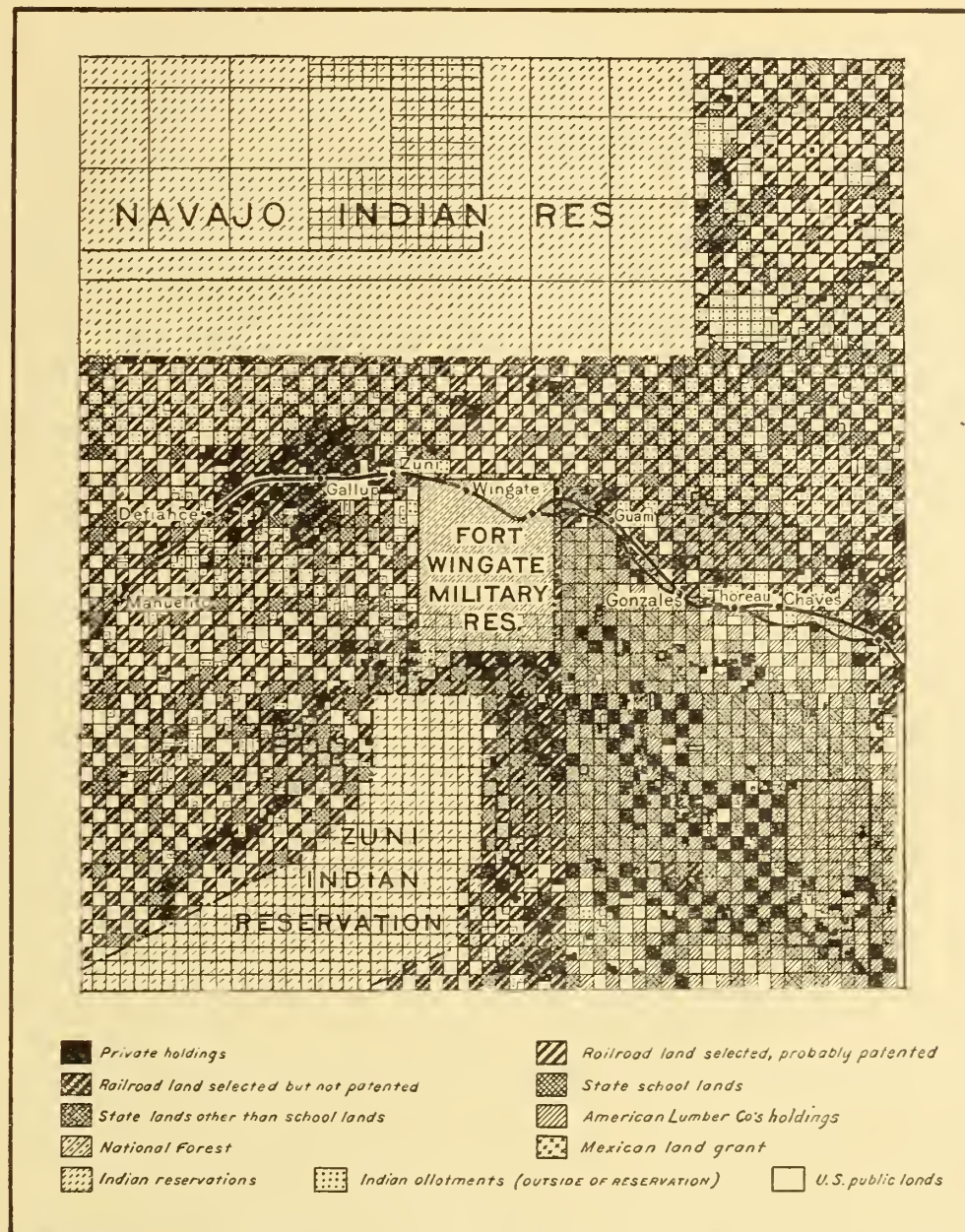
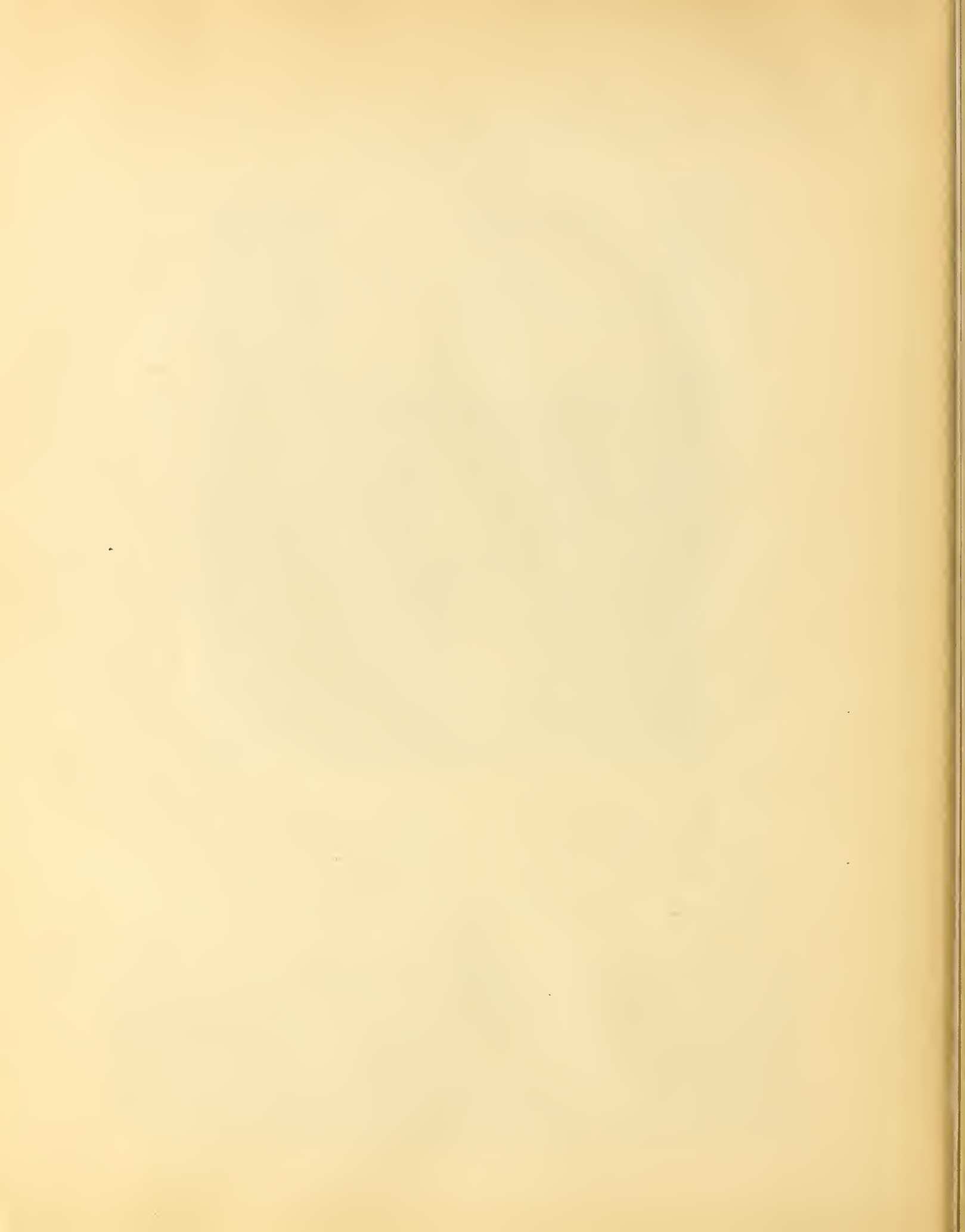


Figure 43

In areas of railway land grants, such as the above (based on a survey by the Bureau of Agricultural Economics and the Forest Service in the Atlantic and Pacific grant in Arizona), the granting of alternate sections to the railway has resulted in extensive intermixture of public domain with lands owned by the State and by private individuals, railways, and other corporations. An individual who owns or leases a large number of the alternate sections is in a position to make substantially exclusive use of the intervening sections of the public domain. On the other hand, when the private or State lands are owned or leased by many individuals, no one has any effective control, for it is illegal to fence the public domain and it is impracticable to fence the small scattering units of privately owned land. Such conditions lead to undesirable consequences, such as excessive grazing and impairment of the range. Somewhat similar conditions are found in other parts of the West where large areas, in alternate sections, were granted to railways by the Federal Government.



SUMMARY

Although the economic disabilities of agriculture for more than a decade, commonly referred to as "the farm problem," are a resultant of a complex of causes, the persistence of relatively low prices of farm products and relatively low incomes suggests, among other causes, the influence of general overproduction in agriculture and of maladjusted production.

In a sense, overproduction is relative, rather than absolute, for there are still regions of the world where agriculture continues to expand in spite of the persistence of low price levels. It appears, therefore, that agricultural production is excessive in the sense that its results in prices too low to permit farming to be profitable in extensive areas less well adapted to changing conditions of production. For such areas, therefore, overproduction is nearly synonymous with maladjusted production. Either farmers are continuing production on lands no longer adapted to profitable farming under the changed world-wide relationships of supply and demand, or they are attempting to maintain systems of farming which must be radically modified to permit a more favorable adjustment to changed conditions. The areas of unprofitable agriculture are so extensive, however, and the adjustment to changed requirements of production so slow—whether by abandonment of land or radical modifications in systems of farming—that from the standpoint of the farmers of such regions general overproduction appears responsible in large measure for their troubles.

Overproduction in this sense has been brought about through a number of conditions. One of the most important is expansion of the farming area. This was general in nearly all parts of the United States in the decade 1909 to 1919. In relation to population growth expansion was not excessive as compared with the rate of expansion in the preceding decade. This is even more true if we consider the entire period from 1919 to the present, for there has been little net increase in crop area from 1919 to the present. The expansion in the period since 1909, however, has been unduly great in view of the growth of the agricultural area in other parts of the world, of increasing production per acre, and of changed conditions of demand.

The net increase of the agricultural area is a resultant partly of the comparatively slow contraction of the farming area in regions where agriculture has become unprofitable, and partly of expansion, particularly in semiarid regions of nearly level relief, adapted to the use of labor-saving machinery and having low costs of production. This type of expansion, which has occurred extensively in western Canada and the United States, and in Australia and Argentina, has been encouraged by national land policies and in some cases by policies of immigration. Many European countries, moreover, have been encouraging by various methods the increase of agricultural production, even in areas where cost of production is high, with a view to becoming more nearly self-sufficient as to food supply.

Important changes in consumption in the United States have notably modified land requirements through the extensive elimination of horses and mules, decreased per capita consumption of bread grains and of beef, and greater use of certain tropical products, such as sugar and vegetable oils, which have displaced in a measure the consumption of products of the temperate zones.

The maladjustment of agriculture in many regions, growing out of the above conditions, has been intensified by soil depletion and by the passing of timber resources which formerly supplemented returns from farming. The distress of agriculture in important areas has also been promoted by the spread of pecuniary standards of living, causing thousands of farmers to become dissatisfied with isolation and a mode of living largely self-sufficing. An extensive regrouping of farm population is taking place with reference to obtaining locations where more money income can be obtained and where the family can enjoy the advantages of good roads and other modern facilities.

The regions where agriculture is declining find themselves confronted with numerous and difficult problems. Tax delinquency and farm abandonment have become extensive, large areas have been taken over by creditor interests, public revenues have decreased in many cases to the

point where units of local government suffer financial embarrassment, and the former plans for providing schools and roads need to be extensively modified. In extensive areas of the West the economic life is affected unfavorably also by the uncertain status of the public domain, which discourages an efficient utilization of those land resources.

The conditions that have been mentioned, coupled with the fact that the Nation's timber resources are rapidly disappearing and with no adequate provision against future scarcities, point to the need for a more conscious and deliberate formulation of local, State, and national policies with respect to land utilization.

Undoubtedly the economic and social future of the Nation largely depends on its ability to deal adequately with these problems of land utilization.



