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Soviet Bloc Agricultural Land Use and Livestock Distribution

CIA/RR Project No. 21.621

(MP-117)

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TABLE OF CONTENTS

Appendix

Introduction

In this report information on the production and distribution of crops and livestock are presented in three parts -- USSR, European Satellites, and China. In each of these areas agriculture is important for the significant contribution that it makes to the national product, and for the livelihood it directly provides for a large segment of the population. In every country the destruction of, or a major decrease in agriculture production could eliminate or greatly reduce the capability of that country to engage in war.

This study does not measure the effect of such destruction. It presents information on the annual production of crops (excepting for the USSR which was not requested). It also presents the inventory of livestock by categories, and the geographic distribution of each category for the most recent year for which data are available for small administrative subdivisions of the countries. Although the production figures have changed somewhat from the base period to the present, there have been few major changes in the distribution during that period, generally 1938 to 1953. An exception to the rule is the rapid increase in the number of sheep in Kazakhstan SSR with nearly corresponding decreases in the remainder of the sheep raising regions. These changes where known have been made in data presented here. No major shifts in production are expected during the period 1955-60. Some shifts in the wheat acreage in both the USSR and China have been noted and developments in this line should be followed. Likewise, a planned increase in the size of the USSR's corn acreage may develop following the decree on grain production in the USSR which was announced in February 1955.

I. USSR.

A. Target Grains.

The grain target system for the USSR has been defined in CIA/RR, RR-23, "The Pattern of Land Use in Relation to Target Grains in the USSR and the Probable Spread of Stem Rust on Cereal Grains," dated 18 February 1953. Due to the expansion of the grain area which has been taking place in the Soviet Union since the initiation of this project, it is necessary to comment briefly on these changes.

During the period 1954-57 an area of between 28 million and 30 million hectares are to be seeded to grain on new and reclaimed land. During the first year of the program about 3.6 million hectares were seeded and the rate of expansion is to be accelerated rapidly by 1957. The expansion, largely of spring wheat, will take place in marginal areas of production (areas having from 12 to 16 inches of precipitation, annually) extending from the Volga river in the west to Krasnoyarsk Krai in the east, with minor acreages on scattered lands elsewhere. Most of the new seeding will take place in that part of Siberia and Kazakhstan which lie to the east of the historically important grain-producing regions delineated in the CIA report PR-23. The importance of the new area to the Soviet grain supply in the long run is debatable; historical climatic patterns would point to nearly complete crop failure in two out of five years on the average. The long-run unit cost of production in these marginal lands will be much greater than in the traditional grain areas and it is entirely possible that, following a few years of drought, large-scale retraction may occur as in a previous similar program in the early 1930's.

B. Livestock.

Despite grandiose Soviet plans for increasing livestock numbers under the various five year plans, the number of livestock in the various categories have increased but little, if at all. There have, however, been some shifts in the distribution of livestock which may be noted from one period to another. The last available Soviet livestock census giving data by oblast is that of 1938. There have been, however, many items in official announcements and in the press concerning livestock numbers in certain rayons and oblasts. These data, together with those which give a basis for estimating rates of change in numbers, have been collected and collated for recent years, culminating in the estimated distribution for 1953. The 1953 distribution was found to be similar to that of 1938 with the exception that sheep had increased rapidly in Kazakhstan during the interim period.

In Kazakh SSR (Region Xa) sheep and goat numbers increased from 5.3 million head in 1938 to 14.6 million on 1 January 1949, or an increase of 9.3 million head. For the same period, sheep and goat numbers in the entire USSR increased by 12 million. Thus a major redistribution of sheep and goat numbers becomes apparent for this period. Other adjustments in the distribution of animal numbers have been made according to similar known changes. There is no evidence that any major shifts in livestock production will occur during the period 1955-60. If the Soviet plan to increase livestock (notably swine) is successful from 1955 to

1960 it is probable that the increases will take place in those areas which were known to be important in 1953. (See Appendix A, maps showing distribution of livestock).

In 1953 the area now included in European USSR accounted for the following percentages of the total livestock numbers: 64.9 percent of the cattle, 84.3 percent of the swine, 45.3 percent of the sheep, and 44.5 percent of the goats. Thus, there remained the following percentages in Asiatic USSR: cattle, 35.1 percent; swine, 15.7 percent; sheep, 54.7 percent; and goats, 55.5 percent.

Cattle. The distribution of cattle is closely related to the availability of pastures, hay and other roughages, and in some localities is related to the need for draft power. In 1953 the distribution of cattle in the major areas of production in the USSR was as follows: the Ukraine (Region III) led the economic regions in percentage of total cattle in the USSR with 10.8 million head, or 19 percent; Central European USSR (Region VII) had 9.1 million, or 16 percent; the Baltics and Belorussia SSR (Regions IIa and IIb) had 5.2 million head, or 9.1 percent; West Siberia (Region IX) had 5.1 million, or 9 percent; Kazakhstan (Region Xa) had 4.5 million, or 8 percent; the Lower Don-North Caucasus (Region IV) had 4.1 million, or 7.3 percent; and the Transcaucasus (Region V) had 3.2 million or about 5.7 percent each. All other regions had 14.6 million, or about 26.9 percent. (See Table 1 and the map "Distribution of Cattle.")

Swine. The distribution of swine in the USSR is based upon three factors: climate, available feed grain and the religious and social customs of a people. Climate is one of the factors that limit the raising of swine. Swine are not adapted to extreme climatic conditions, and the effect of climate on the feeds that may be grown tends to affect the ability of an area to sustain swine. In certain areas of the Transcaucasus, Kazakhstan, and the Central Asiatic republics, large segments of the population are Mohammedans and will neither eat pork nor raise swine.

The greatest concentrations of swine are in the Baltic, Belorussia, and in the Ukraine. Large numbers of swine are also found in Central European USSR. Of the total swine in the USSR in 1953, the distribution in the major regions of production was as follows: 9.2 million, or 32.2 percent were in the Ukraine (Region III); 5.0 million, or 17.6 percent in Central European USSR (Region VII); 2.3 million, or 8.2 percent in the Baltic (Region IIa); and 2.3 million, or 8.2 percent, in Belorussia (Region IIb). All other regions had 9.7 million, or about 33.8 percent. (See Table 1 and the map "Distribution of Swine.")

Sheep. In the USSR, as in the US, sheep-raising tends to be concentrated on land which is of minor use for raising crops. Sheep in the USSR subsist mainly on pastures and the necessary roughage for carrying them through the winter. In 1953 the distribution of sheep in the USSR was as follows: Kazakhstan SSR (Region Xa) 19.1 million, or 20.0 percent; Central Asia (Region Xb) 15.4 million, or 16.1 percent; Central European USSR (Region VII) 10.4 million, or 10.9 percent; Lower Don-North Caucasus (Region IV) 8.6 million, or 9 percent; Volga (Region VI) 8.5 million, or 8.9 percent; and Transcaucasus (Region V) with 7.4 million, or 7.8 percent. All other regions had 64.5 million head, or 27.3 percent. (See Table 1 and the map "Distribution of Sheep.")

Goats. Of the 14.3 million goats in the USSR in 1953, the distribution was as follows: 2.9 million head, or 20.3 percent in Kazakhstan SSR (Region Xa); 2.4 million, or 16.4 percent in Central Asia (Region Xb); 1.6 million, or 11.0 percent in Central European USSR (Region VII); 1.3 million, or 9.2 percent in the Lower Don-North Caucasus (Region IV); a similar number in the Volga (Region VI); and 1.1 million, or 7.9 percent in the Transcaucasus (Region V). The remaining 3.7 million head, or 26.1 percent were scattered in smaller numbers throughout other parts of the USSR.

1. Meat and Milk Production.

In 1954 the meat produced in the USSR was derived from the following sources: swine (pork) 1.8 million metric tons, or 45.3 percent; cattle (beef and veal) 1.4 million tons, or 36.5 percent; and sheep and goats (lamb, mutton, and goat meat) .7 million tons, or 18.2 percent.

Meat and milk production are not the specialized operations in the Soviet Union to the same degree that they are in Western Europe or in the U.S. Only in the former Baltic States, is dairying a well developed form of animal industry. The Leningrad and Moscow areas have some state farms specializing in milk production; but the vast majority of cattle in the Soviet Union, however, are dual or triple purpose animals, kept for milk, meat, and in some areas for power.

Livestock is pastured in mixed flocks--even pigs may be herded with cattle and sheep along the roads, in harvested fields, or in the pastures. The various species often share the same watering facilities as well as grazing grounds. Animals are often driven long distances across country to market and are frequently corralled in temporary holding pens at railroad yards or in the stockyards of the meat combines.

Most of the animals delivered for slaughter are taken to market in the late fall and early winter. As a result, the packing plants are often unable to keep pace with deliveries. This necessitates holding animals on farms or feed lots controlled by the governmentmeat-packing plants until they can be slaughtered. These methods of handling stock are conducive to the spread of disease.

2. Animal Diseases in the USSR.

[redacted] after World War II provided what is probably factual information on livestock diseases in the USSR. [redacted] as follows: 25X1 25X1

Cattle. The most prevalent diseases among cattle were anthrax, black leg, tuberculosis, and brucellosis. Occassional outbreaks of hoof and mouth disease have occurred in various parts of the country. Rhinderpest (cattle plague) is reported by the Soviets to have been stamped out in 1927-28. A very strict quarantine is said to exist along the southern borders of the USSR, especially against its penetration from Turkey, Iran, Afghanistan, Mongolia, and China, where epizootics of this disease still occur.

Sheep. The most prevalent disease among sheep was anthrax. All sheep and cows are vaccinated in the spring. If any village had a history of anthrax for the previous 25 years, then all sheep, cattle, and horses had to be vaccinated. A disease peculiar to sheep concerned anaerobic bacteria. Scabies are prevalent among sheep and the dipping of sheep twice each year was mandatory to forestall epidemics.

Swine. Each republic of the USSR had incidence of swine pest and swine erysipelas. It is estimated that hog cholera is sporadic in occurance in the USSR and that a relatively small proportion of the swine population is immunized each year. Practices and measures for the prevention and control of hog cholera appear to be most adequate on the state farms, less so in collectives, and least so among swine owned by private individuals.

Poultry. Prevalent among poultry were cholera (pasteurellosis), typhus, pox, diphtheria and fowl pest.

Rabbits. The most prevalent disease both among field and domestic rabbits was tularemia which can be passed on to human beings.

There is an apparent shortage of veterinary personnel in the USSR (1952) 25X1 although there is a nucleus of competent veterinary scientists in key positions. The average Soviet veterinarian does not appear to have achieved the same level of competency of his counterpart in the Western World. [redacted]

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II. European Satellites*

Introduction.

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The last reliable official European Satellite acreage and livestock statistics, except for Czechoslovakia 1949, are those for 1938. These data have been used [redacted] plotting dot maps to show the distribution of grains and livestock. All country boundaries have been adjusted to conform with 1954 boundaries.

Although prewar land-use pattern data were used in compiling this report, there has been no significant shifts in acreages of grains that would make them unusable for the purposes of this report. This is also true in projecting data to 1955-60. There is very little land not presently being used in the satellites that can or will be put into grain production according to officially announced plans. There has been a decrease in grain acreage since World War II as planned to permit expansion of the industrial crop area. Increases in yields were planned to offset any resultant loss in production from reduced acreages. To date, however, the governments have not been successful in raising grain yields.

Livestock distribution, like grain acreage, is based on prewar data due to the lack of postwar data on a small administrative divisional level. The only area for which postwar data were available was for Czechoslovakia.

Although prewar data were used for the dot maps, no significant changes have occurred in the postwar distribution pattern of livestock which would make them unsatisfactory for this study.** Hog and horse numbers are approximately the same or less than prewar. It is estimated that by 1960 the situation will not show any significant change.

A. Distribution of Target Grains.

The target grain data as requested are for wheat, rye, barley, and oats. For the European Satellites, in terms of gross production and area seeded to crop in order of rank are wheat, rye, oats and barley as determined by 1953 information. There has been a shift in acreage since World War II, primarily as a result of land reform, from rye to wheat (see Table 1, Appendix B).

1. Bulgaria***

The area sown to bread grains in Bulgaria constitute almost 38 percent of the total arable land. Wheat, primarily winter wheat, is the principal bread grain and represents approximately 84 percent of the bread grain areas. Rye is of lesser importance occupying less than 6 percent of the total arable land, and only 16 percent of the bread grain areas.

Apart from corn, the major feed grains in Bulgaria are barley and oats, but together are sown on less than 10 percent of the total arable land.

* Includes Bulgaria, Czechoslovakia, Hungary, E. Germany, Poland, and Rumania.
** The 1949 livestock data for Czechoslovakia showed the same distribution on a dot map as that for 1933-37.
*** See map, Appendix B, Figure 1.

Barley is the most predominant of the two and is seeded over 6.4 percent of the total arable land compared to 3.4 percent for oats.

The geographic features of Bulgaria clearly divide the country into three separate agricultural areas, the northern plains area, the central lowlands, and the southern highlands. Of the three, the southern highlands are the least significant as a production area.

The major cropped area for grains lies in the northern plains along the Danube River, which is favored by the rich black soils and a continental climate. About 63 percent of the wheat, 19 percent of the rye, and 30 percent of the oats and barley are produced in this area.

In the central lowlands, the major cereal crop lands are located along the Marista and Stredetska Rivers. The proportion of crop production in the central lowlands is estimated at 34 percent for wheat, 61 percent for rye, 53 percent for barley, and 29 percent for oats.

All of the rice in Bulgaria is produced in this geographic area, most of which is concentrated in Plovinov plains.

The trend of agricultural production since prewar years has been relatively stable, with no significant changes in the pattern of production or in the mass development of new agricultural practices for improving crop yields. Bulgaria may be considered self-sufficient in grain production, subject to cyclical deficiencies created by weather. There is little probability that major changes in the crop pattern will occur in the future.

2. Czechoslovakia.

a. Wheat. Both spring and winter wheat are produced, but winter wheat normally constitutes 95 percent of the total wheat acreage. Spring wheat yields average about two quintals per hectare less than yields of fall sown varieties.

An important food crop, wheat is grown to some extent in every district of the country. Wheat occupies about 16 percent of the country's cropland. A larger proportion of cropland is sown to wheat in Slovakia than in Bohemia-Moravia. Southwest Slovakia is also the surplus producing region in Czechoslovakia. Throughout the country both area and yields decline sharply in the mountainous border regions of Bohemia-Moravia and most of the northern half of Slovakia. In those areas, wheat culture is limited chiefly to the narrow alluvial valley floors which traverse these areas from north to south.

Czechoslovakia has been a deficit wheat producing country for many years. They are presently dependent upon the USSR and other Bloc countries for imports. Therefore, a sharp drop in production for any one year has a significant effect upon the food availabilities and economy.

b. Rye.* Long the leading cereal in area and production, rye has declined in recent years and now ranks second to wheat. In 1949, rye utilized 14 percent of the country's cropland compared with 17 percent before the war.

The largest proportion of arable land sown to rye is in south-central Bohemia and western Moravia; Slovakia is not an intensive producing area although rye is an important crop in the rough and less fertile eastern districts. Because of its hardiness, rye is an important cereal crop in the mountains and on plateaus.

Czechoslovakia being deficit in bread grains imported both wheat and rye before World War II, with rye dominating. However, in the postwar period wheat imports have increased sharply; imports of rye and rye flour, on the other hand, have declined, and since 1949 only about 1/4 as much rye compared to wheat is imported.

The only surplus producing area would probably be two or three provinces in southeastern Bohemia. As in the case of wheat, a shortfall in production would have serious repercussions on the food supply.

c. Barley. Data on area, yield, and production indicate little fluctuation in the past 15-20 years. The estimated 1953 barley acreage was approximately the same as that for prewar.

Barley is normally sown in March or early April. The dominant variety, Hana, is early; maturing in about 100 to 110 days and returns good yields in moderately dry weather. Less than 2 percent of the barley sown is of the winter variety, which is used exclusively for feed.

The most highly concentrated areas of barley production are southwestern Slovakia, along the Moravia River in Central Moravia, and the Elbe valley north of Prague (see map, Apprendix B, Figure 2). The major areas of barley production coincide generally with the wheat and sugar beet regions of the country.

In recent years Czechoslovakia has been importing as high as 200 thousand tons of barley for feed. The increase in hog numbers and decline in potato production has necessitated this action.

d. Oats. Like rye, oats is an important crop in the mountainous areas of the country. On the plains, oats are cultivated only to meet the needs of the farm. Oats have declined in area since World War II. This decline has been in line with the Five-Year-Plan.

The western regions of the country, Bohemia-Moravia, are the principal areas of production. Concentration in northern Slovakia is important to that section because oats are the principal feed grain.

Of the small grains (wheat, rye, barley, and oats) oats are usually the last to be harvested -- around the end of August or early September. It is customary for the farmers to harvest early varieties just before full maturity to avoid losses through shattering. The late varieties are not so likely to shatter.

* See Appendix B, Figure 2 for maps on distribution of grain area.

Czechoslovakia can be considered self-sufficient in the production of oats for food and feed purposes.

3. East Germany.

a. Rye. Occupying the largest area of any single crop, rye accounts for about 24 percent of the land devoted to field crops and makes up about 40 percent of the total grain production. The 1953 sown area approximated that of prewar years.

Rye is grown throughout the country, but is more concentrated in the areas of lighter and less fertile soils which predominate in Mecklenburg and Brandenburg Laenders* (map, Appendix B, Figure 3).

Approximately 98 percent of the rye sown is of winter varieties which out-yield spring varieties by 30 percent. Winter rye is normally seeded in the latter half of September in the mountains and end of September to early October in the plains. Harvest begins around the end of June in the south and extends to middle of July in the northern part of the country and mountains.

East Germany has been importing large quantities of bread grains from the USSR since 1949.

b. Wheat. The production of wheat, although widespread, is concentrated in the better soil regions of west central East Germany and the southern plateau area (map, Appendix B, Figure 3).

Normally the proportion of spring wheat to that of winter wheat does not exceed 15 percent except in years when fall planting is hampered by adverse weather conditions or winter kill occurs.

East Germany is not self-sufficient in wheat and imports are required from Soviet Bloc countries to make up the deficit.

c. Barley. Barley acreage follows the same general pattern of distribution as that for wheat. Although barley does better on poorer soils than wheat, because of the high percentage of malting barley in the acreage pattern, barley is concentrated on the fertile soils. Also it is used in rotation with sugar beet crops.

The spring sown barley accounts for about 70 percent of the total acreage seeded to barley. Recent government emphasis has been on increasing the area of barley. It is not believed that any increase will be substantial nor affect the land use pattern. Winter barley is sown from September to October ranging from north to south. Spring barley is sown during April. Harvesting occurs from July in the southern areas to August in the north.

d. Oats. Acreage devoted to oats is quite widespread, like rye, throughout East Germany. In terms of sown area and production oats rank next to rye. It is used almost exclusively for livestock feed. Areas of oat acreage concentrations are the Baltic region of Mecklenburg, the central plateau area, and the southern plateau areas.

* In 1952 the five Laenders were changed to 14 Bezirkes.

Oats are solely spring sown during March and April. They are the last of the small grains to be harvested which is during August.

4. Hungary*

The area sown to bread grains in Hungary represents approximately 31 percent of the total arable land. Wheat is the most predominant of the two cereal crops, occupying about 28.0 percent of the land under cultivation compared to 11.0 percent for rye. Of the total sown area to bread grains less than 3 percent is spring sown.

Barley and oats, the two major feed grains are planted on 7.7 percent and 4.0 percent, respectively of the total arable land. The ratio of spring sown barley to fall sown is approximately one to one.

Geographically the major agricultural areas in Hungary are found in the Great Plains, and in the Transdanubian lowlands. The Great Plain area is an extension of the Danubian Pane plains, and covers the area bounded by the Tisa and Zagyva rivers in the north and by the Danube on the west. The area west of the Danube to the frontiers on the north and south constitutes the Transdanubian area. The third geographical area in Hungary (the North Hill country) lies to the north of the demarcation lines of the Great Plains but is of lesser significance as an agricultural area than either the Great Plain or Transdanubian areas.

The crop pattern in each area is closely allied to both soil and climatic adaptabilities; winter wheat being more pronounced in the Great Plains because of the fertile soil and hot dry summer which are excellent factors for producing high quality wheats.

Rye and oats on the other hand occupy a larger share of the area in Transdanubian and the North Hill country. This is particularly true for rye which cannot compete with wheat on the more fertile Great Plains area. For oats the more moist climate in the Transdanubian lowlands and the North Hill country favor these locations over the Great Plains area. Barley is fairly well distributed throughout the country. It is more pronounced in the North Hill country and in the northern area of Transdanubia; since it is more adaptable to a cooler climate and the shorter growing season of these areas

A change in the present crop distribution does not appear to become likely over a period of time. Although some shifts to industrial crops has occurred in the postwar period, the present trend is away from over emphasis and self-sufficiency of marginal crops and a return to food and feed grains.

Hungary has usually been considered as a surplus producer of food and feed grains, but the unfavorable harvests experienced since 1950 have presently reduced Hungary's advantage to that of a net importer of grains. The situation as developed is however believed to be temporary and future long term trends may be expected to cover domestic requirements adequately.

* See map, Appendix B, Figure 4.

5. Poland.

a. Wheat. The map showing the distribution of wheat acreage for 1938 is given in Appendix B, Figure 5. Wheat only accounts for approximately 15 percent of the land seeded to grain, while rye accounts for 53 percent. The great preponderance of rye plantings over wheat is a significant indication of the generally low level of fertility of Polish soils. Wheat tends to be largely concentrated within those parts of Poland with the better soil or in the southern areas of Poland.

Winter wheat, the main type, is seeded from September 10 in the north and east to October 5 in the southwest. The usual harvest dates are from July 16 in the west to August 12 on the north coast. The types produced are hard red, hard white winter, or a red winter, and soft white winter wheat.

Poland normally self-sufficient in wheat has had to resort to imports the past two years as a result of adverse weather reducing production. Under the Six-Year-Plan acreage of wheat was to increase at the expense of rye, but the peasant has not felt the shift practicable in view of soil and climatic conditions.

b. Rye. By far the most important target grain in Poland is rye. For 1953, it is estimated that 53 percent of the land devoted to grain was seeded to rye. The map showing distribution of rye acreage for 1938 can be found in Appendix B, Figure 5. Rye is grown in every district of Poland with greatest concentration in central Poland.

Seeding time for rye, which is 98 percent fall-sown, generally starts September 10 to 25, from northeast to southwest. Harvesting of rye takes place from July 2 to 20, south to north.

Rye has traditionally been the major grain export. However, quantities exported have dropped considerably during the last two years. In Poland, rye is used chiefly for bread, and a substantial quantity is also fed to livestock, mostly hogs.

c. Barley. The distribution of barley acreage closely parallels that of wheat since both are dependent upon more fertile soils and higher precipitation than rye. See Appendix B, Figure 5 for map on distribution of barley area. The largest single use for barley is feed, especially for hogs. Its next most important use is as a cereal food.

Barley is largely spring sown, and seeding time normally ranges between April 10 in the southwest and April 25 in the northeast. The harvest time extends from July 15 in the southwest to August 10 in the north.

d. Oats. Oats is the most important coarse grain both as to area and production. Virtually the entire oat crop in Poland is fed to livestock, chiefly horses. With the decline in horses and planned increases in mechanization, a decline in acreage is expected.

Oat acreage is rather scattered throughout Poland, but concentration generally follows the wheat and barley areas in the fertile soils regions.

Seeding time for oats is from April 10 to May 7 from south to north. Harvesting takes place during the last week in July.

6. Rumania*

The area sown to bread grains in Rumania accounts for almost 33 percent of the total arable land. Wheat is the most important grain; being cultivated on slightly more than 29 percent of the total arable land, compared to less than 3 percent for rye. Fall sown varieties are most predominant and constitute approximately 78 percent of the total bread grain area.

Of the coarse grains planted in Rumania, barley and oats occupy 8.8 percent and 7.7 percent, respectively, of the total arable land. Corn being the major coarse grain crop in Rumania is sown on approximately 27 percent of the total arable land.

The distribution of crops is guided by the soil and climatic conditions within Rumania. Wheat is concentrated on the more fertile lowlands of the Old Kingdom and Transylvania, which also adjoin both Bulgaria and Hungary. About 55 percent of the wheat area lies in the lowlands and plateau of the Old Kingdom, and 42.3 percent lies in Transylvania, the major part of which is in the Barrot region.

Rye areas are less concentrated and are located in less competitive plateau regions of Moldavia and Dobruga, and the highlands of Transylvania.

Oats are fairly well distributed within the cooler highlands of Transylvania and the Old Kingdom.

Barley is more concentrated in the cooler plateaus of Dobruga and Moldavia in the Old Kingdom. The percentage distribution for these two areas represent 57 percent and 30 percent, respectively, of the total country.

The crop pattern in Rumania has been altered slightly in the postwar period, with a reduction in cereal crops and increases in fodder and industrial crops. The modifications, however, do not represent a change in the self-sufficiency status of Rumanian agriculture. Under normal weather conditions, Rumania is considered to be a surplus producer of grains, however, domestic food consumption is less than the average of all other satellites.

B. Distribution of Livestock**

1. Bulgaria.

The concentration of livestock in Bulgaria*** generally follows the cultivated land pattern of intensive farming areas. In total numbers sheep rank first, followed by cattle, hogs, and horses.

The northern plains area being the most concentrated for horses and hogs, but for cattle and sheep, the ratio in the southern plains is approximately equal. Goats are fairly well distributed throughout the country,

* See Appendix B, Figure 6.

** See Appendix B, Table 2, Livestock Numbers, Prewar and 1953.
*** See Appendix B, Figure 7.

but in total numbers are greater in the southern plains area.

The importance of sheep in Bulgaria is shown by the high ratio per unit of population, estimated to be slightly more than one. The stabilising influence this animal has on the agricultural economy in Bulgaria develops from the utility of sheep for milk as well as wool and meat.

2. Czechoslovakia

Livestock raising, like crop production, decreases in intensity from west to east in Czechoslovakia. The area with the highest density for all livestock, except sheep, is the highly productive sugar beet region with the lowest number in the forage-crop region, especially in the eastern districts of Slovakia.* The greater density of livestock in the regions of intensive crop cultivation is due largely to the greater yields of feed per unit of area, and in part to the availability of beet tops, beet pulp, molasses, and other by-products feeds in those regions. Sheep production is concentrated in the forage-crop region of Slovakia, because of the extensive pastures in those highlands and a carry-over of the customs of the people in those areas.

a. Cattle. At least 50 percent of the cattle and dairy herds are located in Bohemia, with the balance distributed about equal between Moravia and Slovakia. Compared to prewar, there has been an emphasis on the part of agricultural planners to increase cattle numbers in Slovakia. Some success has been achieved.

Cattle and cow numbers have not reached the prewar level and it is unlikely that much success will be registered during the next few years if the present agricultural policies are continued. The shortage of feed, poor breeds, breaking up of large estates, and use of cattle for draft power has lowered productivity.

The dominant breed of cattle are the red and white mountain that has been derived from indigenous red cattle crossed with Swiss and Simmenthal strains. The Pinzgan breed is raised in the mountains of Slovakia, and in eastern Slovakia there are remnants of the Steppe cattle, together with buffalo.

b. Hogs. The distribution of hogs in 1949 is shown on the map, Figure 8, Appendix B. Approximately 45 percent of the hogs are in Bohemia; 33 percent in Moravia; and 23 percent in Slovakia. Swine breeding is carried on largely on small and medium sized farms, while fattening for market has been increasing on new state and collective farms. Prior to World War II, the large estates and farms (over 50 hectares) fattened the hogs for market.

Feeding stations were started in 1948 and are reported to have reached an important place in livestock production. It was reported in 1949 that hog-feeding centers were supplying 36 percent of the country's total pork requirements. One of the largest centers is at Smirice, near Hradec Fralove, which is said to maintain 10,000 hogs. Other centers are claimed to be at Mimon in the

* See Appendix B, Map Figure 8.

kraj of Liberec, and another at Poxmberk, near Ceske Budejovice, in southern Bohemia.

c. Sheep. The distribution of sheep in 1949 is shown in Figure 8, Appendix B. It is not believed that any substantial change has since occurred. There was estimated to be approximately 600,000 sheep in 1953 as compared to the prewar average of 495,000 head. Approximately 32 percent of the total sheep numbers are raised in the west while 68 percent are raised in Slovakia.

There are several indigenous breeds of sheep raised in Czechoslovakia. In the mountainous regions of Slovakia and Moravia, the principal breed is the Valasske Capovnice, which is raised for wool and milk. In the western lowlands, merino sheep, noted for their fine wool, are most common. The Cikaja breed is from thelowlands of Slovakia and the black-faced Hampshire Down breed has proved well adapted to the fruit, hog, and sugar beet regions of Bohemia.

d. Goats. The distribution of goats in 1949 is shown in Figure 8, Appendix B. The number of goats has fluctuated around one million head or about the same as prewar. Goats are normally raised on small farms, and may take the place of cows. Goat raising is primarily concentrated in the provinces of Bohemia and Moravia. Approximately 90 percent of the goat inventory is in Bohemia-Moravia.

The Saanen breed predominates throughout the country; it is white, hornless, and a good milk producer. In the mountains and more primitive regions, the native brown goat is more common than the white.

3. East Germany.

a. Cattle. The distribution of cattle is shown on the map, Appendix B, Figure 3. Cattle are raised in every district of East Germany with the greatest numbers in the extreme southern and northern areas of the country. Cattle numbers in 1953 were slightly higher than prewar, but cow numbers were less. Annual productivity in general has not attained prewar levels.

Hoof and mouth disease has been prevalent during the past few years as a result of improper feeding and care, and shortage of qualified veterinarians.

Both the lowland and highland breeds are prevalent. The lowland breed in the southern regions of East Germany and the highland in the south. These breeds are efficient as triple purpose cattle - for milk, meat, and draft power.

b. Hogs. There is an extremely high density of hog raising throughout all of East Germany. Sachsen-Anhalt was reported in 1951, to have the largest inventory of the five Lands. Total inventory of hogs in 1954 showed an increase of approximately 1 million over prewar levels.

Before World War II, it was claimed that over 90 percent of all German hogs were pure-bred white breeds, the Veredeltes Landschwein and the White Edelschwein, the former a native hog improved by crossing and selection, the latter of Yorkshire stock improved and adapted to German conditions. It is probable that these breeds of hogs are still prevalent today.

c. Sheep. Sheep are not highly concentrated in any small regions of East Germany. There are probably more in the western half of the country than the eastern. Sheep numbers by the end of 1953 had reached prewar levels for the first time. Plans are to increase sheep numbers to 1.8 million by 1955.

d. Goats. Goats are raised to a great extent in the southwest section and mountainous areas of East Germany. Numbers have almost doubled today as compared to prewar. This has been a result of the land reform which increased the number of small farms who raise goats for milk and meat. Therefore, there would be a greater density of goats per hectare of agricultural land than shown on the map, Appendix B, Figure 3, which was based on 1938 data. The most important breeds of goats are the White and Spotted German pure-breds.

4. Hungary

The distribution of livestock in Hungary is general throughout the country.* For cattle the heaviest concentrations are found in the steppe-like plain of the Hortobagy, near Kecskemet in the Burgae plain, and in the Debrecen area.

Hog numbers are more closely correlated with the corn area and are, therefore, more prominent in the lower Great Plain and the Transdanubian areas. The breeding of meat-type hogs are being encouraged in all parts of the country, but more especially in Transdanubia. About 70 percent of the present stock, however, still consists of the lard-type mangalitsa.

Sheep numbers are more predominant in the poor pasture lands of the North Hill and in the lower Transdanubian areas, whereas the North Hill country and the northern part of Transdanubia are the chief areas of concentration for goats.

5. Poland.

a. Cattle. Milk production has been and still is the most important purpose of cattle raising. Meat production is of secondary importance. Sometimes they are used as draft animals. As seen on the map, Appendix B, Figure 10, cattle are widely distributed with greatest concentration in the southern half of Poland. Due to slow resettlement of the Western territories, it is believed that the concentration today is not as great as that shown for 1939 on the map for that area.

Cattle numbers are still considerably below prewar and it is doubtful that prewar levels can be reached by 1960. Milk and beef production is also less than prewar per animal unit.

The most widespread breeds of cattle are the Holstein-Friesian and the Red Polish type. The Friesian type is mostly found in the western part of the country, the Red Polish in the eastern and northeastern provinces and in the south. Silesian Red and White are to be found in many districts of the western territory.

* See Appendix B, Figure 9.

b. Hogs. Pork is the most important item in Poland's meat consumption. Prewar distribution of hogs is shown on the map, Appendix B, Figure 10. As seen from the map hog raising is important in every province of Poland with the highest density in the central provinces.

Hog raising is concentrated on small and middle-sized farms. Most of the breeding herds are kept on the state farms.

The type of hogs raised is strongly influenced by the proximity of the market and transportation facilities. In prewar Poland, the bacon-type hog (German Edelschweine and Veredelte Landschweine breeds) was raised mainly in the western and southwestern provinces. Most of the bacon factories have been located in this part of the country. Bacon and hams have been exported by Poland at the expense of home consumption in postwar years. In the vicinity of Warsaw and in the central provinces, a fat meat-type called Golebska, a crossbreed of pure Berkshire with native stock is raised.

It has been officially claimed that prewar hog numbers were surpassed in 1953. However, productivity is still below prewar levels and a pork and pork fat shortage has been in evidence since 1951.

c. Sheep. The major sheep raising areas are in the west and northeastern regions. Sheep raising was more important in that part of prewar Poland that has been ceded to the USSR.

The most important types are the Merino Precoce, the dual-purpose Winiarka in the central regions, and the milk sheep Cakiel. Increases in numbers have been substantial over prewar, so that by 1954, there was estimated to have been about twice as many sheep as in 1938. The government has been anxious to attain near self-sufficiency in wool for the textile industry, therefore, the emphasis was placed on sheep raising.

6. Rumania.

The distribution of livestock in Rumania* is somewhat analogous to the available pasture and meadow lands. In total numbers, sheep rank first followed by cattle, hogs, and horses.

Horses and cattle are fairly well-distributed throughout the country, but hogs and sheep show a more concentrated pattern. Hogs are centered in the Transylvanian administrative district along the lower Danube region, while sheep are most predominant in the Wallachia plain area of the Old Kingdom and in the plateau areas of Maldonia and Dobruga.

Little changes in the distribution pattern over a period of time is expected to alter the present ratio.

C. Livestock Diseases

The diseases most prevalent and which from time to time outbreaks reach epidemic proportions are Hog Cholera, Swine Erysipelas, Hoof and Mouth Disease, Bangs, and Fowl Pest.

* See Appendix B, Figure 11.

During the past two years, the incidence of hog cholera increased in East Germany. There is evidence that herds on state farms have been particularly hard hit by hog cholera. This is the only animal disease which infected enough animals to reach epidemic classification. One million swine were reported to have been lost between June 1953 and March 1954.

Hoof and mouth disease has been reported in practically every European Satellite from time to time but no epidemics have been reported. It is possible that Rumania has been having difficulty controlling hoof and mouth disease.

Fowl pest is believed to be widespread in Poland and Bulgaria. East Germany recently contributed an increase in fowl pest to the importation of live fowl from Poland.

The paucity of information on the incident of animal diseases in Eastern Europe, other than East Germany, makes an accurate appraisal of the situation impossible.

D. Food Reserves.

All of the satellites are known to have state food reserve systems, but the actual quantities in those reserves are not known. As set up, these state reserve system is to store foods for release only in the event of war, economic or political crisis.

The decreasing production of food has made it difficult for the government to allocate large quantities of food to storage at the expense of the population. In 1953 with the advent of the new course, most of the satellites released food supplies from the state reserve and present supplies are believed to be extremely low. Grain is probably the only commodity stored, and this is questionable, in significant quantities. It is doubtful that the shortages of meat, vegetable oils, and animal fats has permitted storage of the commodities in quantities over a 2 to 3 week supply.

One of the complaints made by officials on the low agricultural production has been that the production did not permit accumulation of food-stocks for use in case of an "emergency".

III. China

Importance of Target Grains

25X1 [redacted] data concerning wheat, barley, rye, oats, and rice. For Communist China, in terms of gross tonnages produced, the requested crops in the order of their importance are rice, wheat, barley, and oats. Rye is unimportant in China, being so insignificant in fact, that no production or acreage data are reported.

As a general classification, rice is regarded as being a summer grown crop. Wheat, barley, and oats are classified as winter crops although in the case of oats, this is misleading. The bulk of the oat crop is produced in the spring wheat type of farming region and is planted as early in the spring as possible and is harvested in the middle of the summer.

The average production of the four year period, 1950-1953, of the various grains is shown in Table 1. Rice constitutes about 43 percent, wheat about 20 percent, barley about 6 percent and oats less than one percent of the total grains. The four target grains for the period shown in Table 1 constitute approximately 70 percent of the grain produced in Communist China. (See Table 1)

The above use of the term grain is in the conventional English usage. This is almost certain to lead to some confusion, if not explained, for the use of the term "grain" by the Chinese is almost synonymous with the English term "foodstuffs". To avoid any uncertainty on the part of the users of this report, Table 2 gives the series of Chinese Communists' claims of "grain" production and the accepted estimate of this office for the same series. (See Table 2).

It is believed that the Chinese Communists' claims of foodstuffs production are on the basis of potatoes on a gross weight basis, at least after 1951. The middle column of Table 2 is on this basis and with the exception of 1954, the estimates accepted by this office are relatively compatable with Chinese Communists' claims if the assumption about potatoes is correct. Even on the basis of Chinese Communists' claims of "grain" production, the target grains, rice, wheat, barley, and oats, run 45-50 percent of the total reported production in the period 1950-1953.

From the relatively rough calculations preformed above, it is readily apparent that the target grains are an extremely important proportion of the foodstuffs produced in Communist China.

General Characteristics of Chinese Agriculture

The importance of the influence of the physical geography of China on the pattern of agricultural production is almost impossible to over-state. It has been pointed out that by drawing a line between Aigun in Heilungkiang

and Tengchung in Yunnan two strikingly contrasted regions will be delineated. The area lying northeast of the line forms 64 percent of the total area of China, yet it is inhabited by only 4 percent of her population; the southeastern part occupies only 36 percent of the total area but accommodates as much as 96 percent of the total population.*

Buck has divided China into two major agricultural zones, the wheat and rice zones. He further divided these two zones into eight regions. These eight regions and two others from Shen are given below so as to present a generalized picture of Chinese agriculture.

A. The Spring Wheat Region.

This region covers the northern parts of Hopeh, Shansi, Shensi, and Kansu and the southern parts of Jehol, Chahar,** Suiyuan,*** and Ninghsiu.****

B. Winter Wheat-Millet Region.

This region includes a large part of Shansi, Shensi, and Kansu and corners of Honan and Hopeh.

C. Winter Wheat-Kaoliang Region.

This region includes the whole province of Shantung, a large part of Honan and Hopeh, and the northern part of Kiangsu and Anhwei. Of the total area of the various types of farming regions, this region has the highest proportion of land under cultivation.

D. Yangtze Rice-Wheat Region.

This region is composed of the lands along the Yangtze River in the three provinces of Hupeh, Anhwei, and Kiangsu. Approximately 60 percent of the cultivated land is irrigated.

E. Rice-Tea Region.

This region includes a large part of the four provinces of Hunan, Kiangsi, Chekiang, and Fukien. Irrigation is carried out on approximately 80 percent of the cultivated land but due to the rugged nature of the terrain, less than a fifth of the total area is cultivated. The Tungting and Poyang Lake areas are noted for their rice production and the Tungting area is a substantial surplus production area except in years of flood.

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* These statements are based on old population data and on the inclusion of Tibet as part of China. Nonetheless, the statements are reflective of the general concentration of productive agricultural land to the southeast of the designated line.

** Now split between Hopeh and Inner Mongolia. The larger part of the cultivated and wheat lands were credited to Hopeh in the statistical material of this report.

*** Now incorporated with Inner Mongolia but shown separately in the statistical material of this report as they relate to crops. In the case of animal numbers Suiyuan is shown incorporated with Inner Mongolia.

**** Now incorporated with Kansu and shown as such in this report.

F. Szechwan Rice Region.

This region includes the whole province of Szechwan and a small part of the provinces of Hupeh, Shensi, and Kansu. Approximately 70 percent of the cultivated land of this region is irrigated. The region is an important surplus rice area.

G. Double-Cropping Rice Region.

This region includes the whole province of Kwangtung, the eastern and central parts of Kwangsi, and the southern parts of Fukien and Kiangsi. Topographically, the region is much the same as the rice-tea region so that less than 15 percent of the total area is cultivated. Of the cultivated land approximately 70 percent is irrigated.

H. Southwestern Rice Region.

This region includes the whole province of Yunnan, a large part of Kweichow, and the western part of Kwangsi. The region is very rough and mountainous and less than 10 percent of the area is under cultivation, the major share of which is confined to comparatively deep and narrow valleys.

I. Soybean-Kaoliang Region.

This region covers the greater part of what is now called the Northeast with the exception of Jehol. It is a highly important agricultural region and produces a large surplus. However, for the target grains, it is relatively unimportant.

J. Oasis Farming Region.

This region primarily covers the province of Sinkiang. The region has much wasteland and extensive grazing areas. Less than 1 percent of the area is cultivated.

Chinese Land and Crop Data

It would be extremely convenient if the statistical material of this report could be fitted to the generalized types of farming areas. Unfortunately, the available data are based on political boundaries and cannot be adapted to reflect individual types of farming areas. The generalized pattern is useful, however, to give a picture of the agriculture of Communist China. This picture in conjunction with the available statistical material which is based on the various provinces, makes possible the immediate determination as to where the bulk of a given crop is produced.

Table 3 gives the total area of the various political divisions, the amount of the area under cultivation, and the proportion of the region under cultivation. The data given for area cultivated probably understates the true area cultivated but the degree of supposed understatement is unknown. The percentages of total area cultivated appear as quite reliable reflections of the variations between provinces. The areas where cultivated lands are

the highest proportion of the total land area are the provinces of the North China plain, the east coast alluvium, and the lake sections of the middle Yangtze.

Tables 4, 5, 6, and 7 give the acreage under the various crops, rice, wheat, barley, and oats. The tables also show for the respective crops, the percentage of the total area of the region and province devoted to the crop and the acreage of the crop in the regions and provinces as a proportion of the area of the crop in the nation.

Maps for each of the four crops rice, wheat, barley, and oats have been prepared from the tables to assist in the determination of the most important areas as regards the various crops. The maps show, on a provincial basis, two of the most significant features; a) the percentage of the total area of the province on which the crop is grown, and b) the degree of concentration of the acreage of the crop in the province in terms of the national acreage of the crop. Time for this report was insufficient to prepare an analysis on the most meaningful basis. That is, for highly precise analysis of the problem, an agro-climatic map should be superimposed on a topographic base map. This map in conjunction with the cultivated land figures again overlayed and with the proportion of the crop acreage in terms of cultivated land being shown would form a precise framework for conclusions.

The terms of reference called for the extension of the target systems through 1960. With normal stability in crop patterns, it is probable that changes by 1960 would be significant. However, estimates had been prepared for 1960 for other purposes and to fulfill the request were adapted for this report. As would be expected 1960 relationships undergo no substantial changes. Wheat is the crop which deviates to the greatest degree from the current pattern and rice is next. Barley and Oats remain much the same. The data on the estimated situation in 1960 are shown in Tables 8, 9, 10, and 11.

Chinese Livestock Industry

The WSSO request was on the basis of production of meat derived from cattle, swine, and sheep and for milk. In China the latter item is insignificant.

In terms of weight, meat is a relatively minor item in the average Chinese diet. In a given year, meat production from all sources, including poultry meat, runs between 10 and 11 kilograms per capita. Undoubtedly, this amount, though small by western standards, is an important supplement to a diet predominately derived directly from food plants. Cattle and water buffalo are probably more important as draft power in agriculture than they are as food producers. Meat from these animals is almost a by-product from the draft purpose.

Pork is the meat produced in greatest quantity in China. Of all meat produced, including poultry meat, pork accounts for about 65-70 percent of the total by weight. The hog's place in the framework of Chinese agriculture is almost entirely that of a scavenger. They are not allowed to consume but a small fraction of food that could go directly for human use. A dot map showing population density in China would also reflect with tolerable accuracy

the distribution of the hog population.

The purely pastoral area of China is the northwest region. It is the largest area of good grazing land in China and stretches from the Pamir plateau and the foothills of the Tienshan Mountains in the west to the Tsaidam Basin and Alashan Banner in the east. About 60 percent of this large area is pasture and the majority of the better than 6 million inhabitants are engaged in livestock raising. It is primarily small livestock in this area, that is sheep and goats, in terms of numbers even cattle are relatively unimportant as compared to these two classes.

The estimates of livestock in Communist China are based on Chinese Communist claims. In 1953, this was roughly 188 million head of all classes. However, a Communist claim in 1954 placed all livestock at 231 million head, a 100 million of which were claimed to be hogs. It is not known on what basis this second claim is made or the composition of the various animal classes. In addition, since the claim of 188 million head is 16 percent above prewar estimates, it was believed that for this report the former claim is probably the most reliable basis on which to show the various factors such as the number of the different animals per province, density per square kilometer, and area of concentration. The 1953 estimate was adjusted for the classes shown in this report so as to represent the situation in 1954. It should be recognized, however, that a later Communist claim is substantially larger than the data utilized.

Table 12, 13, 14, 15, and 16 cover hogs, cattle, water buffalo, goats and sheep respectively. The tables show the number of the various classes of animal by region and for province, the density of the animals for these areas in terms of number per square kilometer of total area in the political division, and the number of animals of that specific class as a percentage of the total estimated numbers of that species in China.

Maps have been prepared for each of 5 classes of livestock so as to assist in the determination of the most important areas as regards the various livestock species. The maps show two features; a) density per square kilometer by political unit, and b) the degree of concentration in terms of the national total for the given political unit.

Animal Diseases in China*

Animal diseases in China are common. Practically all types of diseases are found whether caused by viruses, protozoa, or nutritional deficiencies. 25X1

Although protozoan diseases are classed as parasitic diseases, China has in addition a large number of non-protozoic parasites.

The diseases that are primarily epizootic are rinderpest, hog cholera, anthrax, swine erysipelas, swine plague, foot and mouth disease, bovine contagious pleuropneumonia, sheep pox and rabies. Other infectious diseases are enzootic and some such as bovine tuberculosis and bang's disease are chronic.

There follows a list of the prevalent animal and fowl diseases in the different provinces of China which is based on "rough" data received from the different epizootic prevention or agricultural organizations in the different provinces of China during a survey made by the National Research Bureau of Animal Industry, Ministry of Agriculture and Forestry, in 1946.

Kwangtung -- Rinderpest, hog cholera, anthrax, piroplasmosis.
Kwangsi -- Rinderpest
Kiangsi -- Rinderpest, hog cholera, anthrax, swine erysipelas, infectious necrotic enteritis, fowl cholera, hemorrhagic septicemia.
Szechwan -- Rinderpest, anthrax, swine erysipelas, swine plague, hog cholera.
Suiyuan -- Rinderpest, hog cholera, anthrax, glanders, sheep pox, sheep scab, hemorrhagic septicemia.
Chahar -- Rinderpest, hog cholera, glanders, sheep pox, fowl cholera.
Jehol -- Rinderpest, hog cholera, sheep pox.
Hopei -- Rinderpest, tetanous, Bang's disease.
Honan -- Rinderpest, hog cholera, swine erysipelas, glanders, fowl cholera, hemorrhagic septicemia.
Shansi -- Rinderpest, hog cholera, fowl cholera, glanders.
Shantung -- Fowl cholera, rinderpest, hog cholera.
Hunan -- Rinderpest, hog cholera, anthrax, swine erysipelas, fowl cholera, fowl pest, hemorrhagic septicemia, glanders, chicken pox, tuberculosis.
Hupeh -- Rinderpest
Hunan -- Rinderpest, hog cholera, fowl cholera.
Kweichow -- Rinderpest, hog cholera, anthrax, hemorrhagic septicemia.
Chekiang -- Rinderpest, hog cholera, anthrax, fowl cholera, fowl pest, hemorrhagic septicemia.
Kiangsu -- Hog cholera, anthrax, Bang's disease, tuberculosis.
Anhwei -- Fowl cholera, glanders.
Fukien -- Rinderpest, hog cholera, anthrax, fowl cholera, fowl pest, hemorrhagic septicemia, malignant edema, piroplasmosis.
Manchuria -- Rinderpest, anthrax, tuberculosis, Bang's disease, contagious pleuro-pneumonia, foot and mouth disease, rabies, glanders, dourine, fowl plague, fowl cholera, pullouem.

After World War II animal disease control and prevention had been developed by the Nationalist government with considerable aid in equipment and technical personnel from UNRRA. Epizootic prevention bureaus were established in seven regions, Southeast, Southwest, WestChina, Northwest, North China, Suiyuan, and Tsinghai. Each bureau had a serum plant which supplied the serums

and vaccines needed in the regions. In addition to these bureaus, nearly every province had animal disease prevention teams. These organizations laid a good base and the Chinese Communists have pushed the work in animal disease and epidemic control.

No attempt has been made to systematically organize and study recent outbreaks of animal diseases in Communist China or to assess available material concerning the government's control efforts and their efficiency.* Certain outbreaks of diseases are reported and their extent described.

The Communists reported serious epidemic outbreaks in the springs of 1950 and 1951.** Of the different kind of animal diseases reported, rinderpest and foot and mouth disease were the most widespread. The foot and mouth disease broke out in the Yarkand district of Sinkiang in May of 1950 and spread over a fourth of the area of the province. There was considerable delay in instituting control measures. By February 1951, the disease appeared in Tsinghai, Kansu, Ninghsia, Shensi, and Sikang provinces and shortly thereafter, it appeared in 156 hsien, (counties), in Suiyuan, Shansi, Chahar, Hopeh, Inner Mongolia, Jehol, and Kiangsu. Admittedly incomplete reports indicate that some three and a half million head of various types of livestock were infected by this outbreak.

In the spring of 1951, rinderpest spread to 71 hsien in Shansi, Suiyuan, Charhar, Hopeh, Kansu, Tsinghai, Sikang, Yunnan, Kwangtung, and Kwangsi. To check this epidemic, veterinarians were organized into mobile teams and epidemic control stations were set up in the affected areas. During that spring, over two and a half million head of buffaloes and cattle were inoculated against the disease. These measures apparently brought the outbreak under control.

Fragmentary reports indicate the presence of other diseases in 1950-1951. Anthrax, glanders, hog cholera, and erysipelis were all reported from various parts of the country. Hog cholera and erysipelis were reported in Fukien in 1950 but by 1952, according to Communist claims, hog cholera occurred in only 20 hsien and erysipelis in 60 hsien. Anthrax and glanders were prevalent in 32 hsien of Honan in the spring of 1950 and 1951. In the Tenghsien and Sanchow districts of that province more than five thousand head of cattle died from these diseases.

More recently a hog disease epidemic was reported in Inner Mongolia, August 1954, and a unnamed epidemic among livestock was reported from the same area the previous month.

A comprehensive survey of Chinese source materials would probably reveal other reports of outbreaks of animal diseases.

25X1

* By recent is meant the period of Communist control of the China Mainland, 1949-1955.

Control efforts concerning animal diseases are more frequently reported by the Chinese Communists than are actual outbreaks or losses occasioned by diseases. They claim there are now 10,000 veterinarians with modern technical training and 80,000 representatives of the old school, a large number of whom have had short term courses in modern veterinary practice. It was officially estimated that in the course of three years, 1950-1952, a total of 87 million head of domestic animals were inoculated or treated for various animal diseases and further that in 1954, 48 percent of the cattle in the country had been inoculated.* By 1953, it was claimed that rinderpest was nearly eliminated throughout the country and that foot and mouth disease and anthrax were also basically controlled and stopped from spreading.

25X1

Unquestionably the problem of control of animal diseases in China is a major one. Undoubtedly the Communist regime has attacked the problem in an aggressive fashion. The impression is left, however, in spite of extensive claims by the Communists, that only the surface has been scratched and that the control of animal diseases and parasites is still in the distant future.

25X1

TAB

APPENDIX A

USSR

Table 1

USSR: Livestock Numbers in Specified Republics, Oblasts, and Krays, 1 January 1953 a/

(000 Head)

Republic, Oblast or Kray	Cattle	% of Total	Swine	% of Total	Sheep	% of Total	Goats	% of Total
Northwest (Ia)								
Karelo-Finnish SSR	128		35		176		39	
Murmansk Oblast	6		4		15		21	
Leningrad Oblast	255		112		464		49	
Pskov Oblast	233		123		522		78	
Novgorod Oblast	284		154		686		97	
Subtotal	906	1.6	428	1.5	1,863	1.9	284	1.9
Northern European USSR (Ib)								
Arkhangel'sk Oblast	310		65		319		64	
Vologda Oblast	495		126		444		68	
Komi ASSR	101		23		125		3	
Subtotal	906	1.6	214	0.8	888	0.9	135	0.9
Baltic (IIa)								
Estonia SSR	481		282		263		b/	
Latvian SSR	892		598		551		n.a.	
Lithuanian SSR	942		945		586		b/	
Kaliningrad Oblast	402		523		32		n.a.	
Subtotal	2,717	4.8	2,348	8.2	1,432	1.5	c/	
Belorussia (IIb)								
Eastern Belorussia								
Polotsk Oblast	214		176		227		23	
Vitebsk Oblast	207		188		183		31	
Mogilev Oblast	240		312		128		28	
Minsk Oblast	244		288		133		49	
Bobruysk Oblast	226		257		117		31	
Gomel' Oblast	219		250		58		48	
Poles'ye Oblast	241		191		101		7	
Western Belorussia								
Grodno Oblast	159		126		132		3	
Molodechno Oblast	171		147		165		6	
Baranovichi Oblast	174		156		120		7	
Pinsk Oblast	171		103		99		5	
Brest Oblast	167		154		135		5	
Subtotal	2,433	4.3	2,348	8.2	1,598	1.7	243	1.7

Table 1 (cont'd)

(000 Head)

Republic, Oblast, or Kray	Cattle	% of Total	Swine	% of Total	Sheep	% of Total	Goats	% of Total
Ukraine (III)								
Ukraine SSR								
West Ukraine								
Volyn Oblast	391		266		138		2	
Rovno Oblast	373		282		107		3	
L'vov Oblast	297		161		45		4	
Fernopol' Oblast	348		218		66		24	
Stanislav Oblast	297		134		115		30	
Drogobych Oblast	265		69		33		8	
Trans-Carpathian O.	338		89		112		-	
Chernovtsy Oblast	152		105		252		8	
North Ukraine								
Vinnetsa Oblast	613		554		124		41	
Zhitomir Oblast	600		477		111		4	
Kiev Oblast	788		816		124		75	
Chernigov Oblast	512		596		141		50	
Sumy Oblast	410		513		126		67	
Poltava Oblast	618		703		183		110	
Khar'kov Oblast	524		519		150		83	
Kamenets-Podol'sk O.	489		474		91		9	
South Ukraine								
Ismail' Oblast	75		57		379		1	
Odessa Oblast	379		332		226		38	
Nikolayev Oblast	229		133		196		9	
Kherson Oblast	268		201		233		10	
Kirovograd Oblast	356		360		68		24	
Dnepropetrovsk O.	514		590		196		46	
Zaporozh'ye Oblast	350		327		308		14	
Stalino Oblast	450		488		294		120	
Voroshilovgrad O.	360		284		205		101	
Crimea Oblast	260		134		793		78	
Moldavian SSR	497		379		1,662		28	
Subtotal	10,753	19.0	9,180	32.2	6,478	6.8	987	6.2
Lower Don-North Caucasus (IV)								
Rostov Oblast	1,154		538		1,942		132	
Krasnodar Oblast	965		884		802		148	
Stavropol' Kray	1,073		410		3,728		237	
Grozny Oblast	79		28		235		161	
Dagestan ASSR	572		13		1,650		585	
North Ossetian ASSR	121		48		251		48	
Kabardinian ASSR	167							
Subtotal	4,131	7.3	1,921	6.7	8,608	9.0	1,311	9.2

Table 1 (cont'd)

(000 Head)

Republic, Oblast, or Kray	Cattle	% of Total	Swine	% of Total	Sheep	% of Total	Goats	% of Total
Transcaucasus (V) (See Asiatic USSR)								
Volga VI								
Astrakhan Oblast	283		86		805		81	
Stalingrad Oblast	893		332		2,100		286	
Saratov Oblast	667		388		1,738		266	
Kuybyshev Oblast	285		161		1,192		181	
Ul'Yanovsk Oblast	427		161		795		121	
Tatar ASSR	615		365		1,889		363	
Subtotal	3,170	5.6	1,493	5.2	8,519	8.9	1,298	9.1
Central European USSR (VII)								
Upper Volga								
Kirov Oblast	598		214		515		81	
Chuvash Oblast	233		170		542		86	
Mari ASSR	139		70		194		52	
Central Industrial								
Gor'kiy Oblast	519		272		792		278	
Kostroma Oblast	282		109		279		27	
Ivanovo Oblast	196		51		279		56	
Yaroslavl' Oblast	282		66		279		28	
Vladimir Oblast	219		76		326		56	
Ryazan Oblast	477		366		721		59	
Tula Oblast	374		237		482		13	
Kaluga Oblast	506		266		540		32	
Moscow Oblast	515		310		443		95	
Western								
Kalinin Oblast	527		160		627		19	
Velikiye Oblast	283		164		302		24	
Smolensk Oblast	656		103		699		6	
Central Agricultural								
Bryansk Oblast	394		246		354		35	
Orel Oblast	393		149		354		35	
Kursk Oblast	758		475		525		108	
Voronezh Oblast	826		329		787		236	
Tambov Oblast	321		324		487		33	
Penza Oblast	343		455		488		107	
Mordvin ASSR	215		404		367		116	
Subtotal	9,056	16.0	5,016	17.6	10,382	10.9	1,582	11.0

Table 1 (cont'd)

(000 Head)

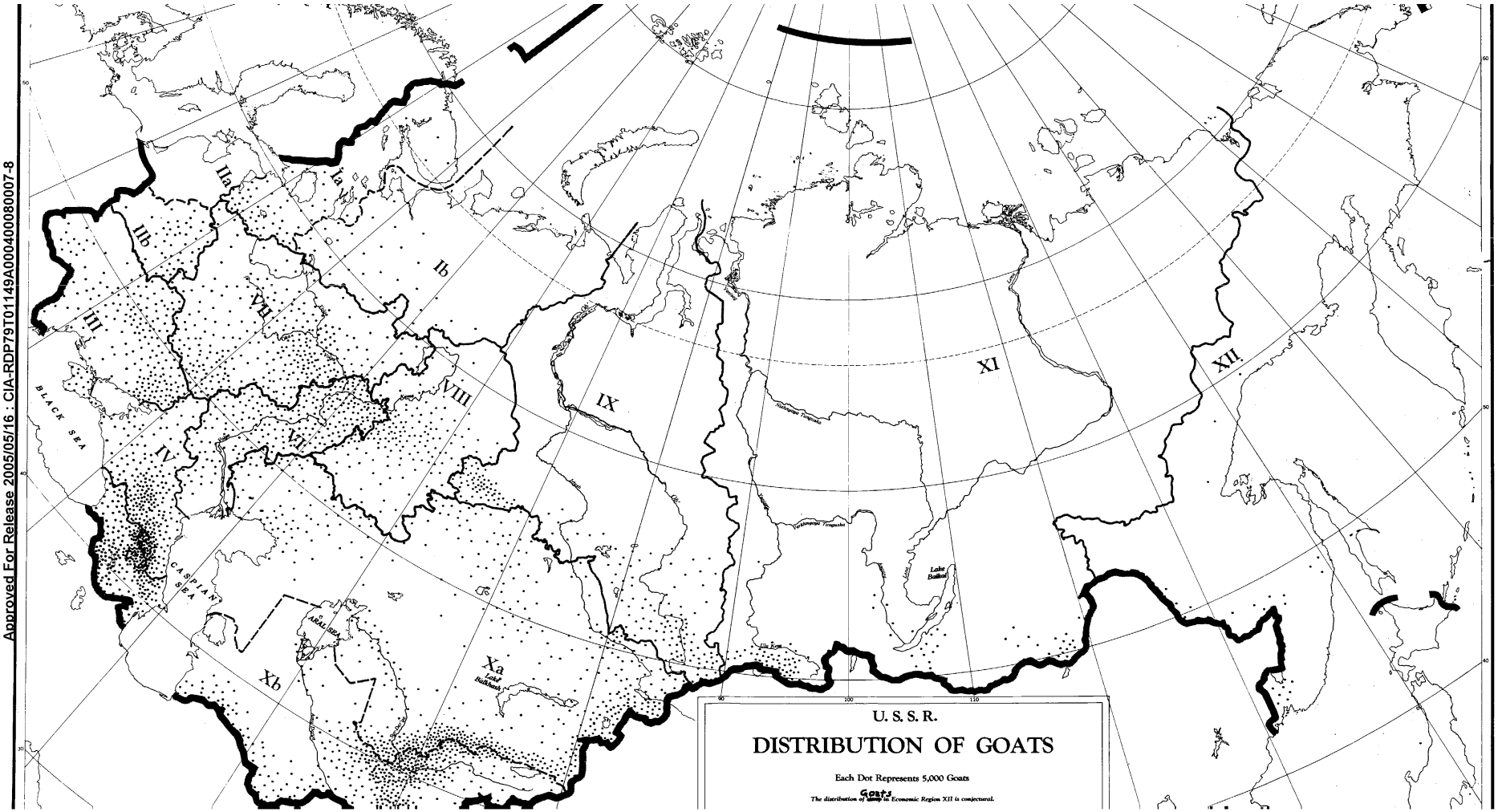
Republic, Oblast, or Kray	Cattle	% of Total	Swine	% of Total	Sheep	% of Total	Goats	% of Total
Urals VIII								
European								
Udmurt ASSR	266		207		336		22	
Molotov Oblast	478		302		462		102	
Bashkir ASSR	1,083		360		1,539		320	
Chkalov Oblast	817		200		1,212		97	
Subtotal	2,644	4.7	1,069	3.8	3,549	3.7	541	3.8
Total European USSR	36,716	64.9	24,017	84.3	43,317	45.3	6,381	44.5
Asiatic								
Sverdlovsk Oblast	574		340		428		106	
Chelyabinsk Oblast	574		193		725		70	
Subtotal	1,148	2.0	533	1.9	1,153	1.2	176	1.2
West Siberia (IX)								
Kurgan Oblast	516		138		570		289	
Tyumen' Oblast	45		18		42		2	
Omsk Oblast	941		373		883		42	
Novosibinsk Oblast	1,211		480		1,135		55	
Kemerovo Oblast	747		296		701		34	
Altay Kray Oblast	1,469		445		2,014		408	
Tomsk Oblast	165		65		154		8	
Subtotal	5,094	9.0	1,815	6.4	5,499	5.8	838	5.8
Kazakh SSR (Xa)								
North Kazakhstan Oblast	157		7.8		449		30	
Kokchetav Oblast	310		15.4		877		59	
Pavlodar Oblast	333		16.2		1,316		42	
Kustanay Oblast	487		26.8		1,190		107	
Aktyubinsk Oblast	382		10.7		784		134	
Akmolinsk Oblast	347		16.2		988		88	
West Kazakhstan O.	554		9.8		1,699		161	
Gur'yev Oblast	134		1.4		835		188	
East Kazakhstan O.	289		39.4		1,119		177	
Semipalatinsk O.	431		61.3		2,041		321	
Taldy-Kurgan O.	177		30.8		1,398		218	
Alma-Ata Oblast	154		26.1		1,180		184	
Dzhambul Oblast	200		25.3		1,701		359	
Karaganda Oblast	279		9.4		866		167	
Kzyl-Orda Oblast	68		2.5		566		147	
South Kazakhstan O.	226		19.9		2,067		523	
Subtotal	4,528	8.0	319.0	1.1	19,070	20.0	2,905	20.3

Table 1 (cont'd)

(000 Head)

Republic, Oblast, or Kray	Cattle	% of Total	Swine	% of Total	Sheep	% of Total	Goats	% of Total
Central Asia (Xb)								
Kirgiz SSR	533		92.3		3,280		427	
Uzbek SSR	1,549		77.4		6,966		886	
Tadzhik SSR	549		21.3		1,804		684	
Turkmen SSR	256		23.0		3,383		354	
Subtotal	2,887	5.1	214.0	0.8	15,433	16.1	2,351	16.4
East Siberia (XI)								
Krasnoyarsk Kray	770		309.5		1,160.9		8	
Irkutsk Oblast	438		146.4		237.3		29	
Buryat-Mongol' ASSR	384		54.9		334.2		63	
Chita Oblast	503		110.8		643.3		105	
Yakut ASSR	394		11.3		.3		0	
Tuva Autonomous O.	171		8.1		463.0		227	
Subtotal	2,660	4.7	641.0	2.2	2,839.0	3.0	432	3.0
Far East (XII)								
Primorskiy Kray	160		128.5		336		69	
Khabarovsk Kray	180		85.5		462		53	
Subtotal	340	0.6	214.0	0.8	798	0.8	122	0.9
Transcaucasus (V)								
Azerbaydzhan SSR	1,238		101.5		3,234		503	
Georgian SSR	1,415		576.2		2,566		416	
Armenian SSR	574		69.3		1,651		216	
Subtotal	3,227	5.7	747.0	2.6	7,451	7.8	1,135	7.9
Total Asiatic USSR	19,884	35.1	4,483.0	15.7	52,243	54.7	7,959	55.5
USSR Grand Total	56,600		28,500.0		95,560		14,340	

a. Present boundaries.
b. Included with sheep.
c. Included with sheep or not available.



U. S. S. R.

DISTRIBUTION OF GOATS

Each Dot Represents 5,000 Goats

The distribution of Goats in Economic Region XII is conjectural.

ECONOMIC REGIONS

- I North and Northwest
  - Ia Northwest
  - Ib North
- II West
  - IIa Baltic
  - IIb Belorussia
- III South (Ukraine and Moldavia)
- IV Southeast (Lower Don and North Caucasus)
- V Transcaucasus
- VI Volga
- VII Central
- VIII Urals
- IX West Siberia
- X Kazakhstan and Central Asia
  - Xa Kazakhstan
  - Xb Central Asia
- XI East Siberia
- XII Far East

Boundary of Economic Region

TAB

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APPENDIX B

EASTERN EUROPEAN SATELLITES

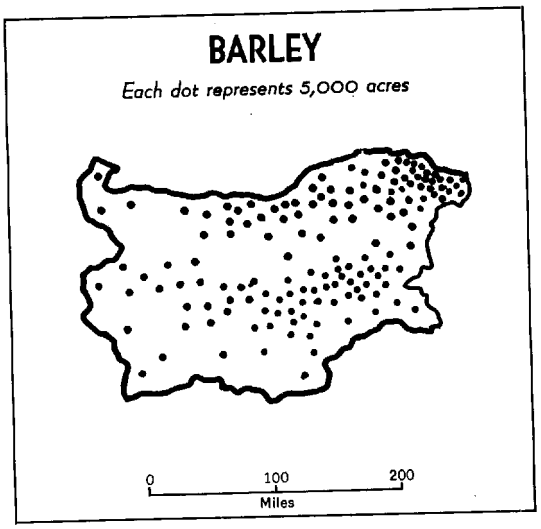
Table 1: Acreage, Yield and Production of Selected Grains for European Satellites, 1935-39 Average and 1953*

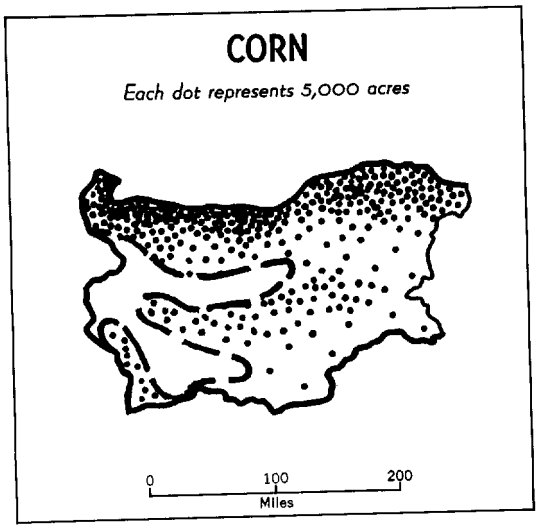
	Prewar			1953		
	Harvested Area (1,000 Ha.)	Yield (Q/Ha.)	Prod. (1,000 MT)	Harvested Area (1,000 Ha.)	Yield (Q/Ha.)	Prod. (1,000 MT)
EE Total						
Wheat	8,607	14.6	12,563	7,614	12.8	9,789
Rye	8,749	13.95	12,208	7,229	12.9	9,357
Barley	3,686	14.9	5,506	3,167	13.8	4,355
Oats	4,496	15.2	6,852	4,009	13.0	5,235
Total	25,538	14.5	37,129	22,019	13.0	28,736
Bulgaria						
Wheat	1,361	13.9	1,880	1,500	12.7	1,905
Rye	257	11.0	283	240	10.5	252
Barley	274	13.8	378	295	13.6	401
Oats	147	8.9	131	155	8.0	124
Total	2,039	13.1	2,672	2,190	12.2	2,682
Czechoslovakia						
Wheat	873	17.7	1,550	780	19.5	1,521
Rye	961	16.4	1,577	645	18.4	1,187
Barley	648	17.4	1,128	645	18.6	1,200
Oats	740	16.7	1,234	610	16.8	1,025
Total	3,222	17.0	5,489	2,680	18.4	4,933
East Germany						
Wheat	605	26.3	1,589	275	23.5	646
Rye	1,198	17.8	2,134	1,200	16.2	1,944
Barley	433	24.9	1,078	272	22.0	598
Oats	732	23.1	1,691	709	18.3	1,297
Total	2,968	21.9	6,492	2,456	18.3	4,485
Hungary						
Wheat	1,656	14.9	2,482	1,302	14.3	1,862
Rye	641	11.6	746	482	11.8	569
Barley	471	13.9	657	445	13.2	587
Oats	226	12.9	291	230	12.0	276
Total	2,994	13.9	4,176	2,459	13.4	3,294
Poland						
Wheat	1,319	15.3	2,014	1,375	12.1	1,664
Rye	5,433	13.3	7,214	4,512	11.7	5,279
Barley	1,040	15.9	1,655	900	13.1	1,179
Oats	1,983	14.9	2,961	1,730	12.1	2,093
Total	9,775	14.2	13,844	8,517	12.0	10,215
Rumania						
Wheat	2,793	10.9	3,048	2,382	9.2	2,191
Rye	259	9.8	254	150	8.4	126
Barley	822	7.4	610	610	6.4	390
Oats	656	8.3	544	575	7.3	420
Total	4,530	9.8	4,456	3,717	8.4	3,127

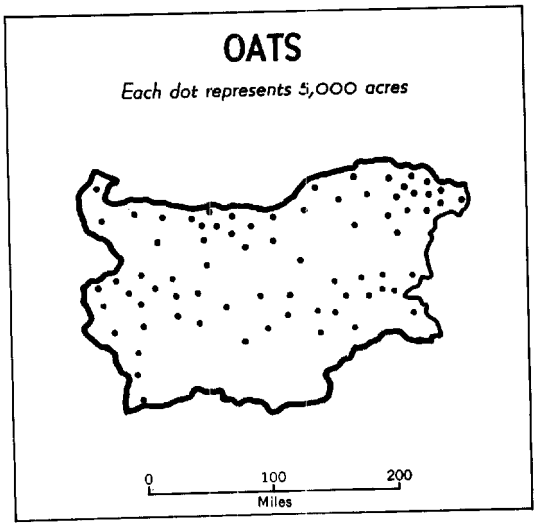
25X1

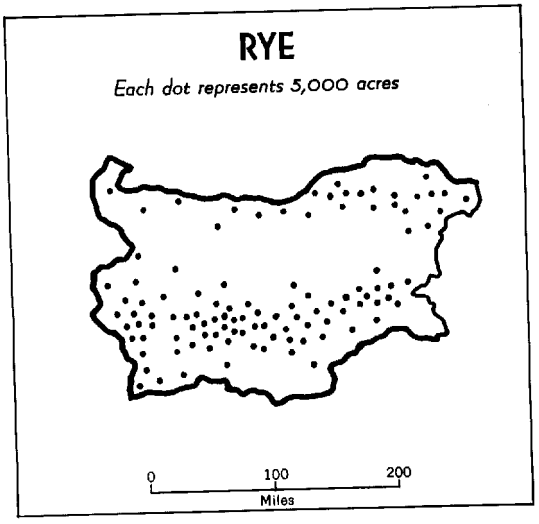
*

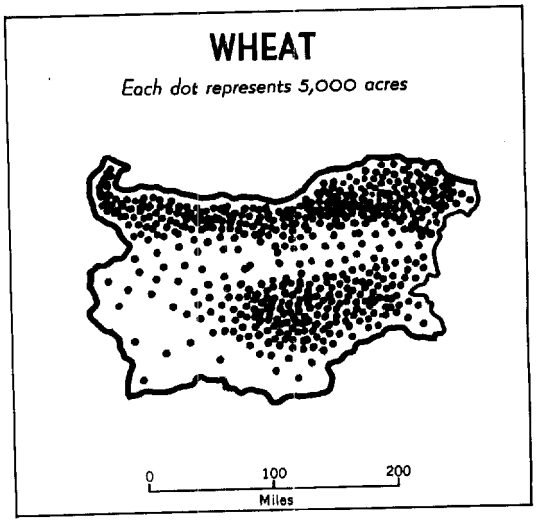
Figure 1. BULGARIA: Crop Distribution











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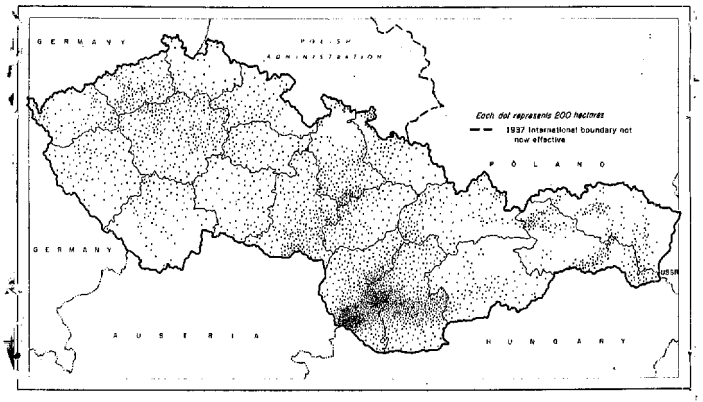
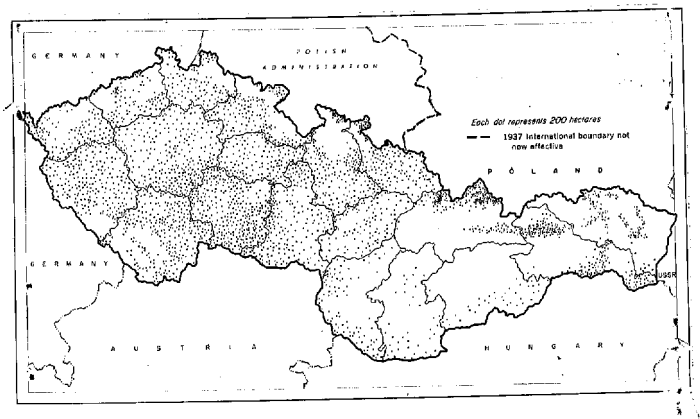
B-2

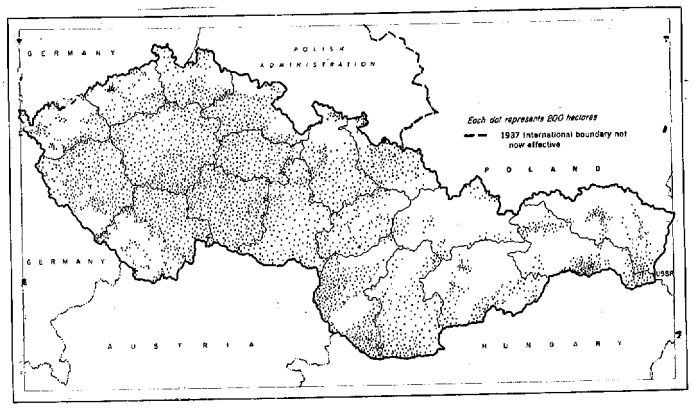
Figure 2. CZECHOSLOVAKIA: Crop Distribution



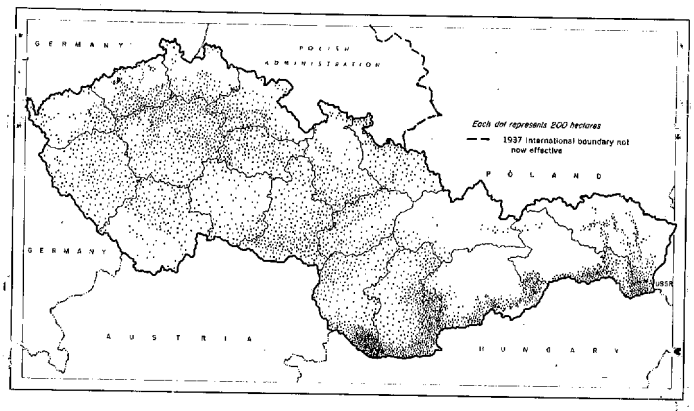
DISTRIBUTION OF AREA IN BARLEY, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF AREA IN OATS, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF AREA IN RYE, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF AREA IN WHEAT, CZECHOSLOVAKIA, 1949

Figure 3. EAST GERMANY: Crop and Animal Distribution

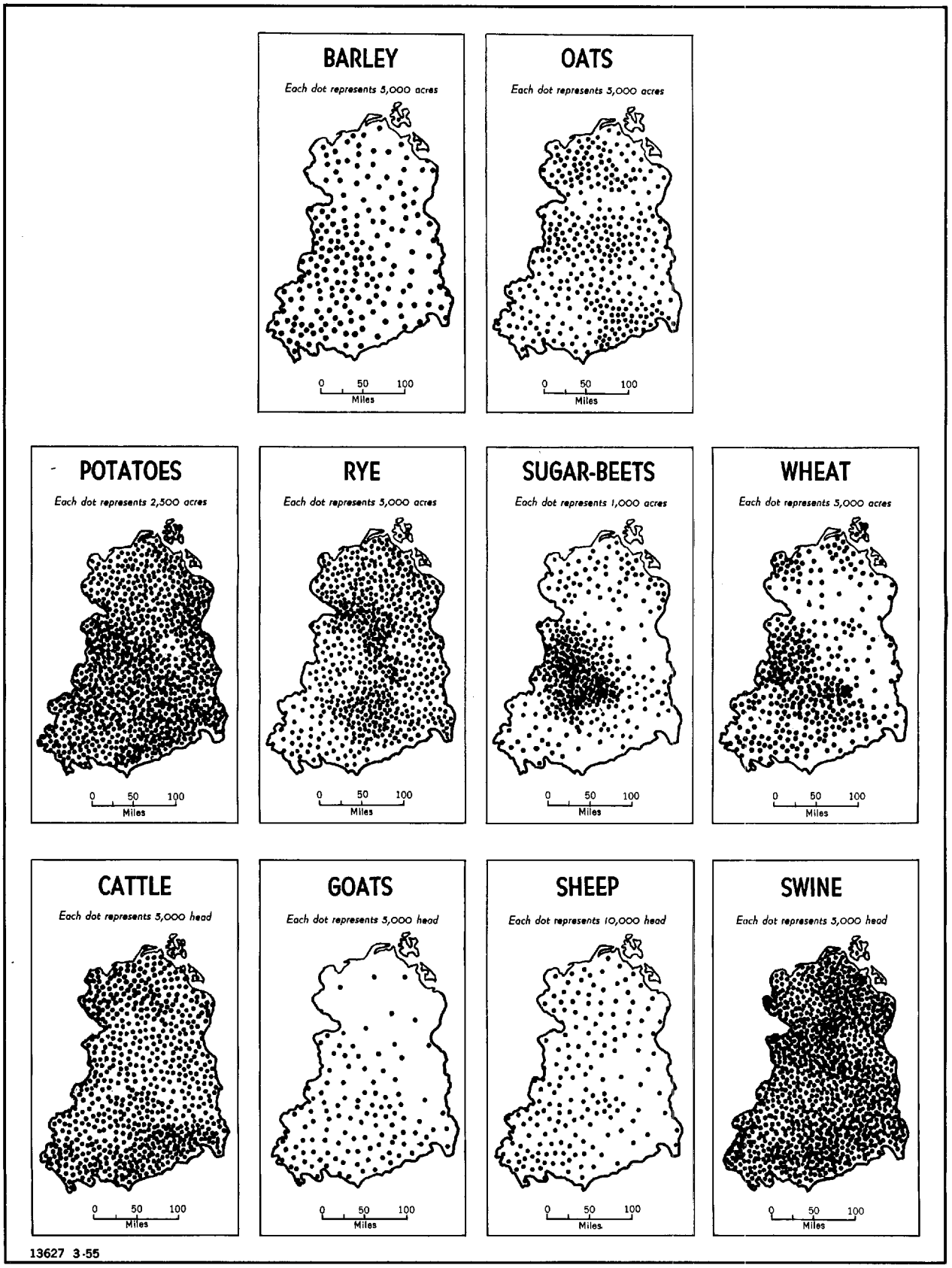


Figure 4. HUNGARY: Crop Distribution

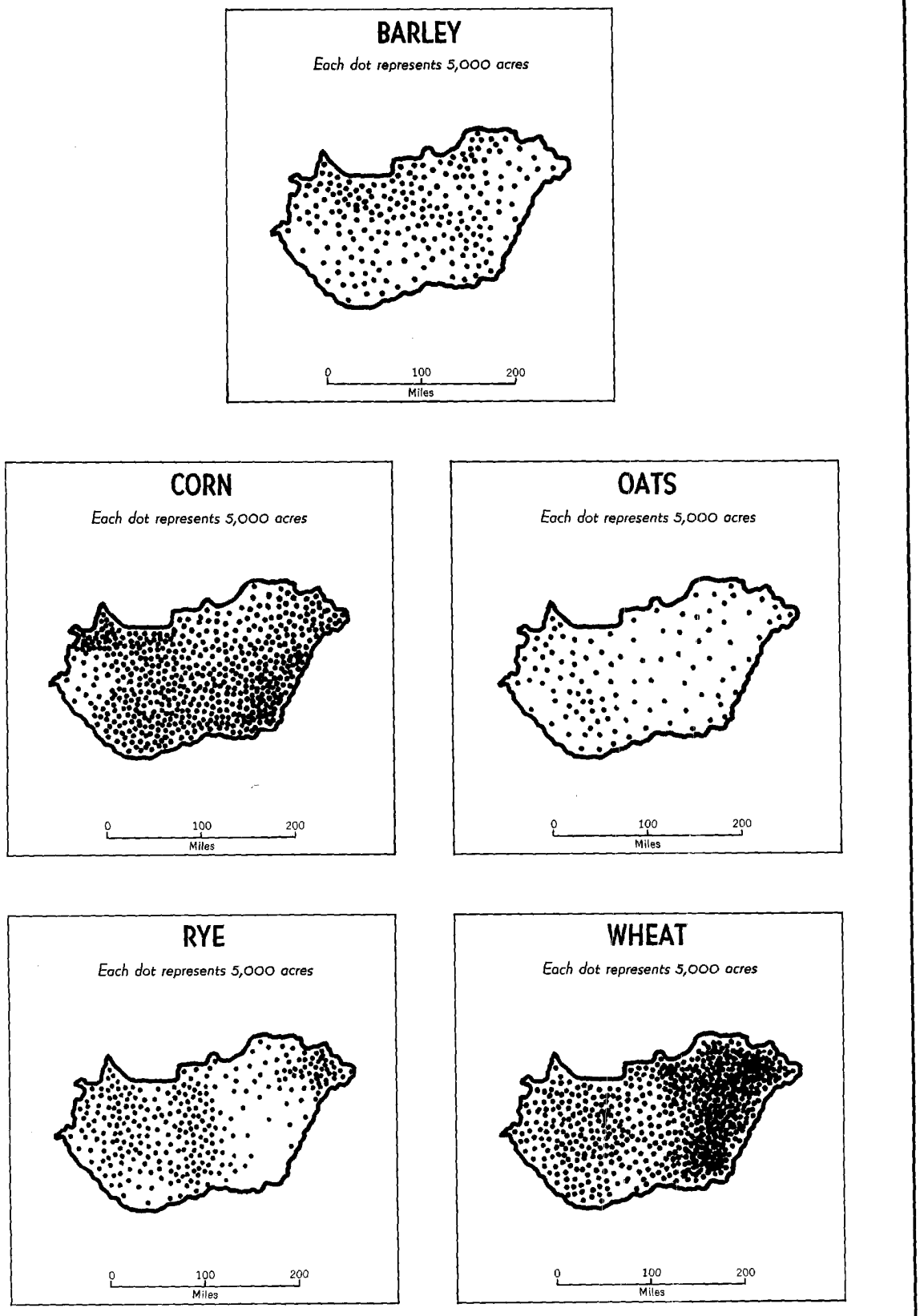


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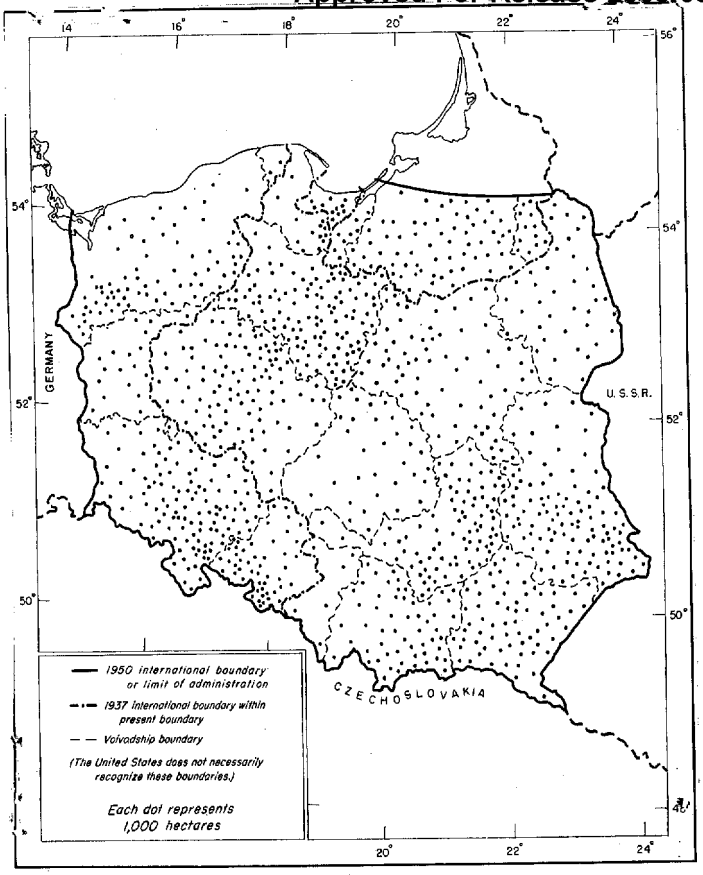
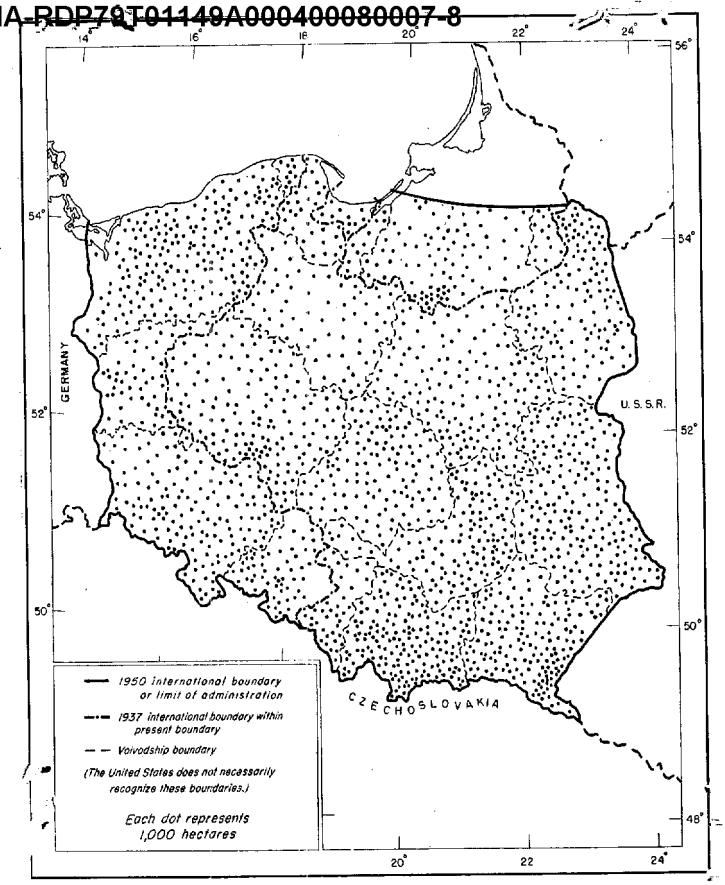
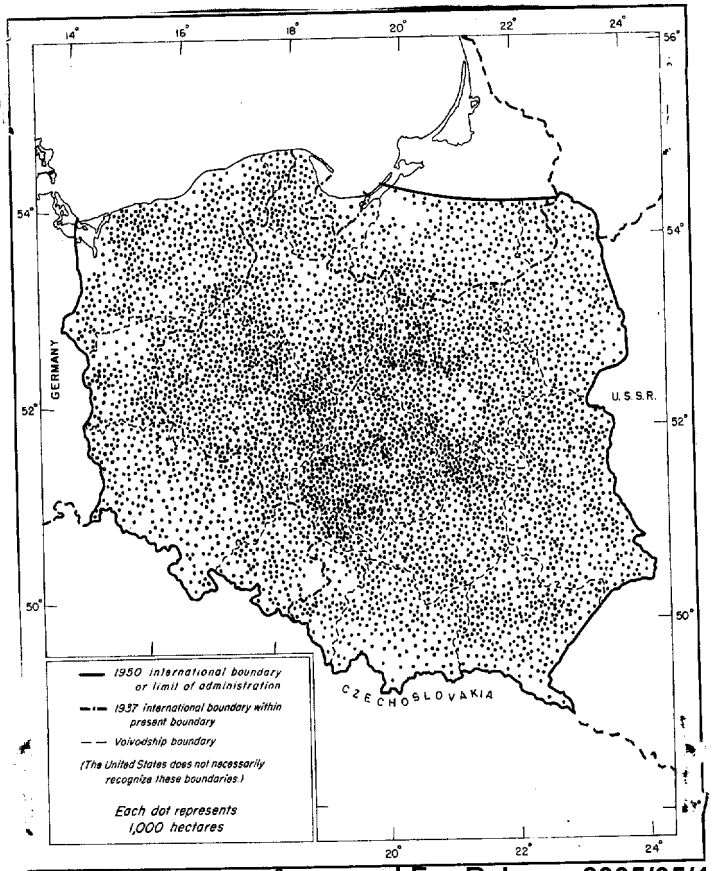
Figure 5. POLAND: Crop Distribution



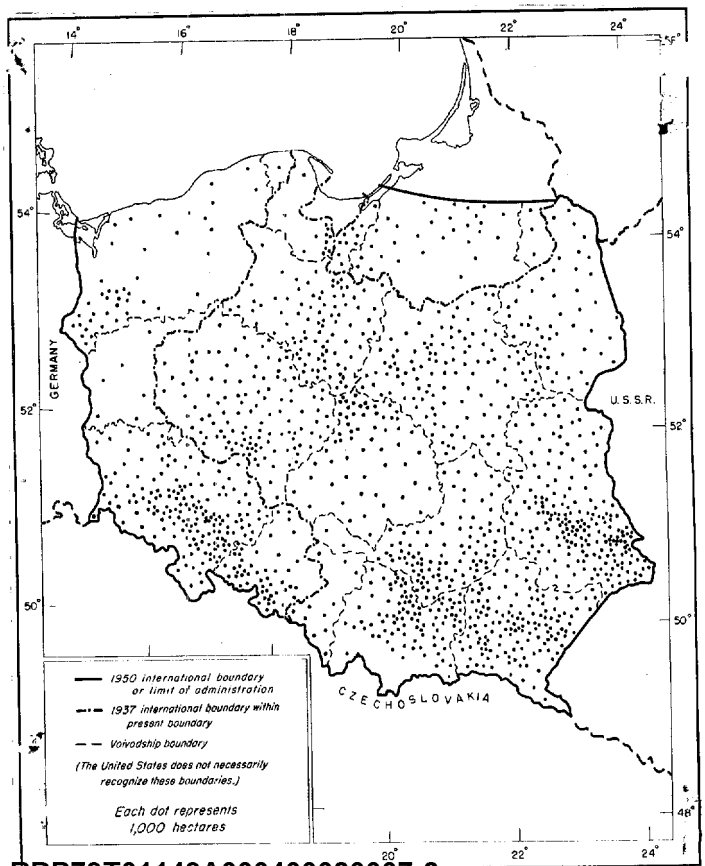
DISTRIBUTION OF AREA IN BARLEY, POLAND, 1938
(PRESENT BOUNDARIES)



DISTRIBUTION OF AREA IN OATS, POLAND, 1938
(PRESENT BOUNDARIES)

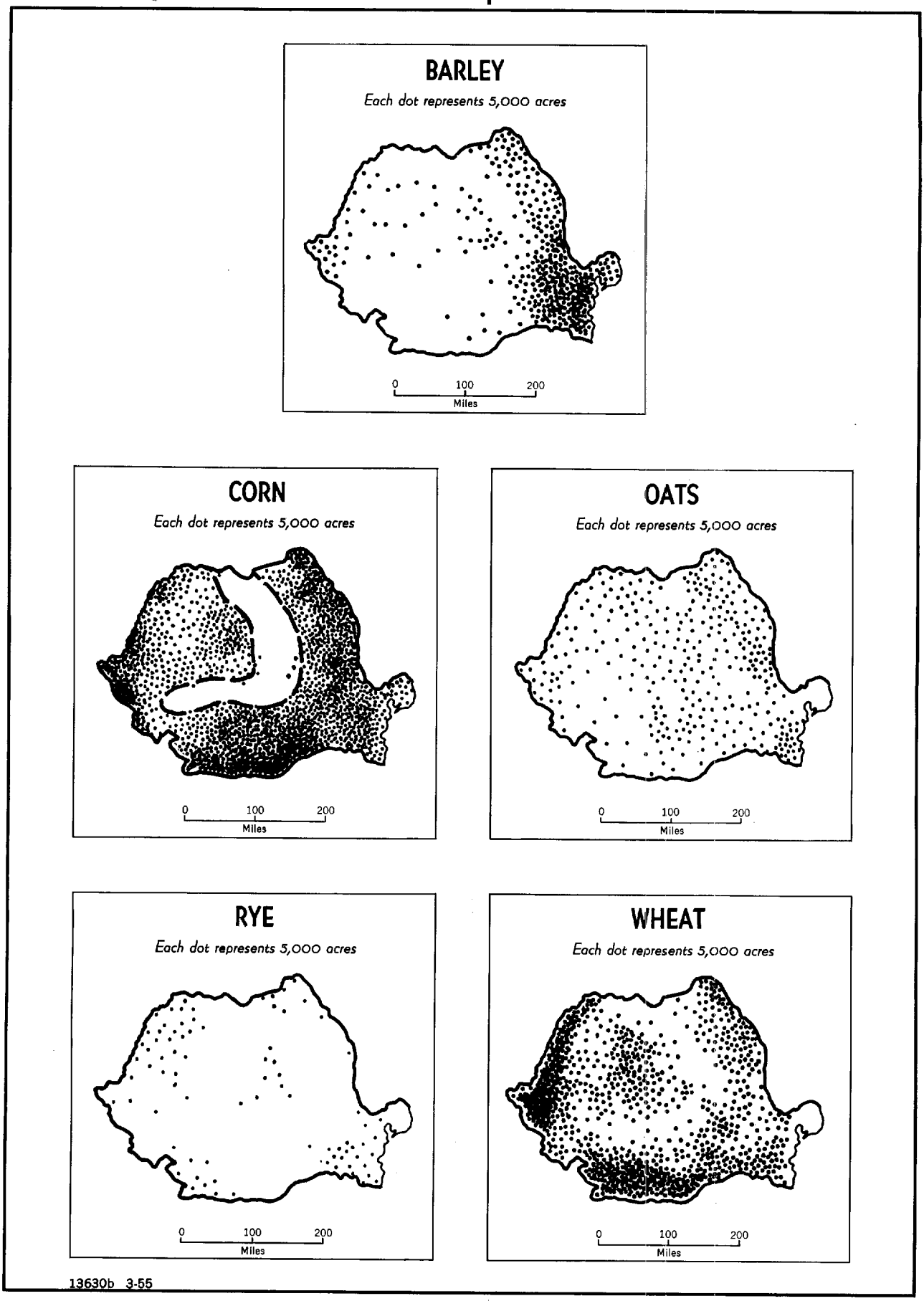


DISTRIBUTION OF AREA IN RYE, POLAND, 1938
(PRESENT BOUNDARIES)



DISTRIBUTION OF AREA IN WHEAT, POLAND, 1938
(PRESENT BOUNDARIES)

Figure 6. ROMANIA: Crop Distribution



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8-B

Table II. Livestock Numbers in Selected Eastern European Countries
Prewar and 1953

	Prewar a/						1953				
	Census Date Month	Cattle (000)	Hogs (000)	Sheep (000)	Goats (000)	Cattle (000)	Hogs (000)	Sheep (000)	Goats (000)
Total Europe		25,512	25,486	25,343	3,779	23,337	30,087	25,159	4,217
Bulgaria	I	1,822	833	8,746	812	1,508	1,390	7,865	1,000
Czechoslovakia	I	4,475	3,174	1,492	1,040	4,000	3,712	1,480	593
East Germany	I	3,577 b/	5,744 b/	1,560 b/	692 b/	3,877	8,283	1,421	1,326
Hungary	III-IV	1,905	3,620	1,868	66	1,800	3,450	987	88
Poland	VI	9,924	9,684	1,941	787	7,385	9,730	3,330	620
Rumania	I	3,809	2,431	9,736	382	4,767	3,522	11,076	600

a/ 1935-39 average.
b/ 1934-38 average.

Figure 7. **BULGARIA: Animal Distribution**

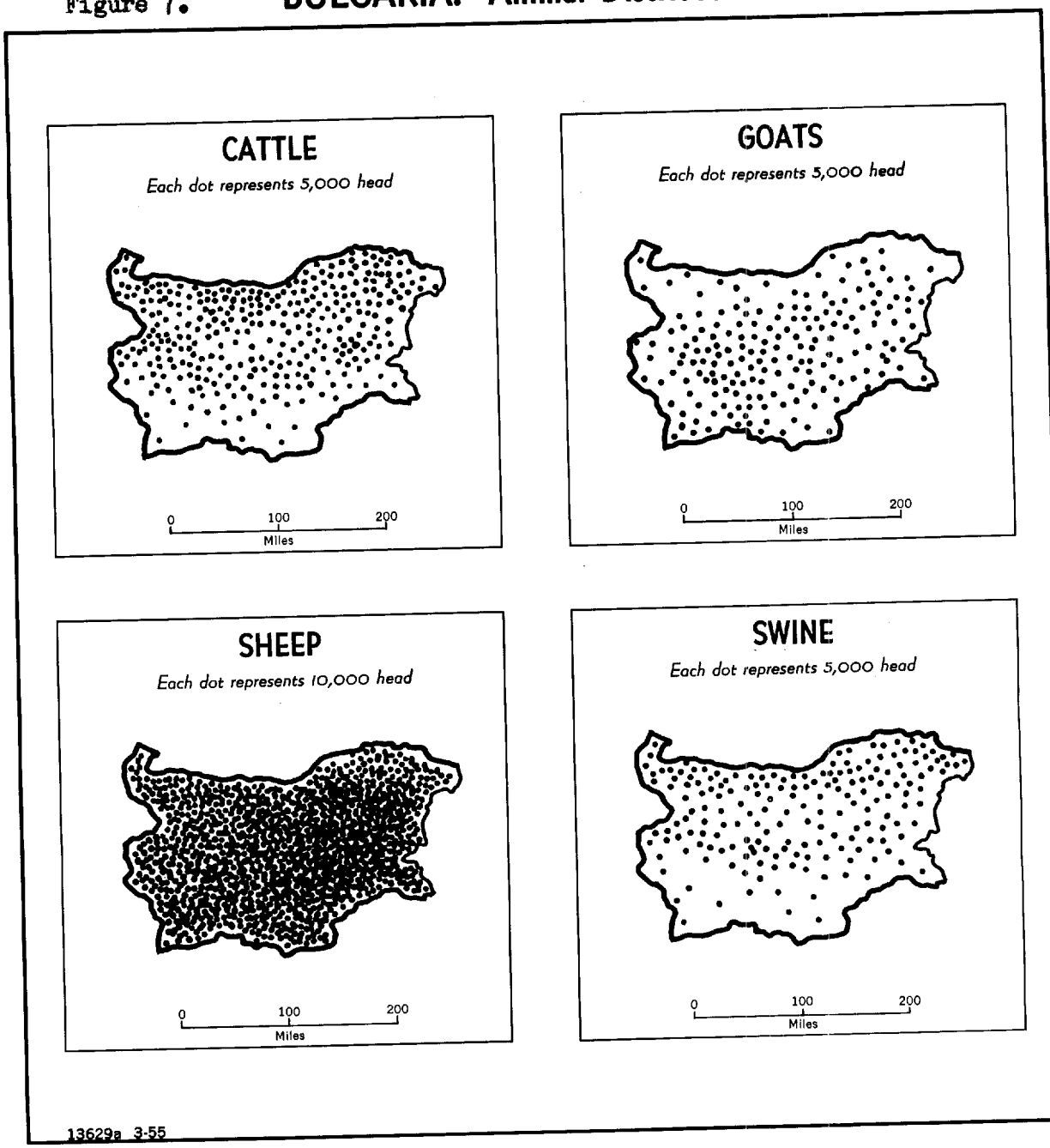

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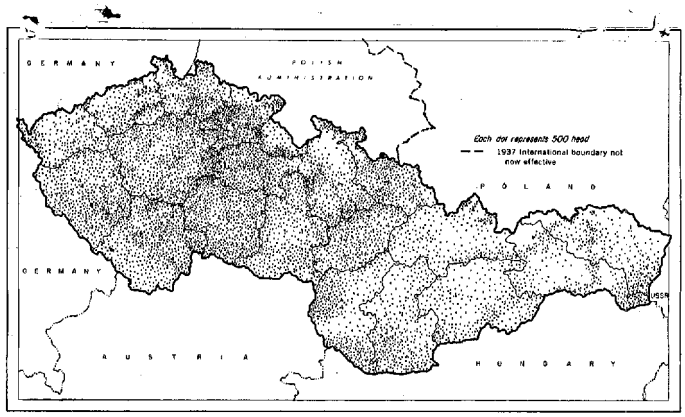
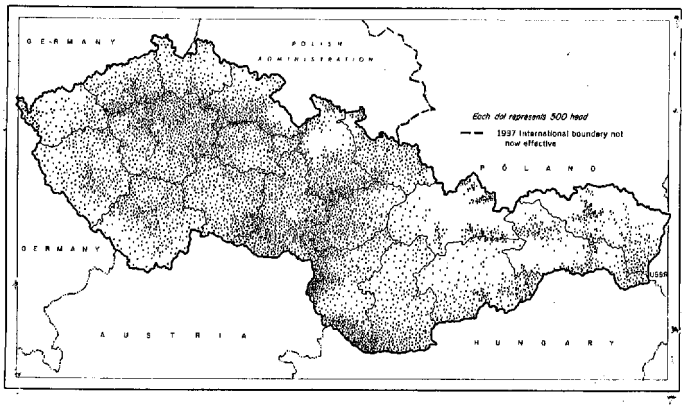
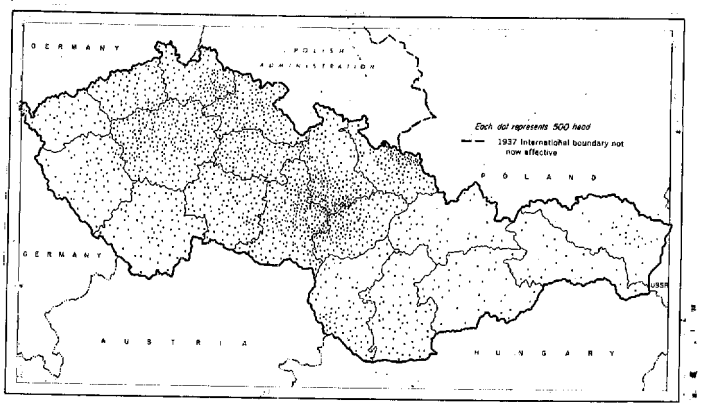
Figure 8. CZECHOSLOVAKIA: Animal Distribution



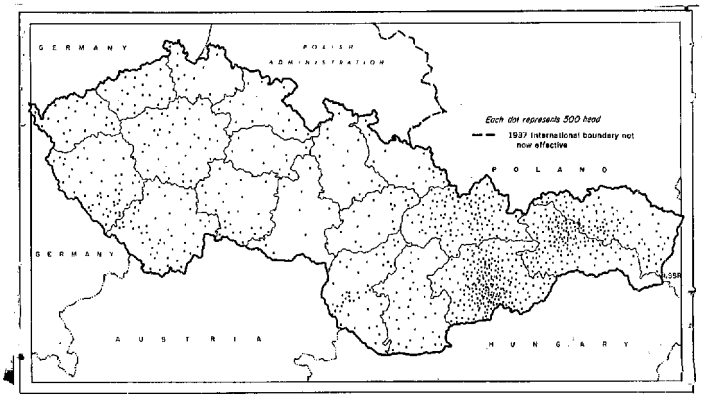
DISTRIBUTION OF CATTLE, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF HOGS, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF GOATS, CZECHOSLOVAKIA, 1949



DISTRIBUTION OF SHEEP, CZECHOSLOVAKIA, 1949

Figure 9. **HUNGARY: Animal Distribution**

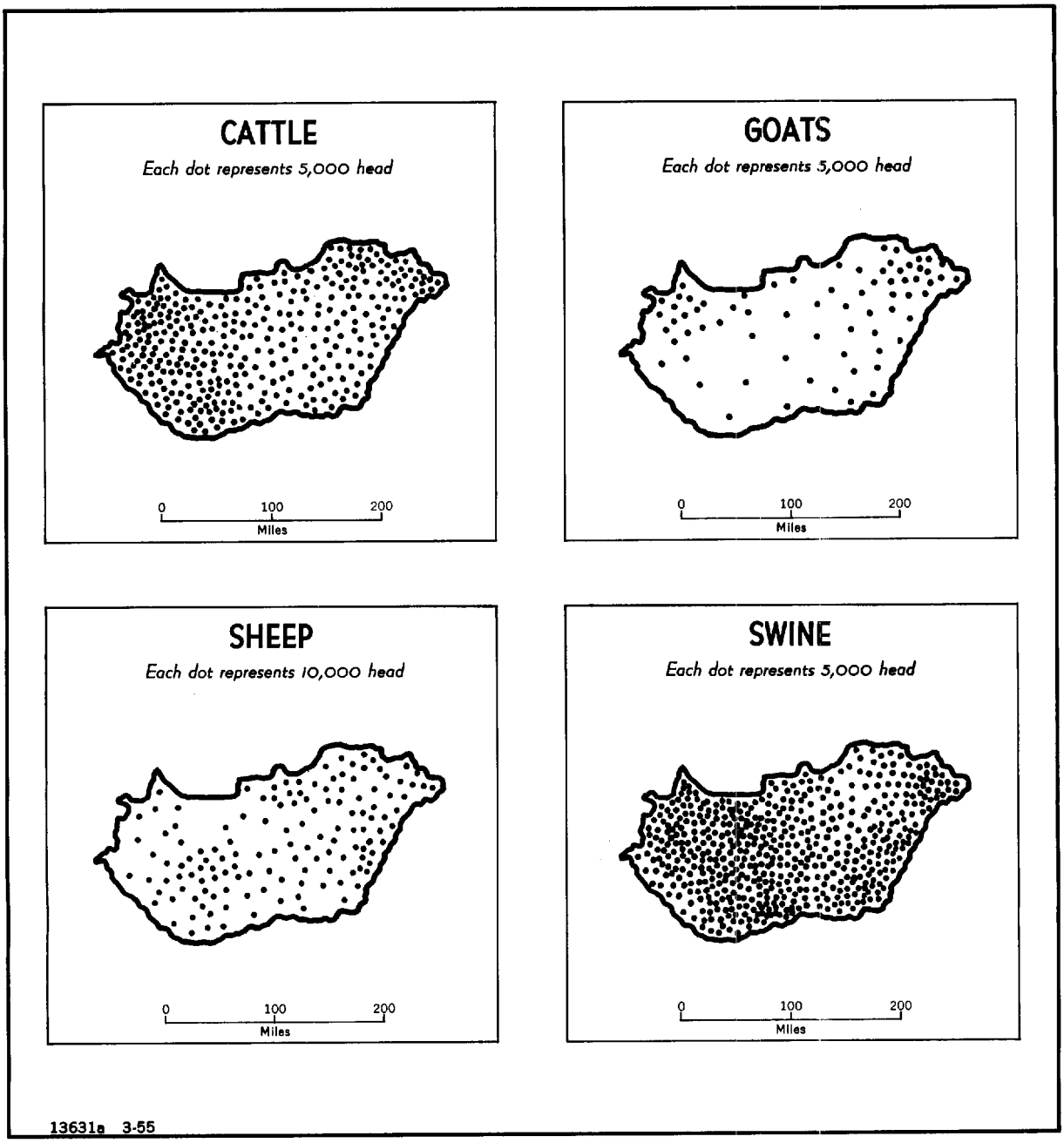


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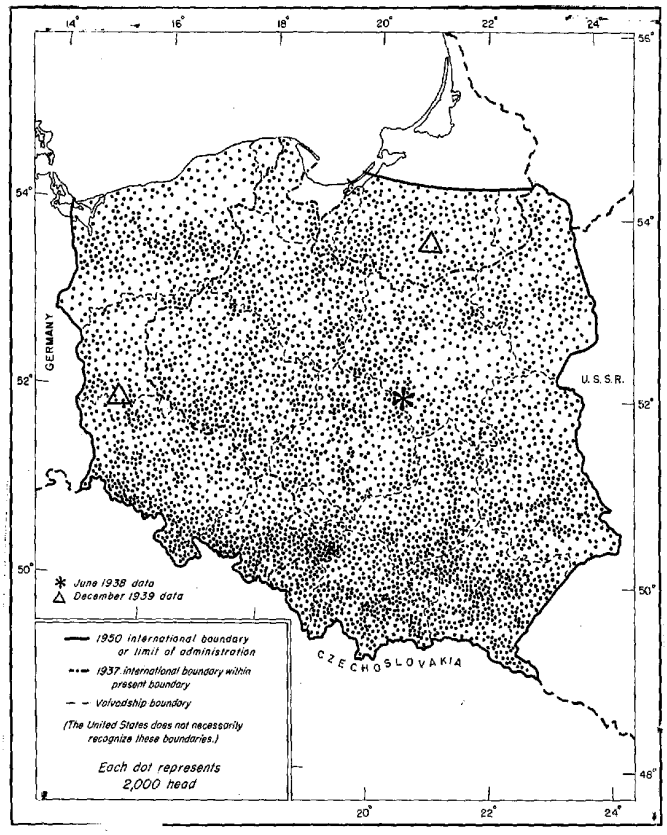
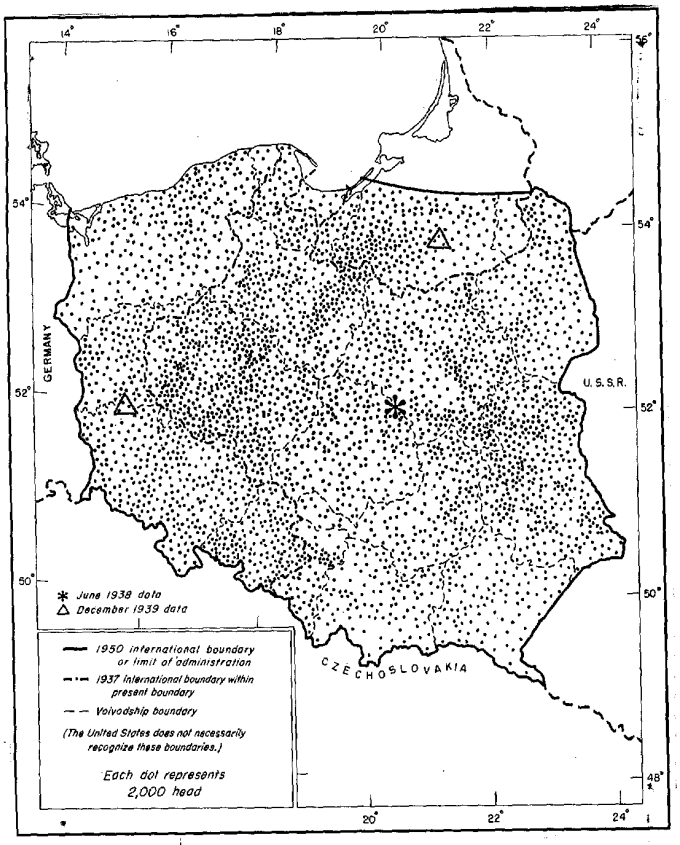
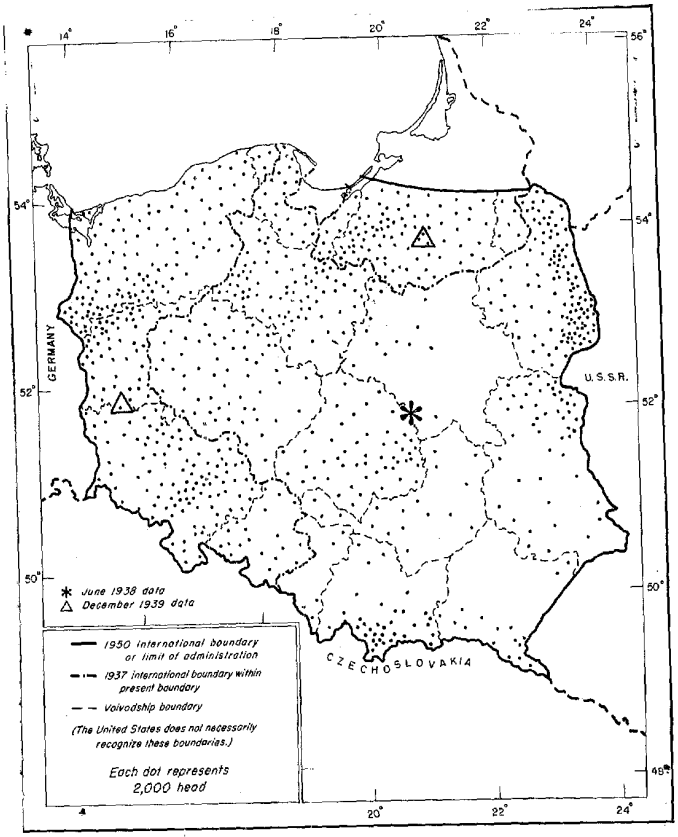
Figure 10.



DISTRIBUTION OF CATTLE, POLAND (PRESENT BOUNDARIES), WESTERN TERRITORIES, 1939, AND POLAND Proper 1938

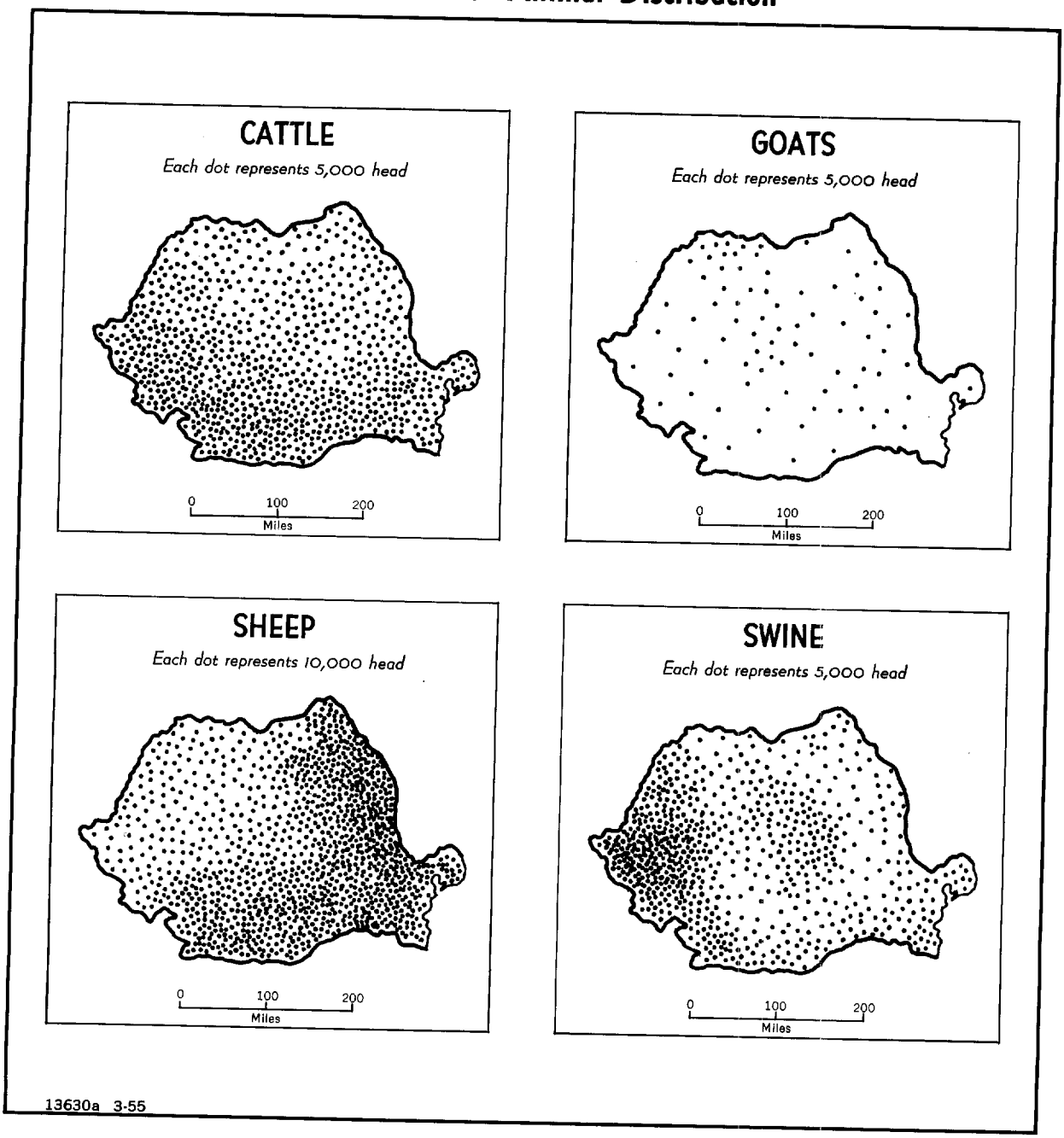


DISTRIBUTION OF HOGS, POLAND (PRESENT BOUNDARIES), WESTERN TERRITORIES, 1939, AND POLAND PROPER, 1938



DISTRIBUTION OF SHEEP, POLAND (PRESENT BOUNDARIES), WESTERN TERRITORIES, 1939, AND POLAND PROPER, 1938

Figure 11. **RUMANIA: Animal Distribution**



TAB

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APPENDIX C

COMMUNIST CHINA

China Table 3: Total Area of Region and Province, Amount of Cultivated Land, and Proportion of Total Area Cultivated.

Region and Province	Total Area a/ (000 ha.)	Area Cultivated b/ (000 ha.)	Percent of Total Area Cultivated (Percent)
Northeast	88,100	17,996 g/	20.4
Heilungkiang			
Kirin			
Liaoning			
Jehol			
North China	65,561	14,211	21.7
Suiyuan	31,106	1,145	3.7
Shansi	17,138	4,859	28.4
Hopeh	17,317 h/	8,207 f/	47.4
East China	62,213	21,649	34.8
Shantung	14,631	6,799	46.5
Kiangsu	10,882	5,687	52.3
Anhwei	14,472	4,955	34.2
Chekiang	9,643	2,777	28.8
Fukien	12,585	1,431	11.4
South-Central China	118,793	22,204	18.7
Honan	18,459	6,942	37.5
Hupeh	19,261	4,300	22.3
Hunan	21,706	3,347	15.4
Kiangsi	18,117	2,889	15.9
Kwangtung	22,651	2,733	12.1
Kwangsi	18,599	1,993	10.7
Northwest	304,945	6,425	2.1
Sinkiang	171,193	994	.6
Tsinghai	52,811	521	1.0
Kansu	62,274 g/	1,868 g/	3.0
Shensi	18,667	3,042	16.3
Southwest	141,458	13,656	9.7
Sikang	45,152	267	.6
Kweichow	17,386	1,545	8.9
Yunnan	39,500	1,748	4.4
Szechwan	39,420	10,096	25.6
Total	781,970	96,141	12.3

(See attached page for footnotes.)

Footnotes for Table 3 - China

a. There have been some major boundary shifts, most of which are accounted for, some boundary shifts involving the retention of a province and merely some gain or loss in size have been ignored. The loss of area in Kwangtung and its transfer to Kwangsi is the major case of this type of transfer which is ignored here.

b. Hopeh plus 14 percent of the area of Chahar as an approximation to the present boundaries.

c. Kansu plus Ninghsai.

d. Cultivated land data was taken from T. H. Shan, Agricultural Resources of China, and from MIS-39.

e. An approximate datum based on a total cultivated estimate for Manchuria minus the Hsing-an Banners plus the cultivated area of Jehol province.

f. Cultivated land for Hopeh plus 90 percent of the cultivated area of Chahar.

Table 4. By Regions and Provinces: Area Under Rice, Percentage of Total Area in Rice, Percentage of Total Cultivated Area in Rice, and Area Under Rice in the Regions and Provinces as a Percentage of the National Area in Rice, 1954

Region and Province	Area in Rice Thous. Ha.	Area of Rice as Percentage of Total Area of Region or Province Percent	Area of Rice as Percentage of Cultivated Area of Region or Province Percent	Area in Rice as Percentage of Total Area Under Rice in the Nation Percent
Northeast	318.0	.4	1.8	1.6
Heilungkiang) Kirin) Liaoning) Jehol)	Not available on a provincial basis			
North China	135.4	.2	.1	.7
Suiyuan	neg.	neg.	neg.	neg.
Shansi	9.0	.1	.2	.1
Hopeh	126.4	.7	1.5	.6
East China	5,462.0	8.8	25.2	27.3
Shantung	21.8	.1	.3	.1
Kiangsu	1,767.0	16.2	31.1	8.9
Anhwei	1,100.6	7.6	22.2	5.5
Chekiang	1,745.7	18.1	62.9	8.7
Fukien	826.9	6.6	57.8	4.1
South-Central China	10,003.8	8.4	45.1	50.0
Honan	174.0	.9	2.5	.9
Hupeh	1,731.7	9.0	40.3	8.6
Hunan	1,811.7	8.3	54.1	9.1
Kiangsi	1,501.6	8.3	52.0	7.5
Kwangtung	3,223.2	14.2	117.9	16.1
Kwangsi	1,561.6	8.4	78.4	7.8
Northwest	129.9	neg.	2.0	.7
Sinkiang	neg.	neg.	neg.	neg.
Tsinghai	neg.	neg.	neg.	neg.
Kansu	19.2	neg.	1.0	.1
Shensi	110.7	.6	3.6	.6
Southwest	3,948.7	2.8	28.9	19.7
Sikang	neg.	neg.	neg.	neg.
Kweichow	584.0	3.4	37.8	2.9
Yunnan	722.6	1.8	41.3	3.6
Szechwan	2,642.1	6.7	26.2	13.2
Totals	19,997.8	2.6	20.8	100.0

Table 5. By Regions and Provinces: Area Under Wheat, Percentage of Total Area in Wheat, Percentage of Total Cultivated Area in Wheat, and Area Under Wheat in the Regions and Provinces as a Percentage of the National Area Under Wheat, 1954

Region and Province	Area in Wheat Thous. Ha.	Area of Wheat as Percentage of Total Area of Region or Province Percent	Area of Wheat as Percentage of Cultivated Area of Region or Province Percent	Area in Wheat as Percentage of Total Area Under Wheat in the Nation Percent
Northeast	1,135	1.3	6.3	4.2
Heilungkiang)				
Kirin)		Not available on a provincial basis		
Liaoning)				
Jehol)				
North China	3,321	5.1	23.4	12.5
Suiyuan	175	.6	15.3	.7
Shansi	1,270	7.4	26.1	4.8
Hopeh	1,876	10.8	22.9	7.0
East China	9,324	15.0	43.1	34.9
Shantung	3,304	22.6	48.6	12.4
Kiangsu	2,170	19.9	38.2	8.1
Anhwei	2,371	16.4	47.9	8.9
Chekiang	891	9.2	32.1	3.3
Fukien	588	4.7	41.1	2.2
South-Central China	6,667	5.6	30.0	25.0
Honan	4,154	22.5	59.8	15.6
Hupeh	1,000	5.2	23.3	3.7
Hunan	400	1.8	12.0	1.5
Kiangsi	435	2.4	15.1	1.6
Kwangtung	285	1.3	10.4	1.1
Kwangsi	393	2.1	19.7	1.5
Northwest	3,602	1.2	56.1	13.5
Sinkiang	616	.4	62.0	2.3
Tsinghai	160	.3	30.7	.6
Kansu	1,469	2.4	78.6	5.5
Shensi	1,357	7.3	44.6	5.1
Southwest	2,631	1.9	19.3	9.9
Sikang	47	.1	17.6	.2
Kweichow	395	2.3	25.6	1.5
Yunnan	300	.8	17.2	1.1
Ssechwan	1,889	4.8	18.7	7.1
Totals	26,680	3.8	27.8	100.0

C-4

Table 6. By Regions and Provinces: Area Under Barley, Percentage of Total Area in Barley, Percentage of Total Cultivated Area in Barley, and Area Under Barley in the Regions and Provinces as a Percentage of the National Area in Barley, 1954

Region and Province	Area in Barley Thous. Ha.	Area of Barley as Percentage of Total Area of Region or Province Percent	Area of Barley as Percentage of Cultivated Area of Region or Province Percent	Area in Barley as Percentage of Total Area Under Barley in the Nation Percent
Northeast	121	.1	.7	1.8
Heilungkiang)				
Kirin)	Not available on a provincial basis			
Liaoning)				
Jehol)				
North China	505	.8	3.6	7.4
Suiyuan	34	.1	3.0	.5
Shansi	198	1.2	4.1	2.9
Hopeh	273	1.6	3.3	4.0
East China	2,395	3.8	11.1	35.1
Shantung	273	1.9	4.0	4.0
Kiangsu	1,133	10.4	19.9	16.6
Anhwei	423	2.9	8.5	6.2
Chekiang	382	4.0	13.8	5.6
Fukien	184	1.5	12.9	2.7
South-Central China	2,143	1.8	9.7	31.4
Honan	566	3.1	8.2	8.3
Hupeh	880	4.6	20.5	12.9
Hunan	137	.6	4.1	2.0
Kiangsi	191	1.1	6.6	2.8
Kwangtung	164	.7	6.0	2.4
Kwangsi	205	1.1	10.3	3.0
Northeast	383	.1	6.0	5.6
Sinkiang	N.A.	N.A.	N.A.	N.A.
Tsinghai	96	.2	18.4	1.4
Kansu	96	.2	5.1	1.4
Shensi	191	1.0	6.3	2.8
Southwest	1,277	.9	9.4	18.7
Sikang	N.A.	N.A.	N.A.	N.A.
Kweichow	2.2	1.2	13.7	3.1
Yunnan	164	.4	9.4	2.4
Ssechwan	901	2.3	8.9	13.2
Totals	6,824	.9	7.1	100.0

C-5

Table 7. By Regions and Provinces: Area Under Oats, Percentage of Total Area in Oats, Percentage of Total Cultivated Area in Oats, and Area Under Oats in the Regions and Provinces as a Percentage of the National Area in Oats, 1954

Region and Province	Area in Oats Thous. Ha.	Area in Oats as Percentage of Total Area of Region or Province Percent	Area of Oats as Percentage of Cultivated Area of Region or Province Percent	Area in Oats as Percentage of Total Area Under Oats in the Nation Percent
Northeast	259	.3	1.4	19.8
Heilungkiang) Kirin) Liaoning) Jehol)	Not available on provincial basis			
North China	805	1.2	5.7	61.6
Suiyuan	270	.9	23.6	20.7
Shensi	322	1.9	6.6	24.6
Hopeh	213	1.2	2.6	16.3
East China	76	.1	.8	5.8
Shantung	3	neg.	neg.	.2
Kiangsu	61	.6	1.1	4.7
Anhwei	12	.1	.2	.9
Chekiang	0	0	0	0
Fukien	0	0	0	0
South-Central China	14	neg.	.1	1.1
Honan	2	neg.	neg.	.2
Hupeh	12	.1	.3	.9
Hunan	0	0	0	0
Kiangsi	0	0	0	0
Kwangtung	0	0	0	0
Kwangsi	0	0	0	0
Northwest	107	neg.	1.7	8.2
Sinkiang	N.A.	N.A.	N.A.	N.A.
Tsinghai	48	.1	9.2	3.7
Kansu	52	.1	2.8	4.0
Shensi	7	neg.	.2	.5
Southwest	46	neg.	.3	3.5
Sikang	N.A.	N.A.	N.A.	N.A.
Kweichow	0	0	0	0
Yunnan	0	0	0	0
Ssechwan	46	.1	.5	3.5
Totals	1,307	.2	1.4	100.0

Table 8. By Regions and Provinces: Area Under Rice, Percentage of Total Area in Rice, and Percentage of the National Area in Rice, 1960

Region and Province	Area in Rice Thous. Ha.	Area of Rice as Percentage of Total Area of Region or Province Percent	Area of Rice as Percentage of Total Area Under Rice in the Nation Percent
Northeast	340	.4	1.6
Heilungkiang) Kirin) Liaoning) Jehol)	Not available on a provincial basis		
North China	138	.2	.7
Suiyuan	neg.	neg.	neg.
Shansi	10	.1	.1
Hopeh	128	.7	.6
East China	5,655	9.1	26.4
Shantung	22	.2	.1
Kiangsu	1,831	16.8	8.6
Anhwei	1,151	8.0	5.4
Chekiang	1,808	18.7	8.4
Fukien	843	6.7	3.9
South-Central China	10,916	9.2	51.0
Honan	190	1.0	.9
Hupeh	1,889	9.8	8.8
Hunan	1,978	9.1	9.2
Kiangsi	1,638	9.0	7.7
Kwangtung	3,517	15.5	16.4
Kwangsi	1,704	9.2	8.0
Northwest	194	.1	.9
Sinkiang	neg.	neg.	neg.
Tsinghai	neg.	neg.	neg.
Kansu	29	neg.	.1
Shensi	165	.9	.8
Southwest	4,157	2.9	19.4
Sikang	neg.	neg.	neg.
Kweichow	615	3.5	2.9
Yunnan	761	1.9	3.5
Szechwan	2,781	7.1	13.0
Totals	21,400	2.7	100.0

Table 9. By Regions and Provinces: Area Under Wheat, Percentage of Total Area in Wheat, and Percentage of the National Area in Wheat, 1960

Region and Province	Area in Wheat Thous. Ha.	Area of Wheat as Percentage of Total Area of Region or Province Percent	Area of Wheat as Percentage of Total Area Under Wheat in the Nation Percent
Northeast	1,510	1.7	5.3
Heilungkiang) Kirin) Liaoning) Jehol)	Not available on a provincial basis		
North China	3,503	5.3	12.2
Suiyuan	175	.6	.6
Shansi	1,338	7.8	4.7
Hopeh	1,990	11.5	6.9
East China	9,993	16.1	34.9
Shantung	3,465	23.7	12.1
Kiangsu	2,170	19.9	7.6
Anhwei	2,843	19.6	9.9
Chekiang	903	9.4	3.2
Fukien	612	4.9	2.1
South Central China	6,735	5.7	23.5
Honan	4,214	22.8	14.7
Hupeh	1,000	5.2	3.5
Hunan	400	1.8	1.4
Kiangsi	440	2.4	1.5
Kwangtung	285	1.3	1.0
Kwangsi	396	2.1	1.4
Northwest	4,182	1.4	14.5
Sinkiang	616	.4	2.1
Tsinghai	162	.3	.6
Kansu	2,014	3.2	7.0
Shensi	1,390	7.4	4.8
Southwest	2,743	1.9	9.6
Sikang	47	.1	.2
Kweichow	426	2.5	1.5
Yunnan	300	.8	1.0
Szechwan	1,970	5.0	6.9
Totals	28,666	3.7	100.0

Table 10. By Regions and Provinces: Area Under Barley, Percentage of Total Area in Barley, and Percentage of the National Area in Barley, 1960

Region and Province	Area in Barley (Thous. Ha.)	Area of Barley as Percentage of Total Area of Region or Province (Percent)	Area of Barley as Percentage of Total Area Under Barley in the Nation (Percent)
Northeast	120	.1	1.8
Heilungkiang)			
Kirin)	Not available on a provincial basis		
Liaoning)			
Jehol)			
North China	503	.8	7.4
Suiyuan	34	.1	.5
Shansi	197	1.1	2.9
Hopeh	272	1.6	4.0
East China	2,383	3.8	35.1
Shantung	272	1.9	4.0
Kiangsu	1,127	10.4	16.6
Anhwei	421	2.9	6.2
Chekiang	380	3.9	5.6
Fukien	183	1.5	2.7
South-Central China	2,131	1.8	31.7
Honan	563	3.1	8.3
Hupeh	875	4.5	12.9
Hunan	136	.6	2.0
Kiangsi	190	1.0	2.8
Kwangtung	163	.7	2.4
Kwangsi	204	1.1	3.0
Northwest	380	.1	5.6
Sinkiang	N.A.	N.A.	N.A.
Tsinghai	95	.2	1.4
Kansu	95	.2	1.4
Shensi	190	1.0	2.8
Southwest	1,269	.9	18.7
Sikang	N.A.	N.A.	N.A.
Kweichow	210	1.2	3.1
Yunnan	163	.4	2.4
Ssechwan	896	2.3	13.2
Totals	6,786	.9	100.0

Table 11. By Regions and Provinces: Area Under Oats, Percentage of Total Area in Oats, and Percentage of the National Area in Oats, 1960

Region and Province	Area in Oats Thous. Ha.	Area of Oats as Percentage of Total Area of Region or Province Percent	Area of Oats as Percentage of Total Area Under Oats in the Nation Percent
Northeast	257	.3	19.8
Heilungkiang)			
Kirin)	Not available on a provincial basis		
Liaoning)			
Jehol)			
North China	800	1.2	61.7
Suiyuan	269	.9	20.7
Shansi	320	1.9	24.7
Hopeh	211	1.2	16.3
East China	75	.1	5.7
Shantung	3	neg.	.2
Kiangsu	60	.6	4.6
Anhwei	12	.1	.9
Chekiang	0	0	0
Fukien	0	0	0
South-Central China	13	neg.	1.0
Honan	2	neg.	.2
Hupeh	11	.1	.8
Hunan	0	0	0
Kiangsi	0	0	0
Kwangtung	0	0	0
Kwangsi	0	0	0
Northwest	107	neg.	8.2
Sinkiang	N.A.	N.A.	N.A.
Tsinghai	48	.1	3.7
Kansu	52	.1	4.0
Shensi	7	neg.	.5
Southwest	46	neg.	3.6
Sikang	N.A.	N.A.	N.A.
Kweichow	0	0	0
Yunnan	0	0	0
Szechwan	46	.1	3.6
Totals	1,298	.2	100.0

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Table 12: Region or Province: Number of Hogs, Density per Square Kilometer, and Number in Region or Province as Percentage of the Number in the Nation, 1954.

Region and Province a/	Number of Hogs (000 head)	Density of Hogs per Square Kilometer (Number/sq. kilo.)	Number of Hogs as a Percentage of Hogs in Nation (Percent)
Northeast China	6,037	6.9	7.8
Inner Mongolia b/	619	.6	.8
Shansi	619	3.6	.8
Hopeh	4,644	26.8	6.0
Shantung	4,180	28.6	5.4
Kiangsu	5,960	54.8	7.7
Anhwei	3,328	23.0	4.3
Chekiang	3,251	33.7	4.2
Fukien	2,090	16.6	2.7
Honan	3,793	20.5	4.9
Hupeh	4,721	24.5	6.1
Hunan	5,960	27.5	7.7
Kiangsi	4,489	24.8	5.8
Kwangtung	6,192	27.3	8.0
Kwangsi	4,334	23.3	5.6
Sinkiang	neg.	neg.	neg.
Tsinghai	77	.1	.1
Kansu	1,238	2.0	1.6
Shensi	1,161	6.2	1.5
Sikang	neg.	neg.	neg.
Kweichow	1,703	9.8	2.2
Yunnan	3,251	8.2	4.2
Szechwan	9,753	24.7	12.6
Totals	77,400	9.1	100.0

a. See Table 3 for total area data except Inner Mongolia.

b. 991,166 sq. kilometers, Inner Mongolia plus Suiyuan.

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Table 13: By Region or Province: Number of Cattle, Density per Square Kilometer, and Number in Region or Province as Percentage of Number in Nation, 1954.

Region or Province a/	Number of Cattle (Thousand Head)	Density of Cattle per Square Kilometer (Number/sq. Kilometer)	Number of Cattle as Percentage of All Cattle in Nation (Percent)
Northeast China	1,147	1.3	3.5
Inner Mongolia	1,029	1.0	3.5
Shansi	558	3.3	1.9
Hopeh	1,235	7.1	4.2
Shantung	2,764	18.9	9.4
Kiangsu	1,352	12.4	4.6
Anhwei	1,117	7.7	3.8
Chekiang	941	9.8	3.2
Fukien	382	3.0	1.3
Honan	3,352	18.2	11.4
Hupeh	1,999	10.4	6.8
Hunan	1,470	6.8	5.0
Kiangsi	1,882	10.4	6.4
Kwangtung	1,676	7.4	5.7
Kwangsi	1,588	8.5	5.4
Sinkiang	1,294	.8	4.4
Tsinghai	88	.2	.3
Kansu	911	1.5	3.1
Shensi	970	5.2	3.3
Sikang	1,617	3.6	5.5
Kweichow	617	3.5	2.1
Yunnan	529	1.3	1.8
Szechwan	882	2.2	3.0
Total	29,400	3.5	100.0

a. See Table 3 for total area data and Table 12 for Inner Mongolia.

China Table 14: By Region or Province: Number of Water Buffalo, Density per Square Kilometer, and Number in Region or Province as Percentage of Number in Nation, 1954.

Region or Province a/	Number of Water Buffalo (Thousand Head)	Density of Water Buffalo per Square Kilometer (Number/Sq. Kilometer)	Number of WaterBuffalo As Percentage of all Water Buffalo in Nation (Percent)
Northeast China	0	0	0
Inner Mongolia	0	0	0
Shansi	neg.	neg.	neg.
Hopeh	12	.1	.1
Shantung	12	.1	.1
Kiangsu	944	8.7	7.8
Anhwei	823	5.7	6.8
Chekiang	327	3.4	2.7
Fukien	290	2.3	2.4
Honan	206	1.1	1.7
Hupeh	968	5.0	8.0
Hunan	1,549	7.1	12.8
Kiangsi	859	4.7	7.1
Kwangtung	1,355	6.0	11.2
Kwangsi	1,452	7.8	12.0
Sinkiang	0	0	0
Tsinghai	0	0	0
Kansu	neg.	neg.	neg.
Shensi	12	.1	.1
Sikang	0	0	0
Kweichow	629	3.6	5.2
Yunnan	569	1.4	4.7
Szechwan	2,093	5.3	17.3
Totals	12,100	1.4	100.0

a. See Table 3 for total area data and table 12 for Inner Mongolia.

China Table 15: By Region or Province: Number of Goats, Density per Square Kilometer, and Number in Region or Province as Percentage of Number in the Nation, 1954.

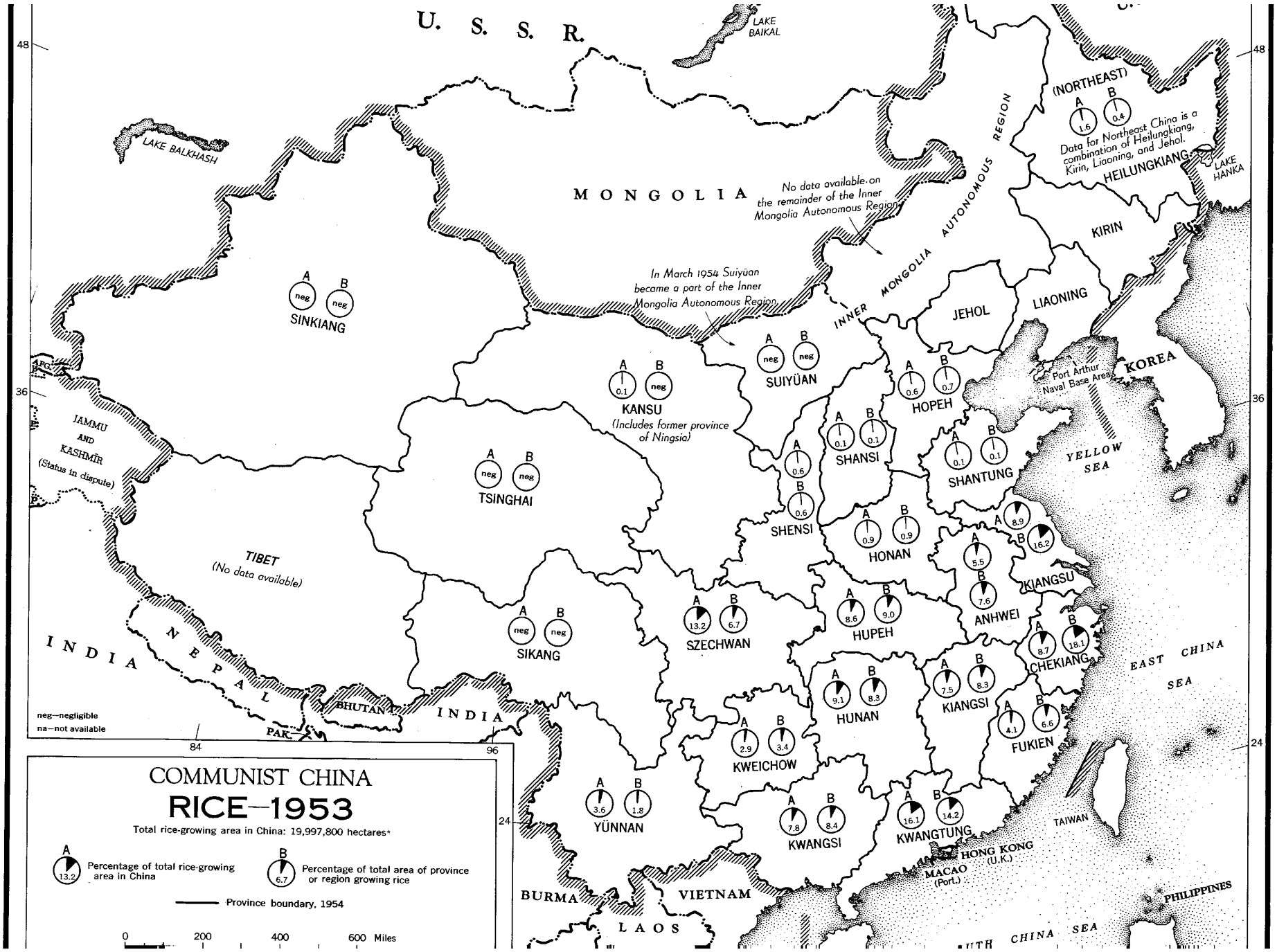
Region or Province a/	Number of Goats (Thousand Head)	Density of Goats per Square Kilometer (Number/Sq. Kilo.)	Number of Goats as a Percentage of all Goats in the Nation (Percent)
Northeast China	1,788	2.0	4.9
Inner Mongolia	2,008	2.0	5.5
Shansi	3,249	20.0	8.9
Hopeh	2,044	11.8	5.6
Shantung	1,898	13.0	5.2
Kiangsu	2,309	22.1	6.6
Anhwei	803	5.5	2.2
Chekiang	1,496	15.5	4.1
Fukien	548	4.4	1.5
Honan	2,993	16.2	8.2
Hupeh	1,934	10.0	5.3
Hunan	766	3.5	2.1
Kiangsi	292	1.6	.8
Kwangtung	840	3.7	2.3
Kwangsi	328	1.8	.9
Sinkiang	3,322	1.9	9.1
Tsinghai	292	.6	.8
Kansu	3,650	5.9	10.0
Shensi	1,278	6.8	3.5
Sikang	n.a.	n.a.	n.a.
Kweichow	474	2.7	1.3
Yunnan	1,204	3.0	3.3
Szechwan	2,884	7.3	7.9
Totals	36,500	4.3	100.0

a. See Table 3 for total area data and Table 12 for Inner Mongolia.

China Table 16: By Region or Province; Number of sheep, Density per Square Kilometer, and Number in Region or Province as a Percentage of the Number in the Nation, 1954.

Region or Province a/	Number of Sheep (Thousand Head)	Density of Sheep per Square Kilometer (Number/Sq. Kilometer)	Number of Sheep As Percentage of all Sheep in the Nation (Percent)
Northeast China	479	.5	2.6
Inner Mongolia	2,576	2.6	14.0
Shansi	1,748	10.2	9.5
Hopeh	626	3.6	3.4
Shantung	865	5.9	4.7
Kiangsu	258	2.4	1.4
Anhwei	110	.8	.6
Chekiang	497	5.2	2.7
Fukien	neg.	neg.	neg.
Honan	699	3.8	3.8
Hupeh	55	.3	.3
Hunan	neg.	neg.	neg.
Kiangsi	neg.	neg.	neg
Kwangtung	neg.	neg.	neg.
Kwangsi	0	0	0
Sinkiang	6,164	3.6	33.5
Tsinghai	294	.6	1.6
Kansu	2,687	4.3	14.6
Shensi	294	1.6	1.6
Sikang	791	1.8	4.3
Kweichow	18	.1	.1
Yunnan	147	.4	.8
Szechwan	92	.2	.5
Total	18,400	2.2	100.0

a. See Table 3 for total area data and Table 12 for Inner Mongolia.



COMMUNIST CHINA
RICE—1953

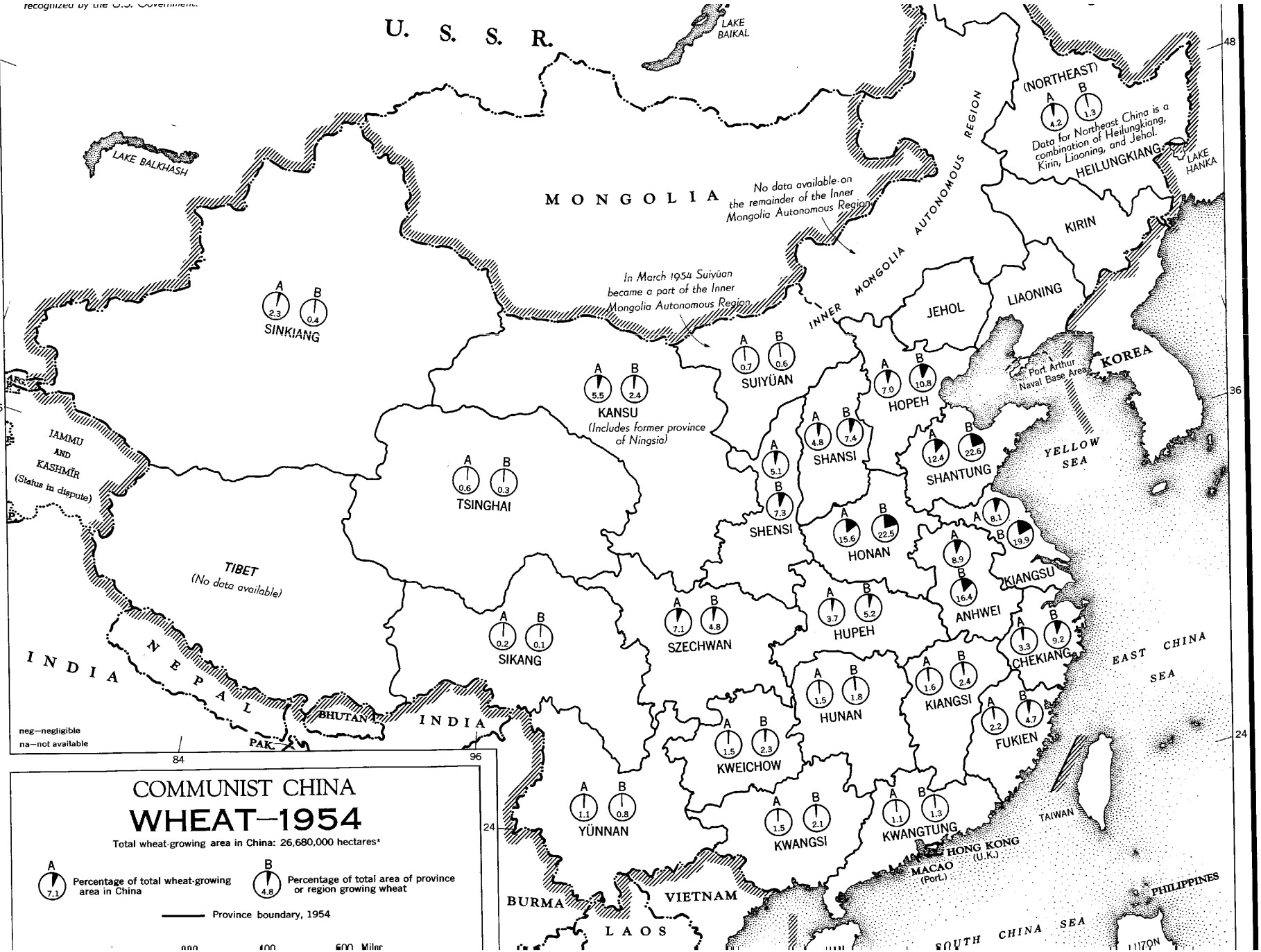
Total rice-growing area in China: 19,997,800 hectares*

A 13.2 — Percentage of total rice-growing area in China

B 6.7 — Percentage of total area of province or region growing rice

Province boundary, 1954

0 200 400 600 Miles



COMMUNIST CHINA
WHEAT—1954

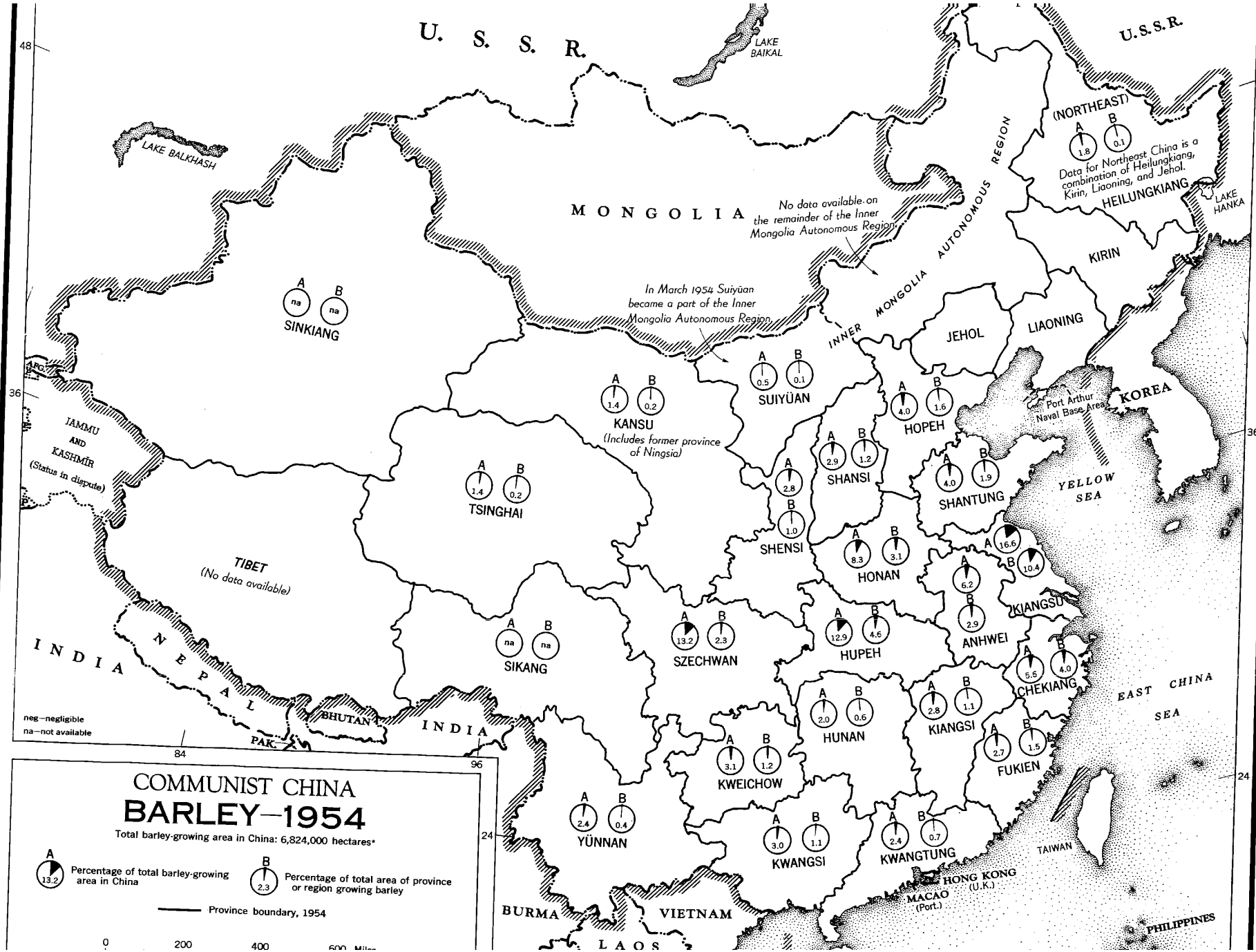
Total wheat-growing area in China: 26,680,000 hectares*

A 7.1 Percentage of total wheat-growing area in China

B 4.8 Percentage of total area of province or region growing wheat

Province boundary, 1954

000 400 600 Miles



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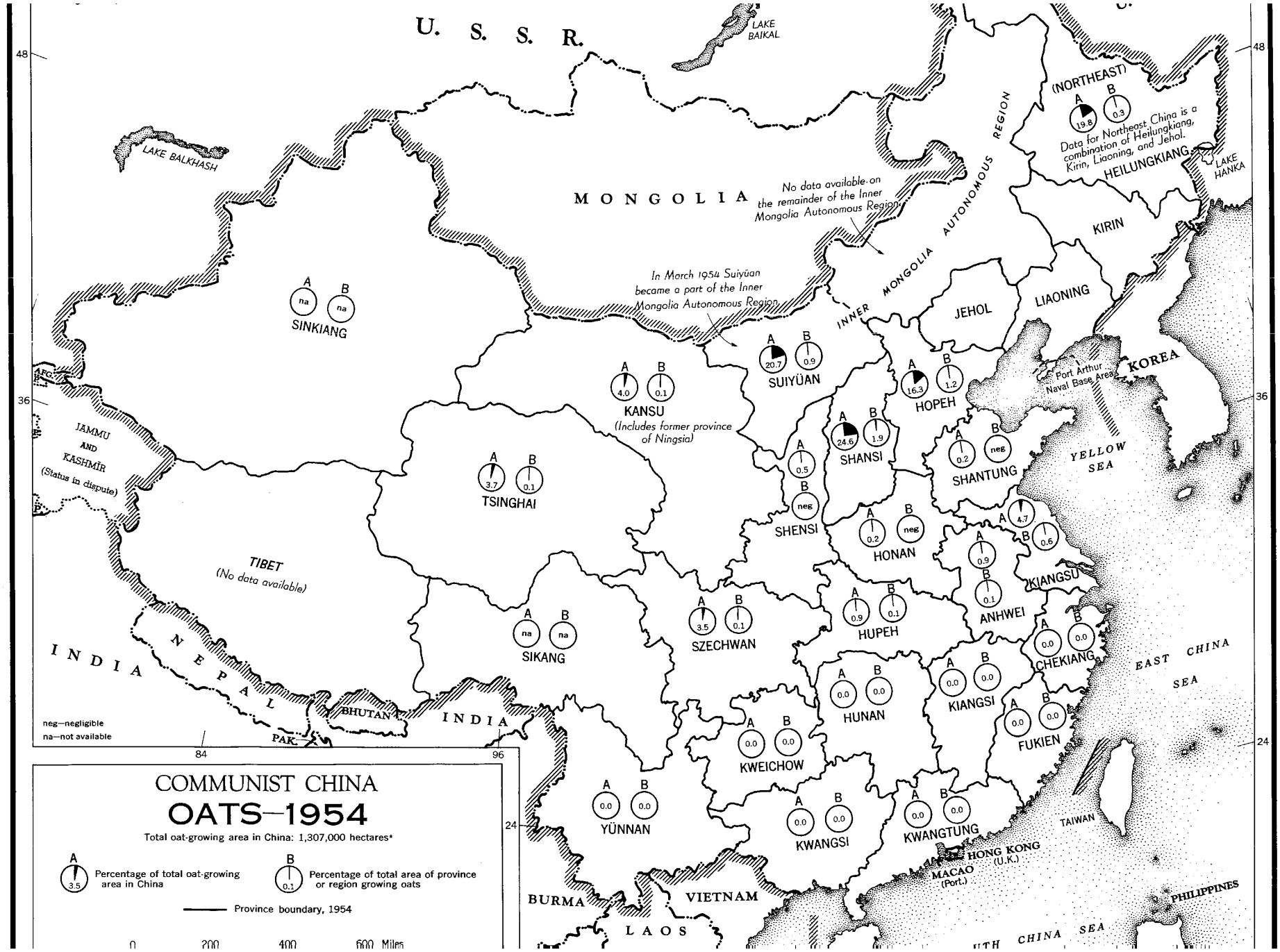


COMMUNIST CHINA
OATS—1954

Total oat-growing area in China: 1,307,000 hectares*

A (3.5) Percentage of total oat-growing area in China

B (0.1) Percentage of total area of province or region growing oats

—— Province boundary, 1954

0 200 400 600 Miles

COMMUNIST CHINA
HOGS—1954

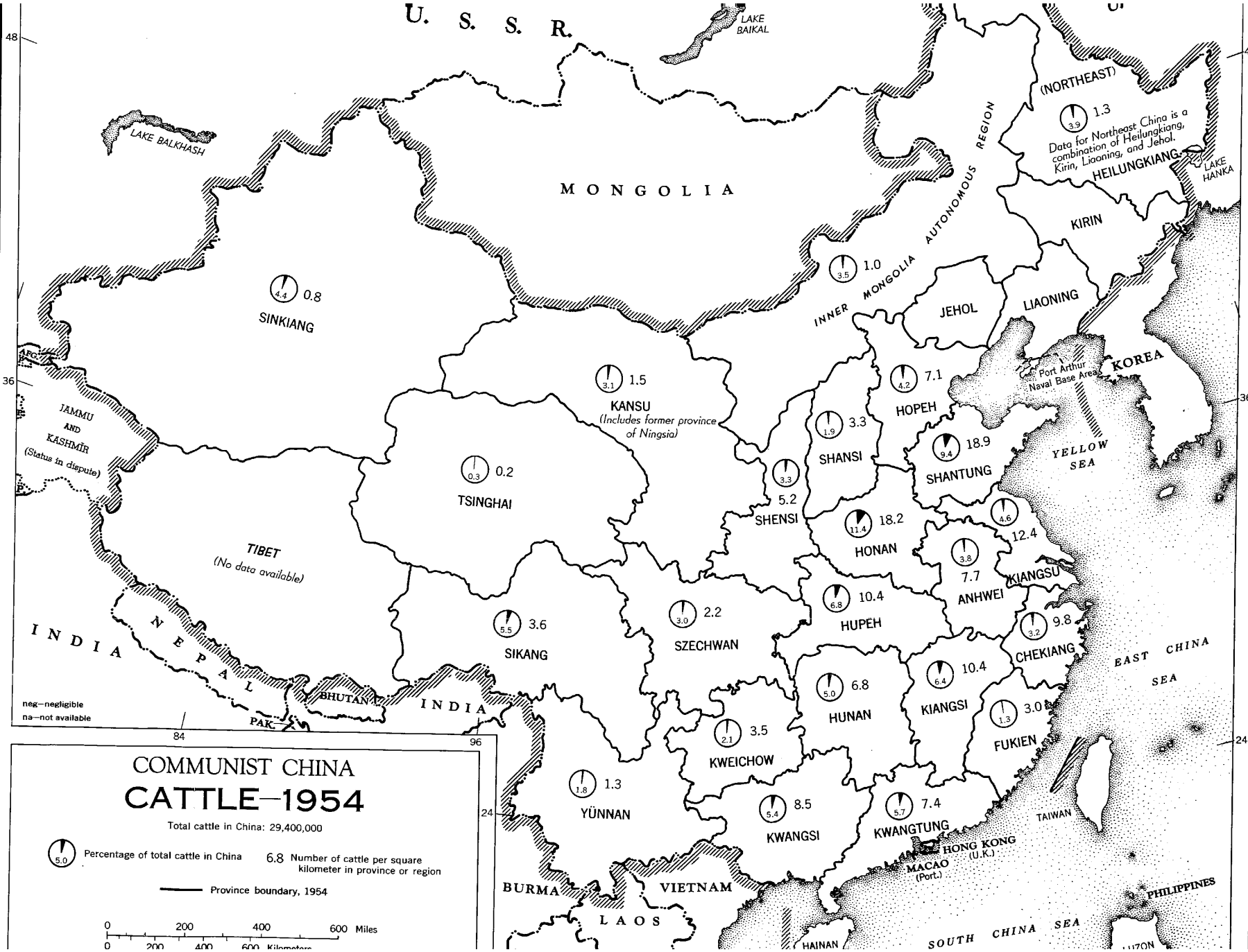
Total hogs in China: 77,400,000

12.6 Percentage of total hogs in China

24.7 Number of hogs per square kilometer in province or region

Province boundary, 1954

0 200 400 600 Miles



COMMUNIST CHINA
CATTLE—1954

Total cattle in China: 29,400,000

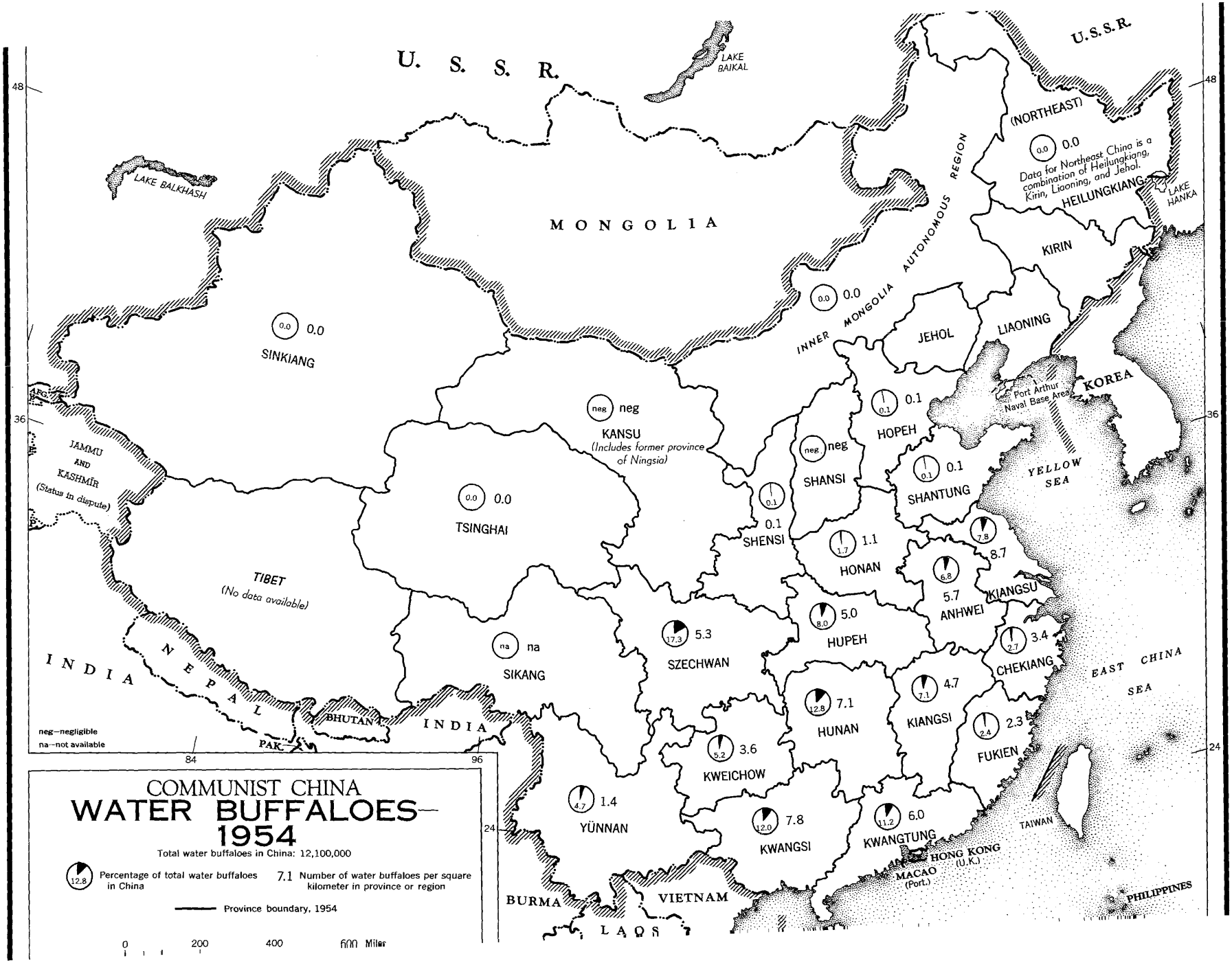
5.0 Percentage of total cattle in China

6.8 Number of cattle per square kilometer in province or region

Province boundary, 1954

0 200 400 600 Miles

0 200 400 600 Kilometers



COMMUNIST CHINA
WATER BUFFALOES—1954

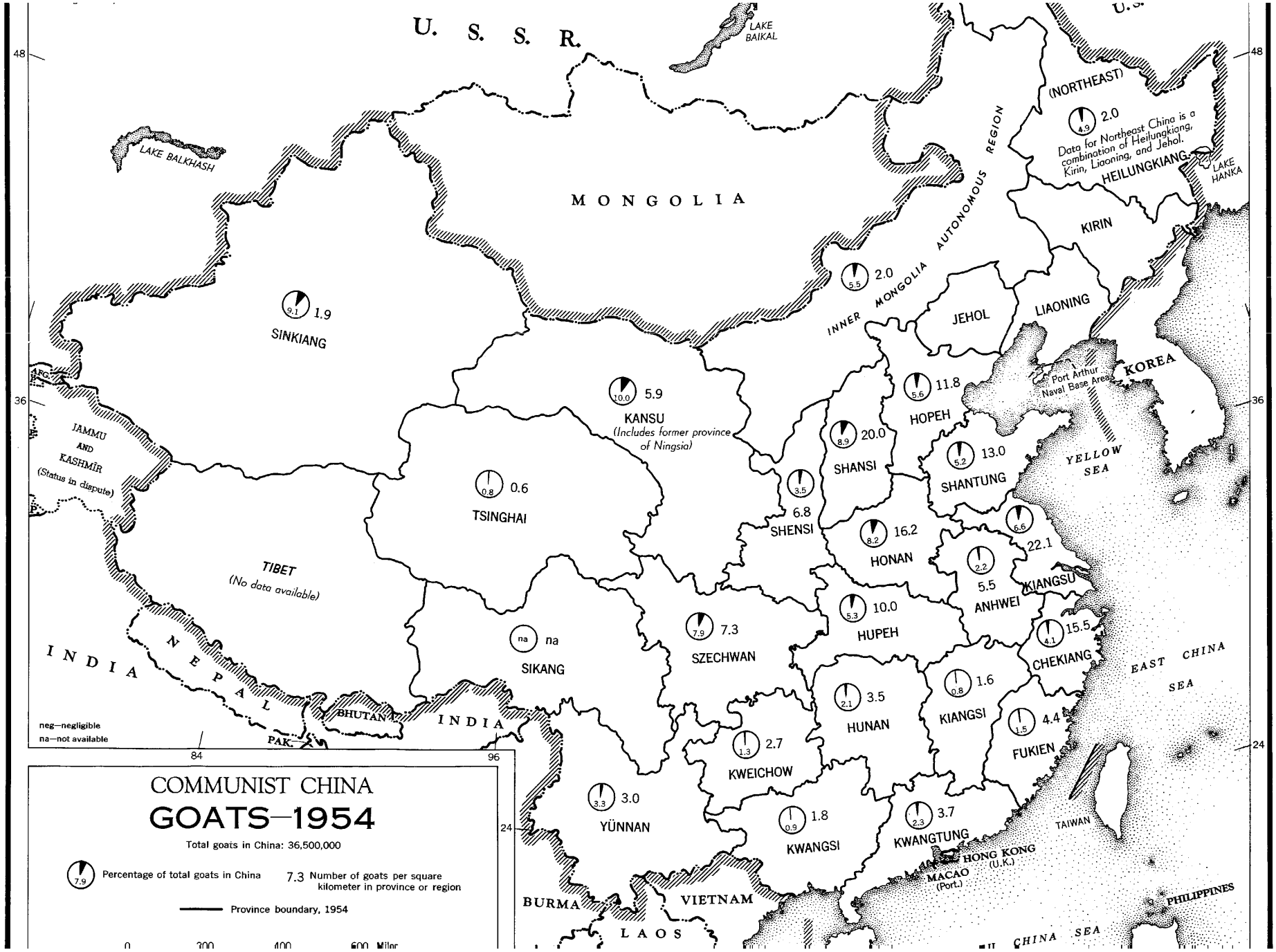
Total water buffaloes in China: 12,100,000

12.8 Percentage of total water buffaloes in China

7.1 Number of water buffaloes per square kilometer in province or region

Province boundary, 1954

0 200 400 600 Miles



COMMUNIST CHINA
GOATS—1954

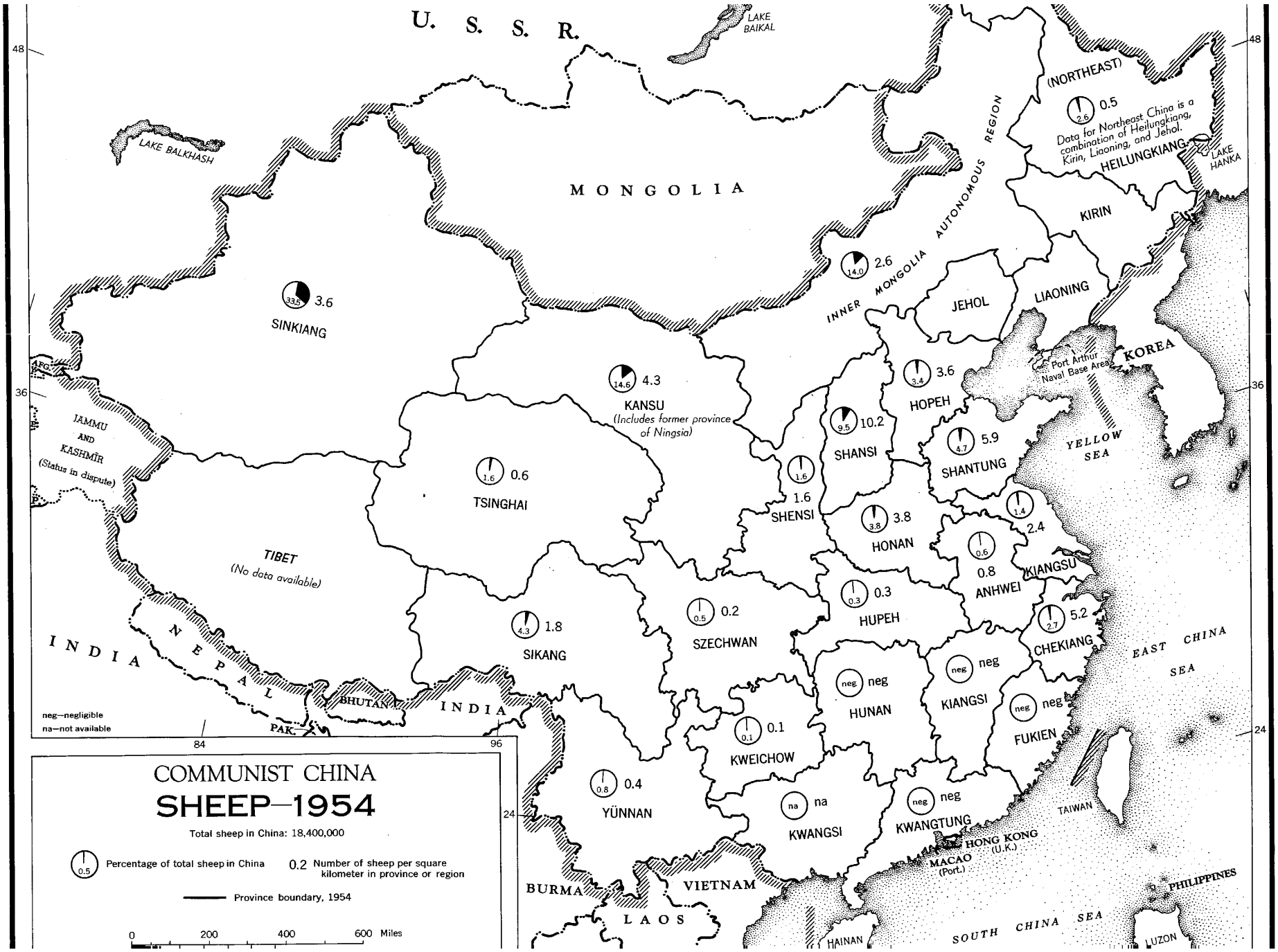
Total goats in China: 36,500,000

Percentage of total goats in China

7.3 Number of goats per square kilometer in province or region

Province boundary, 1954

0 300 400 600 Miles



COMMUNIST CHINA
SHEEP—1954

Total sheep in China: 18,400,000

0.5 Percentage of total sheep in China

0.2 Number of sheep per square kilometer in province or region

Province boundary, 1954

0 200 400 600 Miles