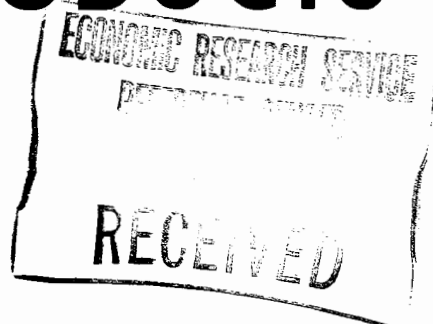


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# PERU

## MARKET AND COMPETITOR FOR U.S. FARM PRODUCTS







## EXPLANATORY NOTES

### Weight, Measure, and Value

Area is expressed in hectares (2,471 acres). Tons are metric (2,204.6 pounds). The Peruvian sol is equivalent to about \$0.04 in U.S. money.

### Regions

Three natural economic regions are often referred for analytical comparisons, although they do not follow Peruvian Department or political boundaries. The Coastal Region includes the narrow Pacific lowlands and bordering valleys extending the length of Peru. The Sierra includes the principal Andean Highlands. The Selva extends from the eastern slopes of the Andes Mountains to Brazil.

### Projections

Unless specified, projections are based on a fixed average rate of change between selected base periods. These estimates are approximate, subject to oversimplification and similar errors, and are intended only as a general indication of potential direction and amount of change for a target year.

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June 1966

## SUMMARY

Peru increased the value of its agricultural and fishery exports from \$158 million in 1956 to \$385 in 1964. During that period, the value of Peru's farm product imports expanded from \$54 million to \$98 million. The country is expected to continue both as a strong competitor and as a growing market for U.S. agricultural products.

Growing deficits in food production were reflected in a steady rise in Peruvian imports of cereal products, particularly wheat, from 1956 to 1962. Expansion in cereal imports was supplemented by growth in imports of other agricultural products, particularly livestock products, fats and oils, and fruits and vegetables, after 1960. Price and other factors contributed to a decline in imports of wheat and vegetable oils during 1963. However, imports rebounded in 1964 and growing demand should contribute to larger imports of those products over the next few years.

According to Peruvian statistics, imports of U.S. agricultural products increased from \$17.1 million in 1956 to \$24.9 million in 1962 despite growing competition from other supplying nations. Agricultural imports from the United States dropped to \$11.7 million in 1963 due largely to increased imports from Argentina, mainly wheat. Argentina increased its share of the Peruvian agricultural market from 26.6 percent in 1956 to 53.8 percent in 1963, reflecting a larger share of wheat imports and sharp gains in livestock and meat, to replace the United States as the principal source of supply. However, preliminary reports for 1964. show that the United States is again contending with Argentina for the major share of this agricultural market, mainly because of a large increase in imports of U.S. wheat and greatly reduced imports of Argentine livestock and meat.

Future U.S. agricultural exports to Peru will be influenced by competition from other major suppliers. Argentina is the principal competitor, but Canada, the Netherlands, New Zealand, Chile, and other countries compete for sales of many individual commodities. Tariff and other concessions granted to members of the Latin American Free Trade Association have favored Peruvian imports from Argentina and Chile. Despite growing competition, the United States continues to supply a large share of the import trade for commodities such as wheat, fats and oils, variety meats, dried and processed fruits and vegetables, and manufactured tobaccos. Other U.S. commodities, including live animals, fresh fruits, and dairy products, have difficulty competing with similar products from other world suppliers.

U.S. wheat exports to Peru should continue to expand, despite increasing competition from Argentina. Argentina will continue to dominate livestock trade, but growth in demand should provide opportunities for larger exports of U.S. meat products. Despite some anticipated rise in Peruvian production, imports from the United States should provide a larger share of expanded fats and oils requirements. The United States may also benefit from continued growth in import demand for fresh and processed fruits and vegetables although Chilean and Argentine products will enjoy special trade concessions in the Peruvian market.

Limited growth is anticipated for Peruvian agricultural and fishery exports, but cotton and fish meal will continue to compete with U.S. farm products. Fish-meal exports compete with U.S. soybeans and other oilseed meals, particularly in Europe. Peruvian Tanguis and Pima long staple cottons will compete with similar U.S. cottons in our own domestic and overseas markets. Lower world prices and other factors may restrict growth in export earnings from other agricultural products, including sugar, coffee, wool, and skins, which provide a basis for U.S. shipments of agricultural products to the Peruvian market. In contrast to agricultural and fishery products, continued expansion is expected for mineral and other important Peruvian exports.



# PERU--Market and Competitor for U.S. Farm Products

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## BACKGROUND

Peru has an ancient heritage. Even before the great Inca Empire, the "Pre-Incas" had attained a high degree of civilization before A.D. 900. Between the 11th and 13th centuries, the Incas appeared in the Cusco Basin, and gradually extended their domination until, in the 16th century, their empire encompassed the Andean Chain to the West Coast of South America and extended from present-day Colombia to northwestern Argentina and northern Chile.

While the Incas controlled Peru, agricultural practices were fairly well advanced both in the Coastal Region and in the Sierra, or highlands. The Incas constructed irrigation systems and terraces to increase the expanse of arable land and applied guano fertilizers to increase yields. A marketing system was developed which included distribution and storage facilities.

In 1532, the Spaniards subjugated the Indians. Large areas were taken over by the conquerors through a system of land grants, and great numbers of Indians were removed from the agricultural centers to work in the mines. This changed the system of farming from an intensive communal system to an extensive hacienda large-scale landholding system. The Inca marketing system disappeared and the complex systems of irrigation and terraces were permitted to decay. The output of food crops dropped sharply both in the Coastal Region and in the Sierra.

For almost three and a half centuries the European conquerors concentrated on extraction of minerals for export and paid little attention to agriculture. Agricultural production was solely for local subsistence of a greatly reduced population and for the support

of the mineworkers. Although agriculture in the Sierra has never recovered, a few large foreign-owned corporations initiated commercial production of cotton and sugarcane in coastal areas for export near the end of the 19th century. With the growth of the cities, commercial production of food crops also became important around population centers on the coast. These two separate systems of agricultural production, one producing for export and the other for local domestic use, have existed side by side to this day.

During the 20th century, the Peruvian economy has been characterized by steady growth and diversification. Mineral and industrial production contributed to this growth. Copper, iron ore, silver, lead, and zinc are all mined and exported in considerable quantities. Most ore deposits contain several of these products, so that large-scale smelting and refining facilities are associated with the mining operations. Manufacturing industries have developed in the Lima (the capital) and Arequipa areas. Recently, the fishing industry has registered phenomenal gains.

In contrast to this general growth, agricultural output has lagged, except for commercial export crops produced in Coastal areas. Peru has become increasingly important as both an importer and an exporter of agricultural commodities. These important changes are reflected in a rise in U.S. agricultural trade with Peru (table 1). Recorded f.o.b. value of U.S. agricultural exports increased from \$13 million to \$34 million in 1956-65.

In general, Peruvian exports of agricultural commodities have become more competitive with those from the United States in other world markets.

<sup>1</sup>James L. Hannan, formerly with the Economic Research Service, now with USDA's Consumer and Marketing Service, prepared a draft upon which this report is partly based.

Table 1.--Value of U.S. trade with Peru, agricultural and total, 1956-64

Year	Exports			Imports		
	Agricultural	Other	Total	Agricultural	Other	Total
	----- Million U.S. dollars -----					
1956.....	13.3	145.4	158.7	27.0	105.3	132.3
1957.....	19.5	177.9	197.4	27.5	114.8	142.3
1958.....	22.3	144.3	166.6	34.4	96.2	130.6
1959.....	18.0	103.6	121.6	31.0	74.3	105.3
1960.....	18.5	123.6	142.1	52.2	116.7	168.9
1961.....	25.5	147.1	172.6	91.0	100.1	191.1
1962.....	22.4	160.8	183.2	89.2	89.0	178.2
1963.....	19.6	173.6	193.2	89.1	95.2	184.3
1964.....	35.9	184.1	220.0	69.9	126.7	196.6
1965 <sup>1</sup> .....	33.9	245.9	279.8	85.6	155.5	241.1

<sup>1</sup> Preliminary.

Source: U.S. Bureau of the Census. U.S. trade statistics (unpublished) 1956-65.

### AGRICULTURAL DEMAND AND PRODUCTION

Internal Peruvian demand for agricultural commodities has increased rapidly since the mid-1950's due to continued population growth, urbanization, and a steady rise in per capita income. External demand for Peruvian commercial crops and fishery products has also strengthened. However, except for export production, agricultural output has generally lagged behind demand. This lag reflects the nature and distribution of the country's agricultural resources and the related problems of transportation and marketing which have influenced development patterns in Peru.

#### Demand

##### Population Growth

Population expansion and shifts have been an important factor contributing to the growth of the Peruvian market. Peru's population has grown at an estimated average rate of 2.5 percent annually during 7 years (table 2). The total population increased from 9.3 million in mid-1956 to 10.9 million in mid-1963, a total increase of 17.2 percent. Each year, more than one-quarter of a million people are added to the Peruvian population. Population experts predict that, by 1980, Peru's population will have grown to 15 million, and by 2000, to 22 million.

This rise in population is attributable almost solely to natural increases; immigration has been negligible. The high rate of natural population growth reflects substantial local progress in improving health conditions, especially in providing water and sewerage for

cities, and the medical and hospital care for those enrolled in the social security system. Important contributions have been made by the Inter-American Cooperative Health Service, supported with financial and technical help of the United States, and by doctors, nurses, and sanitary engineers who have received training abroad. Other factors contributing to the population expansion include school feeding and food distribution programs conducted through cooperation with the United States, Peruvian, and various international agencies.

The general population growth has been accompanied by large-scale internal migrations. The population of the Coastal Region has grown 30 percent since 1956, and that region now has 44 percent of the total population. The Sierra population has grown only 8 percent in absolute numbers since 1956, and has declined from 56 to 51 percent of the total. The Selva's population increased 25 percent, but still accounts for less than 5 percent of the total.

The strong trend toward urban living is shown by the population of Peruvian cities, which increased by 37 percent--even more than that of the Coastal Region. In contrast, the rural population declined from 54.7 to 51.8 percent of the total population in 1956-63.

The Peruvian population movement was partly caused by the rural peoples' belief that there are much better living conditions in the Coastal Region and in urban areas. Such attractions include: A milder climate, work provided by large commercial farms, commerce, and manufacturing industries, and more favorable labor legislation. Despite the fact that this movement places great stress on



Table 2.--Distribution of population, midyear 1956, 1961, 1963, and projected 1968<sup>1</sup>

Area	1956		1961		1963		Projected 1968	
	Million	Percent	Million	Percent	Million	Percent	Million	Percent
Coast.....	3.7	39.8	4.4	42.6	4.8	44.0	5.8	47.6
Sierra.....	5.2	55.9	5.5	52.5	5.6	51.0	5.7	46.9
Selva.....	.4	4.3	.5	4.9	.5	5.0	.7	5.5
Total.....	9.3	100.0	10.4	100.0	10.9	100.0	12.2	100.0
Cities <sup>2</sup> .....	2.7	29.5	3.4	32.4	3.7	33.8	4.5	37.2
Small towns <sup>3</sup> .....	1.5	15.8	1.5	14.6	1.6	14.4	1.7	14.0
Rural.....	5.1	54.7	5.5	53.0	5.6	51.8	6.0	48.8
Total.....	9.3	100.0	10.4	100.0	10.9	100.0	12.2	100.0

<sup>1</sup> Includes estimates for Selva populations omitted from 1940 and 1961 census reports. The 1961 population is projected at an average rate of 2.5 percent to 1963 and 1968. Population distribution is based upon study, Peruvian Population Trends to Year 2000, by F.M. Demond, U.S. Agency for International Development, Peru, 1962.

<sup>2</sup> Above 10,000 population.

<sup>3</sup> 10,000 and under.

social and economic institutions to maintain adequate living standards, it will likely continue.

Population changes tended to increase domestic demand for food and other agricultural products in two ways. The first is an increase corresponding to that of the population, which is estimated at 2.5 percent per year. The second apparently results from growing urbanization as such--in addition to the effect of a continuing rise in average national per capita income. This urbanization effect is apparently not accounted for by considering the effect of increased per capita income, since the distribution of the increased income is assumed to be unchanged.

Consequently, while the actual effect of urbanization on income distribution and therefore on demand is not entirely clear, it is evident that, in a developing country like Peru, per capita food demand has increased at a rate which exceeds that which would have been expected from a consideration of both population and income gains. Although this effect upon food demand may vary by commodity, for purposes of this study, it is assumed to be a uniform 1.5 percent annual rise in consumption, reflecting the effect of this shift of population from rural areas to principal cities. Thus, the estimated total population effect--increase plus urbanization--is a 4-percent annual gain in food consumption over the next few years.

#### Increased Income

Peru's population growth has been accompanied by even more rapid economic gains.

Gross domestic product (GDP), at constant 1960 prices, increased by 49.8 percent, from \$1.7 billion in 1956 to \$2.5 billion in 1963. Although population growth absorbed a large part of this increase, per capita income rose at an average rate of 4.0 percent from an estimated \$181 to approximately \$232 during the 7-year period.

United Nations estimates of GDP for 1956 and 1963 (21)<sup>2</sup> show that all sectors of the economy contributed to the economic growth, with fisheries, minerals, and manufacturing leading in rate of development (table 3). Expansion in output of fish meal, copper, zinc, and iron ore was particularly important. Smaller, but still significant, were gains in lead, silver, sugar, and cotton production. Agriculture remained the largest economic sector, although its share of the 1963 GDP declined slightly.

The rapid economic growth and steady increase in per capita incomes are largely the result of increased investment, from both domestic and foreign capital. According to United Nations estimates, total fixed Capital formation, valued at 1960 prices, increased from an annual 6.5 billion soles (\$243 million) in 1950 to 15.3 billion soles (\$571 million) in 1963 (21). New investment expanded electric power services, and improved communication and transportation facilities, particularly through modernization of the country's railways. These investments resulted in the establishment of new industries and the expansion and modernization of existing industries. As a result, the groundwork has been laid for even

<sup>2</sup> Underscored numbers in parentheses refer to Selected References, p. 40.

Table 3.--Gross domestic product by principal types of economic activity, 1956 and 1963<sup>1</sup>

Economic sector	Total		Percentage increase	Percent of total	
	1956	1963		1956	1963
	<u>Million dollars</u>		<u>Percent</u>	<u>Percent</u>	
Agriculture.....	349.4	502.4	43.8	20.7	19.9
Fisheries.....	10.7	42.6	298.1	0.6	1.7
Mining.....	113.7	197.5	73.7	6.7	7.8
Manufacturing.....	298.8	493.6	65.2	17.7	19.5
Construction.....	221.6	286.2	29.2	13.1	11.3
Trade.....	291.3	442.8	52.0	17.3	17.5
Government.....	142.6	194.5	36.5	8.4	7.7
Other services.....	260.0	368.4	41.7	15.4	14.6
Total.....	1,688.1	2,528.0	49.8	100.0	100.0

<sup>1</sup> In constant 1960 market prices converted at 1960 rate of 26.76 Peruvian soles to 1 U.S. dollar.

Source: (21)

more effective industrial use of capital, labor, and management inputs to sustain continued economic growth.

Peru's traditional policy of encouraging private enterprise and the country's relative political and economic stability have been important factors in attracting investments from private firms and individuals and from public and private lending institutions, both foreign and domestic. A recent industrial-development law granted tax exemptions and other benefits to manufacturing industries and provided guarantees against inconvertibility of Peruvian currency.

#### A Basis for Demand

The current annual rate of growth in average per capita real income of 4.0 percent (table 4, footnote 3) for Peru is considered likely to continue over the next few years. Average income elasticities of demand shown in table 4 were estimated for 1959-61 in studies of the Food and Agriculture Organization (FAO) of the United Nations (5). The product of the 4-percent per capita income growth and income elasticities of demand provide an expected percentage change in per capita consumption levels for major food categories due to the income effect. Weighting these data by the average quantities consumed in each category, according to the U.S. Department of Agriculture food balance estimates (16), indicates an overall income elasticity of 0.3 with a resulting consumption rise of 1.2 percent per year. The sum of income and population effects (table 4) provides a basis for comparing expected and actual changes in consumption of food groups. The weighted average indicates a potential annual increase of 5.2 percent for all food commodities. The expected change varies

by food groups, with cereals and starchy crops changing less than 5 percent, compared with animal products, fats, and oils, which exceed 7 percent. Variations within food groups are also significant, particularly for cereals. The expected changes are based entirely upon the estimated effects of demand factors. They may not compare with actual changes where consumption is influenced by limitations upon supply and changes in price relationships.

#### Rising Consumption

Recent food consumption trends based on estimates of food available for consumption at retail reflect this increased demand and availability of food supplies in Peru (table 5).

Comparing average consumption for 1956-58 with that for 1959-61, daily per capita caloric consumption increased nearly 3 percent per year. Protein consumption rose more slowly as might be expected, from 48.4 to 51.0 grams per day. The increase in consumption of fat from 33.4 to 38.2 grams per day was most significant. However, per capita consumption is still below U.S. Department of Agriculture minimum reference nutritional standards for Peru of 2,500 calories, 60 grams of protein, and 42 grams of fat per day (16).

The rise in the general nutritional level reflects an increase in quantities available for consumption in most food groups. Although the average contribution of cereals to total calories fell from 42.8 to 41.7 percent between 1956-58 and 1959-61, they remained by far the most important food group in the Peruvian diet. The 1959-61 percentage of the total declined from 1956-58 for fruits and vegetables (3.8 to 3.6), and for milk and milk products (3.7 to 3.2). Fats and oils (5.7 to 6.6) and sugar (15.3 to 15.9) made important gains with

Table 4.--Estimated income elasticities and expected annual changes in total food consumption due to income and population change<sup>1</sup>

Food group	Income elasticity <sup>1</sup>	Expected annual change	
		Income <sup>2</sup>	Total <sup>3</sup>
		Percent	Percent
Cereal products.....	0.2	0.8	4.8
Starchy crops.....	.1	.4	4.4
Pulses and nuts.....	.3	1.2	5.2
Sugar.....	.4	1.6	5.6
Fruits and vegetables..	.6	2.4	6.4
Fats and oils.....	.9	3.6	7.6
Milk and milk products..	.8	3.2	7.2
Meat.....	.8	3.2	7.2
Eggs.....	1.2	4.8	8.8
Fish.....	.4	1.6	5.6
Cocoa.....	.6	2.4	6.4
Total.....	.3	1.2	5.2

<sup>1</sup> Retail level, excluding nonfood use. See footnotes 2 to 4, table 5, for special information on food groups.

<sup>2</sup> Income elasticity weighted by an estimated annual growth of 4 percent in per capita income.

<sup>3</sup> Income effect, plus a constant 4-percent annual population increase that is derived from estimates of a 2.5-percent gain in numbers and a 1.5-percent increase for a residual demand factor stemming from growing urbanization.

Source: (5).

Table 5.--Average per capita consumption of basic food groups, and percentage change in kilograms per year, 1956-58 and 1959-61<sup>1</sup>

Food groups	1956-58				1959-61				Percentage change kilograms per year 1956-58 to 1959-61
	Per year	Per day		Per year	Per day		Percent		
		Kilograms	Calories		Grams protein	Grams fat		Kilograms	Calories
Cereals.....	83.9	813	22.4	5.0	88.7	860	23.7	5.2	+5.7
Starchy crops <sup>2</sup> .....	154.6	343	5.9	.9	165.2	372	6.2	.9	+6.9
Pulses and nuts.....	7.0	66	4.4	.3	8.0	76	5.1	.4	+14.3
Sugar.....	27.6	290	.1	--	31.2	328	.1	--	+13.0
Fruits and vegetables <sup>3</sup> ..	83.0	73	3.2	.6	83.4	74	3.2	.6	0.5
Fats and oils.....	4.6	108	.2	12.1	5.9	137	.2	15.4	+28.3
Milk and milk products <sup>4</sup> ..	30.1	70	3.6	4.1	28.8	66	3.3	3.9	-4.3
Meat.....	14.8	101	5.2	8.7	16.1	109	5.0	9.6	+8.8
Eggs.....	2.3	9	.7	.7	2.8	11	.8	.8	+21.7
Fish.....	11.0	19	2.6	.8	13.5	23	3.3	1.0	+22.7
Cocoa.....	.4	4	.1	.2	.5	5	.1	.4	+25.0
Total.....	419.3	<sup>5</sup> 1,900	48.4	33.4	444.1	<sup>5</sup> 2,060	51.0	38.2	5.9

<sup>1</sup> Retail level basis, excluding nonfood use. <sup>2</sup> Includes bananas. <sup>3</sup> Excludes bananas. <sup>4</sup> Includes butter. <sup>5</sup> Columns do not add to totals because of rounded food balance totals.

Source: (16)

moderate improvement in the relative importance of pulses and nuts (3.5 to 3.7) and fish (1.0 to 1.1). The contribution of starchy crops (18.1), meat (5.3), and eggs (0.5) remained unchanged.

Increases in actual consumption are close to expected changes based upon estimated income and population effects for cereal products, starchy crops, sugar, and meat, with varying differences for other food groups

(table 6). To some degree, these variations of actual and expected changes may be explained by errors in estimating income elasticities, population, and income factors used to project expected change. However, they are probably affected more by variations in availability of supply and relative prices.

Recently, Peru has encouraged imports and used production incentives to provide adequate supplies and maintain reasonable

Table 6.--Average annual changes in total food consumption, 1956-58 to 1959-61, with actual, expected, and projected annual changes<sup>1</sup>

Food group	Quantity changes in consumption			Percentage changes in consumption			
	Average 1956-58	Average 1959-61	Increase	Actual		Expected <sup>3</sup>	Projected <sup>4</sup>
				Total <sup>2</sup>	Per year		
	-- 1,000 metric tons --			----- Percent -----			
Cereals.....	870	986	116	13.3	4.4	4.8	4.6
Starchy crops.....	1,604	1,836	232	14.5	4.8	4.4	4.6
Pulses and nuts.....	73	90	17	23.3	7.8	5.2	6.5
Sugar.....	269	327	58	21.6	7.2	5.6	6.4
Fruits and vegetables....	861	926	65	7.5	2.5	6.4	4.4
Fats and oils.....	48	65	17	35.4	11.8	7.6	9.7
Milk and milk products...	311	321	10	3.2	1.1	7.2	4.2
Meat.....	153	180	27	17.6	5.9	7.2	6.6
Eggs.....	7	8	1	14.3	4.8	8.8	6.8
Fish.....	114	150	36	31.6	10.5	5.6	8.0
Cocoa.....	4	6	2	50.0	16.7	6.4	11.6
Total.....	4,314	4,895	581	13.5	4.5	5.4	5.0

<sup>1</sup> Retail level basis, excluding nonfood use. <sup>2</sup> Total increase between averages for 1956-58 and 1959-61. <sup>3</sup> From column 3, table 4. <sup>4</sup> Approximation based upon average between estimated expected and actual rates of change.

Source: (16)

prices for basic foods. With a strong demand and a growing supply from domestic production and imports, the annual rise in consumption approximated or exceeded the expected rate for cereal products, starchy crops, pulses and nuts, and fats and oils. A larger-than-expected increase in consumption of sugar, cocoa, and fish is also attributed largely to expanded production.

In contrast, low producer prices and transportation and marketing difficulties discouraged significant expansion of the Peruvian livestock industry, despite a strong rise in demand for meat, dairy products, and eggs. Production of fruits and vegetables expanded but barely kept pace with population growth.

The total 4.5-percent increase in consumption for all food groups was 87 percent of the 5.2 percent expected, largely reflecting restrictions in supply. Smaller-than-expected increases in consumption of cereal products, fruits and vegetables, milk and milk products, meat, and eggs offset greater-than-expected increases in starchy crops, pulses and nuts, sugar, fats and oils, fish, and cocoa.

For approximating food consumption over the next few years, projections are based upon the average of expected and actual changes in total consumption. However, actual consumption may be expected to vary because of supply relationships.

Industrial and other demand for agricultural products, though small, will continue to grow.

Larger quantities of barley, malt, hops, grapes, corn and other feed grains, tallow, tobacco, and cotton will be needed to meet those demands. Larger quantities of fish oil will be demanded for use in paints and varnishes. Domestic use of fish meal, though small, may continue to expand.

#### Growing Export Demand

Export demand has been strong in recent years for cotton, sugar, coffee, and fishery products, which are produced mainly for world markets.

A special demand exists for Peruvian cotton in foreign markets, where it is known for and used because of its special properties. Pima, Peru's extra long staple variety, has good color, long fiber length, and fineness. Tanguis, the long staple variety, has a desired roughness, strength, and a low percentage of foreign matter. Tanguis is especially adapted for blending, including mixing with wool.

The demand for Peruvian sugar increased as a result of disruptions in the world sugar market, particularly during 1959-63. Peru was granted expanded sugar quotas in U.S. markets after Cuban imports were restricted in 1960. Strong world demand continued through 1963, owing to the restricted output in Cuban sugar available to the major importing countries. However, record world production in 1964 and

1965 resulted in a significant price decline in the United States and other Peruvian markets.

Despite the relative abundance of coffee on the world market, Peru's mild, full-bodied coffee gained acceptance by buyers and, until recently, exports continued to expand. Peru's coffee exporters received an incentive because the International Coffee Agreement, signed in 1962, increased their world coffee quota. However, future export growth may be restricted by quotas established under the Agreement.

The production and export of large quantities of fish meal has been the most significant development in the Peruvian economy in the past 8 years. World consumption has increased greatly and demand should remain strong in the future. Peru is now the world's largest fish-meal producer and exporter and, as a signatory to the International Fish Meal Export Quota Agreement, recently received a quota increase of 200,000 tons from the 1-million-ton quota it held in 1963. There has been considerable improvement in world prices and the overall market situation has stabilized--both encouraging signs for the future faced by the Peruvian fish-meal industry.

### Production

Peruvian agricultural resources are limited and generally underdeveloped. New lands are available for agricultural use, but their economic potential is uncertain, because of transportation and other factors. These resource limitations, together with prevailing systems of farm organization, continue to restrict growth in domestic food output, and encourage export production.

#### Agricultural and Fishery Resources

Climate and topography affect Peruvian development and the availability and use of its agricultural and fishery resources. Because the prevailing Pacific winds are cooled and dried while passing over the Peruvian (Humboldt) Current, the Peruvian coastal plain is largely a desert and its highlands are cold and semiarid. The Andes Mountains, which occupy over one-third of Peru's 482,000 square miles, stand as a formidable barrier to development of Peru's tropical eastern lowlands at the headwaters of the Amazon.

The large areas of desert, mountains, and relatively inaccessible lowlands restrict the land available for agricultural use. According to preliminary 1961 census estimates, land in farms totaled 20,63 million hectares--approximately 16.1 percent of the total land area (10). The cultivated area of 3.16 million hectares included (hectares): Annual crops (2.01 million); permanent crops (0.32 million); forage

crops (0.37 million); fallow (0.46 million). Other farmland included (hectares): Natural pastureland (10.50 million); wooded (2.28 million); unused productive land (1.40 million); unproductive (3.29 million). According to estimates based upon information supplied by the Peruvian Ministry of Development and Public Works, 536,000 hectares of Coastal lands were under irrigation in 1958 (6).

Approximately 58 percent of the total labor force was estimated to be engaged in agriculture, forestry, and fishing in 1959. The rural labor force remains concentrated in the highland region, but in recent times, there has been a significant migration of these farmworkers to farms and urban employment in the coastal region.

Climate and topography were important to development of the early Inca civilization which was based upon a system of highland (Sierra) agriculture devoted to the production of basic food and fiber. Larger scale commercial production in the Coastal Region was encouraged by foreign demand for agricultural products following the Spanish colonial period. These two regions, characterized by two different systems of production, continue to provide the principal resources for Peruvian agriculture with the eastern lowlands (Selva) as a potential area for new development.

The Coastal Region, which contains 12 percent of the total land area, is barren except where irrigation has been developed in the widely separated alluvial plains and deltas of numerous rivers and streams flowing from the Andes Mountains. This region contains 29 percent of the country's cropland. Only 5.3 percent of the Coastal area is cultivated because of the cost of installing and maintaining the irrigation systems. The most favorably situated farmland has been irrigated for many years and expenditures required to bring more distant but potentially productive areas into production are probably prohibitive in many cases. More than half of this irrigated land is planted to the country's main export crops--cotton and sugarcane--which usually pay producers better under prevailing prices and the established system of landholding and labor use than growing food crops for domestic consumption. However, other main crops, especially rice, do compete with export crops for Coastal land; these competitive crops include fruits, vegetables, and cultivated alfalfa pastures. Despite considerable pressure for change, the dominant position of cotton and sugar on the Coast continues to limit expansion in the output of domestic food crops.

The Sierra, with isolated mountain valleys and a few high plains interspersed between narrow peaks, supports the major portion of the agricultural population, mostly in a subsistence-type agriculture. The Sierra has 62 percent of Peru's cropland and most of the

natural pastures. It includes 27 percent of Peru's land area and is characterized by thin soils and severe erosion. Uncertain rainfall and cool temperatures at high altitudes limit growth and reduce productivity of many crops.

Only 1.3 percent of the Sierra is cultivated, usually without irrigation. Estimates of natural pasture range from 8 to 40 million hectares. Except for a few wide plateaus and basins, level land is restricted to narrow strips along deeply cut river valleys. Frosts, droughts, and floods are frequent, and production is often seriously affected. Isolation results in marketing problems which limit the incentive for improvement of primitive farming methods. Cereals and potatoes are the major crops; the large areas of unproductive natural pastures support most of the country's cattle.

The Selva is an extremely isolated region, consisting of the eastern Andean slopes and western Amazonian plains of interior South America. Although it occupies 61 percent of the country's area, only 0.2 percent is currently cultivated. The area contains only 9 percent of Peru's cropland; it is isolated by lack of transportation and communication caused by the vast uninhabited jungle areas on the east and the tremendous mountain barriers on the west. The region is generally heavily forested, uncomfortably hot, drenched with heavy rains, and plagued by insects. These disadvantages and the isolation make most of the area extremely unattractive to settlers and limit its potential as an economical food-producing area. Production is restricted mainly to subsistence crops and to fairly small although steadily expanding quantities of coffee, cacao, and other tropical and forest products.

In contrast to its available agricultural resources, Peru has abundant fish resources along its Pacific Coast. The continental shelf along central and northern Peru is wider than along most of the west coast of South America and provides excellent fishing grounds. The Peruvian current, flowing north along the Coast, is accompanied by southeasterly winds which carry surface water away from the Coast. As this water is replaced by water from the depths, material is brought to the surface which attracts and supports a wide variety of marine life. These conditions are particularly favorable for anchovetas, which are the primary source for the growing fish-meal industry.

#### Systems of Production, Marketing, and Transportation

Two agricultural production systems prevail: Established commercial crop production for export on the Coast, and subsistence farming in the Sierra and Selva. Marketing generally follows a related pattern with efficient marketing for commercial crops, and a very

restricted system for marketing other crops and livestock.

The Coastal system of production is often the result of early irrigation developments and the system of Spanish grants for land and labor which encouraged large-scale production of export crops. Large farms are responsible for most of the output. Labor use remains high, although capital has been substituted for labor in many operations. New technology has often been adopted and net farm incomes are favorable. Large Coastal operations are profit-oriented and production is responsive to changes in price and technology.

Where livestock, poultry, potatoes, vegetables, or citrus and related crops are produced under irrigation on the Coast, average yields compare favorably with those of the world's high-producing regions. However, it is often difficult for those products to compete with cotton, sugarcane, and rice for the available land under present conditions.

Marketing services and facilities have improved in recent years in the Coastal area and in the larger cities, especially in Lima. Grain storage facilities are concentrated on the Coast as are the majority of cold storage facilities and livestock slaughter plants. Large urban centers also have some modern plants for processing vegetable oils, milk, and canned fruits and vegetables.

Sugar and cotton marketing facilities are modern and efficient. Most cotton producers have their cotton ginned on a custom basis and sell their cotton lint to individual buyers in the Peruvian market. Cotton trading is supervised by the Peruvian Cotton Exchange which determines the rules and acts as an arbitration board between buyers and sellers. The sugar estates, besides producing, transporting, and grinding almost all their cane, also market a large share of their output.

In contrast, the system of production and marketing in the Sierra is generally primitive and undeveloped. Farm organization is poor and the levels of technical and economic efficiency are very low. Crop yields average 20 to 25 percent of those obtained in the Coastal area. Farms are small, technical knowledge is not readily adopted, and population pressures on land resources hinder the development of more efficient units. Capital is limited and restricted in use by the relative abundance of labor.

Little improvement has been made in the rural marketing system. Much of the produce is transported to local markets by human or animal carriers, and Indian women spend the whole day in the marketplace trying to sell a relatively small quantity of beans, barley, potatoes, onions, eggs, or other foods. Because of insufficient and inadequate storage facilities, high losses occur in food and industrial crops.

Problems associated with marketing of food products assumed greater importance in Peru as population shifts increased demand in urban centers and Coastal areas. Cities like Lima, Arequipa, Callao, and other urban centers have many marketing problems. Wholesale marketing is generally inefficient. Buyers and sellers usually have little information about the actual supply and demand situation or about price, and there are no grades and standards as guides. Handling methods are mostly primitive and often damaging to the products, especially perishables. Improper and inadequate packing methods are the rule, and refrigeration during transport and storage is the exception. The greater Lima marketing area has made much more progress in wholesale marketing than have the principal production zones.

Retailing is transacted by small stores, which limit their operations to a small group of products with large profit margins. However, self-service supermarkets have developed in the Lima area. These modern supermarkets provide many services not given by other retailers, and the sanitary conditions and presentation of products are superior to those of the average retailer in the municipal markets. The trend toward supermarket retailing has emphasized and intensified the need for better commercial marketing facilities at the farm and wholesale levels.

Peru's transportation system represents a major obstacle to the development of an adequate and efficient agricultural economy. Although the railway system is adequate as far as it goes, it is not extensive enough to cover the country and most agricultural products move to distant markets by truck. Although the road network covers more developed areas, particularly along the Coast, major expansion and improvement is needed.

Apart from the Pan-American Highway extending along the Coast and a section of the Central Highway, which links Callao with the Central Selva, most principal roads are extremely rough and cause great wear on vehicles. Some roads in the Sierra are so narrow that all traffic moves one-way one day, and then one-way in the opposite direction the next day. There is also a lack of feeder and access roads. Poor roads add to transport charges and sometimes make it uneconomical for areas to produce for shipment to distant markets. In other cases, poor roads raise the cost of marketed products and add to losses in transit. The Government is investing in a road-building program and the gradual improvement of the road system should contribute to the expansion of the entire economy in the future.

Peru's fishing industry is now based on large-scale anchoveta landings, but other food fish, especially bonito and tuna, are used for local consumption and export--either fresh, canned, or frozen. Most of the Peruvian

anchoveta catch is processed into meal and oil. Small amounts of the meal are used as a protein concentrate in poultry and hog feeds, and the oil is utilized in domestic manufacture of margarine and industrial products such as paints and floor coverings. Fish reduction facilities vary in efficiency: Many older ones use secondhand equipment, but most of the newer plants are modern and efficient.

The fishing industry also has problems. Peru's few protected harbors are small and shallow. Callao, a modern port, is designed for commercial shipping and has limited space for the growing fishing industry. Chimbote has only a small protected area. A shortage of fresh water for processing fish is a constant problem. However, Peru's fishing industry is favored by several factors. Fishing areas are close to shore, so that small boats can operate efficiently and land large tonnages. Because cargo-handling equipment is highly mechanized, transfers from boats to shore operations and loading for shipment to overseas markets are easily done.

In summary, Peru's commercial agricultural and fishery output--production of cotton, sugar, coffee, some foodstuffs, and fishery products--should continue to be favored by modern management and the application of improved techniques to both production and marketing activities. In contrast, production and marketing of most domestic food crops will continue to be adversely affected by the antiquated systems utilized by most subsistence producers and much time will elapse before significant improvement can be made.

#### Production Trends

Total Peruvian agricultural output has not kept pace with domestic demand since the mid-1950's. However, production of many agricultural commodities shows a significant expansion of crop area and some improvement in yields. Progress in agriculture has been overshadowed by rapid growth in fisheries during this period.

The revised index of net production, prepared by the U.S. Department of Agriculture, indicates that output of principal crop and livestock products increased from 89 in 1956 to an estimated 120 in 1964 (1957-1959 = 100), an average rise of 4.4 percent per year during the 8-year period. This compares with a rise in fish landings from 0.3 million metric tons in 1956 to an estimated 9.1 million tons in 1964.

Production of all agricultural commodities maintained rising trends during the 8-year period from 1956 to 1964, with the exception of minor cereals, noncentrifugal sugar, and tobacco (table 7). Production lagged behind projected changes in consumption established for the 11 principal domestic food groups

Table 7.--Production of agricultural and fishery products, 1956-64<sup>1</sup>

Commodity	1956	1957	1958	1959	1960	1961	1962	1963	1964 <sup>2</sup>	Average annual increase over 8 years
	- - - - - 1,000 metric tons - - - - -									Percent
Cereal products.....	816	845	935	979	1,069	1,106	1,128	1,011	1,076	+4.0
Wheat.....	123	138	128	162	154	153	153	156	150	+2.8
Corn.....	265	271	294	333	339	380	358	362	380	+5.4
Barley.....	159	166	197	202	195	217	200	196	210	+4.0
Rice.....	243	246	285	249	358	332	391	270	316	+3.8
Other <sup>3</sup> .....	26	24	31	33	23	24	26	27	20	-2.9
Starchy crops.....	1,869	1,906	2,142	2,218	2,176	2,335	2,378	2,368	2,479	+4.1
Potatoes.....	1,013	1,046	1,222	1,217	1,145	1,244	1,245	1,230	1,300	+3.5
Sweetpotatoes.....	77	86	108	152	129	145	146	138	152	+12.2
Cassava.....	278	275	298	319	350	365	377	395	418	+6.3
Bananas.....	430	430	430	440	453	460	488	490	490	+1.7
Other starchy crops <sup>4</sup> .....	71	69	84	90	99	121	122	115	119	+8.5
Pulses <sup>5</sup> .....	64	70	80	91	84	87	100	107	110	+9.0
Sugar.....	730	720	726	746	852	833	798	844	804	+1.3
Centrifugal.....	702	692	698	720	820	808	778	820	781	+1.4
Noncentrifugal.....	28	28	28	26	32	25	20	24	23	-2.2
Fruits and vegetables.....	1,131	1,137	1,154	1,177	1,222	1,334	1,886	1,911	1,895	<sup>6</sup> +0.2
Fats and oils <sup>7</sup> .....	34	35	35	34	42	43	44	49	50	+5.9
Milk.....	412	427	430	438	439	451	464	551	562	+4.6
Meat <sup>8</sup> .....	131	137	155	166	171	170	165	170	171	+3.8
Beef.....	55	54	62	71	72	71	56	73	70	+3.4
Pork.....	27	34	36	36	37	35	44	31	31	+1.8
Mutton.....	32	33	38	38	39	39	39	38	40	+3.1
Poultry.....	7	5	7	9	10	12	13	14	15	+14.3
Other.....	10	11	12	12	13	13	13	14	15	+6.2
Eggs.....	7	7	7	7	7	9	9	10	10	+5.4
Cocoa.....	2	2	2	3	4	4	4	4	4	+12.5
Coffee.....	12	18	21	22	32	43	46	49	52	+41.7
Tobacco.....	4	4	5	2	2	2	3	3	3	-3.1
Cotton fiber.....	107	106	110	118	123	121	143	147	136	+3.4
Wool.....	9	9	9	9	10	10	11	11	10	+1.4
Total fish (landed weight)...	297	483	930	2,152	3,531	5,218	6,962	6,901	9,131	+371.8
Food fish (landed weight)...	160	149	170	200	216	206	271	266	441	+22.0
Fish oil.....	3	8	10	24	48	119	151	155	160	+654.2
Fish meal.....	31	64	127	332	558	840	1,117	1,132	1,552	613.3

<sup>1</sup> Harvest mainly in year shown. Years correspond to this and following year of split years in U.S. Department of Agricultural agricultural production indices except for corn, rice, cotton, and sugar. Production indices do not include other grains, other starchy crops or fishery products. Fishery products exclude whaling, of minor importance except for sperm oil, which is included in table 18. <sup>2</sup> Preliminary. <sup>3</sup> Includes quinoa, canahua, and oats. <sup>4</sup> Includes oca, olluca, and mashua. <sup>5</sup> Includes beans, broad beans, chickpeas, and lentile. <sup>6</sup> Average for 1962-64, which is revised data not comparable with earlier years. <sup>7</sup> Vegetable oils, lard, and animal tallow. <sup>8</sup> Excludes estimated slaughter weight of imported animals; other category includes estimates for edible offal.



except for pulses and nuts, dairy products, cocoa, and fish. Export products, including sugar and fish, which are also of consequence in domestic food consumption, showed mixed trends. The annual increase in sugar production averaged only 1.3 percent and cotton 3.4 percent, while coffee averaged 41.7 percent, cocoa 12.5, and fish 371.8. Tobacco, another domestic crop, registered an average decline of 3.1 percent annually during the 8-year period.

The average harvested area for principal crops increased at an average rate of 2.8 percent between 1956-58 and 1962-64, accounting for most of the total production increase achieved during the period (table 8). Expansion in area was most important for coffee, with a significant increase for rice, barley, corn, sweetpotatoes, cassava, pulses, and sugarcane. Expansion in area was supplemented by a significant improvement in average yields for corn, sweetpotatoes, pulses, and cotton. Recovery in yields also contributed to some rise in levels of wheat production.

Although these comparisons cover a short timespan, they indicate rising trends in output of many agricultural products which are significant in terms of competition, both in the Peruvian market for imports and in export markets for Peruvian agricultural and fishery products. Also, these upward trends are reinforced by current policies aimed at expanding both domestic and export production. Such policies range from Government requirements

that certain percentages of irrigated Coastal land be devoted to basic food crops to initiation of broad development programs. These policies are reflected in recent production trends through increased use of hybrid seed corn and in the larger area devoted to rice, corn, pulses, sweetpotatoes, and cassava in the Coastal Region.

The livestock industry has continued to show a low rate of growth. Cattle numbers increased from 3.4 million head in 1956 to an estimated 3.8 million head in 1963, an average annual rise of 1.7 percent. Production trends indicate some rise in domestic cattle slaughter, but the rate remains low. While increasing, dairy production still has difficulty in competing effectively for land and other resources with important commercial crops and with other livestock enterprises, including swine and poultry.

Established patterns of land and other resource uses tend to be maintained with little change under the existing land-tenure system. Small farms--less than 5 hectares--produce many basic food crops on marginal land, particularly in the Sierra. These small farms accounted for 81 percent of all farms and 26 percent of the cropland included in the 1961 agricultural census. Farms of 500 hectares and more occupy the better lands, and dominate the commercial crop and livestock production of the Sierra and Coastal Regions. Although these large holdings represented less than 1 percent of all farms in 1961, they included

Table 8.--Harvested area and yields for principal crops, averages for 1956-58 and 1962-64

Crop	Average 1956-58		Average 1962-64		Average annual increase 1956-58 to 1962-64	
	Area	Yield per hectare	Area	Yield per hectare	Area	Yield per hectare
	1,000 hectares	Kilograms	1,000 hectares	Kilograms	- - - -Percent - - - -	
Wheat.....	140	929	152	1,007	1.4	1.4
Rice.....	66	3,909	82	3,976	4.0	.3
Barley.....	171	1,018	196	1,031	2.4	.2
Corn.....	236	1,174	277	1,325	2.9	2.1
Potatoes.....	220	4,973	236	5,351	1.2	1.2
Sweetpotatoes.....	11	8,182	16	9,063	7.6	1.8
Cassava.....	20	14,200	28	14,179	6.7	( <sup>1</sup> )
Pulses <sup>2</sup> .....	74	959	90	1,177	3.6	3.8
Sugarcane.....	39	17,872	49	16,184	4.3	- 1.6
Cotton.....	236	458	266	534	2.1	2.8
Coffee.....	37	459	101	485	28.8	.9
Total.....	1,250	--	1,493	--	<sup>3</sup> 2.8	<sup>4</sup> 1.2

<sup>1</sup> Negligible.

<sup>2</sup> Includes beans, broad beans, chickpeas, and lentils.

<sup>3</sup> Average annual increase for total area shown.

<sup>4</sup> Simple average annual increase for commodities shown.

41 percent of the cropland and 76 percent of the estimated farm area.

Large farms, particularly those producing the high-value export crops in the Coastal Region, continue utilizing the major proportion of capital inputs to agriculture. Fertilizer is important in production of irrigated crops, particularly cotton and sugarcane. The Food and Agriculture Organization of the United Nations estimates that annual consumption of fertilizers (plant nutrient content) rose from 76,900 metric tons in 1955/56 to 113,100 metric tons for 1962/63, an increase of 47 percent (4). Rich guano deposits on the offshore islands provided the principal source of fertilizers until 1958, when available supplies declined sharply. Peru subsequently expanded production and import of chemical fertilizers to meet the growing demand. These sources, with small quantities of fish meal, currently provide nearly two-thirds of total fertilizer consumption.

Agricultural and fishery development efforts may change production trends considerably in the long run. However, such changes are expected to be gradual in view of the existing resources and prevailing systems of production and marketing. Consequently, present production trends are expected to continue for the next few years. For domestic food crops, production trends mean increasing imports for several important commodities, including wheat products, livestock and meat products, fats and oils, dairy products, and fruits and vegetables. Occasional rice imports may also be needed. Imports of tobacco and tobacco products should increase. Limited gains are expected for exports of fish meal and other fishery products, cotton, and coffee. Sugar exports will probably continue near present levels.

#### Agricultural Development Plans

Inadequate food consumption and output have focused attention in Peru on the need for agricultural development. Agricultural development plans have two primary goals. The first is to increase the amount of cultivated land per person by building new irrigation systems, and colonizing some of the jungle areas east of the Andes. The second is to increase the productivity of land now in use through land reform, credit expansion, and agricultural extension education.

Estimates of additional land which could be brought under cultivation range as high as 62.3 million hectares, or 25 times the 2.55 million hectares estimated in the 1961 census of agriculture (10). Cultivation of the additional lands would require irrigation for another 1.5 million hectares on the Coast, expanding irrigation in the Sierra, and substantial land development in the Selva. Studies have been

completed for irrigating 0.5 million additional hectares, mainly in the Coastal Region, when financing is available. It is estimated that 1 million hectares of new land could be put in crops and livestock through irrigation in the Sierra. Reports estimate that as much as 60 million hectares in the Selva, could be cultivated: 15 million hectares in the upper Selva, and as much as 45 million hectares in the lower Selva. However, the estimate has little meaning in view of the isolation of the area and the general lack of knowledge of tropical agriculture necessary for establishment of a permanent system of sustained production.

In June 1964, Peru's 2-year public investment plan was submitted to the Alliance for Progress Committee of Nine. This plan, which emphasizes agricultural development, replaced a 10-year plan that was proposed earlier by the Peruvian National Planning Institute. Peru was formulating a new 5-year plan, scheduled for completion by the end of 1965 and review in 1966.

The 2-year investment plan for agriculture emphasizes irrigation, agrarian reform, and colonization, and in these respects, it mirrors the previous 10-year plan. Agriculture is budgeted for \$90 million, with 38 percent of the total for irrigation, 27 percent for agrarian reform and colonization, and the rest for regulatory, development, and other work in agriculture.

The irrigation plan calls for installation of new water systems to benefit 2,700 hectares, and improvement of existing systems on 111,000 hectares, including 7,200 hectares in the Sierra. Several new studies will be initiated under the 1964-65 investment plan. One study includes 72,600 hectares on which future irrigation systems are to be installed in the Coastal Region. A second involves 343,000 hectares of Coastal land on which existing systems are to be improved. A third study will investigate the possibility of improving existing irrigation systems on 30,000 hectares of Sierra land.

The investment plan provides capital to implement agrarian reform on 3,670,000 hectares located in all areas of the country. The colonization program plans use of 42,700 hectares in the Coastal Region and 46,000 hectares in the Selva.

Although the 10-year development plan has been withdrawn, it indicated to some degree the potential direction of future development efforts. It proposed three main programs for the agricultural sector with Government investment to be provided as follows: Irrigation, \$545 million; agrarian reform, \$214 million; and colonization, \$168 million. These investments provided for credit expansion, extension education, and other services needed to support these programs. The \$917 million total for agricultural development represented a sharp increase in Government expenditures

in this sector and over 29 percent of total expenditures of public funds envisioned in carrying out the entire development plan. Other projected developments were to support agriculture, especially through investments in transportation, electrification, housing, water and sewage facilities, public health, education, and school feeding programs.

Under the old plan, the Government planned to irrigate over 500,000 hectares of new land, mainly in the Coastal Region, during the 10-year period. This area is equivalent to nearly 25 percent of the present cultivated area and would almost double the irrigated area. One of the proposed major irrigation works, located in the Coastal Region about 310 miles north of Lima, would use the excess water from the Santa River. In this project, over 60,000 hectares of new land would be irrigated, with 76,500 hectares of seasonally used land put into full-time use.

The withdrawn development plan also provided for a 10-year colonization program, with emphasis upon resettlement of farmers from the overpopulated highlands to selected areas of the Coast and Selva. About two-thirds of the expenditures were to colonize the same 485,000 hectares on the Coast that was planned for irrigation, with the remainder to colonize 200,000 hectares in the Selva.

A Peruvian agrarian reform program, signed into law in May 1964, is designed to produce a fundamental change in the entire agrarian structure. Current reports indicate that, by the end of 1965, approximately 50,000 rural workers will have received title to approximately 1 million hectares of land either on a village or individual basis. Another million hectares has been approved for eventual transfer under the program.

Substantial progress is also reported in expansion of credit and technical assistance required to assist new landholders in improving production. This progress accords

with the objectives of the agrarian reform program, under which authorities hope to provide technical, economic, and social assistance to operators of small- and medium-size farms. Included is the creation, expansion, and maintenance of education centers to train specialists for the program. The plan also calls for improvement and strengthening of present sources of agricultural aid, including the extension service, experiment stations, credit sources, and disease-prevention services for crops and livestock. To complete the program, better commercial organizations will be established to serve the farmer, including farmer cooperatives.

Under the agrarian law, fragmentation of land holdings is to be reduced and land-ownership restricted to a maximum of 250 hectares of irrigated land on the Coast and Sierra and to 1,000 hectares in the Selva. For natural pastures, the limitation is 5,000 hectares on the Coast and Sierra and 10,000 hectares in the Selva. This applies to properties constituted after the law became effective, with existing properties subject to division in certain instances. Large holdings may be divided when the land is normally worked by small tenants or "colonos" and where holdings are inefficiently operated. Provisions are made for owners to sell within certain time periods and to be reimbursed for land actually taken over for the program. Land reform is to be aided by a graduated land tax.

Although present agricultural production trends are expected to continue for the next few years with some modification, effective implementation of development plans could result in a significant expansion in production over a longer period. This development on the Coast should contribute to a larger output of cotton, sugar, and some food crops; in the Sierra, a greater production of food crops; and in the Selva, continued expansion in coffee and other tropical products.

## AGRICULTURAL TRADE

Agricultural and fishery products play an important role in Peruvian trade. Those products currently provide about 58 percent of total export earnings, making possible the importation of a wide variety of agricultural and other products. Agricultural products accounted for 15.7 percent of total imports in 1963 and 17 percent in 1964.

Total imports increased from \$364.8 million in 1956 to \$579.6 million in 1964 (table 9), a rise of 59 percent during the 8-year period. Favorable trade balances and the failure of production to meet growing urban demand contributed to a significant rise in import of food products. Agricultural imports increased 80.6 percent during the period, compared with an increase of 55.1 percent for other products.

Nations in Europe, Latin America, and other parts of the world improved their positions as sources of supply for total Peruvian imports after 1956, while the U.S. share declined (table 10). Although some shifts occurred in 1964, imports from Europe increased from 35.8 percent of the total in 1956 to 37.8 percent in 1963, due mainly to growth in nonagricultural trade. Imports from Latin America in this period rose from 7.5 percent to 13.1 percent, reflecting the growing importance of members of the Latin American Free Trade Association (LAFTA), particularly Argentina and Chile, as suppliers of agricultural and other raw materials. Other countries also increased their share of an expanding trade. The United States remains the principal

Table 9.--Value of agricultural, fishery, and total trade, 1956-64

Year	Imports <sup>1</sup>			Exports			
	Agricultural	Nonagricultural	Total	Agricultural	Fishery	Other	Total
	----- Million U.S. dollars -----						
1956.....	54.5	310.3	364.8	142.1	15.8	153.3	311.2
1957.....	67.0	334.4	401.4	149.0	19.7	161.1	329.8
1958.....	62.5	256.1	318.6	133.1	19.7	125.2	278.0
1959.....	59.0	233.4	292.4	136.7	43.9	131.4	312.0
1960.....	63.5	318.8	382.3	157.1	52.9	231.3	441.3
1961.....	75.8	393.6	469.4	182.6	71.5	242.2	496.3
1962.....	83.9	453.0	536.9	196.4	121.5	222.1	540.0
1963.....	87.4	469.9	557.3	202.1	122.0	217.3	541.4
1964.....	98.4	481.2	579.6	217.9	166.7	282.4	667.0
1965 <sup>2</sup> .....	( <sup>3</sup> )	( <sup>3</sup> )	575.0	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	652.0

<sup>1</sup> United Nations Yearbook of International Trade Statistics indicates that Peruvian import statistics from 1956-60 excluded government account and imports of the Southern Peru Copper Company. Also excludes commodities, principally dairy products, imported under Titles II and III of U. S. Public Law 480 (see table 21).

<sup>2</sup> Preliminary.

<sup>3</sup> Not available.

Reproduced from (12).

Table 10.--Value of all imports by major areas of origin, 1956-64

Year	Origin						
	U.S.	Latin America			Europe	Other	Total
		LAFTA <sup>1</sup>	Other L. A.	Total L. A.			
	----- Million U.S. dollars -----						
1956.....	181.0	20.5	7.0	27.5	130.5	25.8	364.8
1957.....	191.8	30.2	9.6	39.8	139.1	30.7	401.4
1958.....	149.8	19.7	5.9	25.6	116.7	26.5	318.6
1959.....	131.1	20.7	4.7	25.4	107.2	28.7	292.4
1960.....	167.8	28.1	8.9	37.0	140.0	37.5	382.3
1961.....	207.0	31.8	12.5	44.3	175.2	42.9	469.4
1962.....	212.4	45.2	12.8	58.0	210.7	55.8	536.9
1963.....	207.6	62.0	11.1	73.1	210.5	66.1	557.3
1964.....	236.0	58.6	6.1	64.7	164.6	114.3	579.6

<sup>1</sup> Latin American Free Trade Association.

Source: (12).

supplier of the Peruvian market, but its share of total imports declined from 49.6 percent to 40.7 percent of the total during the 8-year period from 1956 to 1964.

Peruvian exports increased 74.0 percent, rising from a 1956 level of \$311.2 million to \$667.0 million in 1964 (table 9). Agricultural trade increased 53.3 percent and other products by 84.2 percent. However, the outstanding

development was in the fishery trade, which rose to 10.6 times the 1956 level and in 1964 accounted, in value, for one-fourth of total exports, although agricultural products continued as the principal source of export earnings.

The rise in exports contributed to economic growth and stability by restoring the traditional foreign trade surplus, following deficits during

1947-58. A deficit of \$15.9 million resulted from 1963 trade. However, based on high world prices and record output for fish meal and nonferrous metals, Peruvian trade resulted in a 1964 trade surplus estimated at \$87.4 million despite a continued rise in imports.

The United States is Peru's most important market, but its share of Peru's total exports declined from 36.9 percent in 1956 to an estimated 31 percent in 1964 (table 11). Exports to Europe increased from 34.4 percent to 44.5 percent of the total from 1956 to 1964, and assumed the dominant position in the trade after 1958. Changes in Peruvian exports to LAFTA and other Latin American nations were small and that trade declined to relative importance. Trade with other regions more

than doubled in value, although it remained small relative to total exports.

### Imports

Eighty-six percent of the value of Peru's 1964 agricultural imports were in five commodity groups, listed in order of their relative importance: Cereals and cereal products; live animals for slaughter and meat; dairy products; fats and oils; fruits and vegetables (table 12). Other agricultural imports include unmanufactured tobacco, wool, prepared animal feeds, tea and beverages, spices, gums and resins, rubber, work animals, and a variety of other agricultural products.

Table 11.--Value of all exports by major destinations, 1956-64

Year	U.S.	Latin America			Europe	Other	Total
		LAFTA <sup>1</sup>	Other L. A.	Total L. A.			
----- Million U.S. dollars -----							
1956.....	114.8	46.8	20.6	67.4	107.1	21.9	311.2
1957.....	115.3	44.7	26.0	70.7	113.8	30.0	329.8
1958.....	105.6	36.4	18.9	55.3	101.7	15.4	278.0
1959.....	97.6	46.4	22.1	68.5	122.9	23.0	312.0
1960.....	159.4	34.1	34.7	68.8	181.0	32.1	441.3
1961.....	177.3	31.5	27.7	59.2	210.2	49.6	496.3
1962.....	186.4	48.8	20.6	69.4	239.5	44.7	540.0
1963.....	189.2	49.1	10.8	59.9	238.9	53.4	541.4
1964.....	208.1	67.3	4.5	71.8	296.9	90.2	667.0

<sup>1</sup> Latin American Free Trade Association.

Source: (12).

Table 12.--Value of agricultural imports, commodities and total, 1956-64

Year	Cereals and products	Fats and oils	Live animals and meat <sup>1</sup>	Dairy products	Fruits and vegetables	Other <sup>2</sup>	Total
----- Million U.S. dollars -----							
1956.....	23.8	8.4	5.7	6.7	2.4	7.5	54.5
1957.....	29.9	8.7	8.9	6.8	3.4	9.3	67.0
1958.....	31.6	7.3	7.9	5.7	2.4	7.6	62.5
1959.....	29.7	9.8	5.5	5.4	2.4	6.2	59.0
1960.....	34.1	7.7	3.2	6.2	2.6	9.7	63.5
1961.....	38.5	12.8	7.5	5.6	3.3	8.1	75.8
1962.....	36.2	10.1	16.0	7.2	3.7	10.7	83.9
1963.....	33.2	5.3	25.2	8.3	5.3	10.1	87.4
1964 <sup>3</sup> .....	43.4	9.6	14.2	12.6	4.7	13.9	98.4

<sup>1</sup> Includes live animals, except work animals, which are included under Other.

<sup>2</sup> Includes pulses, potato flour, and hops. <sup>3</sup> Preliminary.

Source: (12)

Agricultural products represented by the five principal commodity import groups accounted for 60 percent of the average per capita food consumption, in calories per day, during 1959-61. These groups represented three-fourths of total calories consumed if export commodities such as sugar and fish are excluded from total consumption.

Imports of those five commodity groups increased by 55.6 percent during 1956-64, reflecting the general extent to which domestic output failed to keep pace with increasing consumption requirements. This production gap is reflected in a relatively steady uptrend in imports of cereals and cereal preparations during the period. Important gaps are also indicated by a significant expansion in imports of live animals and meat, dairy products, and fruits and vegetables after 1960. A relatively stable level of fats and oils imports was maintained, despite strong growth in demand. Increased purchases in 1961 and 1962 accumulated large carryover stocks which contributed to smaller 1963 imports.

Sources of agricultural imports reflect, to a large degree, the importance of cereals and livestock products, which accounted for three-fourths of all agricultural imports in 1964. Argentina, the United States, and Canada dominate this trade, but Chile, Ecuador, and the Central American countries are also important sources of supply (table 13). Argentina expanded shipments of those products, particularly animals and meat, to replace the United States as the principal supplier of agricultural imports after 1961. However, with increased imports of wheat and other agricultural products from the United States, and a sharp decline in imports of live animals and meat from Argentina, reports for 1964 show that the United States is again contesting Argentina for the major share of this market.

Anticipated growth of the Peruvian economy should contribute to further expansion in demand for agricultural products during the next few years. Despite some rise in production, this demand should contribute to continued growth in imports of wheat, livestock products, fats and oils, and some other agricultural commodities.

### Exports

Cotton, sugar, and coffee comprised 87.8 percent of total agricultural exports in 1964 and 28.7 percent of total value of exports (table 14). A variety of other Peruvian agricultural products enter foreign trade, including wool and hair, hides and skins, byproducts of cotton and sugar, citrus fruits, and cocoa beans. Because of recent industry development, fish meal now ranks as Peru's principal export. Fishery products, including fish oil and fish products for food, contributed one-fourth of total 1964 export earnings.

Cotton exports varied with a general rising trend during 1956-64, but were overshadowed by the growth in trade for other agricultural and fishery products--particularly sugar, coffee, and fish meal and fish oil. Growth in exports contributed to strong diversification of Peruvian trade. Expansion in cotton and fishery products increased competition with U.S. agriculture in the principal world markets. From 1960 to 1963, a large share of Peru's sugar output moved to the U.S. market, with some shift to other markets in 1964 in response to sharp advances in world price. Three-fourths of Peru's coffee is exported to the United States, but the expansion in cotton, fishery, and other products contributed to a significant rise in trade with Europe and other regions.

Table 13.--Value of all agricultural imports, and percentage from major suppliers, 1956-64

Year	Agricultural imports	Percentage from--				
		U.S.	Argentina	Canada	Other	Total
	Million U.S. dollars	----- Percent -----				
1956.....	54.5	31.4	26.6	11.4	30.6	100.0
1957.....	67.0	27.2	26.9	6.1	39.8	100.0
1958.....	62.5	36.3	17.0	9.0	37.7	100.0
1959.....	59.0	36.4	22.0	11.4	30.2	100.0
1960.....	63.5	29.9	26.8	9.2	34.1	100.0
1961.....	75.8	38.3	31.3	3.8	26.6	100.0
1962.....	83.9	29.7	34.4	1.2	34.7	100.0
1963.....	87.4	13.4	53.8	3.0	29.8	100.0
1964.....	<sup>1</sup> 98.4	<sup>1</sup> 21.8	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	--

<sup>1</sup> Preliminary. <sup>2</sup> Not available.

Source: (12)

Table 14.--Value of agricultural and fishery exports, 1956-64

Year	Agriculture				Fishery			Total
	Cotton	Sugar	Coffee	Other	Fish meal	Fish oil	Other <sup>1</sup>	
	----- Million U.S. dollars -----							
1956.....	85.6	32.8	8.9	14.8	3.6	1.0	11.2	157.9
1957.....	68.0	49.6	13.0	18.4	7.2	1.4	11.1	168.7
1958.....	71.9	32.3	15.0	14.0	11.2	1.2	7.2	152.8
1959.....	68.8	35.6	15.5	16.8	31.4	2.9	9.6	180.6
1960.....	74.6	48.4	18.9	15.1	39.7	5.4	7.9	210.0
1961.....	79.6	63.9	22.8	16.3	49.8	12.2	9.5	254.1
1962.....	96.9	53.8	24.2	21.5	100.1	12.9	8.5	317.9
1963.....	91.1	63.2	25.6	22.2	104.8	9.4	7.8	324.1
1964 <sup>2</sup> .....	90.9	63.4	37.0	26.6	143.6	14.7	8.4	384.6

<sup>1</sup> Fish and other seafood, primarily for food consumption. <sup>2</sup> Preliminary.

Source: (12)

Peruvian agricultural and fishery trade should continue some growth, although future world prices appear less favorable and the outlook for expansion in output is uncertain. Recent price declines may limit further expansion in sugar output. However, growth appears more favorable for other exports.

#### Regulation of Foreign Trade

Peru's foreign trade is comparatively free of direct restrictions. There are no import quotas, licenses, prohibitions, exchange controls, multiple exchange rates, or tie-in purchase requirements, and exports are not subsidized. Government control is confined largely to import tariffs and export taxes.

Historically, tariff rates have been low on unprocessed agricultural commodities with important exceptions, including cotton. They are almost prohibitive on many processed and semiprocessed items of agricultural origin. Substantial increases in tariffs on nonessential items were placed in effect during 1958 to cut imports and balance foreign trade. In 1959, ad valorem duties were increased by 10 to 20 percent on most commodities, including many agricultural products.

The Peruvian tariff structure was revised in 1964 in accordance with the 1955 standard Brussels nomenclature. With this revision, previous concessions granted to members of the General Agreement on Tariff and Trade (GATT) were suspended and common duties were suspended for all non-LAFTA countries. Suspension of GATT concessions is subject to further negotiation with affected countries, including the United States, which have protested the increases.

The new external basic tariff of August 1964 provided some increase in both specific and ad

valorem duties applicable to imports of many agricultural products. Effective duty rates were unchanged or reduced slightly for some commodities, including meat, butter, un-rendered pig fat, tallow, unrefined vegetable oils, wheat, rye, oats, and barley. Rates were significantly increased for live animals, corn, rice, hops, apples, pears, and tobacco. Even larger increases were applied for most processed agricultural products, including cereals, barley malt, dry milk, butter, cheese, animal fats and vegetable oils.

Under the new tariff, the basic ad valorem rates on agricultural imports range from 10 percent of cost, insurance, and freight (c.i.f.) value for beef, mutton, and wheat to 30 percent for corn, rice, apples, pears, and most processed products.

Specific duties on animals for consumption range from 3 soles a head for goats to 300 soles a head for cattle. Other specific duties vary from a low of 0.05 soles per kilogram for wheat to a high of 10 soles per kilogram for cigarettes and hard cheese. Beef and pork are free of specific duties. Most imports are also assessed a 4-percent tax on freight costs.

One effect of the revised external tariff is to increase the trade advantage of concessions granted to Argentina, Chile, and other members of the Latin American Free Trade Association in Peruvian agricultural imports. This advantage is indicated by lower ad valorem rates applied to imports from LAFTA members, which are free for slaughter animals and meat (excluding pork), wheat, powdered skim milk, eggs, edible animal fats, and oilseeds, with rates limited to 20 percent or less for other important agricultural products.

Export taxes, levied on most agricultural commodities, provide a substantial part of total Government revenue. However, in order to compete in the world cotton and coffee markets,

the Government recently lowered the tax on cotton exports from \$1.30 to \$0.65 per 100 pounds and abolished the export tax of \$1.88 per 100 pounds of coffee. Sugar exporters pay a tax of 50 percent of any excess over a basic export price, currently fixed by the Government, of \$2 per 100 pounds f.o.b. Peruvian ports.

The National Food Supply Corporation of the Ministry of Agriculture imports live animals for slaughter to help keep meat prices low. The Government has imported other agricultural products when domestic shortages raised prices unduly, and is continuing its policy of authorizing duty-free importation of wheat to fill deficits in domestic supply.

### Competitive Trade Factors

Peru maintains formal trade relationships with the United States and other nations through membership in the General Agreement on Tariff and Trade (GATT). It is also a participating member of the International Sugar Agreement, the International Coffee Agreement, the International Cotton Advisory Committee, and the Fishmeal Export Quotas Agreement.

Membership in LAFTA appears as an important force affecting potential U.S. trade with Peru. Free agricultural trade with association members and maintenance of external tariffs could restrict U.S. agricultural exports to Peru. This trade association, established by the 1960 Treaty of Montevideo, provides for free trade between member nations (Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru, and Uruguay) by 1973. Under its provisions, temporary reductions in tariffs and other trade restrictions are negotiated on a bilateral basis each year in the form of "national schedules," with concessions by individual countries granted on a multilateral basis to all member nations. Individual commodity concessions may be in the form of partial or complete removal of trade restrictions on the commodities concerned. At 3-year intervals, permanent "common schedules" are negotiated between nations on a multilateral basis. The common schedules incorporate commodities representing the proposed achievement of 25 percent, 50 percent, 75 percent, and 100 percent of each member's intramember trade which will be free of all trade restrictions by 1973. Common schedules differ from national schedules in that they are irrevocable and multilateral or collectively negotiated to apply through the area. There is an important escape clause permitting restriction of imports or suspension of concessions for agricultural products, even after 1973.

Since the 1960 treaty, member nations have completed four sessions of negotiating temporary concessions. In those sessions, Peru

granted concessions on imports of agricultural commodities which included: Butter and cheese; dried peas and lentils; fresh, dried, and preserved fruits; wheat and corn; tallow and unrefined vegetable oils. The first permanent common list of commodities was negotiated in late 1964 and early months of 1965. The common list provided for free trade for these agricultural commodities: Coffee and cocoa beans; bananas; cotton fiber; oats; and fish, tung, and palm oils.

Peru has maintained a special trade agreement with Chile which favored access of selected products in the Peruvian market. Chilean agricultural products--especially oats, barley and malt, fruits, vegetables, and nuts--were granted significant concessions in the Peruvian market under this agreement. However, the effect of this agreement has been generally nullified by larger concessions which Peru granted Chile and other LAFTA nations.

The U.S. competitive position in the Peruvian market was strengthened, in past years, by shipments of agricultural commodities under the Food for Peace program. These commodities include: Wheat and flour, rice, fats, and oils sold for local currency under Title I and wheat bartered under Title III of Public Law 480, (P.L. 480) 83d Congress, as amended. Smaller quantities of cereals, dairy, and other agricultural products are also donated through the Government or charitable organizations under Title II and Title III of that law.

P.L. 480 shipments (excluding barter and donations) were estimated to average 30 percent of all U.S. wheat imported by Peru in 1960-62. Quantities of U.S. cottonseed and soybean oil shipped under these programs have been relatively small, except in 1960 and 1961, when 37 percent of U.S. oil shipments to Peru were under the program.

The U.S. Department of Agriculture cooperates with the Soybean Council of America and with Great Plains Wheat, Inc., on market development projects. As an example, television advertising has been used to broaden the Peruvian market for particular brands of flour, noodles, and other wheat dishes. The United States supplies surplus agricultural commodities for an expanding school feeding program operated by the Peruvian Government, with some cooperation and assistance provided by the Great Plains Wheat Council.

Under U.S. Government auspices, portable feed exhibits have been shown in several areas of the country. Wheat, soybean oil, frozen poultry, nonfat dry milk, and inedible tallow have been exhibited at the Pacific International Trade Fair in Lima.

Canada's Wheat Board plays an active wheat market development role in Peru through a Technical Services and Market Research Department, which makes surveys of milling and baking techniques in foreign countries, publishes a series of booklets on production,



handling, grading, and processing of Canadian wheat, and emphasizes the high standards which all Canadian exports must meet. A wheat Board film in Spanish tells the story of Canadian wheat qualities. Denmark, which supplies between 10 and 20 percent of Peru's dairy imports, conducts publicity drives for butter and cheese in Peru. New Zealand does the same for dairy and meat products. The Netherlands promotes cheese sales through participation in fairs and exhibitions, and advertises with recipes and display material at the point of purchase. Most countries competing in the Peruvian market send trade missions into the

country to conduct firsthand surveys and to find trading opportunities that might be used by exporters.

Despite the factors favoring an expansion in Peruvian agricultural imports, special conditions affect market competition. Capital is scarce, and local credit is usually available to importers only on a short-term basis and at rates as high as 18 percent a year. Because of these factors, the import market is highly competitive, and potential exporters offering the best combination of price and credit often overcome offers based strictly on lower prices.

## COMMODITY COMPETITION

Anticipated economic development and population growth should encourage continued expansion in Peruvian import demand for food and other agricultural commodities over the next few years. U.S. agricultural trade with Peru will be influenced not only by growth in demand, but by forces affecting competition of Peruvian and other suppliers of each commodity. Exports of fishery and agricultural products will be an important factor in this economic and trade development, and Peruvian production of those products can be expected to provide strong competition for U.S. farm products in our own and other world markets.

### Import Commodities

Significant growth is anticipated for Peruvian imports of wheat and wheat products, live animals and meat products, fats and oils, dairy products, and fruits and vegetables. Import demand will center in the largely urban Coastal Region, which contains nearly half the total population. The U.S. farmer may face greater competition from Peruvian agricultural and fishery production in these commodity markets. However, growth in Peruvian supply of these import commodities is not expected to keep pace with domestic demand due to the competition of established export crops for land near these markets and the inability of the Sierra and Selva to supply the deficit. Other supplying countries, particularly Argentina and Chile, will provide the major source of competition for U.S. farm products in the Peruvian market.

### Wheat and Wheat Products

The domestic crop is largely produced and consumed in the Sierra, with requirements for the principal cities of the Coastal Region supplied by imports. Despite some increase in Peruvian output of corn, rice, and other competing food crops, these cities should continue

to provide a growing market for imported wheat.

Demand.--Wheat and wheat products supplied the major part of the Peruvian diet for 1959-1961, accounting for 17 percent of total calories, compared with 42 percent supplied by all cereals. Annual per capita consumption, estimated at 35.6 kilograms, ranked fourth among the South American countries, following consumption in Argentina, Chile, and Uruguay.

Wheat is consumed largely in the form of bread, although other bakery products have increased in importance. Consumption of wheat and wheat products for food increased at an annual average rate of 5.5 percent between 1956-58 and 1959-61. This compares with an annual increase of 4.4 percent for all cereals and 4.8 percent estimated for starchy crops (table 6). The rise in wheat consumption exceeded that estimated for all crops in these two categories except cassava, sweetpotatoes, and plantains, which have gained in importance as a source of food, particularly among low-income groups in the Coastal Region.

Prices for wheat and flour in the important Coastal cities are usually near world market prices as a result of policies which maintain low duties and freedom from other import restrictions. Increased consumption was encouraged by the decline in world wheat prices from 1955-61 that kept the price of wheat products in the Coastal Region competitive with prices of substitute domestic cereal and starchy crops, particularly rice, corn, quinoa, and potatoes. However, the competitive position of imported wheat was weakened by the rise in world price, during the period from late 1962 through 1964.

Wheat consumption, approximated by total supply (table 15), rose from an average of 422,000 tons for 1956-58 to 556,000 tons for 1962-64, increasing further in 1965. This was an average increase of 5.3 percent a year, with a significant reduction in the rate of increase after 1961. It was slightly below the average annual rise of 5.5 percent from 1956-58 to 1959-61.

Table 15.--Wheat production, imports, total supply and origin of imports, 1956-64

Year	Production	Imports <sup>1</sup>	Total supply	Origin of imports			
				U.S.	Argentina	Canada	Other
----- 1,000 metric tons -----							
1956.....	123	295	418	64	148	78	<sup>2</sup> 5
1957.....	138	298	436	95	153	41	<sup>2</sup> 9
1958.....	128	285	413	111	58	69	<sup>2</sup> 47
1959.....	162	336	498	174	89	73	0
1960.....	154	360	514	116	186	57	1
1961.....	153	427	580	223	172	29	3
1962.....	153	415	568	178	230	1	6
1963.....	156	362	518	35	298	20	9
1964 <sup>3</sup> .....	150	432	582	126	296	8	2
1965 <sup>4</sup> .....	150	480	630	144	318	18	--

<sup>1</sup> Includes flour imports converted to wheat equivalent. <sup>2</sup> Mostly Uruguay. <sup>3</sup> Preliminary.

<sup>4</sup> Estimated.

Sources: (9, 12).

An average increase of 5.3 percent per year is suggested as a basis for wheat projections, considering demand projections of 4.6 percent for all cereals (table 6) and assumptions related to income and population. The suggested rate also assumes that wheat will remain free of major import restrictions and that the world wheat price will decline from the relatively high levels that were typical from 1962 through 1964. On this basis, ignoring changes in stocks, total consumption would increase from the 1962-64 average of 556,000 tons to 703,000 tons in 1968.

**Production.**--Wheat is not produced near the large Coastal markets. Most of the crop is grown on steep slopes in the Sierra region between elevations of 3,000 and 13,000 feet. Most of the domestic crop is consumed where it is grown; high transportation costs prohibit economical shipment of surpluses to Lima and other important commercial markets in the Coastal Region.

Wheat is a poor competitor with other crops and imported wheat. The climate favors development of wheat rusts, and resistant varieties have not been found. It is usually a low-yielding, poor-quality, low-value crop so that, even in the Sierra, it is planted on residual acreage, usually in small plots upon steeply sloping land. Other crops, including barley, quinoa, and potatoes, are often more productive and profitable on the better Sierra land. As a consequence, there is little prospect for a significant expansion in planted area. Imported wheat is much preferred for its quality, and the immediate effect of an improved marketing system in Peru might be for imported wheat to move into the interior of the country in competition with wheat produced and consumed in those areas.

Despite significant fluctuations in harvested area and yield, wheat output continued some recovery during 1956-63 (table 15). However, production remains below the average harvests of 164,000 metric tons during 1952-1954. Low yields, estimated at an average of 949 kilograms per hectare (14 bushels per acre) for 1959-61, continue as an important obstacle to expansion in competition with barley and other highland crops.

Based upon recent trends, the outlook is for a small increase in production, not more than 1 percent per year. Projecting from a 1962-64 average of 153,000 tons, production would approximate 160,000 tons in 1968. In the long run, assuming an improvement in Peru's marketing system, great increases in productivity would be required for domestic output to compete with imported wheat, even in the principal production areas.

**Competition.**--The increased quantity of wheat and wheat products demanded by Peru has been supplied largely by imports which increased in quantity by 47 percent between 1956 and 1964 (table 15). The United States, Argentina, and Canada supplied virtually all imports.

The relative shares of the United States and other suppliers in the expanding Peruvian wheat market have fluctuated considerably since 1956 (table 15). The United States increased its share of this market from 22 percent in 1956 to 52 percent in 1959, subsequently dropping to an estimated 10 percent in 1963 and 29 percent in 1964. Argentina dropped from 50 percent of Peruvian imports in 1956 to 20 percent in 1958, thereafter increasing to 82 percent in 1963 and dropping to about two-thirds in 1964. Canada showed a steady decline from 26 percent of this market to 2 percent in

1964. Increases were estimated for all three countries in 1965. The rapid increase and subsequent decline in U.S. exports reflects large P.L. 480 shipments in 1960-62 and Argentina's shifting supply and competitive position.

Food for Peace shipments accounted for 69 percent of all Peruvian wheat imports from the United States in the 1956-64 period. Of this amount, sales for foreign currencies and imports have accounted for 56 percent; donations 7 percent; and barter almost 37 percent.

Despite the importance of Food for Peace shipments, the Peruvian wheat market is competitive and influenced by the best quality at the lowest price and best payment terms for wheat at Callao, the principal port. For any particular grade, the price for wheat at Callao does not vary greatly. However, small differences in price or credit terms may favor the purchase from one supplier over another. During 4 of the 7 years between 1956 and 1963, the annual average price of U.S. wheat landed at Lima has been below the Argentine price, as calculated from Peruvian import statistics. The U.S. price was below the Canadian price only once during this period.

It is anticipated that most of the increased consumption requirements will be provided by imports. Based upon projected consumption and production, imports would increase from a 1962-64 average of 403,000 tons to 543,000 tons in 1968. Assuming that Peru continues its policy of maintaining imports relatively free of restrictions, the United States should continue as an important supplier, with its share of the larger market dependent upon ability to meet regular increasing competition in price, credit, and quality of product. However, maintenance of import charges and the implementation of duty-free imports from LAFTA could restrict the U.S. share of the market.

#### Livestock and Meat Products

Increased consumption of meat has been reflected in a significant increase in livestock and meat imports during recent years. Major gains were in live animals imported for slaughter, but imports of fresh and frozen meat have also been important. Those products currently rank second to cereals in total import value.

**Demand.**--Meat consumption is increasing but ranks well below other food commodities in total per capita consumption (table 5). Average per capita consumption of 16.1 kilograms per year was the lowest for any South American country for 1959-61. Although consumption is low, meats provide a significant source of calories, animal protein, and fat.

Beef and beef products are predominant in consumption, but compete with other types of meat and, to a lesser extent, with other high-quality foods, such as fish, eggs, milk, and

milk products. During 1959-61, beef and veal accounted for 43.5 percent of all meat consumed. The percentages of other meat and meat products consumed were: Mutton and lamb, 22.3; pork, 20.5; and other meat, largely edible offal, poultry, and meat products, 13.7.

Effective demand and consumption have been influenced by variations in supply which are reflected in price changes for beef and other meat products in the principal Peruvian markets. The wholesale price for beef in Lima, more than doubled from 1956 to 1961, compared with an advance of 56 percent in the wholesale price index for all foods and beverages. With expanded imports of slaughter cattle and meat, the price for beef declined to 90 percent of the record 1961 level during 1963, but recovered to 94 percent of that level in 1964.

Data show that total annual consumption of meat and meat products increased by 17.6 percent between 1956-58 and 1959-61, an average rise of 5.9 percent per year (table 6). The annual increase was 4.9 percent for beef compared with 5.9 percent for mutton; 4 percent for pork; and 12.9 percent for other meat and meat products, including poultry. The 5.9 percent annual rise in total meat consumption compares with an expected increase of 7.2 percent considering change in population, income, and other demand factors.

The average of this actual and expected change provides a 6.6-percent annual rate of increase for projection (table 6). Using this rate, consumption of all meat would increase from an estimated 1962-64 average of 195,000 tons to 259,000 tons in 1968.

**Production.**--The Sierra, the principal livestock-raising region, produces 70 percent of all cattle and hogs and over 90 percent of the sheep, goats, and other meat animals. Livestock are often produced on small farms where they provide draft power as well as meat, milk, and hides. Surplus livestock that move by truck from the Sierra provide a major source of meat in the important markets in the Coastal area.

Peruvian cattle are principally from early breeds introduced during the Spanish Colonial period, with some mixtures of Holstein and Brown Swiss. Growth of the Sierra livestock industry is often restricted by low quality of native pasture, difficulties of transportation, and by periodic droughts which force reduction in herds. These conditions contribute to a significant annual variation in domestic meat production and to a need for imports to supply growing urban requirements.

However, poultry and, to a small extent, hog and cattle production is increasing in Coastal areas near important markets and sources of imported coarse grains and feedstuffs. Increased quantities of locally produced fish meal, as well as cottonseed hulls, meal, and molasses, are encouraging the feeding of cattle trucked in from the Sierra.

The meat-processing industry consists of a slaughterhouse and refrigeration plant at Callao with a capacity of 700 head of cattle daily, and several smaller plants in Lima and elsewhere. An experimental slaughter and refrigeration plant has been constructed in the jungle at Tarapoto; the refrigerated meat is flown to the Coast.

Peruvian meat production, excluding imported cattle, increased from an average of 141,000 tons for 1956-58 to 169,000 for 1962-64, an average annual gain of 3.3 percent between the two periods. Growth of poultry and hog production and development of cattle feeding operations in Coastal areas are not expected to affect total meat output significantly in the next 5 years, and continuation of recent production trends appear likely. At the projected annual rate of 3.3 percent, Peruvian meat output, excluding imported cattle, would increase from the 1962-64 average of 169,000 tons to 196,900 tons in 1968.

Competition.--Peru's imports of live animals for slaughter increased from \$3.1 million to \$14.7 million a year from 1956 to 1963 while imports of meat and meat products rose from \$2.5 million to over \$4.0 million. Imports of live cattle fluctuated during this period but reached a new high in 1963 when live-animal imports included 128,166 head for slaughter. Growing demand also encouraged a significant uptrend in meat and meat product imports.

Before 1962, Costa Rica and Nicaragua were the dominant suppliers of Peru's live-animal imports, with Argentina and the United States supplying the remainder (table 16). However, in 1962 several developments occurred that changed the import pattern. First, Costa Rica curtailed imports of live animals destined for reexport by establishing an import tax of \$3 per head, and Nicaragua shifted from export of live animals to slaughter and export of meat and meat products to other Central Amer-

ican countries and to the United States. At the same time, drought and foreign exchange devaluation stimulated Argentine exports of slaughter cattle and meat. As a consequence, that country supplied 43 percent of Peru's Cattle imports in 1962 and 82 percent in 1963. Available Argentine supplies have been restricted since 1963 with its future position as a supplier of the Peruvian market uncertain.

Imports of meat and meat products have grown from 5,478 tons in 1956 to 10,244 tons in 1963 (table 17). The proportion of beef to the total declined from two-thirds in 1956 to less than 45 percent in 1963. Imports of mutton, poultry meat, and edible offal shared most of the overall increase. Argentina, with its cheap, grass-fed livestock and well-developed export industry, is the traditional source of meat imports and dominates Peru's imports of variety meat, such as beef tongues, hearts, kidneys, livers, dried beef, and fresh and dried tripe. The United States supplies less than 10 percent of this market, mainly with canned and variety meats.

Projections of consumption and production of meat and meat products indicate that imports, including meat equivalent of slaughter animals, would increase from a 1962-64 level of 26,000 tons to 62,000 tons in 1968. Due to special preference for fresh meat, live animals will continue to predominate, particularly in supply of beef. However, the trend in imports of chilled and frozen meat and meat products has been significant in recent years and may gain wider acceptance during the years ahead. Trade in those products may continue to rise at average rates exceeding 10 percent per year, estimated for 1956-63, with 1968 imports ranging upward to 20,000 tons.

The United States, although a net importer of meat, should continue to supply this growing Peruvian market with canned and variety meats. The volume of this trade will depend

Table 16.--Imports of cattle, total, and by principal suppliers, 1956-63

Year	Total	Principal suppliers			U.S.	Other
		Costa Rica	Nicaragua	Argentina		
----- Head -----						
1956.....	24,299	8,296	11,820	3,819	68	296
1957.....	43,470	16,058	17,084	9,674	318	336
1958.....	43,355	18,359	17,751	7,000	59	186
1959.....	14,808	3,937	9,635	1,038	9	189
1960.....	12,525	2,438	7,415	663	75	1,934
1961.....	32,344	12,486	10,605	2,010	415	6,828
1962.....	100,582	10,737	11,059	43,218	349	<sup>1</sup> 35,219
1963.....	131,236	0	4,941	108,065	32	<sup>1</sup> 18,198

<sup>1</sup> Imported from Ecuador: 1962, 25,286 head; 1963, 16,349 head.

Source: (12).

Table 17.--Imports of meat and meat products, by volume, 1956-63

Meat and meat products	1956	1957	1958	1959	1960	1961	1962	1963
	- - - - - Metric tons - - - - -							
Beef.....	3,600	4,987	4,034	4,872	327	2,372	3,673	4,407
Mutton.....	4	68	68	1,737	630	1,138	1,419	1,217
Pork.....	87	241	260	23	52	71	95	62
Poultry.....	53	194	83	153	323	471	502	653
Tongues, hearts, livers, and kidneys.....	224	244	401	460	703	809	1,518	1,539
Tripe.....	662	736	1,044	1,489	1,070	1,688	2,017	1,724
Pork--salted, smoked, dried, cooked, and preserved.....	500	610	390	228	197	280	293	329
Other preserved meat.....	203	297	202	79	144	172	151	172
Meat extracts, pastes, and soups	145	228	141	125	106	117	132	141

Source: (12).

upon competition of supplies from Argentina and other Latin American countries.

#### Fats and Oils

Peru depends upon imports to supply much of its requirements for fats and oils and those products currently rank third in value as an agricultural import. In recent years, growth in total import demand has been restricted by expansion in Peruvian fish-oil output, particularly for industrial use. Domestic fats and oil production, including fish oil, will continue as an important influence upon future imports. However, a strong increase in demand is anticipated and Peru should provide a growing market for U.S. vegetable oils and animal fat.

Demand.--Increased demand and the expansion in production and imports decreased prices and stimulated Peruvian consumption of fats and oils. However, average per capita consumption of fats, estimated at 38.2 grams per day for 1959-61, was only 63 percent of the Latin American average. Per capita consumption of edible vegetable oils and animal fats (excluding butter), estimated at 5.9 kilograms per year for 1959-61, supplies approximately 40 percent of the fat in the average diet. Average per capita consumption of inedible products was estimated at 2.9 kilograms per year for 1961-63.

The principal demand for fats and oils is for cooking, baking, and soap making. Industrial and other demand is growing, but remains relatively small. Rural demand is met through consumption of locally produced cottonseed oil, lard, and other animal fats. These commodities are supplemented by other products, including vegetable shortening, margarine, and salad oils in the important urban centers.

Annual consumption of edible fats and oils rose from an estimated average of 50,900 tons

in 1956-58 to 73,200 tons in 1962-64. This growth reflected strong demand and an expansion in available supplies of vegetable oils, lard, and fish oil (table 18). Fish oil also accounted for important gains in inedible use as its price declined by an estimated 59 percent in 1959-63. Total use of inedible products increased from an annual average of 16,100 tons in 1956-58 to an estimated 36,400 tons for 1962-64.

Consumption growth for edible products weakened in face of higher prices which prevailed after 1961 and the annual increase averaged only 4.5 percent from 1959-61 to 1962-64. At this rate, edible consumption would increase from the 1962-64 average of 73,200 tons to approximately 89,700 tons in 1968. A projected annual increase of 5 percent anticipates some further limitation in availability of inedible fats and oils and a higher price for fish oil, which accounted for much of the rise in consumption, particularly from 1959-63. Using this rate, consumption of inedible products would increase from the 1962-64 average of 36,400 tons to a 1968 level near 45,500 tons.

Production.--Cottonseed provides the principal domestic source of fats and oils in Peru but fish oil is gaining in importance (table 18). The livestock industry contributes small quantities of lard and animal tallow. Current estimates indicate that domestic production supplies approximately 61 percent of edible and 83 percent of inedible fats and oils required.

The local vegetable-oil pressing industry has the capacity to process almost 75 percent of the country's needs. To increase the supply of oil-bearing crops and to allow the 15 edible-oil factories to operate at capacity (only 76 percent of capacity was utilized in 1959), the country is encouraging use of several new oilseeds. Peru expects to produce its own olive oil and there is a project underway to make

Table 18.--Production and trade for fats and oils, 1956-64

Year	Edible						Inedible			
	Production			Imports <sup>1</sup>			Production		Imports <sup>1</sup>	Exports <sup>2</sup>
	Cotton-seed oil	Lard	Fish oil	Lard	Soybean oil	Other	Fish oil <sup>2</sup>	Tallow <sup>3</sup>		
	----- 1,000 metric tons -----						----- 1,000 metric tons -----			
1956...	25.2	4.5	1.6	15.6	( <sup>4</sup> )	5.0	6.9	4.6	7.2	6.0
1957...	25.5	4.2	1.8	16.2	( <sup>4</sup> )	2.9	13.7	4.8	7.5	8.8
1958...	25.3	4.3	2.3	15.5	( <sup>4</sup> )	3.0	17.6	5.4	6.5	9.0
1959...	24.0	4.3	2.8	16.6	9.0	3.6	33.6	5.6	5.4	27.5
1960...	31.6	4.5	4.1	18.1	4.1	1.0	56.9	5.7	5.2	48.5
1961...	32.0	4.8	4.5	20.3	8.0	5.0	127.4	5.8	8.0	112.1
1962...	32.5	5.0	5.0	20.8	12.1	1.2	157.2	6.6	3.5	137.3
1963...	36.7	5.0	7.0	13.7	.5	1.1	158.3	8.2	5.4	134.9
1964...	35.0	5.1	9.0	22.8	7.6	.5	161.0	8.0	6.0	115.0

<sup>1</sup> See table 19 for detailed imports.

<sup>2</sup> Includes sperm oils.

<sup>3</sup> Estimates based upon slaughter of cattle and sheep.

<sup>4</sup> Negligible.

Source: (12).

grapeseed oil, using 50,000 metric tons of grapeseed annually. There are also plans for installation of a soybean-processing plant, although only a small acreage is devoted to soybean production at the present time. Cultivation of other oilseeds, such as sesame seed and rapeseed, is currently very small. Sesame presents especially good possibilities, however, because of high yields and high average oil content. Safflower also presents possibilities, because its cost of production is lower than that of soybeans. The competition for Coastal lands, however, limits the probability of greatly increased oilseed production.

Fish-oil production has expanded and, in 1963, provided approximately 32 percent of total requirements for fats and oils. Fish oil has been used to provide a large share of the growing requirements for cooking oils and margarine. Its low price also has increased the relative importance of fish oil in supply of inedible fats and oils for industrial use.

Production of edible fats and oils increased from an average of 31,600 tons for 1956-58 to 46,800 tons during 1962-64, an average annual increase of 8.0 percent. Output of cottonseed oil expanded at an average rate of 6.2 percent with a yearly rise of 44.7 percent in estimates of fish oil produced for edible purposes. Domestic production of lard maintained a slight uptrend, estimated at 2.7 percent.

Total inedible output expanded from a 1956-58 average of 17,700 tons per year to 173,700 tons during 1962-64. Estimates of animal tallow reflected some increase in slaughter of imported cattle, with a rise in estimated output from 4,800 tons to 7,600 tons for the period.

Excluding exports and average changes in carryover stocks of fish oil, inedible production available for domestic use rose from a 1956-58 average of 9,000 tons to a 1962-64 average of 31,400 tons.

Future production trends for edible and inedible products may be modified by an anticipated decline in rate of growth in cottonseed and fish-oil output. Considering potential growth trends for those products (see sections on fishery and cotton), edible production is projected to increase at an annual rate of 3 percent from the 1962-64 average of 46,800 tons to 53,800 tons in 1968. Inedible output for domestic use is estimated to rise by 2.7 percent per year from 31,400 tons for 1962-64 to 35,600 tons in 1968.

Competition.--Imports currently supply 39 percent of Peruvian requirements for edible and 33 percent for inedible fats and oils. Growing requirements for edible products have been supplied by imports which increased in value from \$8.4 million in 1956 to a record \$12.8 million in 1961. Because of large carryover stocks and increased domestic output of cottonseed oil, imports declined to \$5.3 million in 1963. However, strong recovery in 1964 suggests an uptrend in future imports.

The Peruvian market is characterized by relatively strong competition not only from domestic products but among the important world suppliers of fats and oils, including the Netherlands and Argentina. However, the United States is the major supplier of the Peruvian market. Its share of the market fluctuated but continued to rise during the period from 1956 to 1963.

Imports are mainly refined and unrefined lard, unrefined soybean oil, and crude animal tallow (table 19). Edible commodities account for over 75 percent of all fat and oil imports. Before 1961, refined lard from the Netherlands was the dominant commodity. The import market has broadened since 1961, but refined lard from the Netherlands is still the most important trade item. When a local factory was installed, in 1961, Peru began producing Dutch-type lard with unrefined lard imported from the United States. Imports of U.S. unrefined lard rose from 144 metric tons in 1960 to 7,403 metric tons in 1962. However, this increase may have been largely at the expense of U.S. sales of hog grease to the Netherlands where it was formerly refined before being sold to Peru.

Soybean-oil imports from the United States also increased significantly starting in 1959 when Peru began importing refined oil, but with the establishment of greater refining capacity that trade has shifted to crude oil. The United States supplied virtually all of the refined soybean oil and all of the unrefined oil in 1961-63. The United States also supplies all the corn oil and 75 percent of the refined peanut oil. The United Kingdom supplies the major part of all other refined edible oils and competes with the United States for sales of hydrogenated fats and oils.

Inedible fats and oils account for about 25 percent of Peru's total fat and oil imports.

Crude tallow and greases are supplied mostly by the United States, although Argentina provides considerable competition for tallow in some years. The United States supplies small quantities of lanolin, linseed oil, and other inedible fats and oils, but those products encounter considerable competition from the United Kingdom and the Netherlands.

U.S. products compete with locally produced edible fats and oils. Cottonseed oil, which accounts for about 75 percent of local edible oil production, is the most competitive. Prices of liquid cooking oil, which uses 50 percent of the local supply of edible oils, have been relatively stable since 1955 and compare favorably with the price of oils imported from the United States. Local lard has been selling for approximately 4 cents per pound less than the imported product.

The new Peruvian tariffs, effective in August 1964, increased specific duties on the principal refined oils (cottonseed, soybean, peanut, and palm) from 1.1 soles to 2.0 soles per kilogram. Ad valorem duties on refined oils were increased to 30 percent. Smaller increases from 0.15 to 0.2 sol per kilogram were applied to similar unrefined oils, but ad valorem rates were reduced from 30 to 20 percent. The ad valorem duty on unrefined hog grease was reduced from 26 to 20 percent but changed from duty-free to a specific duty of 0.5 sol per kilogram. Other changes included an increase of approximately 20 percent in specific

Table 19.--Imports of principal edible and inedible fats and oils, 1956-63

Commodity	1956	1957	1958	1959	1960	1961	1962	1963
	----- Metric tons -----							
<u>Edible:</u>								
Unrefined lard.....	2	4	--	53	144	4,846	7,403	4,821
Unrefined soybean oil.....	29	14	--	--	3	8,011	12,131	495
Refined lard.....	15,601	16,151	15,471	16,633	17,928	15,487	13,353	8,864
Refined soybean oil.....	--	9	--	9,003	3,998	7	--	2
Olive oil.....	111	330	245	187	148	219	195	114
Refined cottonseed oil.....	3,617	1,209	1,718	2,301	7	637	12	16
Refined coconut oil.....	139	213	193	222	175	258	315	315
Other refined vegetable oils <sup>1</sup> ..	1,048	1,129	860	754	821	3,821	695	718
Total edible.....	20,547	19,059	18,487	29,153	23,224	33,286	34,104	15,345
<u>Inedible:</u>								
Crude tallow.....	5,824	6,215	5,375	4,487	3,987	6,337	2,247	2,871
Crude coconut oil.....	402	376	403	388	440	640	572	1,175
Other animal and vegetable oils <sup>2</sup> .....	1,011	944	725	567	804	1,044	662	1,379
Total inedible.....	7,237	7,535	6,503	5,442	5,231	8,021	3,481	5,425

<sup>1</sup> Principally hydrogenated oils. Includes 3,248 tons of Argentine sunflower oil in 1961.

<sup>2</sup> Palm, linseed, vegetable oils, and unspecified animal fats.

Source: (12).

and ad valorem rates for refined lard and a rise from 0.04 sol to 0.2 sol per kilogram for raw animal tallow.

Tariff changes provide some added advantage to domestic output, particularly of refined and processed products. Under current policies, import duties may be waived upon official determination that a commodity qualifies as a basic food which is in short supply. Lower ad valorem duties reduce, to some degree, the competitive advantage for imports from Argentina and other LAFTA members who are favored by low rates ranging from 4 percent on crude cattle tallow to 8 percent on unrefined sesame oil.

Projections of consumption and production suggest that Peruvian imports of edible fats and oils will increase from a 1962-64 average of 26,800 tons to 35,900 tons in 1968 with an anticipated rise in inedible products from 5,000 tons to 9,900 tons. These projections may be modified by prices, foreign exchange availabilities, and other factors. They indicate a strong potential for U.S. trade, including unrefined vegetable oils, hog grease, and crude animal tallow.

#### Dairy Products

Peruvian consumption of dairy products remains relatively low due to per capita income levels and limitations of production and marketing. However, increased demand has provided a growing market for processed dairy products, which rank as one of the country's principal agricultural imports. Production is not expected to keep pace with growing consumption requirements and Peru should continue as an important market for dairy products.

Demand.--Per capita consumption of dairy products declined from 1956-58 to 1959-61, despite an expected increase of 7.2 percent due to change in population and income (table 6). However, current estimates indicate a significant growth in recent years and total consumption, in whole milk equivalent, rose from a 1956-58 average of 549,500 tons to 681,200 tons for 1961-63.

Despite this annual rise, approximating 4.8 percent per year, consumption remains low. According to Peruvian food-balance estimates for 1963, dairy products contributed only 4.6 percent of total calories in the average diet. Per capita consumption, estimated at 61 kilograms per year, is slightly below the average estimated for Latin America.

Difficulties of production and marketing, reflected in price and quality, tend to offset growth in demand for dairy products in Peru. Consumption of commercial fluid milk is largely restricted to local production areas, with a large proportion consumed on farms. Traditionally, limited quantities of fluid milk

have been supplemented by the consumption of locally processed fresh cottage cheese and butter in rural areas and a larger variety of processed dairy products in the principal urban centers.

Price and quality continue to influence the level and pattern of urban consumption. The average 1964 retail price of 3.43 soles (12.8 cents) per liter for fluid milk in Lima is high, relative to per capita income levels and prices for other basic food products. Low quality and lack of refrigeration currently place important limitations upon consumption. Increased urban demand is generally reflected in the group consumption of processed dairy products.

The preference for processed products is indicated by changes in average consumption levels for Peru between 1956-58 and 1961-63. The whole milk equivalent, estimated for consumption of those products, increased by 36.1 percent with major gains in nonfat dry and evaporated milk, butter, and cheese. This compared with an 8.9 percent rise in fluid milk which currently accounts for 40 percent of total consumption requirements.

It is anticipated that current trends in consumption of dairy products will continue during the next few years. These trends are approximated by the projected annual rate of 4.2 percent (table 6). At that rate, the whole milk equivalent of consumption requirements for all dairy products would rise from the estimated 1961-63 average of 681,200 tons to 852,860 tons in 1968.

Production.--Current estimates indicate that Peruvian milk production expanded slowly from a 1956-58 average of 423,000 tons to a 526,000 tons average for 1962-64 (table 20). Despite this annual rise of 4.1 percent, production declined from 77 percent of total consumption requirements during 1956-58 to an estimated average of 71.8 percent for 1961-63. Total milk production increased slowly in response to growing urban demand and the expansion in output of manufactured products, particularly evaporated milk, constituted the most important development in the dairy industry.

Expansion in milk production in Peru has been limited by competition of major crops for better lands and by difficulties in transportation and marketing which restrict available markets. With a few exceptions, dairying is a small but growing enterprise, utilizing less productive land in the Sierra and Coastal regions. Current estimates indicate that approximately 40 percent of total milk output is utilized for fresh milk, butter, and fresh cheese on farms or adjacent small markets.

Commercial dairying is concentrated near Lima in central Peru, Cajamarca in the north, and Arequipa in the south. Other important areas with potential for commercial development include the Montaro Valley in the Department of Junín in the central Sierra, the



Table 20.--Production of selected dairy products, 1956-64

Year	Farm milk	Evaporated milk	Cheese	Butter	Condensed milk	Whole dry milk	Dietary products
----- 1,000 metric tons -----							
1956.....	412	9.2	8.0	2.4	2.5	0.2	0.1
1957.....	427	16.1	8.8	2.5	2.3	.2	.1
1958.....	430	19.1	8.9	2.5	1.7	.3	.1
1959.....	438	25.6	9.0	2.5	2.9	.2	.1
1960.....	439	20.7	9.0	2.6	2.2	.1	.3
1961.....	451	22.4	9.0	2.6	1.7	.1	.3
1962.....	464	26.8	9.3	2.6	2.0	.1	.3
1963.....	551	32.4	9.8	2.8	2.7	.1	.5
1964.....	562	38.2	10.0	3.0	3.2	.1	.6
1965 <sup>1</sup> .....	573	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )

<sup>1</sup> Preliminary. <sup>2</sup> Not available.

Source: (1)

northern Department of Piura, and the southern Departments of the Sierra, including Cusco and Puno. Milk production costs are high in all the commercial areas but particularly near Lima, where dairying must compete with the important commercial crops for irrigated land. This is partially offset by higher milk output per cow, ranging from 8 to 12 liters per day, achieved through supplemental feeding and the use of improved dairy breeds. Despite less intensive feeding practices, production costs are lower in the Cajamarca and Arequipa areas where land is less expensive and climate (elevation 7,500 to 9,000 feet) is more suitable for dairying.

Production near Lima is principally for fluid milk consumption. Output has been maintained at about 200,000 liters per day in recent years, reflecting, no doubt, difficulties associated with expansion at existing price levels. This production approximated 13 percent of total milk output in 1963. The general quality of milk has improved with an expansion in processing and distribution facilities, and the proportion pasteurized increased from 20 percent of fresh milk supplied in 1958 to 60 percent in 1964. An August 1964 decree by the municipality of Lima, prohibiting further distribution of fresh raw milk, has developed interest in further expansion of pasteurizing capacity with other facilities for commercial processing to convert the seasonal milk surplus to powdered milk, butter, and cheese.

Peruvian output of evaporated, condensed, and dietetic milk products is produced by two large plants--one near Cajamarca and the other near Arequipa. In 1962, those plants utilized approximately 80 percent of milk output in the two areas, estimated at 215,000 liters per day. They can also utilize, with Government authorization, dry skim milk and butteroil in approximately 40 percent of their production of evaporated milk. This has per-

mitted more effective use of plant capacity and increased the competitive position of the national product with imports of evaporated milk and fresh milk in the Lima market.

Growth in demand for dairy products should encourage a slight rise in per capita milk output, despite restrictions imposed by relatively high costs. Using the annual growth rate of 4.1 percent from 1956-58 through 1962-64, Peruvian milk production would approximate 633,800 tons in 1968.

Competition.--Average imports, in whole milk equivalent, increased from 23 percent of total consumption requirements in 1956-58 to 28 percent for 1961-63. Increased urban demand and growing competition among major world suppliers favored expansion in commercial imports of processed dairy products (table 21). Commercial imports were supplemented by a significant rise in products received through special programs under U.S. Public Law 480 (P.L.-480).

Butter, evaporated milk, nonfat dry milk, and cheese account for more than 90 percent of Peru's commercial imports of dairy products. Other important imports include whole milk powder, condensed milk, and special products for maternal and child feeding. Nonfat dry milk for special feeding programs, received under P.L.-480, has assumed increased importance as a supplement to commercial imports in recent years.

Peruvian imports of whole milk powder and condensed milk declined, but growing domestic demand and the lowering of world prices after 1960 encouraged recovery in trade for other products. Cheese imports recovered and imports of evaporated milk maintained a steady uptrend, despite expansion in domestic production. Reports indicate recent growth in Peruvian demand for imported butteroil and nonfat dry milk to supplement Peruvian milk supply for production of evaporated milk and

Table 21.--Imports of selected dairy products, 1956-63

Year	Commercial				Other <sup>1</sup>	
	Evaporated milk	Butter <sup>2</sup>	Dry skim milk	Cheese	Dry skim milk	Butter oil
	----- <u>-1,000 metric tons-</u> -----					
1956.....	5.1	2.6	3.8	0.8	0.4	--
1957.....	10.9	2.6	1.2	1.0	0.3	--
1958.....	5.8	2.9	1.7	1.9	1.1	--
1959.....	4.2	3.0	2.5	.7	1.3	--
1960.....	4.4	3.2	3.2	.7	1.6	--
1961.....	6.4	3.2	2.1	.9	3.5	--
1962.....	7.6	4.0	3.7	1.0	3.4	0.2
1963.....	8.3	4.6	5.0	1.0	6.0	2.4

<sup>1</sup> Shipments under Titles II and III of U.S. Public Law 480 not recorded in Peruvian import statistics. <sup>2</sup> Includes undetermined quantities of butteroil during recent years.

Source: (12).

for recombining fresh milk in the Lima market.

The relative position of major suppliers has been influenced both by shifts in import demand and growth of competition in the Peruvian market (table 22). The Netherlands has maintained a relatively stable position as a major supplier of evaporated and condensed milk. The emergence of New Zealand as a major supplier of butter and nonfat dry milk influences the relative position of Argentina, the United States, and Denmark. Competition from other countries, including Canada, Australia, and Finland, is growing.

In 1955, the United States supplied over 10 percent of Peru's evaporated milk imports and the Netherlands, 85 percent. By 1961, the Netherlands became the sole supplier, partially because of a price differential established as an export subsidy. Increased competition for sale of dairy products within the European Common Market encouraged the Netherlands, Denmark, and other countries with surpluses to look to other markets for their products.

Increased competition among major suppliers was reflected in decline of 5 soles per kilogram in the average import value for butter and 1.5 soles for nonfat skim milk from 1960 to 1963. New Zealand supplied more than 50 percent of the market for the two products in 1962 and continues as the principal supplier. However, the United States resumed its position as a major competitor with nearly one-fourth of butterfat and 40 percent of Peru's nonfat dry milk imports in 1963. Australia has replaced Argentina in exporting butter to Peru during recent years.

Argentina and Denmark supply most of Peru's cheese, but Finland provided some imports in 1962 and 1963. Whole-milk-powder

imports are provided principally by Canada, the Netherlands, and Denmark, which also compete in the Peruvian market for condensed and nonfat dry milk.

Current developments indicate that Peru should continue to provide a growing market for dairy products. This is reflected in projections of consumption requirements and production which indicate that the whole-milk equivalent of dairy-product imports would increase from a 1961-63 average of 192,500 tons to approximately 219,100 tons in 1968.

#### Fruits and Vegetables

Peru produces most of its requirements for fruits and vegetables at present consumption levels. However, increased demand in principal cities has provided a growing market for fresh and processed fruit and processed vegetables, and those products rank among the country's important imports. The United States should benefit from continued strong growth in Peruvian demand for fruits and vegetables despite growing competition from other major suppliers, especially Argentina and Chile.

Demand.-- For the purpose of analysis, fruits and vegetables exclude roots and tubers, bananas, and other starchy crops. According to recently revised Peruvian estimates, the total consumption of fresh and processed products, in fresh equivalent, averaged 1.9 million tons for 1962-64. Those products provided 5.9 percent of total daily calories available per person, according to Peruvian food balance estimates for 1963. Average per capita availability for 1963, excluding waste, was estimated at 104 kilograms per year compared with a weighted average of 83 kilograms estimated for all Latin American nations for 1959-61.

Table 22.--Value of dairy product imports, and percentage from major suppliers, 1956-63<sup>1</sup>

Year	Value	U.S.	Netherlands	Argentina	Denmark	New Zealand	Other
	Million dollars	----- Percent -----					
1956.....	6.7	48.7	20.0	15.8	11.5	0	4.0
1957.....	6.8	20.4	38.3	17.8	13.2	0.2	10.1
1958.....	5.7	27.3	23.9	16.4	16.9	5.1	10.4
1959.....	5.4	18.9	18.9	15.6	8.8	32.2	5.6
1960.....	6.2	7.6	19.1	17.9	11.0	33.6	10.8
1961.....	5.6	8.9	29.4	14.5	12.7	26.0	8.5
1962.....	7.2	10.1	27.4	7.6	9.0	32.7	13.2
1963.....	8.3	19.6	25.0	3.5	8.4	23.0	20.5

<sup>1</sup> Does not include shipments under Titles II and III of U.S. Public Law 480.

Source: (12).

Relatively strong demand is limited by supply. Fresh and processed fruits and vegetables compete with pulses and the starchy crops, which are often cheaper and more readily available. A variety of fresh fruits and vegetables are consumed seasonally in local areas throughout Peru. Those products are supplemented by dried and processed fruits, beverages, and canned vegetables, particularly in the larger cities.

Food balance data showed an average increase of 2.5 percent in total consumption between 1956-58 and 1959-61 against expected consumption increases of 6.4 percent, resulting in suggested projection rates of 4.4 percent (table 6). However, recent Peruvian studies revised production and consumption estimates for recent years, which were not extended to years covered by those food balance estimates. In view of this, projections are based upon change from 1962 to 1964, when total consumption of fruits and vegetables, in fresh equivalent, increased at an average rate of 0.6 percent. Using the 1962-64 rate as a basis for change, total consumption would rise from the current 1962-64 average of 1.93 million tons to approximately 1.97 million tons in 1968.

Production.--Peruvian output of fresh fruits and vegetables averaged 1.9 million tons for 1962-64 and accounted for approximately 99.3 percent of estimated requirements compared with 98.8 percent estimated for 1956-58. Distribution of most commodities is limited by the high costs of transportation and lack of marketing facilities. Although Peru's varied climate would permit a much higher output, and demand appears to be growing, no significant expansion in production is anticipated.

Peru produces both tropical and temperate types of fruits. Citrus--including oranges, limes, and grapefruit--grown as a commercial crop in the Coastal Region and lower Sierra valleys, accounts for about 30 percent of total fruit production. Grapes and pineapple are

produced for local consumption and processing. Other important commercial crops include avocado, papaya, olives, and deciduous fruit which provide a supply, in season, for the Lima market. A variety of other fruits are produced for local consumption and processing, including melons, quince, lúcuma, and guava.

Fresh vegetables, excluding pulses and tubers, are grown principally for local consumption, although commercial production for the principal urban markets is growing. Cabbages, carrots, and tomatoes accounted for nearly 60 percent of estimated 1963 production. Other important vegetables grown for domestic use include peppers, onions, garlic, squash, beans, peas, and green leafy types.

Recent Peruvian studies resulted in an upward revision of estimates of current production levels for fruit which were not extended to earlier years. Projections are based upon revised data from 1962 to 1964, when the average increase in total production of fruits and vegetables, in fresh equivalent, was estimated at 0.2 percent. Using this annual rate, total Peruvian production would approximate 1.92 million tons in 1968.

Competition.--Peru is a net importer of fruits and vegetables and their products, but produces a seasonal surplus for export of citrus fruit, avocado, olives, melons, garlic, and asparagus. Trade indicates some year-to-year fluctuation but growth in production and demand has contributed to a rise in the level of both exports and imports in recent years. The United States ranks as a major supplier of the Peruvian market although its relative position has declined in face of growing competition, particularly from Chile.

The value of Peruvian exports, principally citrus fruit, melons, and garlic, increased from \$0.2 million in 1956 to \$0.7 million in 1963. This increase in exports was more than offset by imports, which increased from \$2.4 million to \$5.3 million (table 23). According to

Table 23.--Imports of fruits and vegetables and their products by major categories 1956-63

Product	1956	1957	1958	1959	1960	1961	1962	1963
	----- 1,000 U.S. dollars -----							
<b>Fruit:</b>								
Oranges.....	128	193	109	111	80	109	120	64
Apples.....	217	457	265	374	363	551	717	967
Other fresh fruit.....	121	131	124	98	106	182	239	308
Raisins.....	161	133	180	144	165	202	219	275
Prunes.....	95	105	56	154	86	147	134	175
Other dried fruit.....	156	210	161	152	198	257	267	348
Nuts.....	273	243	186	211	195	293	281	289
Preserved fruit.....	503	933	630	473	696	680	899	1,706
<b>Total fruit.....</b>	<b>1,654</b>	<b>2,405</b>	<b>1,711</b>	<b>1,717</b>	<b>1,889</b>	<b>2,421</b>	<b>2,876</b>	<b>4,132</b>
<b>Vegetables:</b>								
Vegetables (fresh).....	34	49	43	16	56	42	56	56
Asparagus (canned).....	65	67	28	19	21	22	23	14
Mushrooms and truffles (canned).....	30	44	25	13	26	38	44	34
Peas (canned).....	71	55	30	34	30	34	51	80
Tomato products.....	71	101	72	42	49	60	90	116
Other canned vegetables <sup>1</sup> .....	76	89	81	45	59	78	89	92
All other vegetable prep. (powders, soups, etc.).....	405	574	406	469	512	651	651	751
<b>Total vegetables.....</b>	<b>752</b>	<b>979</b>	<b>685</b>	<b>638</b>	<b>753</b>	<b>925</b>	<b>1,004</b>	<b>1,143</b>
<b>Total fruits and vegetables.....</b>	<b>2,406</b>	<b>3,384</b>	<b>2,396</b>	<b>2,355</b>	<b>2,642</b>	<b>3,346</b>	<b>3,880</b>	<b>5,275</b>

<sup>1</sup> Includes beans, corn, pickles, and unspecified products.

Source: (12)

current estimates, net imports increased from an average 1.2 percent of estimated consumption requirements for 1956-58 to 1.6 percent for 1962-64, when the fresh equivalent of imported products was estimated at 30,000 tons.

Imports have expanded despite a significant rise in average annual import values from 1956 to 1963. The growing gap between production and demand was particularly significant in gains recorded for imports of fresh deciduous fruit, dried and preserved fruit, tomato products, and other vegetable preparations. In contrast, increased production contributed to a downtrend in imports of oranges and canned asparagus and a relatively stable level of trade for other products.

Chile and Argentina, the principal U.S. competitors in Peru's fresh fruit and vegetable market, are favored by proximity and LAFTA trade concessions. Those concessions permit fresh apples and pears to enter the Peruvian market free of specific duty. Ad valorem duty for most LAFTA fresh and processed products ranges from nothing to 12 percent of c.i.f. value, compared with 30 to 50 percent for U.S. products. Chile continues to supply over two-thirds of Peru's imports of fresh deciduous fruit and in recent years increased its share

of the market for prunes, fresh vegetables, tomatoes, and other vegetable products. Argentina increased its shipments of fresh, dried, and preserved fruits and canned vegetables, particularly after 1959.

The U.S. trade in the Peruvian market increased from \$1.4 million in 1956 to \$2.2 million in 1963, but its share in the total trade declined from 45 to 33 percent. Although its average price exceeded that of Chile and Argentina, however, the U.S. share of the expanding fresh fruit market increased slightly. It also continued its position as a major supplier of the higher quality market for other processed products, including raisins, other dried fruits, tomato products, and other canned vegetables.

Growth in demand should be reflected in an expanding market during the next few years. According to projections of consumption requirements and production, the fresh equivalent of imported fruits, vegetables, and preparations would increase from the 1962-64 average of 30,000 tons to about 55,000 tons in 1968. Despite potential competition from LAFTA countries, a growing Peruvian import demand should provide an opportunity for expanding the market for good quality products from the United States.

## Tobacco and Tobacco Products

Peru traditionally has imported lighter flue-cured leaf tobacco and tobacco products to supplement domestic production of dark tobaccos. In recent years, growth in demand and restricted production has contributed to a significant rise in imports. Valued at \$4.6 million, tobacco products ranked fifth among Peruvian agricultural imports in 1963. Current developments indicate some potential for expanding production. However, Peru should continue as a strong import market for tobacco products during the next few years.

Demand.--Despite a rise in price for most tobacco products, the apparent consumption of tobacco and tobacco products increased from 2,516 tons in 1956 to 3,909 tons in 1963. Cigarettes accounted for the significant expansion in tobacco use, and consumption of cigars and other tobacco products declined slightly during the period.

Consumption trends also indicate a shift in demand from the dark domestic to the milder imported tobaccos. This shift is associated with recorded imports of cigarettes, predominantly of the mild type, which increased from 240 tons in 1956 to an estimated 1,282 tons in 1963. Excluding changes in cigarette stocks, these imports increased from 9.5 to 32.8 percent of estimated consumption of tobacco and tobacco products.

Average consumption increased from 2,780 tons for 1956-58 to 3,513 tons for 1961-63, an average rise of 5.3 percent per year. Using this rate as a basis for projection, total consumption would reach an annual level of 4,630 tons by 1968.

Production.--Tobacco production reached a peak level of 4,714 tons in 1957, but declined sharply under controls imposed to reduce surplus output. Production was subsequently expanded from the 1958 low of 1,715 tons to 3,100 tons in 1964 as excess tobacco stocks were liquidated.

The bulk of Peruvian tobacco is the dark, air-cured, cigar-type leaf produced primarily in the Departments of Tumbes in the northern tip of the country and San Martín, east of the Sierra. Recent field experiments with several flue-cured varieties indicate good prospects as to yield and quality. Eventually, increased production of these tobaccos is expected.

Tobacco production, as well as manufacture and trade in tobacco product, has been effectively controlled, since 1904, by the Estanco del Tabaco, a Government-established monopoly. Production was controlled until 1960 through that Organization's monopoly upon distribution of tobacco plants to licensed producers and the purchase of domestic tobacco. It also manufactured all domestic tobacco products and controlled the purchase and distribution of imported products. The Estanco del Tabaco continues restricted operation but

since 1960, the law has permitted unregulated production of tobacco for export. Tobacco production and the domestic manufacture and sale of tobacco products were freed of monopoly control in 1964.

Peruvian efforts to adjust supply and demand for domestic tobacco are reflected in production trends following the large 1957 crop, when carryover stocks reached a record level of 8,154 tons. Production was restricted sharply in 1958 and 1959 and, despite an increase of 70 percent from 1959, current production remains well below the peak 1957 crop. With these restrictions and expansion in imports, tobacco stocks were maintained near a level of 2,500 tons from 1961 to 1963.

Further expansion of the Peruvian tobacco industry is anticipated as a result of the action to free production manufacture and commercial trade. There is also a strong possibility that this action may encourage production of flue-cured tobacco to meet growing demand.

Past production trends from 1956 to 1964 do not provide a clear basis for analyzing potential future trends in view of large changes in stocks. Production increased at an estimated average rate of 4 percent per year from 1962 to 1964. This appears a more reasonable basis for projection, considering the potential for Peruvian development. Using this rate, tobacco output would rise from a 1962-64 average of 2,947 tons to 3,536 tons in 1968.

Competition.--Peru exported 2,686 tons of tobacco in 1959. Small quantities, ranging from 3 to 250 tons, were exported from 1957 to 1962. Imports continued a steady uptrend during the period, rising from 464 tons in 1956 to 1,402 tons in 1963 (table 24). The tobacco monopoly discontinued imports of leaf tobacco

Table 24.--Imports of tobacco and tobacco products, and total value, 1956-63

Year	Leaf tobacco	Manufactured tobacco			Total value
		Cigarettes	Cigars	Other	
	Metric tons	- - -Metric tons - -			Million dollars
1956	219	240	1.1	4	1.1
1957	206	341	1.3	6	1.4
1958	198	451	1.3	5	1.7
1959	285	494	2.9	4	2.1
1960	( <sup>1</sup> )	541	1.7	17	1.9
1961	( <sup>1</sup> )	750	2.2	97	2.7
1962	( <sup>1</sup> )	774	2.1	143	2.8
1963	( <sup>1</sup> )	1,282	4.6	115	4.6

<sup>1</sup> Negligible.

Source: (12)

for blending after 1960, but purchased increased quantities of cut tobacco for that purpose. Import demand shifted to processed products, principally cigarettes, which increased more than fivefold from 1956 to 1963.

The United States is the principal supplier of the Peruvian market, particularly of cigarettes and cut tobacco. The United Kingdom and West Germany rank as the most important competitors, although small quantities are supplied by other countries, including Brazil, Canada, Cuba, the Philippines, and Spain. The United States increased its share of the value of Peru's total imports from 70 percent in 1956 to 99 percent in 1963.

Future import levels may be strongly influenced by the substantial upward revisions in duties for tobacco and tobacco products incorporated into tariff revisions of August 1964. Specific duties on leaf-tobacco imports were increased from an equivalent of 1.7 cents to approximately 5 cents per pound with a rise in ad valorem duties from 15 to 30 percent of c.i.f. values. Specific duties on cigarettes were increased from approximately 7 cents to 17 cents per pound. Ad valorem duties were raised from 15 to 50 percent of c.i.f. value.

The future organization of the Peruvian tobacco industry is not clear. Private trade and manufacture is permitted. Estanco del Tobacco continues in operation and has been granted a special duty preference in import of leaf tobacco. However, Peru can be expected to attempt to limit the rapid expansion in imports of tobacco products through tariffs and other policy, as production shifts to tobacco types needed to meet domestic demand.

Current developments suggest a slowdown in imports during the years immediately ahead with some possible shift from manufactured to leaf tobacco. This trend is implied in projections of consumption and production. According to those projections, net imports would rise slightly from the 1961-63 average of approximately 600 tons to about 1,100 tons in 1968. Considering that Peruvian exports may rise, total 1968 imports could range from 1,200 to 1,400 tons. The United States should continue as the principal supplier in this market for tobacco and tobacco products.

#### Other Commodities

A number of other commodities of interest to U.S. agricultural exporters enter Peru occasionally or in limited amounts. While their total is not large, they may provide an opportunity for expanding U.S. trade. Rice and corn have been imported to supplement domestic production in poor crop years. The Peruvian brewing industry is dependent on imports of barley, malt, and hops. Peru has also provided a small market for lentils and

dry peas and beans, averaging about \$265,000 per year over the 8-year period.

Rice is one of Peru's important lowland crops, and contributes about 9 percent of total calories in the Peruvian diet. It competes with cotton for land, and production fluctuates with available supplies of irrigation water. Production has been sufficient in good crop years, but significant imports were necessary in 4 of the 8 years, 1956-1963, equivalent to about 100,000 tons of rough rice. Imports--99 percent of them from the United States--were valued at \$6 million in 1958, and \$3.5 million in 1960.

Rice production has increased less than population since 1956 (table 7), and imports can be expected to increase as fluctuations in output produce wider gaps between production and normal consumption levels. The 1958 imports of 45,000 tons of rice have not been duplicated. Even though 1963 rice production was well below any year since 1956, rice imports were negligible and planned imports for 1964 were only 25,000 tons.

Corn ranks third in importance for food consumption, contributing about 12 percent of total calories for 1959-61. It provides an important source of food both for the highlands and low-income urban groups. Feed uses have averaged only 11 percent of production with some evidence of growth.

Occasional imports have been required in some years. Over 20,000 metric tons of corn were imported from the United States in 1958 and 1961, but imports are usually much smaller. Argentina and Ecuador compete with the United States for this small market. Under a LAFTA concession, Argentine corn is assessed only 8 percent ad valorem, while U.S. corn is assessed 11.5 percent ad valorem. Increased area and higher yields from hybrid varieties contributed to a steady expansion of domestic production in the past few years and is expected to replace the need for imports in the near future. Construction of a corn-processing plant in 1965 also is expected to replace the need for imports of corn products.

Barley and malt are traditional imports for the brewing industry. Peru produces its barley in the Sierra highlands, where most of the crop is consumed as food and very little barley is imported for food use. Approximately 20,000 hectares are devoted to the production of malting type barley, and total output approximates 20,000 metric tons. However, only about half of this is of proper quality for malting purposes. Local breweries require from 25,000 to 30,000 tons of malting barley per year and import from 15,000 to 20,000 tons.

Before the establishment of a modern malt factory in 1960, imports were largely malt. Since then, malting barley has replaced much of the imported malt. Canada and Chile supply most of the malt imports and Canada, Argentina, Australia, and Denmark, the malting

barley. Chilean and Argentine barley are favored under the LAFTA agreement whereby they are subject to an ad valorem tax of only 8 percent of c.i.f. value, while the United States and other non-LAFTA suppliers pay 15 percent ad valorem. The United States generally supplies only 1,000 or 2,000 tons of malt and barley each year.

Hops imports have averaged around 300 tons valued at \$400,000 per year since 1956. The United States increased its share of the market from 80 percent in 1956 to 100 percent in 1962. The market should continue to expand slightly in the future, and the United States should be an important supplier.

Oats are imported in small quantities from Chile under the Chile-Peru trade agreement. Oats have been included in the LAFTA common lists and the United States is unlikely to gain a share in this market in Peru.

The value of imports of pulses, largely lentils and dry peas, averaged about \$265,000, with a general upturn during 1956-63. Chile has supplied most of the lentils under tariff preference, while most of the peas have come from the United States where production costs are low.

### Export Commodities

Strong growth in production of agricultural and fishery products, in recent years, has increased Peru's position as a competitor with U.S. farm products in our own domestic markets and in those of other industrial nations, particularly Western Europe. Peru should continue as a strong competitor in those markets during the years ahead despite some anticipated slowdown in export growth. Peruvian exports of agricultural and fishery products, which are complementary or supplementary to our own farm production, will remain an important factor affecting Peru's ability to import U.S. agricultural products.

Peruvian fish meal, fish oil, cotton, and cottonseed products currently account for 37 percent of total export earnings. They are products of well-established industries of great importance to the Peruvian economy. The current situation suggests that Peru will remain one of the world's leading exporters of fishery products after several years of rapid expansion, but production may be approaching the highest level which can be maintained over time. The future growth of Peru's important cotton industry is also uncertain and may be restricted by lower world price and competition with other crop and livestock products.

Other important agricultural and fishery exports include sugar and sugar byproducts, coffee, processed fish, wool and skins, cocoa beans, and miscellaneous tropical products.

Peruvian trade in those commodities is expected to continue near current levels.

### Fishery products

Peru's fishing grounds have traditionally provided an important supplement to the country's food supply. Growth in world demand for seafood encouraged a substantial expansion in commercial fishery activity following World War II, when Peru emerged as an important exporter, particularly of canned bonito and tuna. However, food fishing was overshadowed by expanded investment to exploit rich anchoveta resources for fish-meal production after 1956. Fishing and related activity have assumed major importance to the Peruvian economy as a source of export earnings, employment, and public revenue.

As the world's principal supplier of fish meal and fish oil, Peru will continue as an important competitor in world markets for fats and animal feeds.

Demand.--Peruvian fishery development has been oriented to growing world demand for seafood, fish meal, and related products. However, increases in supply and demand encouraged a significant rise in domestic use of fishery products for food and industry. Estimated consumption of all fishery products, in landed-weight equivalent, increased from an annual average of 157,000 tons for 1956-58 to 857,000 tons during 1962-64, when it approximated 13.5 percent of the total fish catch.

Domestic consumption of fresh and processed seafoods (landed weight) increased from a 1956-58 level of 113,000 tons to an average of 275,700 tons for 1962-64. This increase reflected strong growth in urban demand for bonito and tuna, the principal food fish. The wholesale price for canned tuna in Lima increased by 70 percent from 1957 to 1962, compared with a 49 percent advance in the wholesale price index for all foods and beverages. Per capita consumption of seafood, which averaged 21.0 kilograms per year for 1961-63, was the highest for any Latin American country.

Development of the fish-processing industry has provided an expanding supply of fish meal and fish oil for the Peruvian market. A continuing decline in price from 1956 to 1961 encouraged a strong rise in domestic consumption of fish meal, principally in livestock and poultry feeding. A similar price movement, continuing into 1963, combined with improvement in product quality to increase the competitive position of fish oil in a growing Peruvian market for cooking oils, margarines, soaps, and industrial oils. Average fish-meal consumption increased from 8,000 tons to an estimated 26,500 tons between 1956-58 and 1962-64 with a rise in fish-oil consumption from 6,000 to 30,800 tons. During 1961-63,

fish meal accounted for disposition of about three-fourths of the annual catch (landed weight).

Some reduction in the future rate of consumption growth may be anticipated with expanding world demand for the available Peruvian supply of fishery products. This competition and strong orientation to export markets has been reflected in the advance in domestic price for seafoods since 1956. The average export value for fish meal has risen steadily from a 1961 low, estimated at \$69.80 per ton. In 1964, the Peruvian export price for fish oil reversed a downtrend in progress since 1956.

Consumption of fish and other seafoods expanded at an average annual rate approximating 20.7 percent from 1956-58 through 1962-64, with a higher growth reflected in available supply in recent years. Future consumption will be influenced by the availability of food fish. The rate of growth will probably near the 16.9 percent projected for production. Using that rate, total consumption would increase from the 1962-64 average of 275,700 to 508,700 tons in 1968.

Fish-meal consumption will reflect growth in demand from the livestock and poultry feeding industries. A projected annual rate of 3.5 percent is based on the average increase in meat and milk production between 1956-58 and 1962-64 (table 7). This rate projects fish meal use from a 1962-64 average of 26,500 tons to a 1968 level of 31,100 tons.

Domestic use of fish oil should continue to increase but the rate of growth may be influenced by limitations upon available supply. Consumption is projected to increase at the

annual rate of 2.7 percent anticipated for growth in fish-oil output. This rate projects fish-oil consumption from the 1962-64 average of 30,800 tons to 35,000 tons in 1968.

Production.--The nutrients brought up by the cool Peruvian current promote rapid growth of fish food. These waters are the principal source of anchoveta which is high in quality of protein and content of oil. Fishing grounds are relatively close to the Coast with important concentrations, particularly of anchoveta, in the vicinity of Callao, the principal port city. Fishing is favored by the absence of storms and by the shelter provided by the offshore islands.

These advantages are reflected in strong growth of fishery and related industries. Investment in those industries rose from approximately \$20 million in 1957 to nearly \$190 million in 1963. Development included expansion and modernization of the fishing fleet and port facilities, but the period was marked for expansion of the processing industries. Numbers of fish-canning and fish-freezing operations declined and in some instances fish-reduction facilities were added for manufacture of meal. Plants devoted to fish-meal processing more than doubled and average plant capacity increased 140 percent between 1960 and 1964, according to recent studies. Current annual processing capacity for fish-meal reduction is estimated at 2.3 million tons compared with a record 1.55 million tons processed in 1964.

Total fish landings increased from a 1956-58 average of 570,000 tons to 7.7 million tons for 1962-64 (table 25), largely reflecting expansion in the catch of anchoveta, which was estimated as near 8.7 million tons in 1964. The 1965 catch dropped to about three-fourths of that for 1964 with a decline in both number and size of anchoveta. This decline supports the conclusion drawn by recent studies by the Peruvian Marine Institute that the maximum catch of anchoveta which can be maintained over time will range between 8 million and 9 million tons. Considering this limitation, the anchoveta catch is estimated at 8.5 million tons for 1968--an average annual increase of 2.1 percent from the 1962-64 average of 7.7 million tons.

The recorded catch of food fish (excluding anchoveta) maintained a strong growth trend through 1961. The growth rate subsequently declined in face of increased competition with the fish-meal industry for available capital resources. The food-fish catch was supplemented by some increase in the available supply of anchoveta. Food fishery output (total landings less fresh-fish equivalent of fish meal) increased at an average rate of 16.9 percent a year between 1959-61 and 1962-64. It is considered a reasonable rate for projection in view of anticipated stabilization of anchoveta fishery. At this rate, output would

Table 25.--Fish landings and fish-meal production and export, 1956-64<sup>1</sup>

Year	Fish landings	Fish meal		
		Fresh fish equivalent	Pro-duction	Exports
		- - - - 1,000 metric tons - - - -		
1956	297	137	31	28
1957	483	334	64	62
1958	930	758	127	106
1959	2,152	1,952	332	278
1960	3,531	3,315	558	507
1961	5,243	5,012	840	708
1962	6,962	6,691	1,117	1,056
1963	6,901	6,635	1,132	1,038
1964	9,131	8,690	1,552	1,417

<sup>1</sup> Excludes whaling, which is of minor importance.

Sources: (10, 12).



increase from the 1962-64 average of 326,000 tons to 601,500 tons in 1968.

Recent trends in Peruvian fisheries are generally related to strong growth in the fish-meal industry. Annual fish-meal output increased from a 1956-58 average of 74,000 tons to 1.27 million tons for 1962-64 (table 25). The existence of excess processing capacity favors continued expansion in output. However, the catch of anchoveta available for fish meal is projected at 8.5 million tons for 1968. Using the reduction ratio of 5.9 to 1.0 of whole fish to meal, output would approximate 1.44 million tons in 1968, an increase of 2.7 percent per year from the 1962-64 average.

Fish oil is an important byproduct of the fish-meal industry and output is related to the quantity and oil content of the anchoveta catch and to the efficiency and capacity of fish-oil extraction equipment. Fish-oil production rose steadily from 1956 to 1960, but the major expansion in processing capacity is reflected in a doubling of output in 1961 (table 18). Production continued to expand at an average annual rate of 10.7 percent during 1961-64. A projected annual growth of 2.7 percent considers the potential limitation in the anchoveta catch and corresponds to the rate for fish-meal output. At this rate, total production would rise from a 1962-64 average of 165,800 tons to 188,200 tons in 1968.

**Competition.**--Technological developments greatly increased the supply and competitive position of fishery products in an expanding world market for protein and fats during the past decade. The post-World War II expansion in the world seafood trade slowed to an average annual growth of 2 percent from 1956 to 1962. However, exports of fish meal tripled and increased from 12 to 22 percent of the total world oilmeal trade. Fish oil rose by 60 percent to expand from 10 to 14 percent of the fats and oils trade.

Despite a relatively short period of development, Peru ranked as the world's leading fishery nation in 1964, with 18 percent of the total fish catch, according to recent estimates by the Food and Agriculture Organization of the United Nations. More than three-fourths of fishery output (landed weight) is processed for export. Peru is third among world suppliers of canned tuna and related subtropical fish. It is the largest exporter of fish meal and fish oil, and those products have grown in importance as competitors with U.S. oil meals and vegetable oils.

Frozen and canned fish account, in value, for about 5 percent of total exports of fishery products. The United States provides the principal market for frozen fish, principally tuna, and accounts for about 70 percent of the total seafood trade. West Europe is also an important market for canned tuna and bonito, with the United Kingdom, West Germany, and the Netherlands as the principal buyers. In

recent years, the volume of trade has been influenced by increased domestic consumption and growing Japanese competition for important markets. The result has been a slowdown in the strong trade growth typical of the decade following World War II. Net exports (landed weight) of edible fishery products increased at an annual rate of 2 percent from an average of 47,000 tons in 1956-58 to 52,000 tons during 1961-63.

Fish meal is a rich source of high-quality protein and valued as a supplement to forage and grains in animal feeding. Peruvian fish-meal exports are from the larger anchoveta with a minimum protein content of 65 percent. Growth in exports (table 25) was accompanied by a steady downtrend in the average per ton value for fish-meal exports from 1956 to 1961. Despite later recovery, the current average export value per ton remains below the 1956 level. In 1964, Peru accounted for an estimated 64 percent of the world fish-meal trade and 14 percent of the total oil and meat meal shipments.

Peruvian fish meal provides an important source of competition for U.S. soybean and other oilseed meals, in both our domestic and export markets. The United States provided a market for 20 percent of total Peruvian exports of fish meal in 1963. The European nations accounted for nearly 70 percent, with major markets in the Netherlands, West Germany, Italy, Spain, the United Kingdom, France, and Belgium. A significant volume of fish meal also moves to Japan, Macao, and Mexico.

Growth of the fish-meal industry also expanded trade and competition of fish oil, its principal byproduct (table 18). A downtrend in the average export price through 1963 together with improved extraction techniques resulted in a rise in shipments from a 1956-58 average of 8,000 tons to a level of 128,000 tons in 1961-63. Peru now ranks as the world's largest supplier of fish oil, with approximately 40 percent of the total trade. Its fish-oil shipments, including sperm oil, were 2.9 percent of all world trade in fats and oils in 1962.

Most of Peru's expanded fish-oil trade has been absorbed by the European nations. The Netherlands, West Germany, and the United Kingdom account for nearly three-fourths of the trade. Lower grade oils are used for a wide range of industrial products. However, in recent years, Peruvian fish oil has competed strongly with the major vegetable oils and animal fats as a basic ingredient in the manufacture of margarines, shortenings, and cooking oils.

In recent years, consolidation and improvement in processing efficiency have strengthened the competitive position of the fishmeal industry. An association of major producers was organized in 1961 to stabilize marketing and export. In 1962, a National Fisheries

Council was established as an advisory body to assist in formulating policies aimed at sound fishery development. The Peruvian Marine Institute provides active support to national policy through its continuing investigations oriented to conservation of fishery resources.

Projections of production and consumption indicate that Peruvian exports of edible fishery products (landed weight) may rise from the 1962-64 average of 50,300 tons to a level near 92,000 tons in 1968. If moderate expansion in the anchoveta catch should occur, it will be reflected in fish-meal exports projected to rise from a 1962-64 average of 1.12 million tons to a 1968 level near 1.41 million tons. The fish-oil trade will be influenced both by restrictions upon production and domestic use. Exports are projected at a 1968 level of 153,200 tons compared with a 1962-64 average of 129,100 tons.

#### Cotton

The desert climate and soils of Peru's Coastal valleys are well suited for cotton production. Cotton occupies approximately 10 percent of the country's total cultivated area, and accounts for 20 percent of the country's agricultural output and for 8 percent of its national income. Cotton exports usually supply about 25 percent of all export taxes and account for about 30 percent of Peru's export earnings. The industry employs an estimated 160,000 workers and is financed by Peruvian capital.

**Demand.**--The Peruvian cotton industry is largely oriented to world rather than domestic markets. Consumption reflects a slight up-trend with a rise of 19.6 percent from 1956-58 through 1961-63 (table 26). Per capita consumption remains low at 4.3 pounds, compared with over 20 pounds in the United States. Currently, only about 15 percent of production is utilized for textiles.

Peru has a small textile industry. Approximately 98 percent of cotton consumed is Tanguis, the long staple variety; the remainder is the extra long staple Pima. Wool textiles utilize about one-fourth as much raw material as cotton and wool competes with cotton for consumption, particularly in the Sierra. Cotton also competes, to some degree, with domestic production and imports of manmade fibers.

Past trends approximate an average rise of 3.9 percent per year, indicating a positive effect of income growth upon per capita consumption. Using those past trends as a basis for projection, Peruvian consumption of cotton fiber would increase from the 1961-63 average of 21,000 tons to a 1968 level near 26,000 tons.

**Production.**--Cotton is native to Peru and has existed as a cultivated crop throughout the known history of the country. The present commercial production was initiated in the middle of the last century to supply textile requirements for Great Britain during and following the American Civil War. The industry was later expanded and strengthened by modernization of irrigation systems in the Coastal valleys and development of improved cotton varieties adapted to Peruvian conditions.

Table 26.--Area, yields, production, and utilization of cotton, 1955-63

Marketing year <sup>1</sup>	Area	Yield per hectare	Production	Stocks on August 1	Exports	Domestic Consumption <sup>2</sup>
	1,000 hectares	Metric tons	- - - - -1,000 metric tons - - - - -			
1955.....	222	0.482	107	73	106	18
1956.....	238	.445	106	56	85	18
1957.....	247	.445	110	59	88	16
1958.....	231	.511	118	65	111	18
1959.....	253	.486	123	54	90	17
1960.....	250	.484	121	70	104	18
1961.....	247	.579	143	69	125	22
1962.....	275	.535	147	65	128	20
1963.....	275	.495	136	64	111	20
1964 <sup>3</sup> .....	263	.517	136	69	103	20
1965 <sup>3</sup> .....	263	.475	125	78	106	21

<sup>1</sup> Combines July-October harvest of Pima-type cotton for year shown with the following April-June harvest of Tanguis.

<sup>2</sup> Includes small quantities of cotton unaccounted for.

<sup>3</sup> Preliminary.

Source: Foreign Agricultural Service, Cotton Division, U.S. Department of Agriculture

Cotton is grown throughout the Coastal area with major concentrations in the northern valleys of Piura and the Coastal plains extending through the Central Departments of Lima and Ica to Tacna in the south. It is the principal commercial crop produced, utilizing 50 percent or more of the cultivated area and a large proportion of available irrigation water in those Departments. Tanguis is predominant in the central zone and accounts for about 70 percent of total production. Pima produced in the northern areas, accounts for another 27 percent. Three percent are various extra long-staple varieties, principally Karnak.

Expansion in area and yields were favorable to cotton production, which increased from 111,000 tons for 1956-58 to 142,000 tons in 1961-63 (table 26). Increase in cotton area for the Departments of Lima and Ica was offset by growing competition from other crops which reduced area in some other central and southern Departments from 1957 to 1963. The cotton area expanded by 3 percent in last two producing regions, compared with 17 percent in the northern region which included significant growth in the humid eastern areas, including Amazonas. Tanguis cotton continued predominant in production but declined from 76 percent of total output in 1957 to 69.5 percent in 1963.

Recent studies by the National Agrarian Society of Peru indicate concern over the rise in production costs. The average price for labor, fertilizer, equipment, and other inputs associated with cotton production increased more than 180 percent between 1962 and 1964, a period of significant decline in cotton prices. Current reports also indicate a growing concern by producers concerning the potential impact of the agrarian reform program.

Cotton remains Peru's principal commercial agricultural industry. Continued growth in production is favored by export interest and advantages in competition for land and other resources available to agriculture. However, recent trends indicate increasing competition from other crops and livestock enterprises, suggesting that future growth in cotton production will be less than the 5.2 annual average rise between 1956-58 and 1961-63. This is reflected in a projected growth of 3 percent which will increase cotton production from the 1961-63 average of 142,000 tons to a level near 167,600 tons in 1968.

**Competition.**--Peru usually exports 85 percent or more of its cotton production. It ranked sixth in trade among the producing nations, accounting for 9 percent of the recorded exports of cotton during 1960-62. Peru is a major competitor in world markets for the long and extra long staple cottons; they usually command a price premium over the short and medium lengths, which provide the bulk of sales from many producing nations, including the United States, Brazil, and Mexico. How-

ever, quality cotton of medium lengths do compete, and reduce Peru's price premium when they are in abundant supply, since mills usually look for cottons which will maximize profits for their total operation.

Peruvian exports fluctuated, but maintained a general uptrend with a rise approximating 30 percent from 1956-58 through 1961-63 (table 26). The long staple Tanguis continues as the predominant type which accounted for 70 percent of 1963 exports. However, Pima and other extra long staple varieties have gained in relative importance and increased from 25 percent of the total in 1957 to 30 percent in 1963.

More than two-thirds of Peru's long staple Tanguis cotton is shipped to Europe, which provides the principal market for U.S. cotton. In 1961, long staple shipments from the United States and Peru were (in bales): France, 6,700 and 33,000; United Kingdom, 29,000 and 51,000; Chile, 23,000 and 63,000; and Japan, the Netherlands, and West Germany, 40,000 each. Peru exceeded the United States as a supplier in Argentina, Belgium, Uruguay, and Sweden, and the United States was the principal supplier to Canada, Australia, Italy, and Spain.

The United States permits annual imports of approximately 3,100 bales under a special quota established in 1958. The United States provides one of the world's important markets for extra long staple cottons, which are imported under a fixed annual quota from all world sources, including Egypt. The United States was the largest importer of Peruvian Pima cotton in 1963, with about one-third of total exports. Other important markets for this type of cotton include Argentina, Belgium, Chile, Italy, Japan, Switzerland, the United Kingdom, and West Germany.

Despite growing competition, Peru may continue to expand exports to the principal world cotton markets in the years ahead. This expansion is shown by projections of production and consumption which indicate a rise in shipments from a 1961-63 average of 121,000 tons to a 1968 level near 141,600 tons.

## Sugar

Sugarcane is a traditional Peruvian crop, second in importance to cotton in commercial agriculture. A growing demand for sugar encouraged a steady rise in area and yields over the past three decades, with a significant expansion in sugar production and exports related to strong advances in world price from 1959 to 1963. Peru should continue as one of the world's important sugar suppliers. However, some slowdown in growth of sugar output is anticipated in view of increasing competition for irrigated land and the recent sharp drop in world sugar price.

Demand.--Peru shares with other Latin American sugar-producing nations a relatively strong domestic demand for sugar. This demand contributed to a 13 percent rise in annual per capita consumption from 1956-58 to 1959-61 (table 5), a period when advances in consumer prices for sugar slightly exceeded the average for all food prices. The per capita consumption rate stabilized in face of rising price from 1959 to 1963. Current per capita consumption, approximately 30 kilograms per year, compares with 49 kilograms in the United States, and a 36 kilogram average estimated for all Latin American countries for 1959-61.

Average consumption of centrifugal sugar (raw equivalent) increased from 231,000 tons in 1956-58 to 287,000 for 1959-61, a rise of 8.1 percent per year. With a further annual rise of 2.5 percent, consumption averaged 309,000 tons during 1962-64. In contrast to the growth, approximating 34 percent in domestic use of centrifugal sugar between 1956-58 and 1962, consumption of non-centrifugal sugar declined from 26,000 to 22,000 tons.

Lower sugar prices should result in a rise in per capita consumption of centrifugal sugar typical of the period from 1956 to 1961. This is assumed by the projected rate of 6.4 percent which averages actual and expected changes in consumption (table 6). At this rate consumption (raw equivalent) would rise from the 1962-64 average of 307,000 tons to a level near 405,000 tons in 1968.

Production.--Peru has a long history as a sugar producer that dates back to the 16th century. Production has been influenced by competition with cotton and other crops for Coastal land and irrigated lands but maintained an uptrend, rising from 1925-29 average of

365,000 tons. Expanded area contributed to some increase in the rate of growth with a total rise of 13.6 percent in annual sugar output between 1956-58 and 1962-64 (table 27).

Sugarcane is produced in most of the Coastal area of Peru. However, more than 80 percent of total sugarcane production is concentrated in the Coastal valleys in the northern Departments of Lambayeque and La Libertad where it competes with rice for available land and irrigation water. Sugar yields from irrigated sugarcane produced in these areas are among the highest in the world. In 1964, the two Departments produced 92 percent of raw export sugar and 71 percent of other sugar grown in Peru.

Peruvian sugarcane is usually harvested after a growing period of 18 to 20 months from planting or cutting. The sugar industry is highly integrated: In 1962, 86 percent of raw sugar output was produced by nine large mills from their own sugarcane with another 11 percent from cane ground for small and medium farms. The remaining raw sugar was produced by five smaller mills.

Recent production trends indicate that expanded sugarcane plantings were supplemented by some rise in the proportion harvested (table 27). The shorter growing period and some pressure of expanded area upon available supply of irrigation water are, no doubt, reflected in a significant decline in sugar yield from 1956 to 1964.

The Peruvian sugar industry may continue some growth, but at a lower rate. It is anticipated that lower world prices will reduce the rate of expansion in harvested area well below the 4.5 percent achieved from 1956-58 through 1962-64. However, this may be partially offset by some recovery in sugar yields as the

Table 27.--Sugarcane area, sugar yields, production and exports, 1956-64

Year	Sugarcane area		Raw centrifugal sugar				
	Planted	Harvested	Yield per hectare harvested	Production	Stocks January 1	Exports	
						Total	To U.S.
	1,000 hectares		Metric tons		1,000 metric tons		
1956.....	62	38	18.5	702	79	432	48
1957.....	62	39	17.7	692	130	500	80
1958.....	62	39	17.9	698	86	413	76
1959.....	67	41	17.6	720	117	481	94
1960.....	67	47	17.4	820	96	529	260
1961.....	69	47	17.2	808	113	557	544
1962.....	74	47	16.6	778	39	479	478
1963.....	73	50	16.4	820	41	503	370
1964 <sup>1</sup> .....	76	49	15.9	781	55	425	205
1965 <sup>1</sup> .....	76	49	16.3	800	113	410	265

<sup>1</sup> Preliminary.

Source: (12).

industry attempts to adjust to lower price. An annual growth rate of 1.5 percent, suggested for projection purposes, would increase centrifugal sugar output from the 1962-64 average of 793,000 tons to an average level near 852,000 tons in 1968.

Competition.--Sugar is second to cotton in Peru's agricultural export trade, accounting for 20 to 25 percent of these exports in most years. Exports range from one-half to three-fourths of total centrifugal sugar output. Exports have fluctuated with a strong advance from 1956 through 1962, when Peru ranked eighth among world sugar suppliers. However, the average level of exports increased only 4.7 percent from 1956-58 to 1962-64.

Peruvian sugar has been exported to the United States, under quota, since World War II but Chile, Japan, the United Kingdom, West Germany, and Uruguay were principal markets which usually accounted for more than two-thirds of the total trade. However, nearly all Peruvian exports moved to the United States in 1962 and 1963 under expanded basic quotas and special global allocations purchased at the world price. From 1962 to 1964, the basic U.S. quota was reduced from 268,000 to 198,000 tons and Peru's global quota from 213,000 to 33,000 tons. Global quotas were eliminated and Peru received a U.S. quota of 246,678 tons, initial quota plus shortfalls and increases, for 1965. The United States purchased nearly one-half of Peru's 1964 sugar exports. Chile, the United Kingdom, and Italy together purchased 49 percent.

Projections of production and consumption forecast a decline in the level of available supplies from a 1962-64 average of 486,000 tons to approximately 447,000 tons in 1968. The United States should continue as Peru's principal market during the period, but the other importing nations may assume greater importance in the total trade.

## Coffee

Coffee is the principal commercial crop grown in the developing area of eastern Peru (The Selva) and the rate of expansion in area exceeded that for any Peruvian crop from 1956 through 1964. With this development, coffee ranks third in value, as an agricultural export. It has also grown in importance as an export which does not compete but actually complements farm production in the United States, the principal market.

Demand.--Coffee consumption was influenced by growth in demand and available supply. Average per capita consumption, in bean equivalent, rose from 0.6 kilogram to over 1 kilogram per year between 1956-58 and 1961-63. Consumption of domestic coffee, particularly of lower grades, was encouraged by low prices maintained under the Govern-

ment system of export quotas. This was supplemented by consumption of imported coffee and coffee products, which rose from an average of 400 tons to 2,100 tons during the period. Consumption of domestic coffee accounted for only 18 percent of production during 1961-63, compared with 30 percent for 1956-58.

Average domestic consumption of Peruvian coffee increased at an average rate of 15 percent per year from 1956-58 through 1961-63. Using this rate as a basis for projection, domestic use of Peruvian coffee would increase from a 1961-63 average of 9,000 tons to a level near 17,000 tons in 1968.

Production.--Peruvian coffees are the mild varieties, usually grown under shade on the lower slopes of the east Andean mountain valleys. Improved world prices and Peruvian interest in developing its eastern lands encouraged a sharp expansion in the planted coffee area and improvement in production practices after World War II. Increased plantings were reflected in the harvested area which nearly doubled from 1959 through 1961 and continued to rise through 1964 as new coffee trees came into production (table 28).

Production generally reflects trends in harvested area and increased from 17,000 tons to 49,000 tons between 1956-58 and 1962-64. The total planted coffee area was estimated at 143,000 hectares in 1962 compared with a harvested area of 96,000 hectares. Current production trends are indicated by an average increase of 7 percent from 1961 to 1964 (table 28).

It is assumed that quota restrictions imposed under the International Coffee Agreement may discourage significant expansion in coffee plantings and may show the rate of

Table 28.--Coffee area, production, and exports by volume and value, 1956-64

Year	Harvested area	Pro-duction	Exports	
	1,000 hectares	1,000 metric tons	1,000 metric tons	Million dollars
1956...	26	12	7	8.9
1957...	39	18	11	12.9
1958...	44	21	17	15.0
1959...	45	22	20	15.5
1960...	76	32	26	18.9
1961...	88	43	34	22.8
1962...	96	46	37	24.2
1963...	101	49	40	25.6
1964...	107	52	42	37.0
1965 <sup>1</sup> ..	112	53	33	27.9

<sup>1</sup> Preliminary.

Sources: (10, 12).

expansion in harvested area during the years ahead. It is assumed that yields will remain near present levels but production may continue to expand at a rate near 5 percent, compared with the 7 percent average from 1961 to 1964. Using that rate, production would increase from the 1962-64 average of 49,000 tons to 61,300 tons in 1968.

Competition.-- Despite recent growth and the potential for development, Peru remains one of the world's smaller coffee exporters with shipments approximating 1 percent of the total trade. However, its coffee exports are of the mild varieties, with good acceptance in the United States and other important import markets. Growth of the industry is strongly dependent upon demand in the world coffee markets, which absorb over 80 percent of its total output.

The United States provides the traditional market for Peruvian coffee and its share of total exports increased from 53.5 percent in 1956 to 74 percent in 1963. In 1963, coffee accounted for nearly 10 percent of total Peruvian shipments to the United States, compared with 4.2 percent in 1956. Other important markets are Canada and West European nations, including Italy, France, the Netherlands, and West Germany.

Exports maintained a strong rise during 1956-64. The current level of export is influenced by Peruvian membership in the International Coffee Agreement, which establishes marketing year quotas for exporters based upon anticipated world demand. Peru's 1964/65 quota was set at 31,300 tons, compared with 42,000 tons estimated to be available for export. Peru has requested an increase of 12,000 tons in its quota to meet the deficit.

Projections of domestic consumption and production anticipate a limited growth in the Peruvian coffee trade. According to those estimates, exports will rise slightly from a 1962-64 average of nearly 40,000 tons to about 44,300 tons in 1968.

#### Other Commodities

Peruvian exports of other agricultural commodities increased in value from \$14.8 million in 1956 to \$26.6 million in 1964 (table 14). The value of those exports increased slightly in their relative share of total agricultural trade, from 10.4 percent in 1956 to 12.2 percent in 1964.

Wool, hair, and alpaca skins are the principal exports from the Sierra. The value of these exports amounts to about one-half that of other commodity trade. Byproducts of the cotton and sugar industries, principally cottonseed meal and molasses, account for about one-half of the remainder. Other important exports included seeds and plants for pharmaceuticals, gums and resins, cocoa beans, tea, and spices. Peru has a small export trade in fruits, nuts, and vegetables.

Conditions appear favorable for continued growth in these exports. Wool and hides should remain predominant. However, growing output of cotton and sugar byproducts will be reflected in expanded export trade. Exports of special tropical products should increase as eastern Peru develops. The United States and Europe will continue to provide an important market for those products.

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