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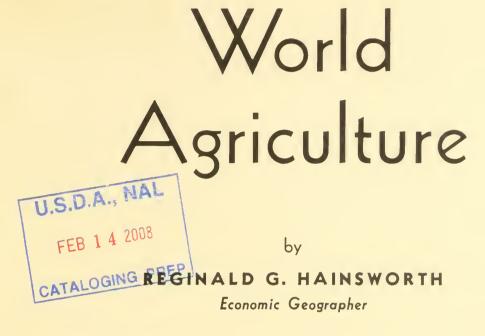
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# A GRAPHIC SUMMARY OF





Miscellaneous Publication No. 705 Issued October 1949

UNITED STATES DEPARTMENT OF AGRICULTURE Office of Foreign Agricultural Relations • Washington, D. C. This publication contains a series of maps and graphs, showing the geographic distribution of agricultural production and trade, world population, and such physical factors as land forms, vegetation, soils, and annual rainfall. An analysis of the distribution dot maps of the world's more important crops and farm animals as related to the physical factors and trade shows the position occupied by the United States in the world's agricultural production and markets. The introductory text contains a comparison of United States agricultural production and population with that of the more important agricultural countries of the world.

#### ACKNOWLEDGMENTS

The author wishes to acknowledge the cooperation that was given by the following employees in Office of Foreign Agricultural Relations. To C. M. Purves, Assistant Chief, Regional Investigations Branch, who furnished data and text for the selfsufficiency and food-level maps; and to Regina H. Boyle; Thelma L. Willahan; Anna Jones; and Edna Been, of the International Commodities Branch, for special data for the international-trade maps; and to N. P. Guidry, cartographer, who prepared the cross-hatch maps, charts, and international-trade maps assisted by W. Cratty, cartographer, and Thelma Cox, draftsman. Ruth P. Schottroff prepared much data, all the dot maps, compiled the population map and wrote its accompanying text; and Alice I. Fray edited the text.

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### UNITED STATES DEPARTMENT OF AGRICULTURE

**MISCELLANEOUS PUBLICATION NO. 705** 

Washington, D. C.

**Issued October 1949** 

### A GRAPHIC SUMMARY OF WORLD AGRICULTURE

By REGINALD G. HAINSWORTH, Principal Economic Geographer, Office of Foreign Agricultural Relations

#### **INTRODUCTION**

**THE** PRODUCTION of crops throughout the world is derived from about 2.47 billion acres of cultivated land, or approximately 7.5 percent of the earth's 32.6 billion acres of land (not including the Antarctic, and the arms of the sea extending inland). It has been estimated that another 7.5 percent of this land is used for such agricultural purposes as permanent meadows and pastures.

The cultivated land of the world is very unevenly distributed among countries and continents and in relation to population. Adding to this imbalance are the effect of such factors as variance in crop yields, the land use pattern, kinds of soils, and condition of the land.

Since the largest part of the world's food supply and agricultural raw materials for industry are produced on the cultivated land, it is very significant in measuring the agricultural productive capacity as well as that of the industries closely associated with agriculture in the various countries in the world.

**TABLE 1.**—Total land area, cultivated land, and population, by continent or country, percentage of the world total

	Percentage of-		
Continent or country		World culti- vated land	World popu- lation
Asia (excluding USSR) North America Soviet Union Europe (excluding USSR) Middle and South America Africa Australia and Oceania Total	$ \begin{array}{r} 3. 7 \\ 13. 2 \\ 24. 1 \\ 7. 0 \end{array} $	Per- cent 32. 9 21. 2 16. 8 16. 3 5. 7 5. 6 1. 5 100. 0	Per- cent 53. 1 8. 2 7. 6 17. 9 5. 0 7. 7 . 5 100. 0

<sup>1</sup> Does not include the area of the Antarctic regions.

The population of the world is about 2,264 million persons. Dividing the estimated cultivated land (2,470 million acres) by this figure gives an average area of cultivated land per capita throughout the world of about 1.1 acres.

Asia (excluding USSR) has more than one-half of the world's population with less than one-third of the cultivated land area. North America, on the other hand, with only about 8 percent of the world's population, has more than 21 percent of the cultivated land. In the remaining continents, excluding Australia and Oceania, percentages of the world's cultivated land and population are about equal. Australia and Oceania, have the most favorable balance, but this area has little cultivated land.

The two countries having the largest areas of the world's cultivated land are the United States, with 17.6 percent, and the Soviet Union, with 16.8. In relation to cultivated land, populations in these countries are small—as table 2 shows.

The 15 countries given in table 2 have more than 75 percent of the world's cultivated land and more than 62 percent of the population of the world. In the United States the area of land in cultivated crops amounts to 22.8 percent of its land area and to 17.6 percent of all the cultivated land in the world. This is as much cultivated land as Europe (excluding USSR) has, yet the population of Europe is about three times as great.

The United States, the Soviet Union, India, and China have 1,408 million acres of cultivated land, or about 57 percent of the world's total cultivated land.

The combined population of these 4 countries amounts to more than 1,100 million persons, about half of the world population. Among these countries, however, the acres of cultivated land per person varies widely, from 0.29 acre per person in China to 3.13 acres per person in the United States. Of the 15 countries tabulated, Australia has the lowest percentage of its total land area cultivated—only 1.7 percent—with 4.7 acres per person. Poland has the largest percentage nearly 50 percent—but has less than 1.5 acres per person.

The United States has a greater crop acreage

per capita than any of the other great nations of the world, except the sparsely settled countries of Canada, Australia, and Argentina. The large amount of cultivated land, plus the additional land used for other agricultural activities, is in striking contrast to the agricultural economy of those countries that have great densities of population. (See population map, fig. 20, and cultivated lands of the world, fig. 8.)

In this publication the cultivated land of the world includes the area in field crops, forage, gardens, and tree and bush crops (excluding uncultivated growth), rotation meadows, and fallow land. Permanent meadows, pastures and rangelands, woods, forests, unproductive land, and socalled uncultivated productive land (unused arable land) have been excluded wherever possible.

Where the livestock industry contributes a large share of the agricultural economy in a country, there are usually large acreages of permanent meadows, pastures, and range lands, which are not cultivated. In such countries the population dependent on agriculture, as represented by cultivated land, appears to have a greater density than would be the case if all types of agricultural land were classified as cultivated.

The United States not only has the largest area of cultivated land in the world but also has extensive areas of permanent meadows, pastures, and range lands, which are used for grazing livestock. The abundant supply of meat products derived from the livestock industry, plus the crops produced on the cultivated land, gives the United States a well-balanced agricultural program, which only a few countries are fortunate enough to have.

The population in the United States has increased nearly 100 percent during the past 50 years—from slightly over 75 million to more than 148 million persons—while the cultivated land increased only about 10 percent. This greater population pressure upon the food supply has been more than offset by the improved methods of farming, resulting in increased yields per acre of crops as well as larger outputs of products per animal unit.

Cereals are the most important crops grown in the world. The total acreage of wheat, rice, corn, oats, barley, and rye averaged 1.21 billion acres in the period of 1935–39 and 1.17 billion acres in the 1946–48 period. Almost half of all cropland is devoted to cereals. Wheat, rye, and rice are utilized mainly for human consumption, whereas corn, oats, and barley are used mostly for feeding livestock.

In addition to the acreage of the cereal crops shown in table 3, the world acreage of potatoes averaged 52.8 million acres for the period of 1935–39 and 51.4 million acres for the 1946–48 period. Sugar-beet acreage averaged 8.1 million acres for 1935–39 and 8.0 for 1946.

The actual area of land in the world still adaptable for agricultural purposes cannot be adequately measured by any one criterion. In addition to the cultivated land actually used and now reported in various statistical data, there is still some cultivated land not reported, much land that could be plowed and cultivated, and some that could be developed as pastures for livestock grazing. The extent of potential cultivated land will be determined to a great degree by the types of soils, topographic condition of the land, length of the growing season, annual and seasonal rainfall, as well as transportation and cultural background of the people of the country in which the land is being brought into production.

TABLE 2.—Distribution of cultivated land among the 15 countries having	more than 75 percent of the world's
total cultivated land	

Country	Acres cultivated	Cultivated land as per- centage of total land	Cultivated land per capita	Percentage of world cultivated land
United States	$\begin{array}{c} Thousands \\ 435,000 \\ 414,000 \\ 382,610 \\ 177,718 \\ 64,395 \\ 63,385 \\ 49,918 \\ 49,338 \\ 47,219 \\ 44,556 \\ 40,795 \\ 38,386 \\ 35,610 \\ 34,865 \end{array}$	Percent 22. 8 7. 9 37. 9 13. 8 9. 3 2. 9 42. 8 36. 3 49. 2 35. 6 10. 2 11. 9 47. 9 1. 7	Acres 3. 13 2. 43 . 98 . 29 4. 56 5. 29 . 72 1. 22 1. 47 1. 65 2. 47 1. 65 2. 47 . 89 . 77 4. 71	Percent 17. 6 16. 8 15. 5 7. 2 2. 6 2. 5 2. 0 2. 0 1. 9 1. 8 1. 6 1. 5 1. 4 1. 4
Total	1, 877, 795			75.8

<sup>1</sup> 22 Provinces (Sikang and Sinkiang not included).

TABLE	3.—Acreage	of 6	principal	grains	by con-
	or country,				

	[Millior	acres]		
	Wh	Wheat		ce
Continent or country	1935-39 average	1946–48 average	1935–39 a verage	1946-48 average
North America South America Europe Asia Soviet Union Africa Oceania World total	84. 2 20. 5 74. 4 107. 9 104. 0 13. 8 13. 3 418. 1	96. 6 17. 2 66. 7 113. 3 79. 0 13. 6 13. 5 399. 9	$ \begin{array}{r} 1.4\\ 3.0\\ .6\\ 196.9\\ .4\\ 4.2\\ 0\\ \hline 206.5 \end{array} $	$ \begin{array}{c} 2.5 \\ 5.2 \\ .6 \\ 195.3 \\ .3 \\ 7.0 \\ .1 \\ 211.0 \end{array} $
	Co	)rn	Oats	
Continent or country	1935-39 average	1946-48 average	1935-39 average	1946–48 average
North America South America Europe Asia Soviet Union Africa Oceania	103. 225. 029. 634. 210. 018. 5. 3	98. 5 21. 1 28. 4 36. 1 6. 9 19. 6 . 3	49. 0 2. 5 35. 9 4. 0 49. 5 1. 2 1. 7	52. 2 2. 2 32. 4 3. 9 35. 5 1. 3 2. 0
World total_	220. 8	210.9	143.8	129. 5
	Barley		Rye	
Continent or country	1935-39 average	1946–48 average	1935-39 average	1946–48 average
North America South America Europe Asia Soviet Union Africa Oceania	15. 52. 123. 126. 637. 810. 3. 7	18. 3 2. 9 22. 2 38. 0 20. 5 8. 2 . 9	4.5 1.1 33.3 .9 60.8 .1	3. 2 1. 6 27. 8 1. 0 72. 0 . 2
World total_	116.1	111. 0	100. 7	105.8
			Total ce	eals
Continent or	country		1	

Continent or country 1935-39 1946-48 average average North America 257.8 271.3 South America 54.2 50.2 196. 9 Europe.... 178.1 370.5 387.6 Asia\_ Soviet Union 214.2 262.5 Africa\_\_\_\_\_ 49.9 48.1 Oceania 16.0 16.8 World total 1. 206. 0 1.168.1

These data were taken from Foreign Crops and Markets, issued by Office of Foreign Agricultural Relations, U.S. Department of Agriculture.

C. L. Alsberg<sup>1</sup> estimates that the land now in arable use, together with pasture or grazing land that could be transferred merely by plowing, would make a total of about 6.4 billion acres. In addition he states that there is probably about the same number of acres not arable but suitable for grazing or for tree crops.

The following maps of the world's agriculture were designed to compare the geographic distribution and density of the production of the more important crops and farm animals in the United States with those in foreign countries.

The graphs at the bottom of the dot maps help to visualize the relative importance of the United States in the world's agricultural production. The uniform-sized dots, employed to show distribution of the crops and livestock, do not permit an easy computation of totals. The value of the dot, however, is shown for each map, and from the various graphs, the acreage and production of the important countries can be approximately determined. Because of the distortion resulting from any attempt to represent the curved surface of the earth on a flat map, the ratio of dot area to land area is not the same in all parts of the map. A Van der Grinten projection has been used in making these maps because the Western Hemisphere is intact on the left side and the world's great island (Asia, Europe, Africa) on the right. The fact that all the maps are on the same projection affords an easy comparison of the various factors shown.

The population map was prepared by using small dots for the distribution of people in the rural areas and in towns and small cities having under 100,000 population. The various symbols were used to represent the urban centers-cities with 100,000 or more people. This map should have been reproduced on one of the first pages in this publication, but to give it adequate spacethe center spread, pages 24 and 25 were used instead.

When the population map is compared with the geographic-factor maps in the front of the publication, the distribution dot maps of the crops and livestock, as well as with the international-trade maps, one gets an excellent picture of the population pressure areas of the world as related to the surplus agricultural-producing areas and also to those areas that are undeveloped agriculturally.

The international trade maps showing selected commodities are given for prewar years and 1946-48 to help visualize the agricultural international trade picture. Because of the limited size of the publication and the lack of color to show imports. the maps were made in solid lines for exports and dashed lines or alternate broken bands to show imports. The export countries are shown separately by black circles and the imports are shown

<sup>&</sup>lt;sup>1</sup> C. L. ALSBERG, THE FOOD SUPPLY AND THE MIGRATION PROCESS LIMITS OF LAND SETTLEMENT, edited by Isaiah Bowman, Council on Foreign Relations, 1937.

by squares but are consolidated in areas like Europe to simplify the visual effect of the map.

The question of the productivity of the soil to furnish food for ever-increasing populations has been an important one for some time and will be for years to come. This question is related to many physical factors, and production from the areas not now cultivated will no doubt be expensive projects in most cases where new areas are opened up.

The length of time that the soil of a given area has been under cultivation is an important consideration. It is closely related to the maintenance of soil fertility, the number of people cultivating the land, and to the climate of the region.

Such climatic factors as temperature, rainfall, and prevailing winds affect both type and fertility of soil, as well as the health of the people.

If we compare the United States of America with China, we note that in the United States a few people are scattered widely over a broad virgin land with more than 3 acres of cultivated land to every man, woman, and child, whereas in China the people are toiling in fields tilled for ages and have less than half an acre of land per capita because more than half of China is uncultivable mountain land.

The nature and fertility of the soil is closely related to the means and methods of sustenance and has greatly influenced the distribution pattern of population throughout the world. In recent years, however, this influence has not been so great as it was a few centuries ago, because of the ease with which foodstuffs are now transported from place to place. Also, food can now be preserved for long periods by such processes as canning, freezing, drying, pickling, and dehydrating.

To increase the food supplies of the world, more good soil area and higher yields from the present cropland are needed. Soils are responsive to proper management. Their productivity depends on the balance of plant nutrients and on physical condition, structure, consistency, and plasticity. Water-logged soils must be drained; soils in arid areas must be irrigated and made fertile by increasing plant nutrients in the soils; and conservation practices must be applied in mountainous areas or on steep slopes, where erosion is a primary factor.

Considerable improvement in agricultural productivity in the undeveloped areas could be obtained by exchanging knowledge among countries through working agreements of experienced technicians. Through this technical collaboration, more efficient types of plant life and productive methods could extend the area of agricultural production as well as increase the crop and livestock yields, thereby increasing the food production of the world.

The temperature may be too cold, too hot, or too uneven to grow any crops or to allow a growing season sufficiently long for crops to mature. According to estimates of various authorities, from 15 to 30 percent of the total land area is too cold for agricultural production. There are also large areas in arid regions where it is too hot or dry for most crops.

The rainfall may be too little, too much, or too uneven to grow crops. Here again, estimates vary from 15 to 40 percent as to how much of the land area is deficient in rainfall.

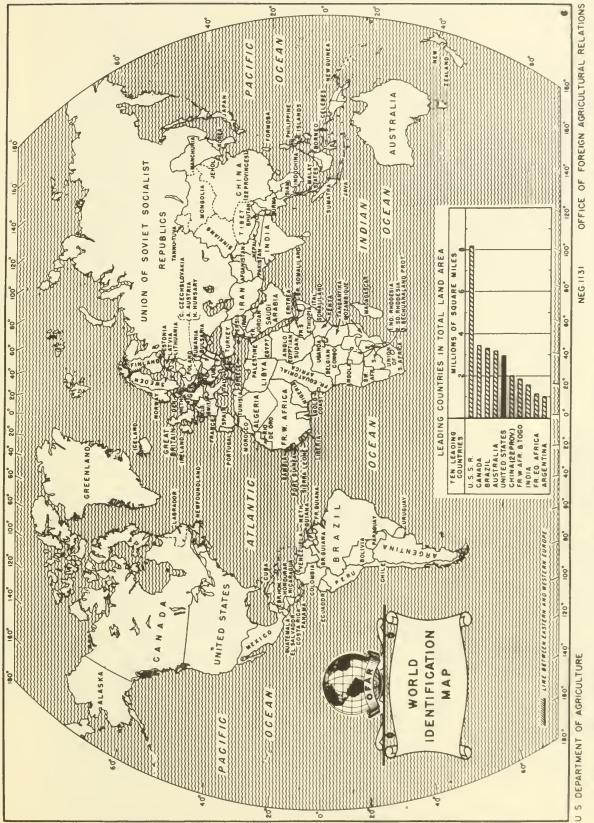
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-Countries shown on this map will help to identify the countries on the various world maps showing the geographic distribution of crops and livestock and international trade. The line shown here between eastern and western Europe corresponds to the one on the trade maps, which indicates the two broad importing areas of Europe. FIGURE I.

This is not an equal-area map, therefore, because of the distortion in the Van der Grinten projection there is serious exaggeration in area in the northern and southern parts of the map.

On the chart at the bottom of the map, the Soviet Union is shown as the largest country in the world. If, however, all of China were used, instead of 22 provinces of China proper, that country would be in second instead of sixth place.

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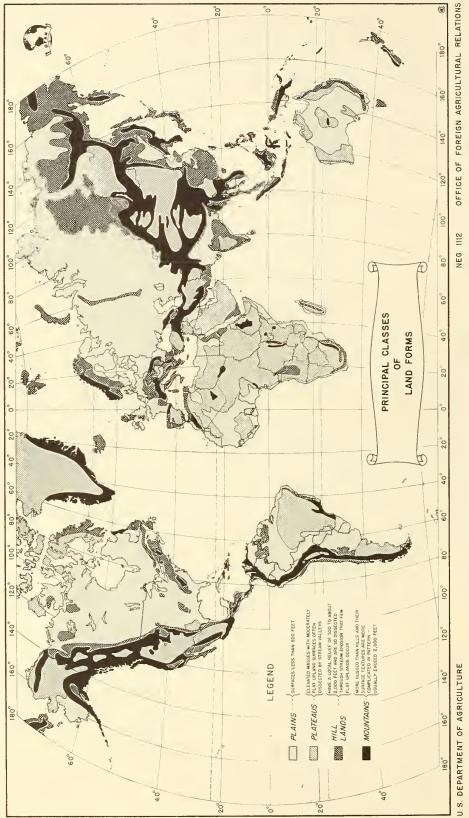
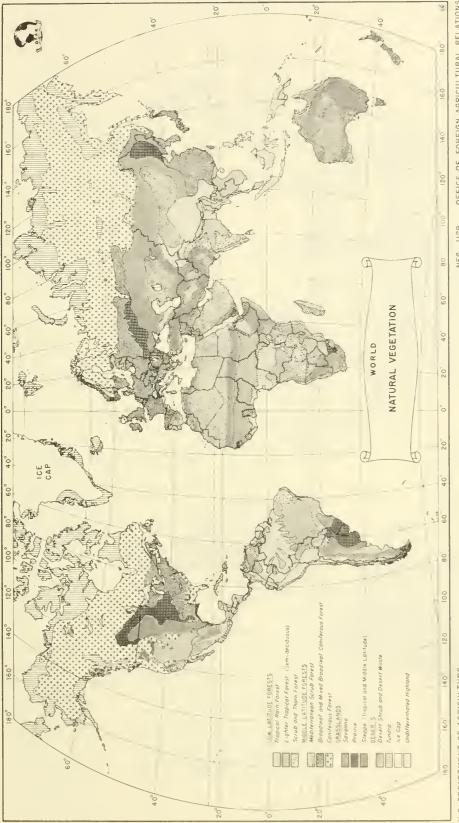


FIGURE 2.—On this map the surface features of the earth have been classified into four major groups according to local relief and ruggedness. It has been estimated that about 41 percent of the earth's surface falls in the plains area, 33 percent in the plateaus and tableland area, 14 percent in the hill lands, and 12 percent in the mountains.

Approximately 5 percent of the mountain area, 25 percent of the hills, 75 percent of the plateaus, and 95 percent of the plains area have a topography ble for crop production. This, however, is only one factor, and, when climate and soils are also considered, an estimated one-fourth of the earth's surface can be used for all agricultural purposes. suitable for crop production.

Most of the agricultural production lies below 1,500 feet in elevation, on the expansive plains and flood plains and on the lower plateaus and hill lands.

Not all plains are suitable for crop production. Some are too swampy, some have poor soils; others are too dry, too wet, or too cold. On the following crop maps, note the large areas falling in the Great Plains of the United States and Canada, the Pampas of Argentina, the North European and Russian Plains, and the Po Valley Plain of Italy.



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intervened are shown by cross-hatched patterns, falling into the broad groups of forests, grasslands, and desert shrubs. Vegetation is greatly affected by climatic conditions. Forests grow invitantly in areas of steady rainfall. The influence of temperature, however, in the equatorial rain forests of the various latitudes causes a great difference in the species. From the forests of the various latitudes comes the fine cabinet woods, FIGURE 3.-On this map distribution of the existing virgin vegetation as well as vegetation that appears to have prevailed in other areas before man

construction humber, and pulpwood supplies.

Short grasses, desert scrib, and other drought-resisting plants replace forests as rainfall diminishes and aridity increases. The grasslands, properly managed, furnish pasture for livestock, thereby increasing the world food supply.

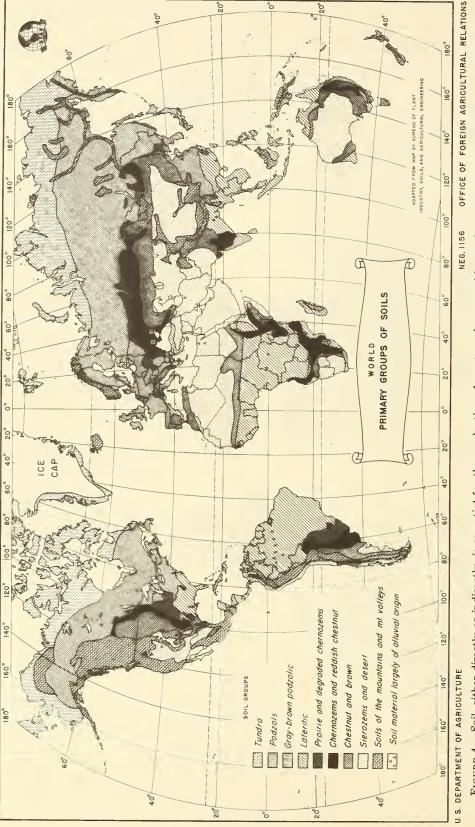


FIGURE 4.—Soil, either directly or indirectly, is essential for the production of meat, grain, vegetables, and many other basic necessities, including vw material for industry. Even though a soil may have a high natural fertility, it is productive only if temperature and moisture conditions are suitable for the growth of crops. Productivity, even in suitable climatic areas, depends on the balance of plant nutrients, farming methods, and the physical condition of the soil—its structure, consistency, and plasticity.

Some soils are best adapted to certain crops-for example, Chernozem (Black soil) Chestnut and Dark Brown soils to wheat production. (See fig. 10.)

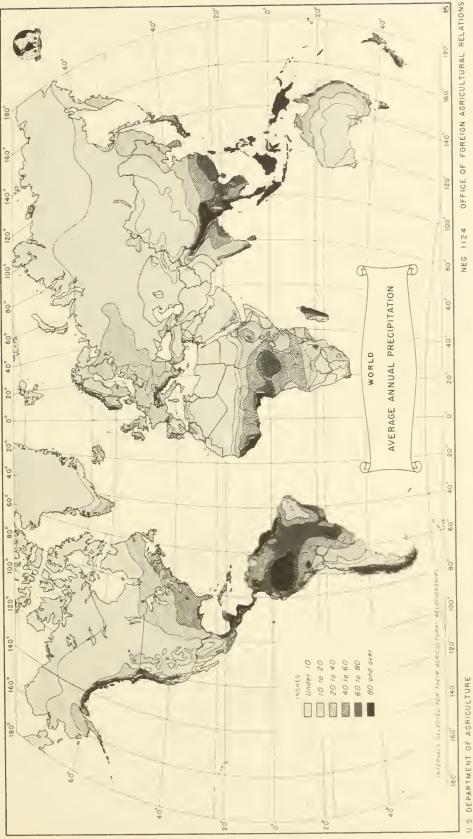


FIGURE 5.— Average annual rainfall varies greatly over the earth's surface. In many places it is too plentiful, too scanty, or too uneven for crop produc-tion. When reliability of rainfall is taken into account, only about one-third of all land is adapted to food production. However, this is based on 15 inches of rainfall annually, and crops are grown in some areas with less rainfall. Sometimes even 10 inches is satisfactory when most of the rain falls in the growing n. On the other hand, in the tropics where evaporation is high, as much as a 40-inch annual rainfall is required. The heavy rainfall 60 inches and over falls mainly in the mountains and in tropical areas, whereas less than 10 inches falls in desert and extreme HPBBOIL.

northern areas.

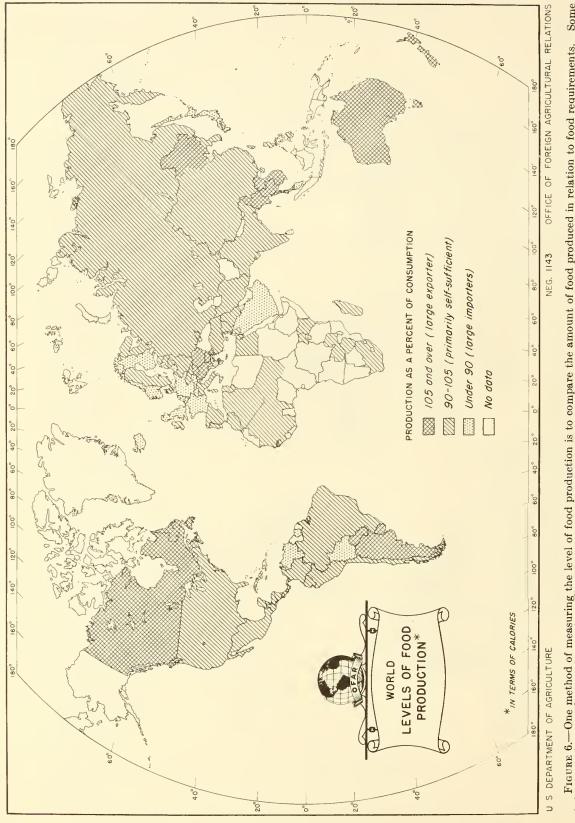
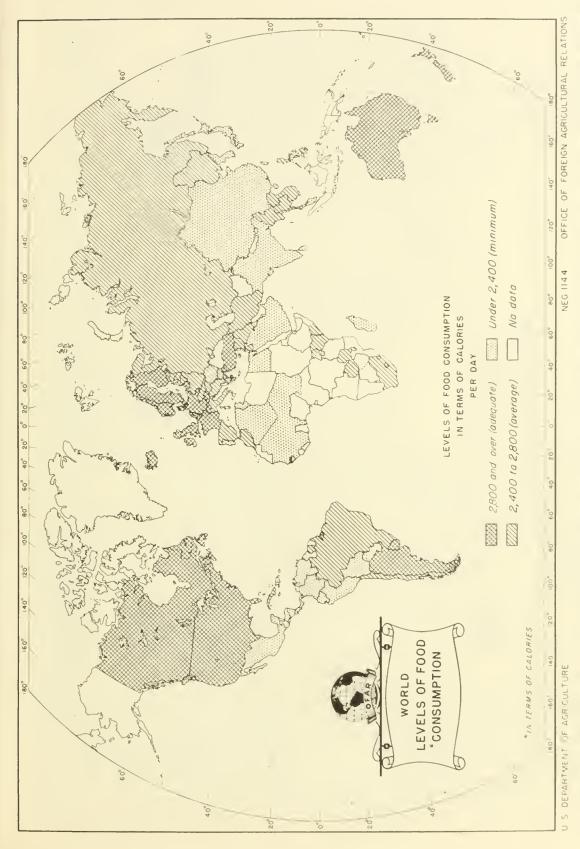
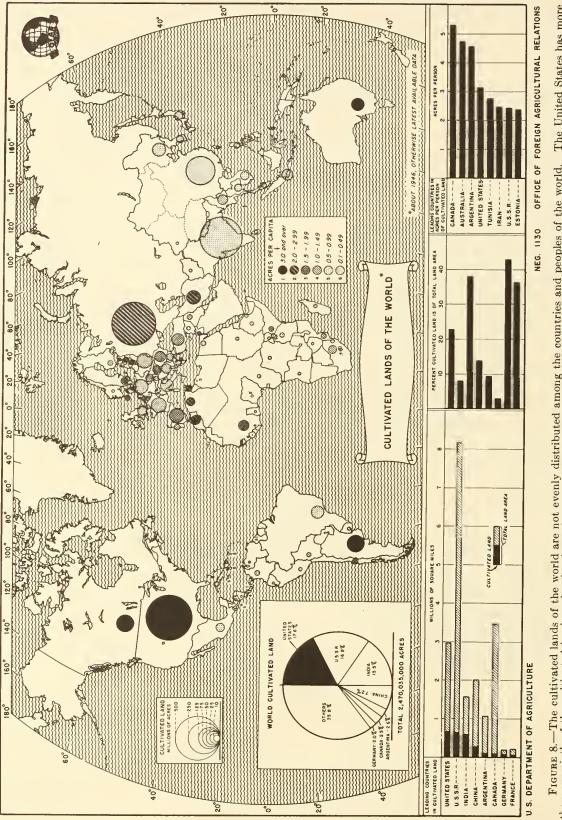


FIGURE 6.—One method of measuring the level of food production is to compare the amount of food produced in relation to food requirements. Some of the sparsely settled countries, such as Canada, Argentina, and Australia, produce much more food than is needed domestically. On the other hand, a few highly industralized countries produce only a small part of their food supply and are largely dependent on the surplus trading countries for much of their food requirements. There are also many nations that, in normal years, produce in the aggregate about as much food as they consume, but they may also be both large importers and large exporters of food products. For example, the United States and Brazil are two of the largest exporters and importers of food products and, through their world trade in food products, they are able to maintain a higher standard of living.



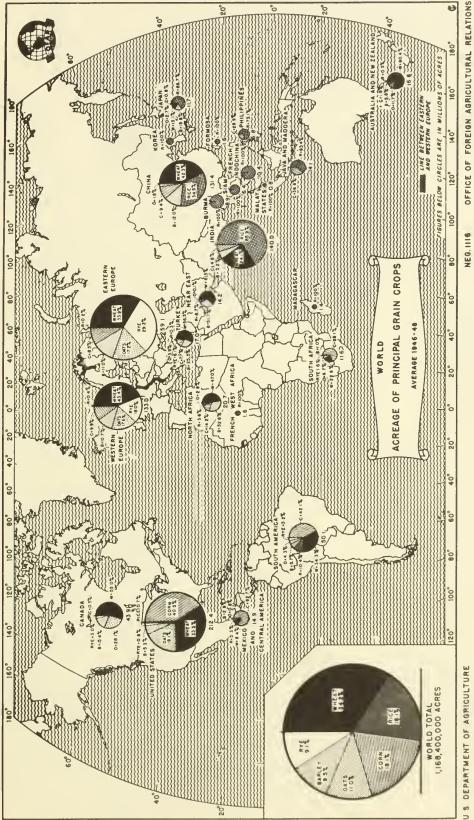
It is also low in countries where the For example, a Filipino working 3 or 4 hours a day requires only about In countries that have large areas of productive farm land, where food is cheap in terms of human effort or where industrial activity is high, food consumption generally It will be Food-consumption levels are also affected by climate and by the customs of consumers. -A nation's level of food consumption is determined partly by its consumers ability to pay for adequate quantities of food. consumption is lowest in the tropical countries, where little food is needed to maintain body heat. normal stature of the individual is small and where the average employment is light. half as much food in terms of calories as a Swedish lumberjack. is at a relatively high level (2,800 calories or above). noted that food Figure 7.

Prewar levels of consumption have been destroyed in recent years by wartime devastation, political upheavals, and high prices of food products, but as economic stability returns, there will be a tendency in each country to return to prewar levels of consumption except insofar as the average per capita world ood supply increases or decreases.



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FIGURE 8.—The cultivated lands of the world are not evenly distributed among the countries and peoples of the world. The United States has more than one-sixth of the cultivated land, and only about 6 percent of the world's population. This means more than 3 acres of cultivated land per capita, whereas China has about 8 percent of the cultivated land or less than one-half acre per capita. The size of the circles on the map indicates the amount of cultivated land, and the surface shadings of the circles, the cultivated land per capita. The 15 leading countries in cultivated land have more than 75 percent of the world's total, ranging from 1.4 percent in Australia to 17.6 percent in the United States. (See table 2.)



The total acreage of the principal grains for the various countries is shown in this map by circles of various sizes. The sectors of the circles represent the They occupy about one-half of all the cropland. FIGURE 9.- The principal grains are the most important crops grown. different kinds of grain, arranged clockwise in decreasing order.

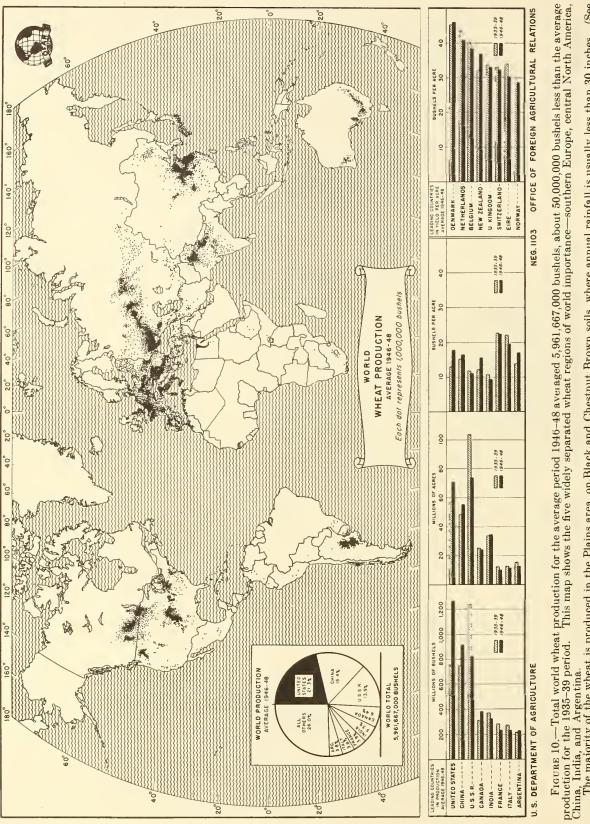
This circle is on the same scale as the separate Total world acreage of principal grains is represented by the large pie chart in the corner of the map. country or continent circles, and the sectors are also arranged in decreasing order.

Corn and rice acreages in the 1946-48 period were about the same but were in widely scattered areas Corn was mainly produced in the Western whereas rice was predominant in the Far East. Hemisphere and in Europe,

Rice occupied more than 65 percent of the acreage of principal grains of India and corn about 40 percent in the United States. The principal-grain acreage in the United States totaled about 18.2 percent of the world total.

he bread grains-wheat and rye-occupy about 43.3 percent of the acreage of principal grains in the world; the coarse grains-corn, oats, and barley about 38.6 percent and rice 18.1 percent.

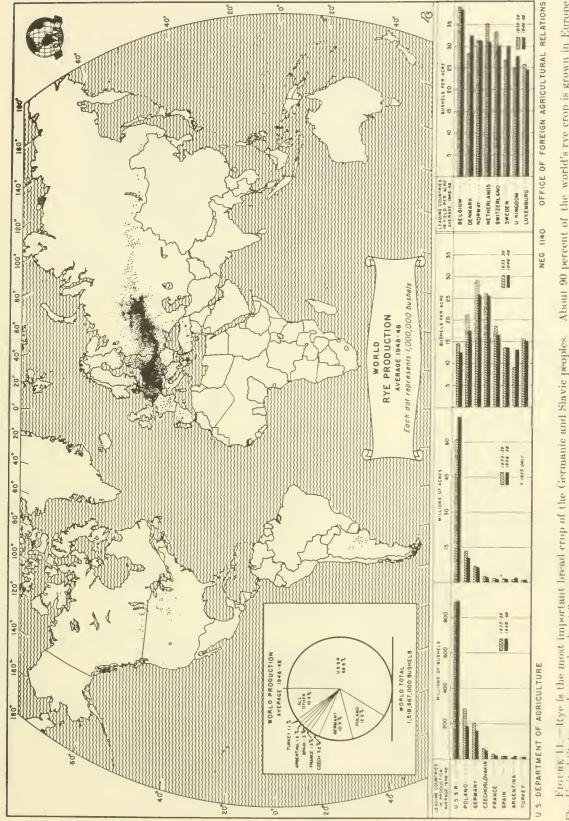
Wheat, rye, and rice are consumed mainly for food, whereas the coarse grains-corn, oats, and barley-are used mostly for livestock feed. (See table 3 ven though rice occupies only about one-fifth of the world's principal-grains areas, it is the leading food of about half the people of the world. and figs. 10 to 15.)



The majority of the wheat is produced in the Plains area, on Black and Chestnut Brown soils, where annual rainfall is usually less than 30 inches. (See figs. 4 and 5.)

Wheat production in the United States for the average period 1946-48 was more than 21 percent of the world total, whereas during the 1935-39 period it was less than 13 percent

During 1946-48, slightly more than half of the world's wheat was produced in the United States, China, and the Soviet Union.



About 90 percent of the world's rye crop is grown in Europe. The United States produces only about 2 percent.

heavily concentrated on the poor soils of Germany, Poland, and Russia. Although rye is still the world's second most important bread crop, it is being used more and more for feed. It is also used as a pasture, soiling, and cover Rye and wheat grow under similar conditions, but rye is also produced where soil and elimatic conditions are not quite good enough for wheat. It is

and green-manure crops.

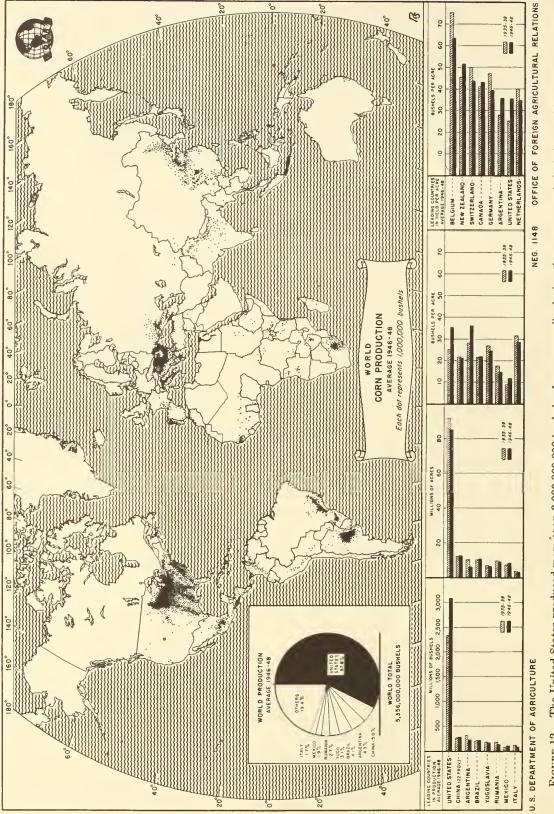
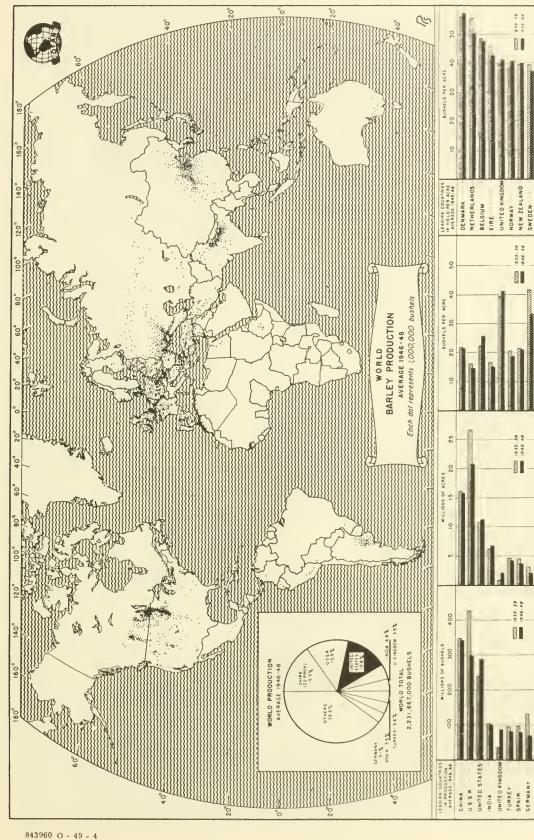
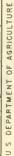


FIGURE 12.-The United States produced more than 3,000,000 bushels of corn annually during the average period 1946-48, which was nearly 60 per-

cent of the world's total. In the United States, hybrid corn has increased the average yield per acre of corn from 25 bushels in prewar to 42.7 in 1948. More corn is produced per capita in the United States than in any other country, but as a food it ranks highest in Mexico. Corn is grown on a great variety of soils that have a fair drainage and good aeration. Abundance of moisture and readily available plant nutrients are essential during the period of rapid growth in late summer.

Corn requires an average growing season of at least 140 days, with an average July temperature of at least 68° F.





OFFICE OF FOREIGN AGRICULTURAL RELATIONS NEG. 1149

The principal centers of production are in China, southern Russia, north-central FIGURE 13.-Barley is a less important world crop than wheat or oats.

United States, and south-central Canada, India, northern Africa, the United Kingdom, and central Europe. The distribution of barley is similar to wheat but extends farther north in Europe and slightly farther into the arid regions of northern Africa and America. Barley has a short growing season and a low warmth requirement and penetrates farther north than any other grain. It requires less moisture than

either oats or wheat,

The great aversion of barley to acidity is a factor that is favorable to barley in the Mediterranean area. On the better watered Chernozem soil lands, barley is replaced by wheat. (See figs. 4 and 10.)

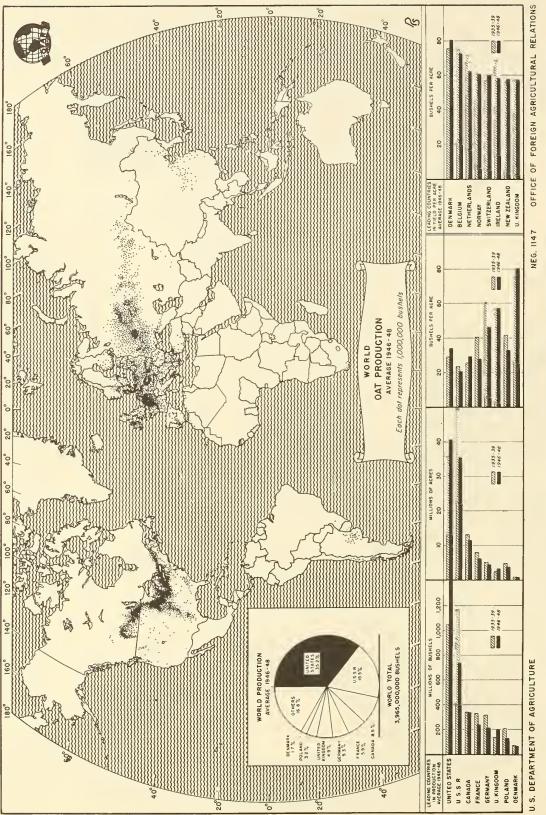
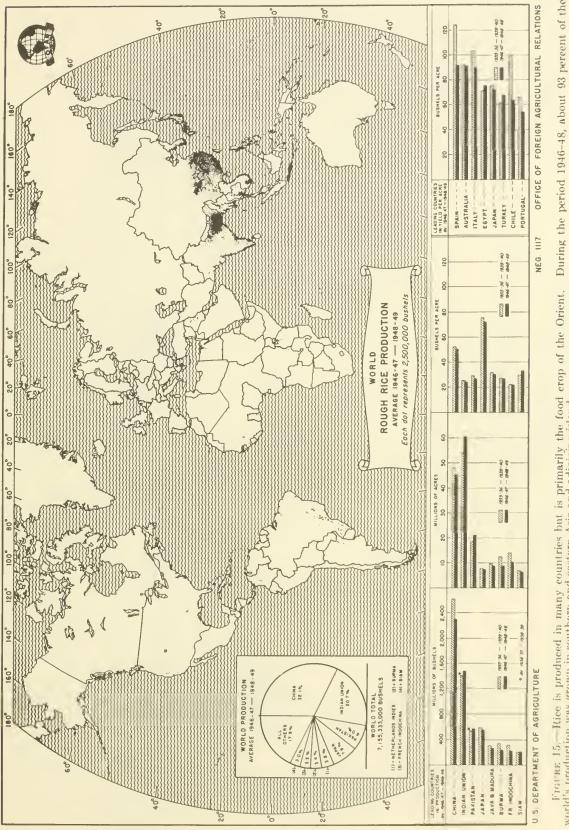


FIGURE 14.--The United States produces more than one-third of the world's oats, and Europe produces more than one-half on the large expanses of acid

forest soils. In North America, such soils remain in forest to a much greater extent. Oats are generally grown in cooler and moister climates than is either wheat or barley. The northeastern United States and adjoining Provinces of Canada, northwestern Europe, and Russia are the three principal oat-producing regions. Owing to the fact that oats are preferable as horse feed, a certain proportion of all land is given to oats.



Frough 15 Rice is produced in many countries but is primarily the food crop of the Orient. During the period 1946-48, about 93 percent of the world's production was grown in southern and eastern Asia and adjoining islands.

There are many varieties of rice, most of which require irrigation. In general, rice is grown on level, wet lands, particularly river deltas, such as those of the Yangtze, Ganges, Nile, Po, and Mississippi. In various areas the level land is artificially produced by terracing. For this type of agriculture the dense population and cheap labor of the Orient are necessary.

The rice production of southern Europe and the Near East, Africa, South America, and the United States is so well scattered that it is hardly noticeable on the map.

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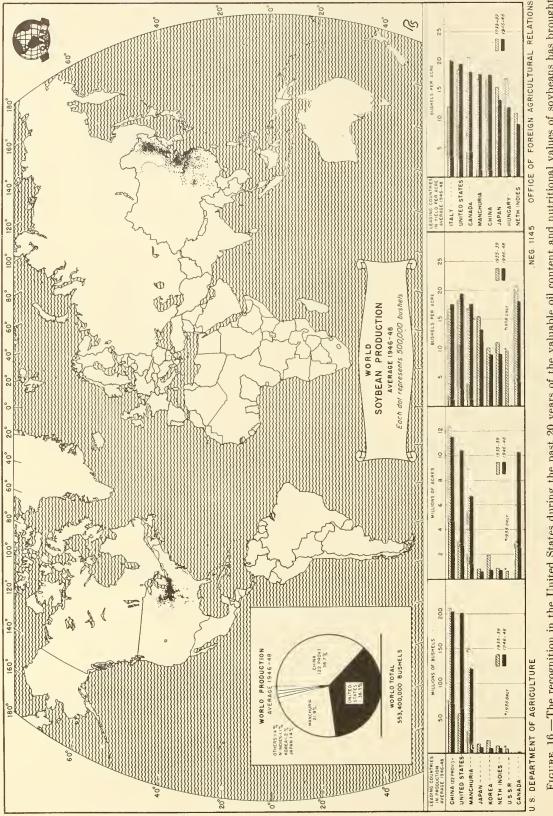
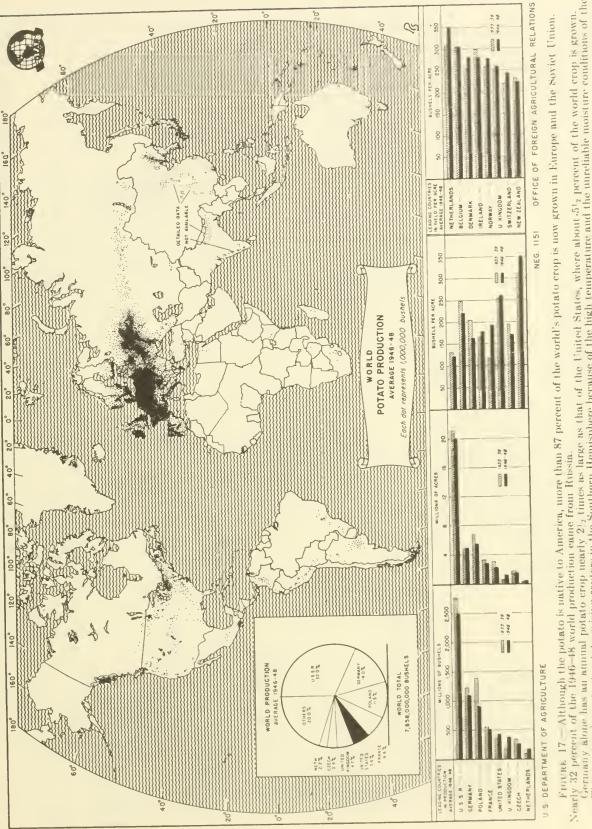


FIGURE 16.—The recognition in the United States during the past 20 years of the valuable oil content and nutritional values of soybeans has brought about a phenomenal expansion of acreage devoted to that crop.

United States production of soybeans has increased from an annual crop of 56 million bushels in the 1935-39 period to more than 220 million bushelsthe world's largest crop-in 1948.

Soil conditions favorable to corn are normally well suited to soybeans. New varieties are now extensively grown in some areas of the United States

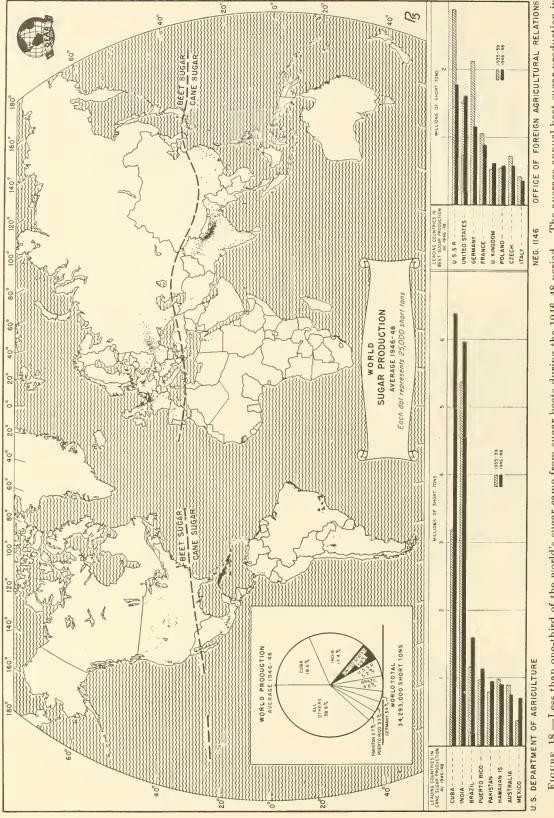
that had little acreage devoted to the crop a few years ago. Soybeans are used industrially for oil and meal and, in the United States, for forage and pasture purposes as well.



There are no important potato-raising centers in the Southern Hemisphere because of the high temperature and the unreliable moisture conditions of the

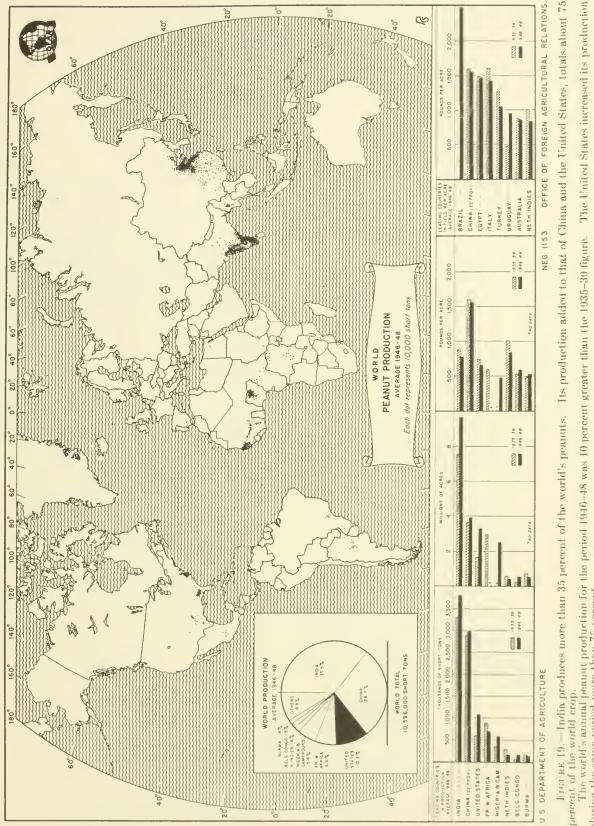
The potato does well on the soils of the forest of northern Europe, which are noted for their lightness and great acidity. The cool climate found in this regions.

area i al o an important requirement.



this period was more than 20 percent less than in the 1935-39 period, whereas cane sugar increased nearly 10 percent between the two periods. The three largest sugar producers are Cuba, India, and the United States. Cuba and India produce cane sugar and the United States produces both beet and cane FIGURE 18.-Less than one-third of the world's sugar came from sugar beets during the 1946-48 period. The average annual beet-sugar production in sugar.

The course of the line on this map dividing the sugar-producing area into beet and cane is highly generalized. Sugar beets grow well on deep, friable, free working, well-drained soils with a high fertility level and high lime content. Sugarcane grown for sugar pro-duction in the United States is produced chiefly on fertile alluvial soils of the lower Mississippi Valley in Louisiana and around Lake Okeechobee in Florida.

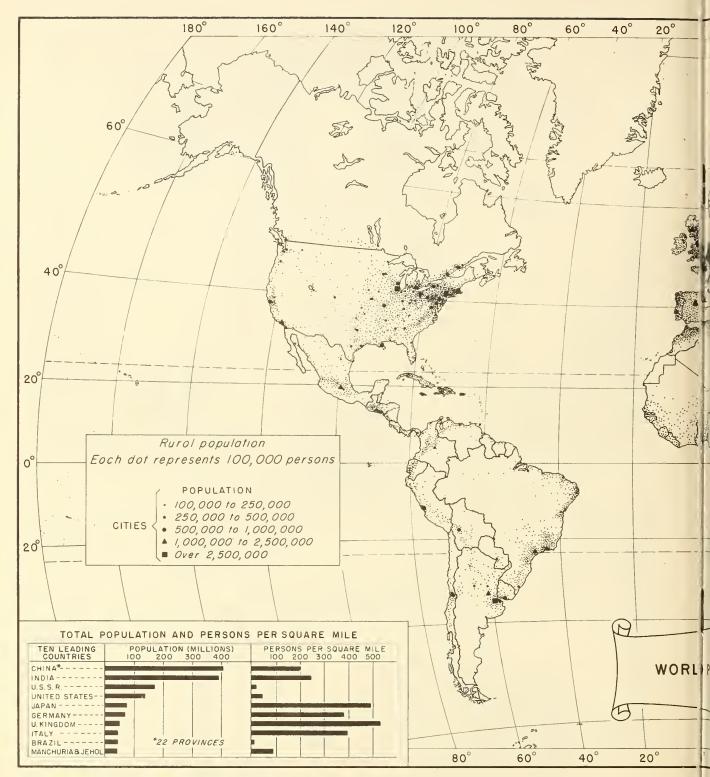


during the same period more than 75 percent.

Relatively, however, Brazil has had a most notable expansion in peanut production, from an average crop of 15,000 short tons for the 1935-39 period to Tigh yields in China, the United States, and French West Africa account principally for the increased world peanut production. more than 230,000 short tons in 1948.

Peanuts are used for human consumption, feed for stock, and the manufacture of oils and peanut butter.

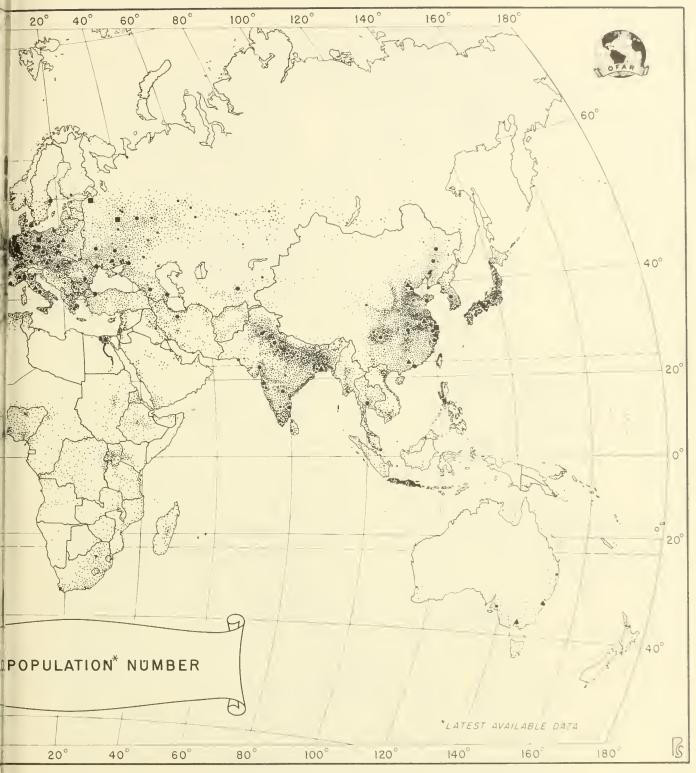
The peanut market at Suffolk, Va., is the largest in the world.



#### U.S. DEPARTMENT OF AGRICULTURE

FIGURE 20.—The population of the world is estimated to be about 2,264 million persons. The total area of the earth's surface is 197 million square miles, of which 142 million square miles are covered by water, whereas the land area is only 55 million square miles.

About 10 million square miles of the total land area is located in areas either covered by ice and snow, or in areas too dry to be habitable. About half of the remaining 45 million square miles is very sparsely settled. This leaves only about 22.5 million square miles of land to support the bulk of the human population. Three-fifths of all the people in the world are located in the densely populated areas of Asia and in certain areas of





Africa and Latin America where there is no decline in birth rate, the death rate is lower, and the growth in population is great. One-fifth of the population of the world live in southern Europe, the Soviet Union, Japan, and certain other areas of Asia, Africa, and Latin America, where there is a decline in birth and death rates. And one-tifth of all the people in the world live in Western Europe, North America, Australia, and New Zealand where the population is stable or slowly increasing.

There are 687 cities in the world having a population of 100,000 and over. Of these only 43 have a population more than 1,000,000 persons.



## U.S. DEPARTMENT OF AGRICULTURE

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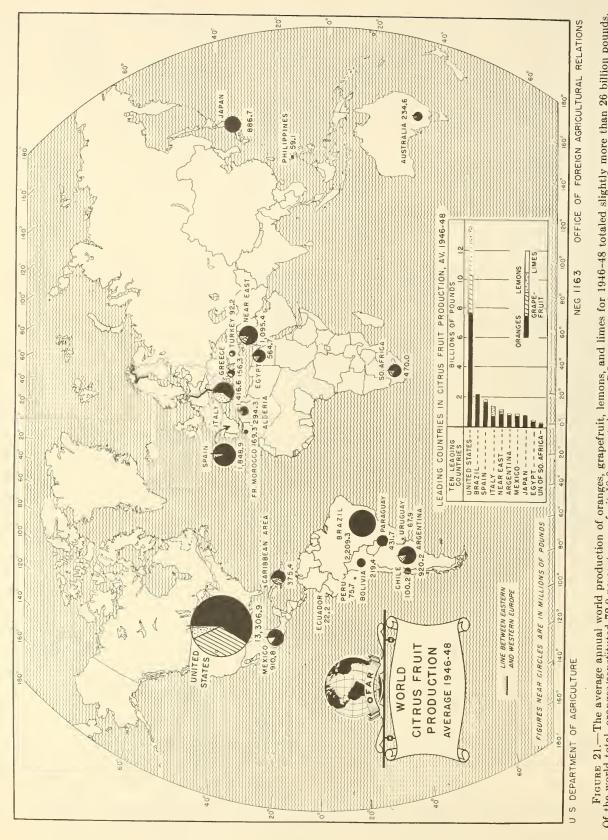
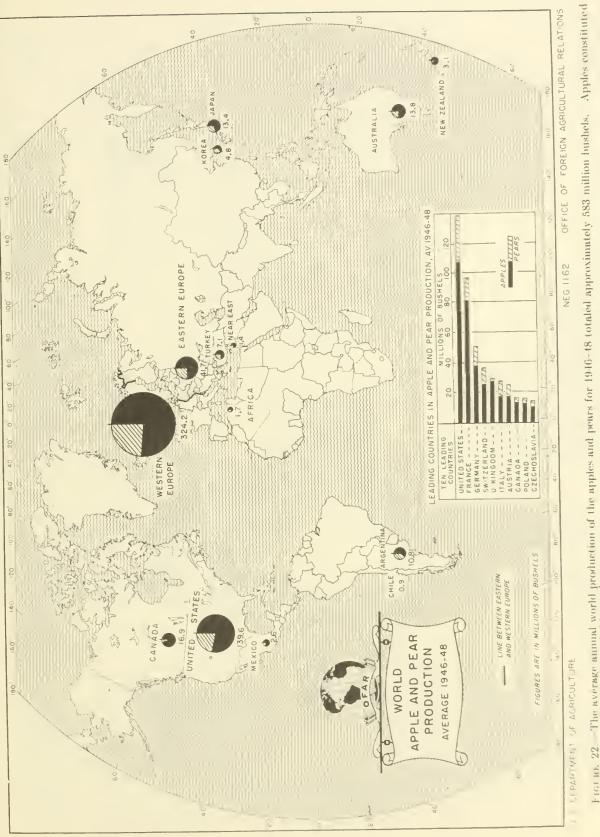


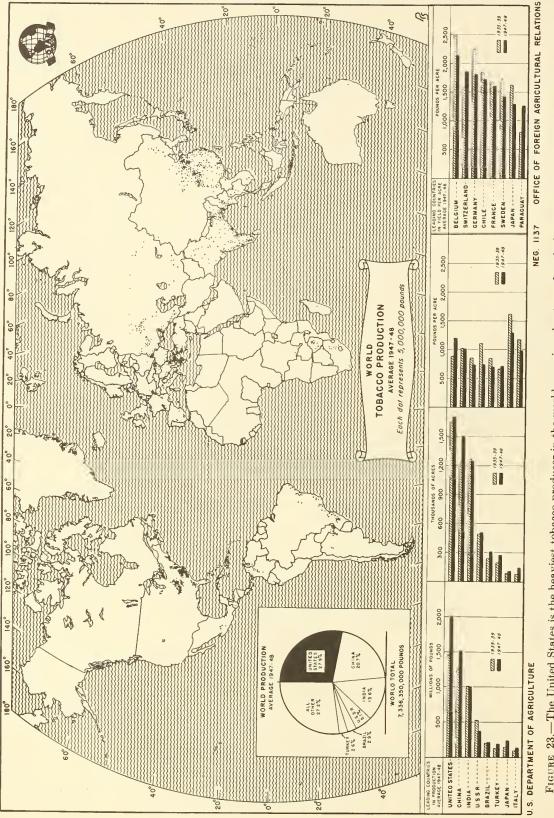
FIGURE 21.—The average annual world production of oranges, grapefruit, lemons, and limes for 1946-48 totaled slightly more than 26 billion pounds. Of the world total, oranges constituted 72.9 percent, grapefruit 18.6 percent, lemons 7.5 percent, and limes 1 percent. More than one-half of all the citrus fruit was produced in the United States during the 1946-48 period—93 percent of all grapefruit, 46 percent of the lemons, nearly 42 percent of the oranges, and 5 percent of the limes. There were general increases in each kind of citrus fruit in the United States between the 1935–39 and the 1946–48 periods.



The FIGURE 22.

The average annual world production of apples in 1946–48 was 15 percent lower than in 1935–39, whereas pear production was 6 percent higher. annual production of apples and pears varied from 313,000 bushels in Palestine to 140 million bushels in the United States during 1946–48 period.

Only a few countries, such as Bulgaria and Greece, produced more pears than apples.



North Carolina is the leading FIGURE 23.-The United States is the heaviest tobacco producer in the world, growing about one-fourth the world crop. tobacco State.

To bacco acreage in the United States increased somewhat since the prewar period but yields per acre have increased greatly and the average produc-tion in 1946-48 was over 40 percent higher than in the 1935-39 period. Tobacco can be grown in many different climates, but the production of good-quality tobacco demands specific soil and climatic conditions. In the United States, the Connecticut Valley and Florida produce excellent wrapper and binder leaf for cigars. From Pennsylvania and Ohio comes chiefly filler, and from Wisconsin, binder leaf. Kentucky produces the well-known Burley and Virginia and the Carolinas flue-eured tobacco.





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From R. 24.—The United States is the largest producer of cotton in the world, producing nearly one-half of the world's crop. Extensive production of cotton is restricted to regions having an average frostless senson of 200 days or more. Cotton is grown in the warm, humid areas and in such irrigated regions as those in Egypt, India, the Soviet Union, and in California, Arizona, and New Mexico of the United States.

Cotton is produced farther north in Russin than elsewhere in the world.

The five important commercial types of cotton, in order of quality and spinning value of fiber, are sen island, Egyptian, American upland long staple, American upland short staple and short-staple types.

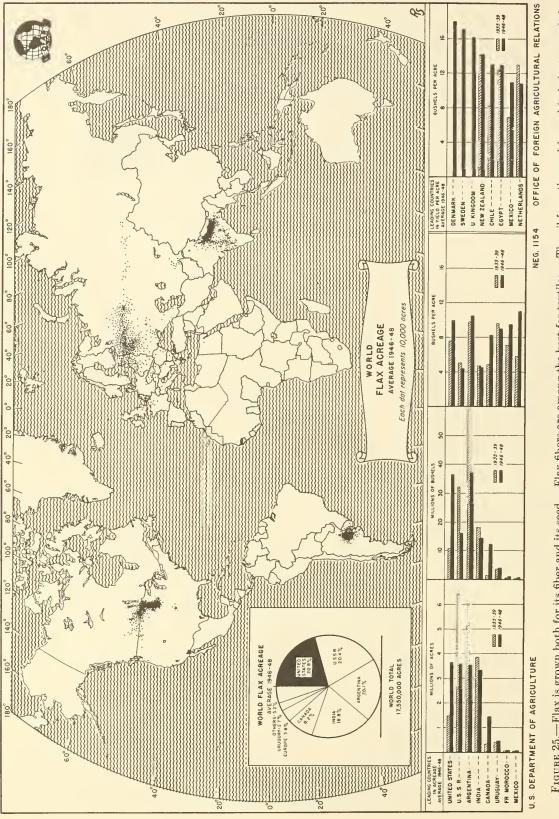
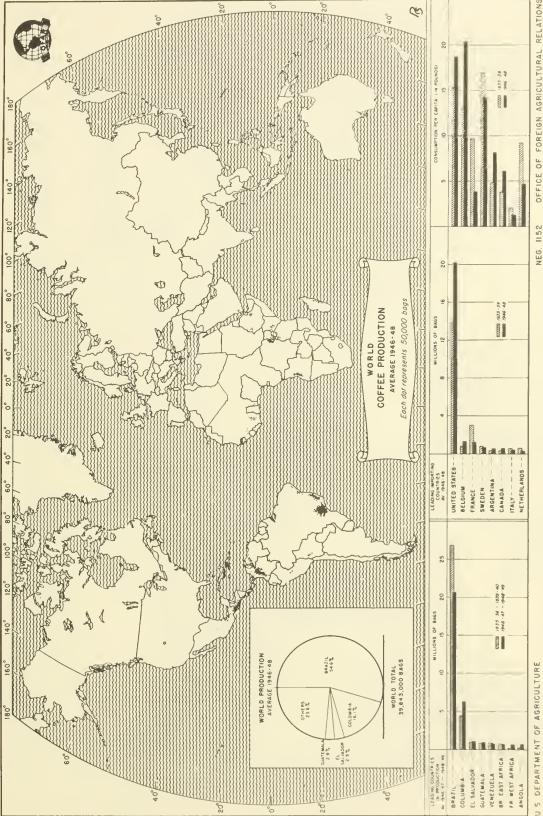


FIGURE 25.—Flax is grown both for its fiber and its seed. Flax fibers are among the best for textiles. The oil from the seed is used in industry, and the residue, as feed for livestock. More than 80 percent of the flax acreage is in four areas—the United States, the Soviet Union, Argentina, and India. Of these centers, the Soviet Union is important in the commercial production of flax fiber. The average annual acreage of flax in the United States and States the Soviet Union, Argentina, and India. Of The average annual acreage of flax in the United States and Canada during the period 1946–48 shows a great increase over the 1935–39 average. Acreage has been decreasing in the Soviet Union, Argentina, and India.



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FIGURE 26. More than 75 percent of the world's coffee production comes from Latin America and the West Indies. Brazil alone grows more than 50 percent of the total world production-more than three times as much as Colombia, the second largest producer. Coffee production in Africa has been increasing, especially in French West Africa and Angola.

The United States imports more coffee than all the rest of the world put together. Nearly 19 pounds per capita were consumed in the avarage period 1946-48 compared with about 15 pounds in the 1935-39 period. Coffee consumption in Belgium has been steadily increasing, from 13 pounds per capita in the prewar period to 20 pounds per capita the highest in the world during the 1946-48 period.

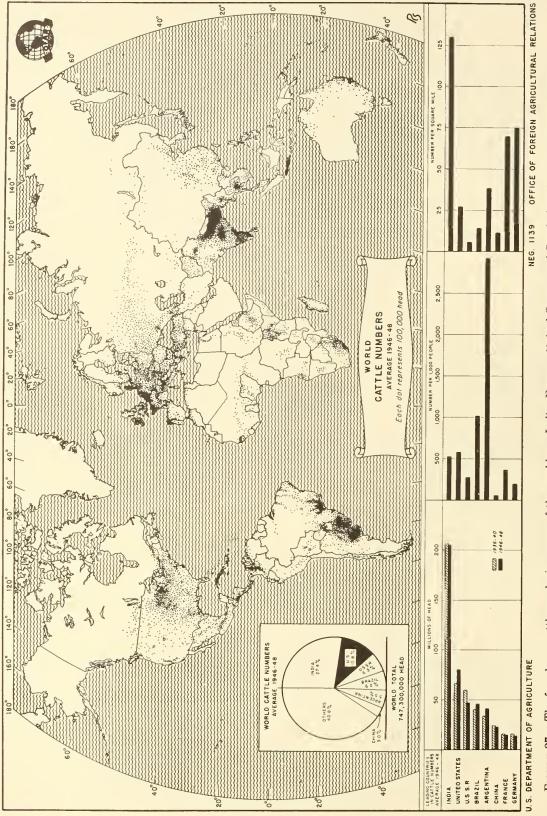
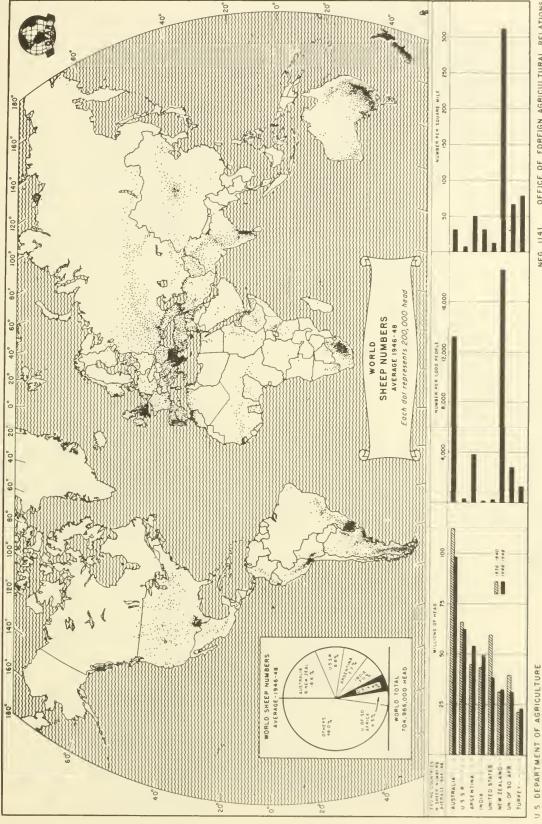


FIGURE 27.- The four large cattle-producing areas of the world are India, Europe, United States, and South America-particularly eastern Argentina,

Uruguay, and southern Brazil. India, with approximately 205 million cattle during 1946-48, had more than 2½ times the number in the United States and approximately as many as the combined figure of the next four leading cattle-producing countries. In India, however, cattle are used very little for meat or milk. Despite India's dense distribution of cattle, it has only 527 per 1,000 persons, while Argentina—the fifth largest producer—has 2,920, and the United States—in second place-has 580 per 1,000 persons.



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FIGURE 28.—Australia has more than 98 million sheep, the largest number in any country in the world. The next four largest sheep producers, in order More than half the of importance are the Soviet Union with 62 million; Argentina, 54 million; India, 50 million; and the United States with 38 million. "

Although New Zealand ranks sixth in sheep production—with 33 million - it has more sheep per capita, 18.5, than any other country and more sheep per square mile, 312. The United States has 0.3 sheep per capita and about 13 per square mile. Four large sheep areas—South America, South Africa, Australia, and New Zealand—all have sparse populations and are located in the Southern Hemi-

sphere.

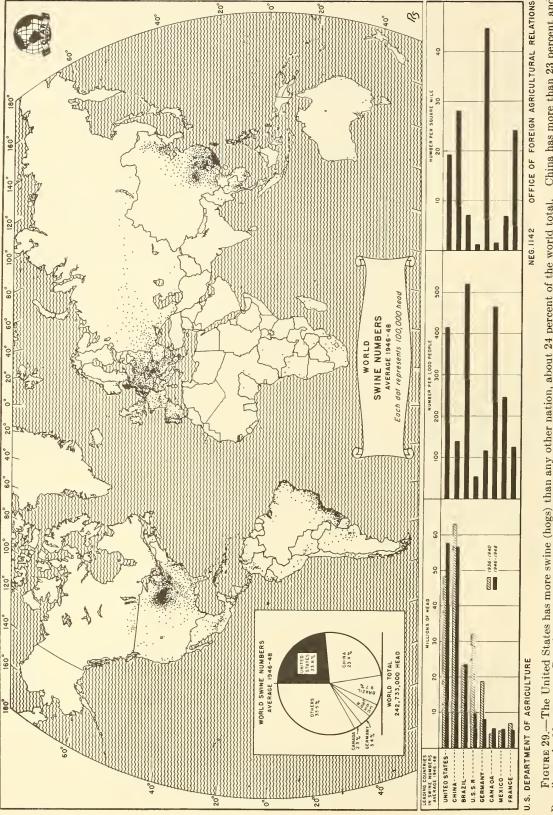


FIGURE 29.—The United States has more swine (hogs) than any other nation, about 24 percent of the world total. China has more than 23 percent and il, nearly 10 percent. Brazil has about 520 swine per 1,000 people, Canada 465, and the United States 416. China proper (22 provinces), with fewer swine than the United States in 1946–48, had 28.1 per square mile, compared with 19.4 per square mile in the Brazil, nearly 10 percent.

United States.

Swine are more numerous in countries having relatively intensive agriculture and an abundance of certain food products, such as corn, potatoes, barley, and dairy byproducts. In the United States the geographic distribution of swine corresponds closely to that of corn, whereas in Europe swine are located in the potato and dairy areas.

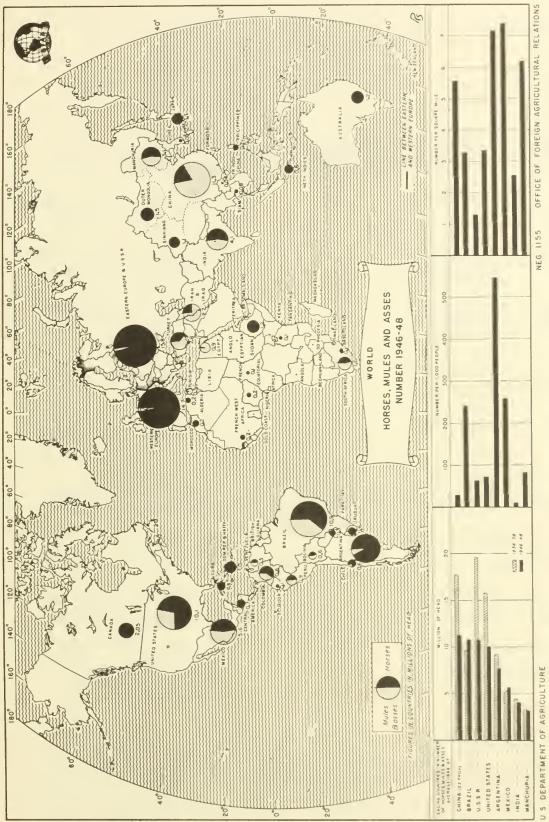
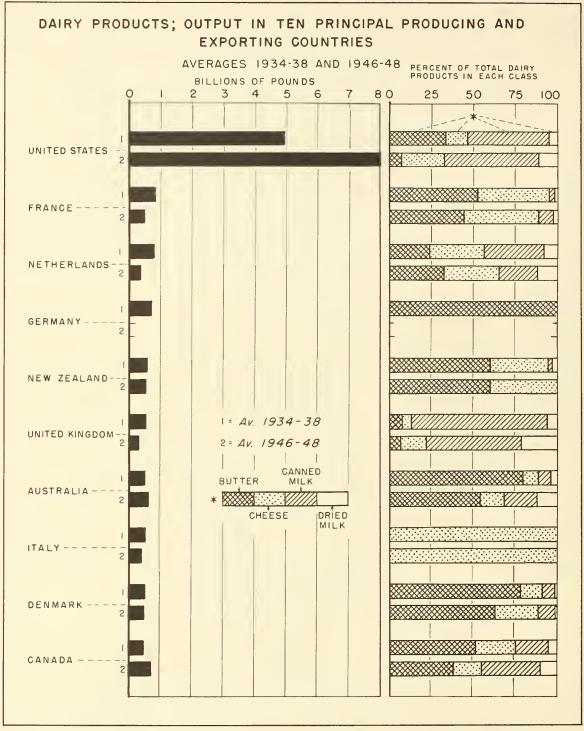


FIGURE 30. The greatest numbers of horses are raised in countries having a cool climate with an abundance of grain for feed, whereas mules are raised

8.8 million head; China, 6.5, and in the United States, 5.8. The decline in the United States and in the Soviet Union is due, to a considerable extent, to the great increase in motorized farm machinery, especially in the use of tractors and trucks. The greatest decline is in the Soviet Union mostly in warm climates for heavy work purposes and assess in dry areas with rough terrain, or in the momtains. The number of horses in the world declined from 95.7 million head in 1931-38 to 75.5 million in 1946-48. The

Mexico and Brazil hud slight increases in number. Mexico had the greatest number per square mile, and Argentina the greatest number per 1,000 inhabitants.

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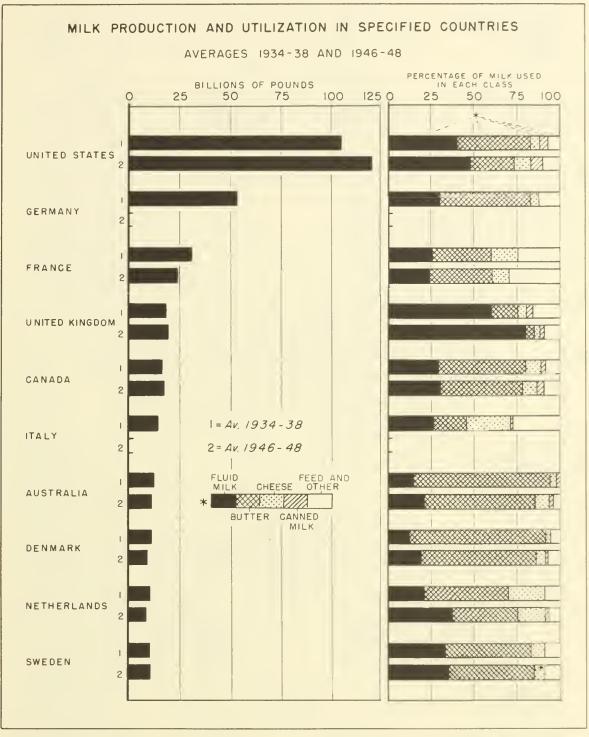
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FIGURE 31.—The United States is the outstanding dairy-producing country in the world. Nearly 5 billion pounds were produced annually in the prewar period 1934-38 and more than 8 billion pounds annually in the 1946-48 period.

The United States is also the leader in the production of dairy products—butter, cheese, canned milk, and dried milk. Butter production has declined in recent years in the United States, but cheese and canned milk production has just about doubled.

Milk diverted to manufactured products was utilized differently in the various countries, depending on the dietary customs and the price patterns.

Note the changes that have taken place between the prewar and the 1946-48 period as indicated in the above chart.

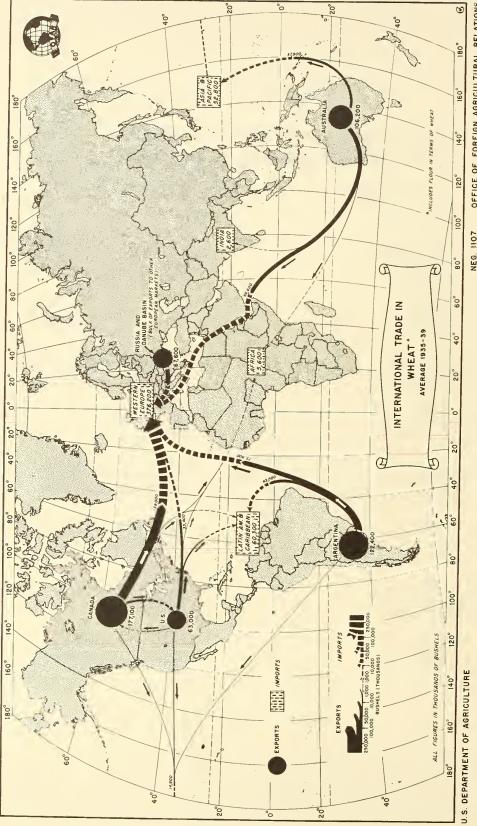


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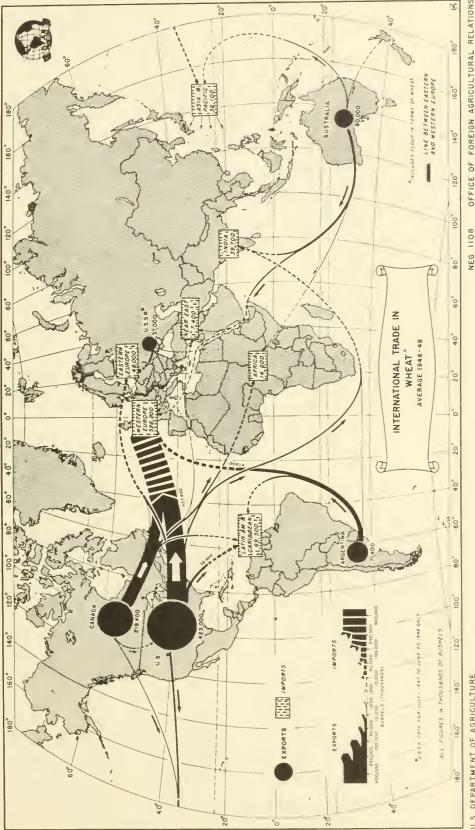
FIGURE 32.—The United States had nearly 24 million milk cows during the period 1934-38. This was more than the total number in the next 3 largest producing countries—Germany, France, and Canada. The United States produced more than 105 billion pounds of milk annually in 1934-38, about 2 times as much as Germany, the next largest producer, with 53 billion pounds.

The United Kingdom had the largest milk production per cow—5,583 pounds; Sweden, 5,327; and Germany, 5,270. About 60 percent of the milk of the United Kingdom was used as fluid milk, 80 percent of the milk in Australia was converted to butter, and 26 percent of the milk in Italy was made into cheese. Italy also used 22.5 percent of its milk as feed, exceeded only by France, where 23.9 percent of the milk was so utilized. The United States used 4.4 percent of its milk as canned milk and the United Kingdom, 3.5 percent.



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FIGURE 33.—Canada was the leading exporter of wheat during the 1935-39 period, shipping 177 million bushels annually, and the United States, one of the smallest exporters, with annual shipments of only 63 million bushels. Argentina and Australia were also important exporters, each shipping more than 100 million bushels a year. Wheat from Russia and the Danube Basin went mainly to other European countries. Western European countries were the leading importers, receiving about 375 million bushels annually. Latin America and the Caribbean nations, Asia, and the Pacific areas also imported substantial quantities of wheat.



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OFFICE OF FOREIGN AGRICULTURAL RELATIONS NEG. 1108 FIGUR 34. The volume of wheat exports from the United States and Canada were larger in 1946-48 than in 1935-39, and considerably smaller from The United States shipped 423 million bushels of wheat annually during the 1946-48 period, nearly seven times as much as the 63 million bushels they other wheat-exporting countries.

Canada increased its exports from 177 million bushels in prewar years to 219 million bushels annually in the 1946-48 period and ranked next to the United States in volume of wheat exports. shipped in the prewar period

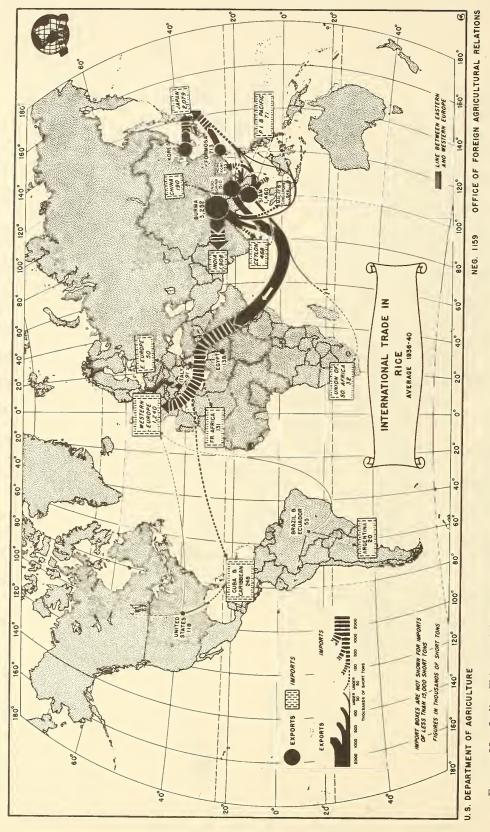


FIGURE 35.—India, China, and Japan are the largest importers, as well as the largest producers, of rice in the world. Only 7 percent of the average annual world production of rice during the period 1936-40 moved in international commerce. About 94 percent of the rice that was shipped from the surplus-rice-producing countries of Asia went to other countries on that continent. Outside of Asia, Europe was the most important market, particularly France, Germany, the Netherlands, and the United Kingdom. Some rice went to several African countries and to Cuba and other Latin American countries.

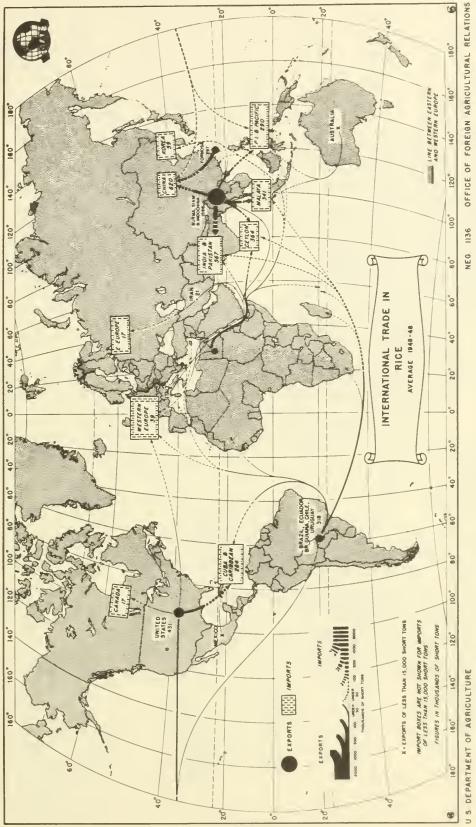


FIGURE 36.—The annual international trade in rice during the 1946–1948 period was only a fraction of the prewar volume. A complete reversal in the direction of the world's rice trade occurred as a result of World War II. Asia, instead of being the main source of rice, required heavy imports.

Because of decreased production, the importing countries required additional rice, and the surplus in the exporting countries of Asia was only one-fourth of the prewar volume.

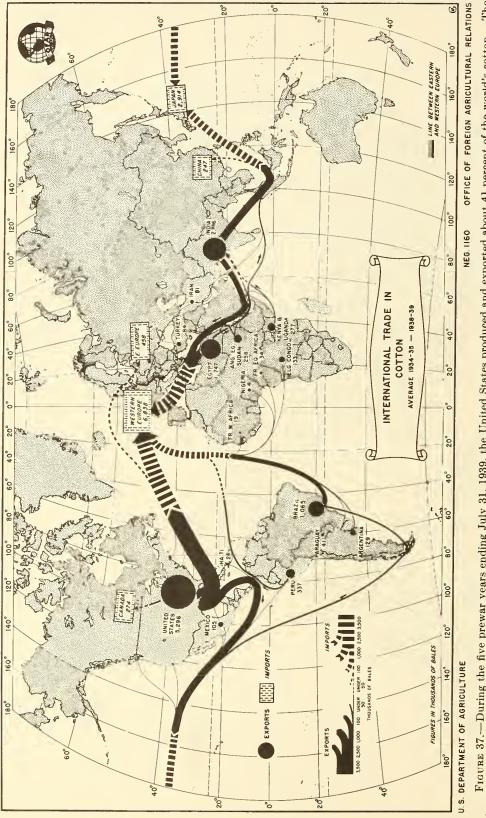
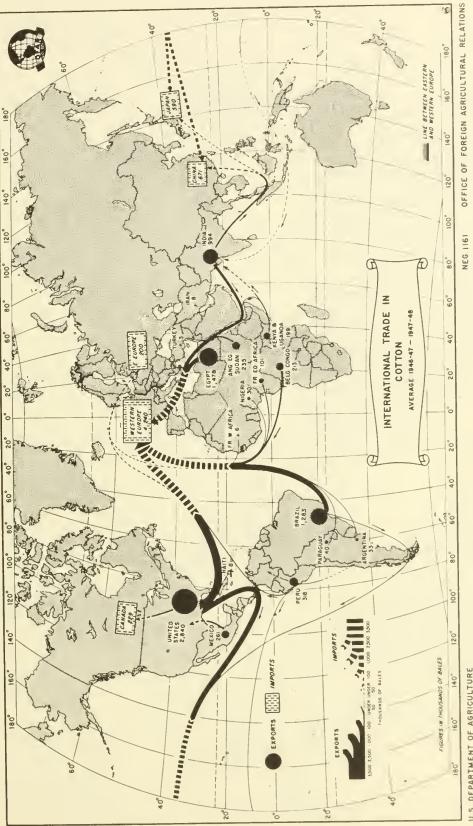


FIGURE 37.—During the five prewar years ending July 31, 1939, the United States produced and exported about 41 percent of the world's cotton. The importance of this trade to the United States is indicated by the fact that the value of cotton exports was greater than that of any other agricultural

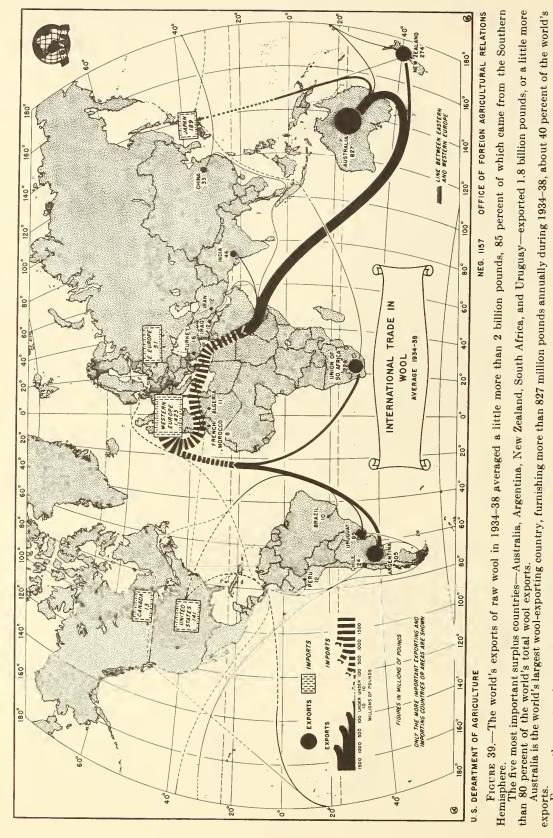
commodify during this period. World cotton exports move mainly from the Western Hemisphere, Egypt, and India to Europe, with smaller, but important quantities going to Japan. China, and other parts of the Orient. Europe is the great cotton-deficit area and during the 1934-35 to 1938-39 period received about 46 percent of its imports from the United States, about 18 percent each from South America and Egypt, and the remainder from India and Africa (other than Egypt).



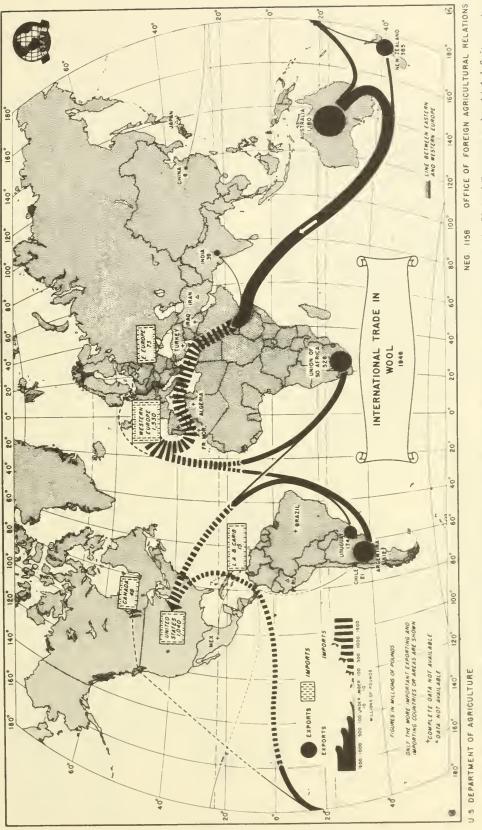
U S DEPARTMENT OF AGRICULTURE

Freene 38. The average volume of cotton entering international trade during 1946-47 to 1947-48 was considerably smaller than the prewar (1934-35 United States exports in 1946-47 to 1947-48 averaged 2,840 thousand bales, compared with 5,296 thousand in the prewar period, slightly more than to 1938 39) figure.

Average yearly exports of cotton from India in the recent period amounted to only 994 thousand bales, compared with 2,746 thousand in the prewar period, a decrease of more than 60 percent. Although the exports from most of the other countries were smaller in 1946–47 to 1947–48 than in the prewar period. Brazil's and Mexico's exports of cotton were 25 percent and 150 percent greater, respectively.



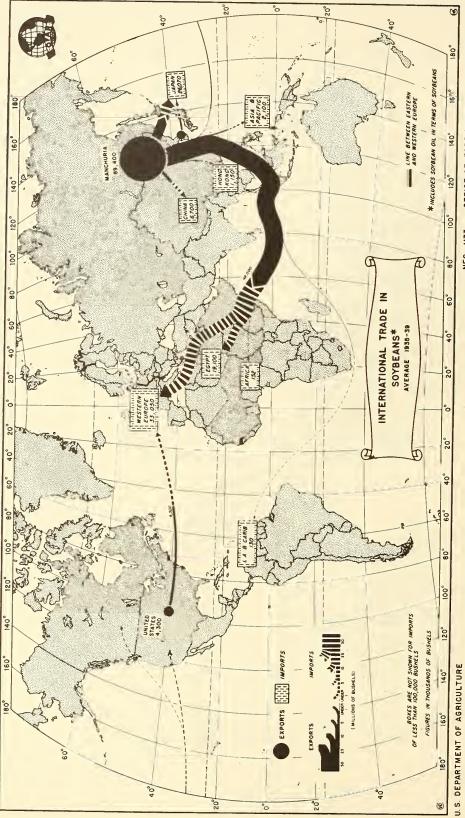
The United States, Japan, and the Europe, the greatest importing area during this period, took a little more than three-fourths of the world's exports. Soviet Union account for most of the remainder. Roughly, about three-fourths of the world output is of apparel type and the remainder carpet-type wool.



7. In 1946 the United States was the chief deficit country. The United States imported more than 1 billion pounds FIGURE 40.- World War II changed the prewar pattern of international trade in wool materially. as a result of increased consumption of wool and a much smaller production than in prewar years.

The most important European wool-importing of wool, compared with less than 150 million pounds annually during 1934-38. Western Europe imported more than 1.5 billion pounds of wool in 1946, slightly more than in prewar years. countries were France, the United Kingdom, Belgium, and Italy.

Exports from the leading wool-exporting countries were much greater in 1946 than prewar, but diminished considerably from the smaller exporting countries.



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Figure 41.— Practically all the soybeans in world trade during the prewar period 1935-39 came from Manchuria, which exported about 90 million bushels. The United States was the second largest exporter of soybeans during this period, with annual shipments of 4.3 million bushels going mainly to Western

Japan is a large producer of soybeans but imports large quantities of Europe. Korea also exported a small amount. Manchurian exports went mainly to Western Europe, Japan, Egypt, and China. Japan is a large I seed from Manchuria and Korea. Soybeans and soybean oil entering international trade are expressed in terms of bushels of beans.

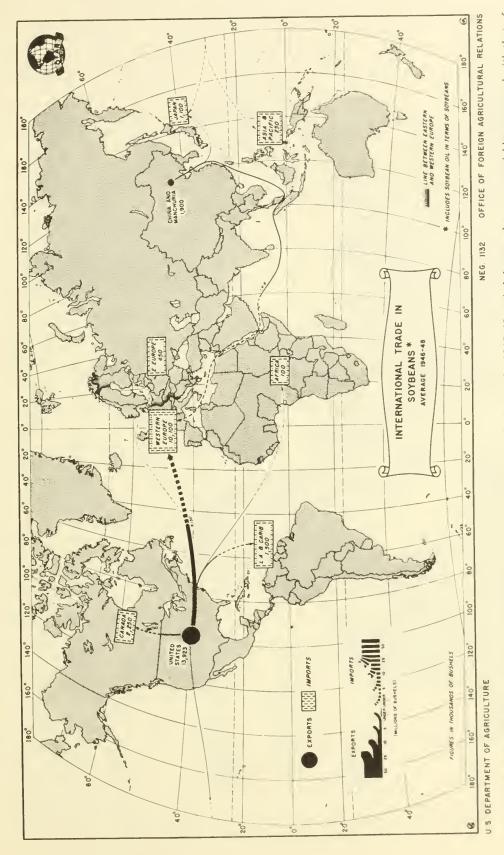
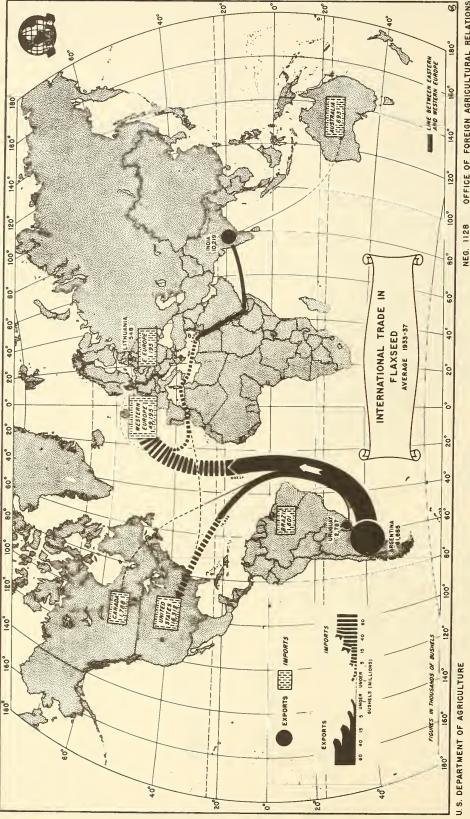


FIGURE 42.— The annual volume of soybeans entering international trade during the 1946-48 period decreased to a mere trickle, compared with that of the prewar period 1935-39. In the Far East, a very small amount of soybeans were available for export because of the effect of World War II on production and the heavy demand at home for soybean products.

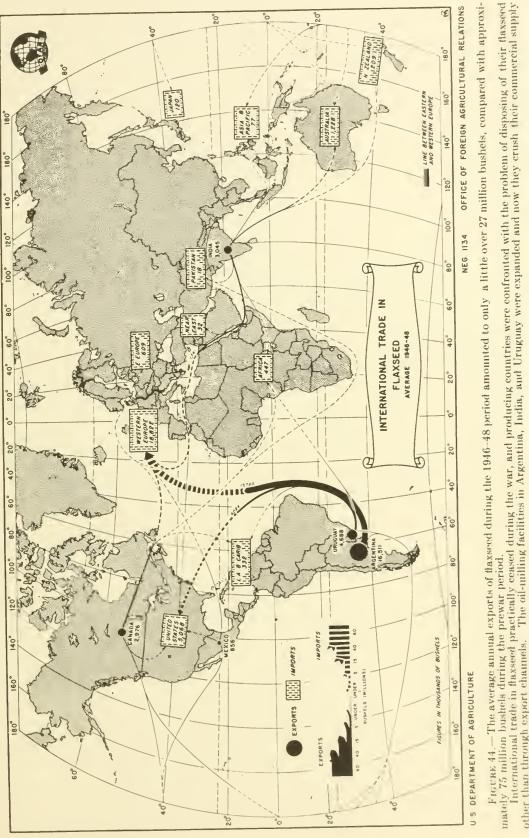
Exports of soybeans from Manchuria dropped from 90 million bushels in prewar years to about 2 million bushels in 1946–48. United States soybean production and exports increased rapidly during this period. About 13.9 million bushels of soybeans were shipped from the United States in 1946–48, as compared with 4.3 million bushels in the prewar period.



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FIGURE 43.—Europe imported approximately 50 million bushels of flaxseed annually during the 1933-37 period. Practically every country in Europe imported some flaxseed or linseed oil. During this period European countries imported and crushed approximately three-fourths of the flaxseed that entered world trade.

In the Netherlands, France, and the United Kingdom, oil milling is very important both from the standpoint of employment and as a source of cake and meal for livestock feed, large quantities of flaxseed were crushed and the surplus oil exported primarily between the countries of Europe. Argentina, India, and Uruguay are the world's exporters of flaxseed, and Argentina alone supplies over 80 percent of the exports.



seed and export the oil and oil-cake. other than through export channels.

The United States imports of flaxseed have decreased over two-thirds since the prewar period due to the heavy increase in flaxseed production. Exports from Uruguay increased about 2 million bushels; Canada changed from a net importer to a net exporter; and exports of flaxseed from Argentina of

India decreased greatly in 1946-48 from the prewar period. and

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