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## SOME ECONOMIC ASPECTS OF AGRICULTURE IN ARGENTINA

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A PAPER on some aspects of Argentine agriculture prepared by an Argentine would, I am sure, be preferable to the observations made by merely a resident of that interesting and hospitable country for the past four years. But in the absence of a representative from Argentina I am glad to comply with the wishes of the programme committee. I recognize that insistence on the inclusion in the programme of a paper relating to Argentine agriculture is an evidence of a deep interest in, and a tribute to, the great agricultural industry and agricultural export trade of Argentina. I have decided to describe in a most general manner the natural features of the cereal and live-stock zone of the Argentine, some conditions underlying the competition between crop and live-stock enterprises in different regions, and some distinctive features of the farm organization, and, finally, to state some generalizations on governmental policy and activity.

The crop acreages of Argentina are confined to a central productive region generally referred to as the cereal and live-stock zone. This zone is a small part of the geographical extent of Argentina owing to the vast areas of comparatively arid or undeveloped land included within the boundaries of the country. It consists of less than one-fourth of the total area of the Republic, but it is the leading source of the crop and live-stock production of the country.

Bounding this central productive zone on three sides are regions of low agricultural value or in an undeveloped state to date. Patagonia to the south comprises another one-fourth of the total area of the country and is too arid to support more than a scant sheep population except in small districts where irrigation makes fruit-growing possible. To the west and north-west sparse rainfall and mountains reduce pastures to a small carrying capacity and practically confine the cultivation of crops to irrigated districts of limited extent. To the north the semi-tropical Chaco remains comparatively uncultivated and undeveloped except for a recent colonization movement and an expansion of the cotton acreage. To the north-east the land is similarly undeveloped, and excessive rainfall and a

rolling topography may restrict its utilization to chiefly rice, pastures, and tree crops. The Chaco and the north-eastern parts of the Republic undoubtedly have agricultural possibilities, but, to date, with a comparatively small rural population of five million people, there has been little occasion to clear land of timber and to make the special efforts required to bring less productive and less advantageously situated land into cultivation. In general, expansion of agricultural production in Argentina will probably not result from penetration of new lands, or extension of the present boundaries of the cultivated area, but will come about by more intensive and better utilization of the lands within the present area of the cereal and cattle zone, primarily ploughing up pasture land for grain, improving pasture lands, and adopting crop rotations especially in the wheat districts where soil fertility has become depleted owing to continuous wheat-cropping. The water (or western boundary of cultivation) is receding.

The cereal and cattle zone is of rectangular shape extending 575 miles north and south and 360 miles east and west. It includes an area approximately equal to the combined area of the three states of Illinois, Iowa, and Missouri. Almost the entire zone is extremely flat—the word ‘pampa’ means a prairie—and hills in one or two places are landmarks. Trees and wood lots are confined to parks, lanes, and rows of trees along boundary lines which have been set out by hand, and, except for comparatively small amounts of wet and swampy lands, almost the entire region is tillable. It might be difficult to find an area of similar extent with such a small percentage of waste land.

It has been said of Iowa that variation in rainfall can account to a very small degree for differences in farming types, but possibly one of the most distinctive features of the Argentine cereal zone is the great variation, considering the size of the region, in the amount and in the seasonal distribution of the rainfall. It is the key to an understanding of crop specialization and of sharp differences, considering the size of the region, in farming conditions in different parts of the zone. The annual rainfall ranges from more than 40 inches on the eastern side to 18 inches on the western edge of the cereal and live-stock zone—a change which takes place in a distance of about 350 miles. It is difficult to find a corresponding change in a corresponding distance in the Great Plains region of the United States, except possibly in the state of Kansas. The differences in temperature conditions due to the range between the northern and southern limits of the zone, a range of nine degrees of latitude, and

to distance from the ocean are reflected by cotton-growing in the north and oats and barley crops in the south.

There are no soil surveys in Argentina, but some generalizations for the cereal zone are possible. A central region, on which the corn acreage is concentrated, consists of a fertile black silt soil of two feet in depth. It is recognized as one of the best soil types in the world. To the north soils contain somewhat more clay and are less friable but nevertheless very fertile and productive. To the west the soils are both lighter in texture and colour—in some places sandy—and lack the fertility and capacity for almost continuous grain-cropping of the two previously named soils. They become progressively sandier and poorer as they proceed westward. In the eastern part of the Province of Buenos Aires there are low, poorly drained soils, and in the south black prairie soils impaired in many places by the nearness to the surface of underlying limestone rock.

A network of railways radiating from the leading ports of Buenos Aires, Santa Fé, and Bahía Blanca provides the cereal and cattle zone with splendid transportation facilities. With the construction also of concrete highways and better roads, transport to the port cities by truck is increasing rapidly. About three-fourths of the entire corn production of the country is within 125 miles of an ocean port, and it is estimated that the rail haul or truck haul on about one-half of the wheat production does not exceed 100 miles. These broad aspects of the climatic, soil, and transportation conditions underlie variations in yields, regional specialization in crop production, and a wide variety of pasture conditions.

The adaptability of the leading crops of wheat, corn, and flaxseed, of alfalfa and of pasture grasses to these climatic and soil conditions varies greatly. In a central black soil district near the city of Rosario average yields of corn vary from 30 to 39 bushels per acre. Yields of 50 to 60 bushels are frequently secured on many farms, and 100 bushel yields have been reported. The limited extent, however, of this high-yielding corn district is noteworthy. It is a district about 144 miles wide at its greatest width and about 160 miles long. The concentration of the corn production of the Argentine in this high-yielding but relatively small district is indicated by the fact that on the average this district produces 45 per cent. of the entire corn crop of the country. Yields decline extremely sharply proceeding away from this central high-yielding district to the south-west and north-west, and this reflects the relatively small part of the cereal zone which is especially adapted to corn-growing. Inadequate rainfall and

the lighter soils are the primary explanations for these sharp declines in adaptability and yields.

There is a central district in which average yields of wheat vary from 17 to 20 bushels per acre. Proceeding away from this central zone, however, yields decline progressively, and finally are only 5 to 6 bushels per acre on the western edges of the cereal and live-stock zone. In a central district, therefore, both wheat and corn do well, but corn comparatively better than wheat. The result is that corn occupies most of the crop area and wheat forms almost negligible percentages in many localities in the central district. In this district the comparative advantage of corn is outstanding. As indicated above, the yields of both wheat and corn decline progressively proceeding away from this central district to the south-west and north-west, but yields of wheat decline less sharply than corn with the result that the yield relationship of wheat to corn improves. In the south-west and north-west wheat yields are low, but corn does too poorly to provide a satisfactory alternative. There is some rye and barley sown in the south-west, but, as in many other wheat-growing regions of the world, the wheat acreage in this low-yielding region is largely due to the comparative unadaptability of other crops. About half the Argentine wheat acreage is sown in this western region of low yields, but the comparative advantage of the crop is considerable because of the unadaptability of alternative commercial crops.

Flaxseed is grown in Argentina on relatively heavy soils in the eastern part of the cereal and live-stock zone where rainfall is excessive for wheat and where locust damage to corn tends to impair the competitive strength of the corn enterprise. Districts in which the substitution of wheat for corn is practicable are not extensive.

In a pasture country, such as Argentina, pastures should receive primary consideration in an examination of crop competition, but discussion has been delayed because competition of individual grains with pasture in Argentina resolves itself into competition between very specialized types of farming—grain versus live stock. Since very little corn or other grain is fed to cattle in Argentina and there is no necessity to raise feed crops, the traditional cattle and sheep industries are almost entirely grazing industries and are especially influenced by the amount and quality of the pastures. The important position occupied by pastures and by the grazing industries is indicated by the fact that only in the centre of the highest-yielding corn district do pastures absorb less than 50 per cent. of the land area.

The ability of the grazing and live-stock industries to retain such

an important place on some of the best soils is due, in part, to the ease with which alfalfa grows in a great part of the cereal and live-stock zone. The alfalfa acreage in the cereal and live-stock zone is estimated at about thirteen million acres, and no one can see the alfalfa pastures in the Argentine, which provide excellent feed for nine months of the year and some feed throughout the year, without being convinced that this crop is one of the leading agricultural assets of the country, that it is the explanation for the large volume of steers finished exclusively on pasture, and that it is a considerable factor in the successful competition of the grazing industries with grain-farming on a vast acreage. There are also grasses in some districts which provide pasture throughout the entire year and contribute to the economic standing of the grazing industry. Possibly in no phase of Argentine agriculture, moreover, has greater progress and attainment been made than in the breeding of high-quality cattle and sheep. The uniformly excellent type of cattle on the breeding and feeding *estancias* is an outstanding accomplishment and a national asset.

In the productive central district of high yields of corn, flax, and wheat, more of the land is cultivated than in any other district in Argentina, but even here there are many counties where pastures absorb 40 to 45 per cent. of the land area, and one can travel miles through these counties and see mostly pasture and cattle. The north-western part of the Province of Buenos Aires and the adjacent districts in the Provinces of Santa Fé and Córdoba are the centre of the grazing industry at its best, where steers for the English market are finished on alfalfa and on supplementary rye and oats pastures. Here wheat and corn yields are not high, because of lighter soil and lack of rain; alfalfa does well, the water is good, and land values are lower than in the corn zone. Land owners calculate a steer to the hectare, and the well-managed *estancias* in this region are strongly entrenched economically. To the north and to the south of this feeding area, however, pastures are dry for several months of the year, and returns from grazing cattle are much lower. Farther south much of the land is in short pasture grasses, and cattle-grazing is not as remunerative as sheep-grazing. In the latter two districts wheat-farming is slowly tending to displace grazing on the best soils. In these districts the landholdings are large, many are poorly operated, and shifts to somewhat more intensive and better utilization of the land in the form of planting wheat and grain have been—and promise to be—greatest.

In many counties in the east-central part of the Province of

Buenos Aires more than 90 per cent. of the land is in pasture. Most of this region is poorly drained and can hardly find more profitable use than as pasture for sheep and for cattle for breeding purposes. This is a leading source of yearling steers which are shipped or driven overland to the feeding areas to the west to be grown out and finished on alfalfa pasture.

Much of the pasture land of Argentina, however, is capable of growing wheat and other grains, and its utilization as pasture is influenced greatly by the prevalence of large landholdings and, given sufficient capital, the ease with which these tracts are operated as cattle and sheep *estancias*. The capital requirements are considerable in respect to the investment in land, fences, cattle or sheep, but the *estancias* represent much the simplest means of administering large holdings. They are the only means by which the owners can personally direct and manage operations on such large tracts of which the minimum size is about 5,000 acres. The income from cattle and sheep is, moreover, more constant and dependable than from crops, and it is stated that in the five-year period prior to the last year or two of high grain prices the returns from live stock or from *estancias* have been uniformly as good or better than from grain.

Converting a tract of grazing land into tenant grain farms involves other considerations, however, besides that of financial returns. Live-stock grazing has been the traditional source of wealth in Argentina, and there is a social and economic standing associated with it. The *estancias* are institutions reflecting wealth, a manner of living, and, in many respects, an agricultural aristocracy—the closest parallel to which in the development of the United States disappeared with slavery and the large cotton plantations of the south. Shifting to grain farming is the end of personal direction of extensive herds and flocks and more especially of the manner of living associated with the *estancias*. The former *estanciero* is director of actual operations no longer but becomes concerned with administrative matters involving scores to hundreds of tenants, many of whom are difficult and unreliable.

But most observers in Argentina recognize that substantial amounts of the present grazing land of Argentina are being very inadequately and poorly utilized, and that only the wealth of some of the old land-owning families and their income from large tracts have enabled them to carry on as inefficiently as they have and as insensitively to low financial returns, if not losses. Rising land values before the depression enabled many to persist in a tradition and to



postpone changes and adjustments associated with poor management, but since 1929 more and more attention is being given to the better utilization of properties. It is in consequence of these broad developments that the trend of grain farming is slowly upward.

In concluding this discussion of crop and live-stock production in Argentina it should be pointed out that a narrowness of the domestic market and a dependence on foreign markets restrict the volume and variety of the production of special products. The domestic market is based upon a population of 12,000,000 people, but the bulk of the population has a low purchasing power, and the domestic outlets are relatively restricted as to variety and quality of products. The consumption habits of the rural population are built around a very simple diet consisting primarily of beef, bread, and *yerbe-mate*, with vegetables and fruits occupying comparatively small places. One is impressed with the fact that Argentina does not possess the markets for a great variety of different kinds and grades of farm products such as arise out of the requirements of the many cities scattered over the United States. There are only three or four markets of this character in Argentina of which only Buenos Aires has a purchasing power of considerable significance. Even this city provides a relatively small outlet for quality products. For example, although the quality of the milk supply in Buenos Aires is poor, attempts at establishing a market for certified milk have failed. Under these conditions the introduction of new crops or products soon exhausts the local market requirements, and production very quickly attains an export basis with attendant complications and instability in marketing.

The trend of crop acreages during the past twenty-five years in Argentina can be broken down into three quite distinct periods—(1) recovery of the pre-War acreage by 1923, (2) a subsequent seven-year period of unprecedented expansion, and finally, (3) an abrupt levelling off at the high 1930 level. The explanation for the sharp expansion from 1923 to 1930 is found primarily in high prices for wheat and other grains in the post-War period up to 1930 and in part to the greater use of combines. After several years of extremely profitable prices following 1923, cash and share rents reached unprecedented levels, and more and more grazing lands were turned over to tenant grain farmers. Reduction of costs of harvesting by the use of combines, in turn, enabled tenants to increase their acreages and to seek additional lands for wheat. Imports of 1,112 combines in 1921 rose to 7,700 in 1924, and finally to about 15,000 in 1929. In the expansion which culminated in 1930 the total grain and linseed

acreage gained about 13,000,000 acres, or 40 per cent., compared with 1923.

With the sharp drop in grain prices in the latter part of 1930, the status of grain farming versus grazing was completely changed, and the former expansion was brought to a sharp halt. Since 1930, with the possible exception of the last two years of better grain prices, the *estancias* or grazing enterprises have fared relatively better than the grain enterprises.

Forces are slowly at work tending to increase the grain acreages on *estancias*, to convert grazing tracts into grain lands, and to divide the large landholdings, but close observers of the agriculture of Argentina confirm what the statistics since 1930 seem to establish, i.e. some shifting about and inter-changeability in the acreages of each of the three leading crops of wheat, corn, and flax, but the existence of a considerable degree of stability in the total crop acreage and in live-stock numbers. Pear and apple production, however, has expanded rapidly. The exportable supplies of the former have doubled every two or three years since 1932.

As previously indicated, possibly one of the most distinctive features of the organization of agriculture in Argentina is the extent to which crop farming and live-stock farming are separate and carried on as independent types of farming which by their specialization become, in many cases, almost single enterprises. This separation is reflected in a number of respects apart from the actual operations. The terms *estancia* and *chacra*, *estanciero* and *chacarero*, referring respectively to a live-stock farm and a grain farm, a live-stock farmer and a grain farmer, are significant distinctions in Argentina. Probably as much as 75 per cent. of the Argentine wheat acreage is located on tenant farms where pastures for work animals and for a few cows are restricted by conditions of the lease to 10 to 20 per cent. of the rented area. The balance of the production occurs on owner-operated farms where there is a degree of mixed grain and live-stock farming and on *estancias* where some acreages of grain are sown under *estancia* administration. Usually, when *estancia* owners wish to cultivate a portion of the *estancia*, tenant farmers are called in for that purpose, but there are many *estancias* where 2,000 to 5,000 acres of grain are sown by men employed by the owner of the *estancia*.

Travelling through the grain districts one seems to encounter rarely owner-operators but usually tenant farmers belonging to this or that *colonia* or rented tract, and the grain districts seem to be made up of these tracts of 10,000 to 35,000 acres or more, on each

of which there are 15 to 100 tenant farmers according to the size of the tract. Each *colonia* or tract has an administrator or manager watching tenant operations in the interest of the owner of the land.

The explanation for the degree of separation of grain and live-stock farming operations is to be found in the size of the land-holdings. Most of the *estancias* consist of 6,000 to 12,000 acres, but much larger holdings exist. There are 50 families each with holdings in excess of 75,000 acres in the Province of Buenos Aires. Relatively few *estancia* owners care to add to their management and administration problems by hiring additional farm hands and engaging in grain farming on any significant scale. Lack of capital on the part of tenant farmers and considerations associated with tenancy tend to restrict the size of tenant farms to units of large-scale cash grain production—200 to 1,000 acres—and to exclude live-stock enterprises.

Changes in this matter of organization, however, are taking place. There is a tendency to seed more grain on the *estancia*, even if it involves considerable additional administration. Greater use is being made of corn for forage purposes. The necessity to re-seed each year a somewhat larger acreage with alfalfa, since its average life of six or seven years is less than formerly, involves some grain farming. Apart from better utilization of the land a desire for diversification of returns has influenced many to undertake the growing of corn and wheat. A number of large landowners contend that changes of this character are inevitable. In general, when large landowners dispose of a tract of land, they prefer to sell it intact as one piece, but there are more instances than formerly of landowners who subdivide their properties into sufficiently small lots to attract owner-operators. As evidenced in parts of the cereal and live-stock zone, the small owner-operated places tend to become mixed grain and live-stock farms.

Italian and Spanish tenants, mostly foreign born, predominate in the cereal and live-stock zone, but there are colonies of many nationalities—Russian, German, Polish, Danish, and Dutch—in the grain districts. Many of them prosper, and some acquire pieces of land for themselves but in general they continue to operate as tenant farmers. Land values vary from about 13 dollars per acre for western wheat land to 80 dollars per acre for good corn land. Share rents range from 25 to 35 per cent. Since 1929 the returns to tenant farmers in the western wheat districts have been low, and living conditions reflect difficult circumstances, but even in the zones of better yields the living standards of the tenant farmers are

low, and it is difficult in general to reconcile these low-living standards with the general productiveness of the cereal and live-stock zone. The explanation is made that the tenants, mostly Italian immigrants or descendants of Italian immigrants, live much better than they did in Italy, and that lack of education and racial qualities explain their apparent failure to want to live better and to secure more comforts. The fact that they do not own their land and must build their own houses undoubtedly deters many from making substantial investments on their houses, but even with tenants who remain on the same tract of land for many years the living standards do not seem to rise greatly. Differences in racial standards, however, assert themselves. The Danes and the Dutch surround themselves with some of the orderliness and comforts of living standards in the countries from which they emigrated.

Until recently governmental activity in respect to the agricultural and live-stock industries of Argentina has not played an important role. This is probably characteristic of a relatively new and undeveloped agriculture and a relatively sparse agricultural population. Governmental functioning in the rural areas, as yet, is not highly developed; taxes are low; collective or co-operative effort is small; and there is almost unrestricted latitude for individual initiative and enterprise. Private leadership and accomplishment have carried the country forward. Traditionally high import duties, exchange control, restriction of immigration, and administrative regulations and decrees in many fields, are evidences of governmental control and intervention in other fields, which, however, in the case of agriculture have not been undertaken to a significant degree. The fields of agricultural education, research, and scientific services remain relatively undeveloped. There are only a few individuals working in agricultural economics.

Governments all over the world have undoubtedly gone further in respect to legislation and control measures relating to agriculture since 1929 than in any previous period. Certainly this has been the case in Argentina. The most important of these measures was the formation of the Grain Regulation Board organized in 1933, which guaranteed minimum prices for wheat, corn, and flax to farmers. Anticipated losses were provided for by profits from an exchange control plan. Minimum prices were not so high as to involve large losses at the then current market prices, and subsequently world prices improved so that the operations of the Grain Board from 1933 to 1936 must be characterized as unusually successful. Putting a floor to prices in 1933, at a time of distressingly low prices and

instability, had a far-reaching moral and stabilizing influence on the entire country. Good judgement was demonstrated in the comparatively low guaranteed prices established. The operations of the Board were suspended two years ago. A Sugar Commission of many years standing has administered a sliding import duty on sugar, and for about ten years production control has been sufficiently successful to maintain domestic prices of sugar at approximately twice the current world price. Various boards and commissions for the improvement of live-stock prices and marketing practices have been formed, but, as in the case of several of the boards organized after the formation of the Grain Regulation Board in 1933, these have hardly exceeded the educational and regulatory functions of governmental work in many countries. Indicating more concrete extension of governmental activity in the field of live-stock marketing, however, was legislation passed a few years ago providing governmental support for a live-stock producers' co-operative, and more recently the Minister of Agriculture sought legislative approval for governmental support of a producer-owned packing plant. Funds have also been appropriated for a chain of government-owned grain elevators. In spite of these measures, however, control of production and effective administration in this field seem to be alien to this country of wide open spaces and of undeveloped agricultural resources.