AGRICULTURAL DEVELOPMENTS

in Angola, British East Africa, Rhodesia and Nyasaland, and Zanzibar

--their effects on U. S. farm exports

Foreign Agriculture Report No. 111
Foreign Agricultural Service
U. S. DEPARTMENT OF AGRICULTURE

October 1958

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. Price 30 cents

South of the Equator in Africa, in a west-northeast band, lie Angola, the Rhodesias and Nyasaland, and British East Africa—with over 32 million people and a total area slightly greater than half the size of the United States. Though most of these peoples have only in recent years shifted from a subsistence to a partial money economy, they are today producing a steadily increasing portion of the world's agricultural and mineral products both for local consumption and for export. For example, 60 years ago British East Africa had one important export—ivory tusks. Today it has coffee, cotton, sisal, tea, pyrethrum, diamonds, cashew nuts, and several other products; and ivory accounts for only $500,000 of the $319 million annual export value. In addition, there is a trade of over $40 million between the three British East African territories—Uganda, Kenya, and Tanganyika.

In all of the countries and territories, processing and manufacturing industries are steadily expanding, and production of coffee, tobacco, corn, and copper and other minerals has expanded spectacularly in the past 10 years.

In recent years, too, African holdings have been producing more and more of the export commodities. In Kenya, for example, the cash crop production on these farms increased about 50 percent between 1953 and 1957. Once, in most of the countries, nearly all of these commodities were grown on non-African-owned holdings.

The governments of all the countries are spending many millions of dollars annually on improved agricultural production, better transportation, more industry, and increased education and related services. As their world shrinks and their income and production economy improve, the people in these countries will become increasingly important as producers and consumers to such trading nations as the United States.

Acknowledgment

Space does not permit mentioning the names of the dozens of persons who extended gracious assistance and many courtesies to the author throughout the study area. The officials in Angola, the Federation of Rhodesia and Nyasaland, Tanganyika, Uganda, Kenya, and Zanzibar and the private individuals and staff members of private agencies were all most cooperative and courteous in giving information and guidance. The author particularly appreciates the aid and planning of the agricultural attachés in the Belgian Congo, Southern Rhodesia, and Kenya, and the assistance he received from the United States consulate staffs in the areas.

Officials in Lisbon and those in the Colonial Office and on technical and trade staffs of individual Territories in London were all most helpful.

Foreword

The author recently made a trip to central and east Africa to conduct a firsthand study of how development programs and plans are influencing competition with and demand for United States farm products. In this part of the world, most farm commodities that are exported are complementary to those grown in the United States, and most products imported are produced in the United States. Thus, the author was especially interested in how development programs are likely to affect the ability of individuals and of governments to buy goods the United States has to sell.

Gustave Burmeister

GUSTAVE BURMEISTER,
Assistant Administrator,
Agricultural Trade Policy and Analysis.

Contents

Agricultural Developments in Angola, British East Africa, Rhodesia and Nyasaland, and Zanzibar

Their Effects on U. S. Farm Exports

By ROBERT C. MONCURE
Africa and Middle East Analysis Branch

Summary

THE ECONOMIES of Angola, Kenya, Tanganyika, Uganda, and Zanzibar are largely based on agricultural production. That of the Federation of Rhodesia and Nyasaland is not. There, copper is highly important, especially to Northern Rhodesia, and has in recent years provided 60 percent of the Federation's export income. Tobacco has provided 15 to 17 percent.

Corn is the major food item. At present levels of consumption and nutrition, most of the basic food requirements of the countries are being met from local production. Major exceptions are wheat and wheat flour. Also, the Rhodesias are only partly self-sufficient in processed dairy products and meat. Still, every country has an expanding program for greater crop diversification and more intensive and efficient production of agricultural commodities for both domestic consumption and export. Particular emphasis is being placed on improved quality control and marketing methods for export commodities.

These programs are part of long-term development plans that each of the countries has to raise the standard of living and cash income of all the people. But except in Kenya, expenditures under these plans are principally for expanding and improving transportation and port facilities, highways, electric power, and educational and related services. They are secondarily for agriculture, but agriculture is getting substantial help in all countries through annual government appropriations and by private and government commodity and cooperative marketing organizations and local African authority reserves.

Agricultural expansion plans provide for increased production of coffee, tea, tobacco, pyrethrum, cotton, and cashew nuts, and for moderate increases in corn, sugar, oilseeds, and dairy and other livestock products.

It will be necessary to steadily increase the imports of wheat and wheat flour in all the countries because of the significant consumption increase in wheat products. Small quantities of higher quality cigarette tobacco may continue to be imported (except in the Rhodesias) for blending with local tobaccos.

Angola

Angola, Portugal's largest overseas Province, depends primarily on agricultural exports to support its economy—71 to 76 percent in recent years. Diamonds are its second most valuable export item. Coffee is the principal foreign exchange earner. In 1956, it accounted for 49 percent of the value of Angola's total exports. The relative importance of the other agricultural exports changes from year to year, but sisal, corn, and dried cassava are among the most important. The major portion of the corn exports is now going to European countries other than Portugal in competition with United States exports. Angola does export moderate quantities of cotton, tobacco, sugar, beans, and peanuts and other oilseeds, but Portugal has first call on these raw materials.

The United States is the best customer for Angola's total export trade, and is Angola's second largest supplier, sending it most of its imports of wheat flour as well as of trucks, roadbuilding and other heavy construction and mining equipment, tractors, and similar machinery and parts. Portugal supplies about 45 percent of Angola's imports.

Angola is about equal to the combined areas of Texas, California, and Nebraska. It has a population of about 4,350,000, with a density of only about 11 per square mile. The European population is about 110,000 and is increasing 8 to 10 percent per year, chiefly through immigration from Portugal. Angola has several modern towns of moderate size, including Luanda, the capital, with 200,000 people.

Less than 2 percent of the area of the country is used annually for field and tree crops. Substantial areas exist in the central plateau and elsewhere for potential increase in production of coffee, corn, and a wide range of other crops. That plateau has one of the most pleasant climates in Africa and perhaps the largest suitable area in Africa for expansion of both European and African farms.

The major portion of expenditures for economic development in 1953–58 has been allocated for improving and extending the railways, hydroelectric projects, ports, and harbors. Only a moderate amount is spent for land drainage, preparation of land for European and African colonization and resettlement, and other direct agricultural development. About two-thirds of the allocated funds are being supplied from Portugal's National Economic Development Plan and one-third is coming from the Angolan Development Fund. Outside the development program, additional funds from the coffee, cereal, and cotton export boards are being supplied for agricultural research, crop and livestock improvement, and extension programs. Emphasis is being placed on improving the quality and variety of agricultural production and exports from both European and African farms, and on gradual rather than spectacular increases.

By 1960–61, coffee production will probably increase 20 percent—to 100,000 metric tons (1,700,000 bags). But exports of commodities competitive with United States products—particularly corn, cotton, and vegetable oilseeds—will increase very little over the moderate 1956 levels. On a long-term basis, corn production and exports have a much greater potential. No decline in the need for the imports of wheat flour, olive oil, wine, tobacco, and dairy products appears likely.

Rhodesia and Nyasaland

The Federation of Rhodesia and Nyasaland was created in 1953. It is a landlocked territory covering nearly one-half million square miles, which means that it is larger than the combined area of the States of California, Texas, and New York; and it has a population slightly in excess of 7 million. Only half of 1 percent of the land is in cultivation in any one year, but most of the land is suitable only for livestock or forestry production. Extensive areas in Southern and Northern Rhodesia are used for range cattle production by Africans and Europeans. Agricultural lands in Southern Rhodesia are about equally divided between Europeans and Africans, but in Northern Rhodesia only about 6 percent and in Nyasaland about 3 percent of the land has been allocated to European holdings. By far the greater portion of the Federation is likely to remain reserved for African farming and grazing, although until the present time most of the agricultural exports have been produced on European holdings.

The Federation's exports consist (by value) of about two-thirds minerals and 20 to 25 percent agricultural commodities, the latter principally tobacco and tea. The Federation is the greatest competitor of the United States in world tobacco markets, particularly in flue-cured types. But it also produces a wide range of other crop and livestock products. Despite the recent severe decrease in copper prices, the Federation's economy continues to be one of the fastest growing in the world.

The Federation has not yet developed a national agricultural program, but is now in the process of working out a coordinated policy for agriculture.

At the present time, responsibility for European agriculture in Northern and Southern Rhodesia resides in the Federal ministry; and African agriculture in all three Territories, and European agriculture in Nyasaland, is directed and developed mainly by the Territorial governments.

At the Federal level, development programs have recently been largely concentrated on improving railway facilities and constructing the monumental Kariba Dam, required to meet urgent power and transport needs. And agricultural development has been largely limited to basic research and extension and the very excellent conservation, land use, and farm

468440°—58——2

planning programs in the European farming areas of Southern and Northern Rhodesia. The Territorial departments of agriculture, however, are doing much work out in the African farming areas, such as that under the Native Husbandry Act and Native Purchases Areas program in Southern Rhodesia. Private and public organizations, such as the Rhodesian Tobacco Association, Rhodesia Selection Trust, European Intensive Conservation Areas, and Nyasaland Agricultural Production and Marketing Board, are contributing to agricultural development, too.

All the governments are making strenuous efforts to curtail production of corn and to shift to other crops; the Federation has been a net exporter of corn at a loss in very recent years. Their aim is to meet the large domestic needs for corn, the most important item in the African diet, and have moderate reserve stocks.

The Federation will continue to be the major competitor of the United States in European and Australian flue-cured tobacco markets. Production of all types of tobacco has increased from a 1935–39 average of less than 50 million pounds to about 210 million pounds in 1958, the major portion of which is flue-cured cigarette tobacco (principally from Southern Rhodesia). Production of flue-cured tobacco from all three Territories is not expected to increase significantly beyond its present level until the United Kingdom and continental European markets accept a higher percentage of Rhodesian flue-cured tobacco for cigarette blending. However, fire-cured, air-cured, and sun-cured tobacco, largely African-grown in Nyasaland, will probably continue to increase gradually.

British East Africa

While the three Territories of British East Africa (Tanganyika, Kenya, and Uganda) maintain certain common administrative, statistical, transportation, and basic agricultural research services, this does not mean that they have common agricultural production and trade policies. Overall Territorial development programs do not include development expenditures by local government authorities, municipal authorities, or special corporate entities like the Uganda Development Corporation and the Uganda Electricity Board. Neither do they include the large development programs of the regional East African Harbors and Railway Administration.

Cotton is the only crop of competitive importance to the United States in British East Africa, principally the American upland types. Uganda is the major producer. Practically all of East Africa's cotton is exported.

TANGANYIKA.—Tanganyika has a total land area of 342,706 square miles and 19,982 square miles of inland waters, which makes the Territory slightly larger than the combined areas of California, Nevada, and Oregon. It has a population of about 8½ million. Only an estimated 3 percent of the land is used for arable and tree crops. About 80 percent or more has potentialities only for forestry and range livestock production (after more extensive tsetse fly control is effected). Most of the present agricultural cash crop production and population are concentrated in a few areas of higher rainfall and better soils in the peripheral areas of Tanganyika (the southern highlands and the northern coffee-sisal areas around Mount Kilimanjaro and Mount Meru, cotton and coffee areas around Lake Victoria in the west). In most of the country, rainfall is too low or poorly distributed and soils are too infertile to permit production of permanent cultivated crops even by primitive methods. The only cash product from some large tsetse-infested and thinly populated semiarid areas is beeswax. Tanganyika is one of the largest exporters of beeswax in the world, though production varies widely from season to season.

Still, the economy of Tanganyika is overwhelmingly dependent on agriculture and agricultural exports. Sisal, coffee, cotton, tea, and cashew nuts are the Territory's most valuable agricultural exports to destinations outside British East Africa. Its most valuable inter-Territorial export—to Kenya and Uganda—is unmanufactured tobacco, a product which will probably be of increasing importance. Cotton production has increased from 41,000 bales (500-pound) in 1950–51 to 140,000 bales in 1957, principally from the Lake Province, but it is expected to increase more slowly in the next few years. Cotton will continue to be Tanganyika's only major crop of competitive importance to the United States in world markets.

Tanganyika has a Territorial development plan for 1955–60 in the approximate amount of $72,377,000, but it is being revised. Only a very small percentage has been devoted directly to agriculture, and most of that has been concentrated on work of the Tanganyika Agricultural Corporation. Recently a moderate supplemental agricultural budget was proposed, most of which would be spent under the guidance of the Department of Agriculture in a number of relatively undeveloped African districts for development and stimulation of coffee and similar cash crops.

Most of the Territorial development funds have been devoted to such nonagricultural purposes as building schools and improving transportation facilities, rural and urban water supplies, and industrial facilities. But considerable sums have been spent by the non-African producers of sisal and other plantation crops for expansion and improvement, and by African cooperatives and local and Territorial governments on crop production and on marketing and processing facilities, schools, and the like.

UGANDA.—Uganda is a landlocked territory which straddles the Equator and has a very pleasant climate; altitude averages 3,750 to 4,500 feet. The Territory has a total area of 93,981 square miles, 13,689 of which is water; its land area is about the size of the State of Minnesota. Its population in 1956 was 5,593,000, less than 75,000 of whom were non-African. Over 95 percent of the people gain their livelihood from agriculture. In addition, it is necessary to bring in some transient labor from neighboring countries to work on African and non-African farms.

Rainfall varies from less than 25 inches to as high as 70 inches on an average. However, most areas have two rainy seasons (short and long rains) and two dry seasons, but their duration and beginning may vary from year to year. Some areas around Lake Victoria have some rain throughout the year.

An estimated 12 percent of the land is being used for cultivated field and tree crops, and about three-fourths is uncultivated (exclusive of forest reserves and built-on land and wasteland). Some of these uncultivated areas are semiarid and are usable only for grazing land and game reserves. Non-Africans control only about 519 square miles of land, on which they produce principally tea, sugar, and some coffee and rubber.

The economy of Uganda, like that of Tanganyika, is almost entirely dependent on agriculture, predominantly by African farmers. Some mineral and manufacturing developments and recent hydroelectric power plants at Owens Falls on the Nile are beginning to diversify income moderately.

About 92 percent of Uganda's total exports in 1956 (including inter-Territorial) consisted of agricultural products, primarily cotton and coffee, but also oilseeds, oilseed cake and meal, tea, and cottonseed oil. Coffee (principally Robusta) may soon permanently replace cotton as the most valuable export. Since the opening of the new Kilembe mine, copper is increasing in importance—about $3 million in 1957—despite the recent sharp drop in world copper prices.

Uganda has a highly favorable trade balance. It is estimated that investment and savings since 1947 (principally by government and marketing organizations, plus some savings by individuals) have been nearer to those of an industrialized country than to an undeveloped one. In fact, Uganda has been able to finance most of its development programs out of accumulated government reserves from export taxes, and grants and loans from the cotton and coffee marketing board reserves. But the development program will soon have to seek new sources of revenue and outside loans; for under recently established new policies the Robusta Coffee Industry Board and the Cotton Lint Marketing Board will not hold back any of their receipts for adding to reserves. Instead, they will pay them out to the producers after deducting operating expenses.

Uganda's revenue for both regular and development purposes is highly dependent on the world prices for cotton and Robusta coffee. And, since 1954, the coffee and cotton marketing boards have not been able to add substantially to their reserves because of lack of profits. Instead they have had to draw on them moderately to maintain existing prices paid to producers of cotton and coffee. The cotton prices to producers, since 1954, except for the 1957–58 crop season, have been set annually at levels calculated to result in little profits to the cotton board after deducting necessary expenses. The government has not been able to add to its reserves since 1954 because of lower world prices and export values and consequent lower export tax income. The cotton board reserves were $56 million in June 1957 and the Robusta coffee board reserves $31 million. It was estimated that the cotton reserves would be reduced a third by June 1958 and the coffee reserves by about half. This reduction would result from anticipated loans to the Uganda Development Fund, plus funds paid to producers of cotton in the 1957–58 poor production season in order to maintain existing price levels.

Uganda has a national development plan for 1955-60 calling for a total expenditure of $100,240,000 (excluding borrowings for the Uganda Electricity Board and industrial and hotel development sponsored by the Uganda Development Corporation). However, only a very minor portion of the expenditures is scheduled directly for agriculture. The major portion is for highways and other public works, housing, schools, and educational and related services.

KENYA.—Kenya is somewhat smaller than Texas. It has a total area of 224,000 square miles, but only about 3 percent is utilized for field and tree crops. Over two-thirds of the Territory is semiarid and can be used for nothing but nomadic livestock production. Probably not more than 10 to 12 percent is suitable for permanent cultivated field and tree crops, and most of this is concentrated in the higher rainfall regions of southern and central Kenya. The population in 1956 was approximately 6,510,000, of whom all except about 225,000 were Africans. Nearly all of the population is concentrated in the highlands and adjacent coastal areas—in less than one-third of the country. Even here the rainfall varies widely from district to district—from 30 to 70 inches. There are two rainy seasons: The long rains from April to June, and the short rains from October to December.

Kenya's economy is not quite as highly dependent on agriculture as Tanganyika's and Uganda's. In 1956 only 73 percent of Kenya's exports (including trade with Uganda and Tanganyika) were agricultural. About 13 percent of its national income is from processing and other secondary industries. Because of its position as the most important governmental and business center in East Africa, Kenya receives substantial income for business services, from trade and other inter-Territorial business with Uganda and Tanganyika, from tourist trade, and various invisible items. In 1956 the following items constituted Kenya's most valuable agricultural exports to points outside British East Africa and to Uganda and Tanganyika:

	Percent of total exports
Coffee	36.3
Tea	7.6
Sisal	5.5
Wattle bark and extract	3.2
Hides and skins	3.1
Butter	2.5

Kenya's national development program — for 1957–60 — provides for expenditure of approximately $64.4 million, some $25 million of which is allocated for agriculture, natural resources, and animal husbandry. This does not include expenditures by local authorities like the Nairobi City Council, which in 1956 approved a 5-year public works program of about $28 million for African housing, improved water supplies, etc. The major expenditure for agricultural development in Kenya is for continuation of the Swynnerton Plan for improving and expanding cash crop production by small African farmers, particularly coffee, tea, pyrethrum, sugar, and livestock.

Except for small quantities of cotton, butter, hides and skins, corn, and pineapples, Kenya produces no important exports competitive with United States products. Principal exports will continue to be coffee, tea, sisal, pyrethrum, and other noncompetitive crops.

Zanzibar

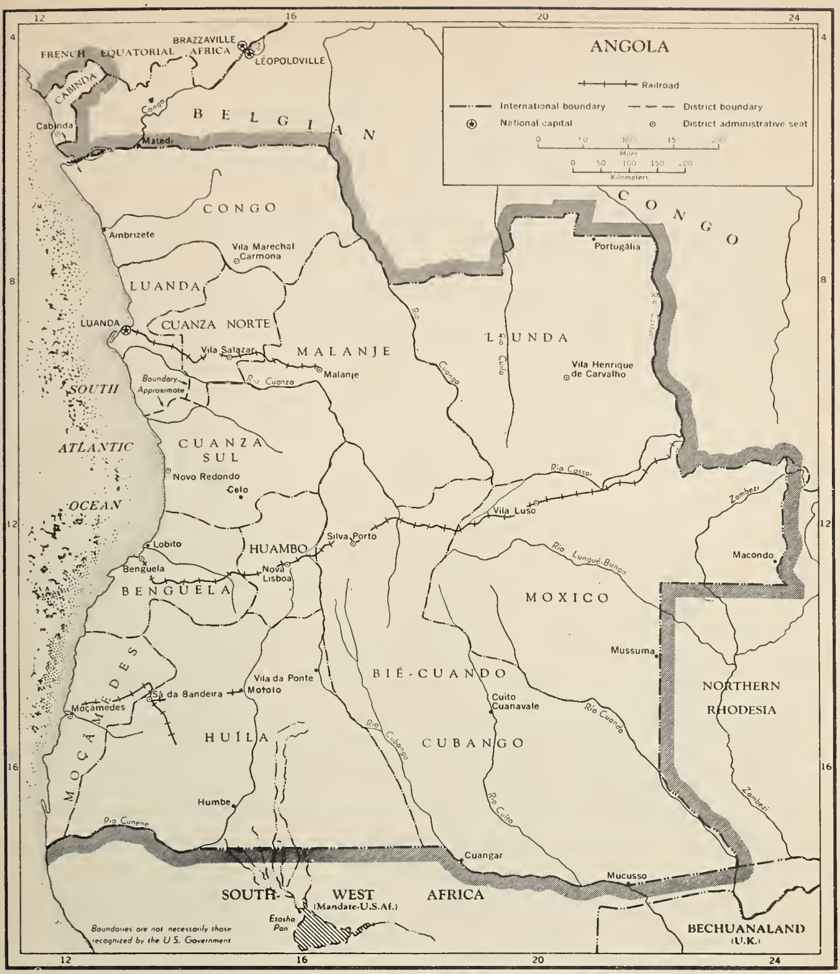
The Protectorate of Zanzibar is made up of two islands—Zanzibar and Pemba—which lie just off the east-central coast of Africa. It gets most of its income from cloves and clove oil, but is becoming increasingly important as a transshipper of goods to East Africa. In recent years the United States has been taking about a third of the Protectorate's clove oil.

Copra and coconut oil rank second as domestic exports.

Angola

The Province of Angola is an integral part of Portugal and Portugal's largest overseas Province. It has an area of 481,000 square miles, 14 times that of continental Portugal. This includes the Cabinda Enclave, which is separated from the rest of the Province by a narrow strip of the Belgian Congo.

The Province consists principally of a broad central plateau sloping gradually to the north, east, and southeast into the Congo, Zambezi, and Cunene River basins. On the west it drops from an escarpment to a narrow semiarid strip on the Atlantic coast. This plateau has one of the most pleasant climates in Africa, with no severe extremes of heat, cold, or humidity in large areas. For a considerable distance inland the climate is tempered by the north-flowing cool Benguela Current. The altitude of the plateau averages 3,000 to 5,000 feet, but rises to over 8,000 feet in the Humpata in the far south near Sá da Bandeira and also in small areas on the western edge of the coastal escarpment. The rainfall varies from 25 to 60 inches from year to year and from district to district in the plateau. However, in the large inland southeastern and southwestern cattle range country, as well as along the narrow coastal strip, it varies from 10 to 25 inches. It is as low as 2 inches at the southern port of Moçâmedes.



USDA FAS 1579

Production

It is estimated that 2 percent or less of the total area of Angola is utilized for cultivated field and tree crops. Four-fifths of the coffee, all the sisal, sugar, and wheat, and small quantities of beans, corn, and oil palm products are produced on European farms and plantations. These European farms use tractors or ox-drawn equipment or both. All of the cotton and cassava (largest volume crop), most of the corn (second largest acreage crop), and nearly all of the beans, peanuts, palm oil and palm kernels, rice, beeswax, sesame, and hides and skins are produced on small African farms or are gathered from wild sources. All the produced commodities are marketed through registered European traders and merchants, who are members of official recognized trade associations (gremios). Angola is one of the world's important producers of beeswax. A considerable portion of the exports finds its way through Portugal to the United States. The Province also produces 200 to 300 tons of cacao, principally in the Cabinda Enclave. Some of the African farmers in the central plateau around Nova Lisboa and Cela use oxen as well as the traditional hoe and machete for plowing and cultivating. Corn, beans, and cassava are the staple diet of most of the African population.

COFFEE.—Coffee, the major export commodity, is produced by about 400 European growers on about 500 plantations with the help of large numbers of transient and permanent African workers. In addition, there are a number of small African producers. One large company is reputed to control about one-fourth of the total plantation production. The total acreage of coffee is estimated at 573,000. Present production of coffee varies from 70,000 to 80,000 metric tons (1,190,000 to 1,360,000 bags of 132.2 pounds) compared to an average of 48,900 tons (831,000 bags) in 1946-51. Production is expected to reach 100,000 tons (1,700,000 bags) by 1960-61.

Most of the coffee is produced in the heavier rainfall areas in the northern half of Angola at elevations varying from 1,300 to 5,000 feet. Most of it is of the hard Robusta type (some of which is used in soluble coffee blends). Because of its higher quality, Angolan Robusta usually brings a higher price on the world markets than Robusta coffee from other African countries. Arabica coffee production is small now, but it will probably increase from new plantings in the vicinity of the modern Arabica coffee experiment station at Ganda on the southern edge of the coffee zone. One of the most promising Arabica varieties being planted at the Ganda station and in nearby new farm plantings is Caturra, a dwarf Bourbon type from Brazil, which is grown without shade but with closer spacing than other Arabicas and mulched with grass. It is expected that both Arabica and Robusta coffee may soon be produced on the large Portuguese colonization scheme at Cela in the central highlands.

While coffee production by Africans is only about one-fifth of total output, it is gradually increasing. Some of this production is said to be from semiwild or wild stands in the heavier rainfall areas of the far north. Some African producers have received substantial cash earnings from coffee during recent years.

CORN.—Corn is Angola's only arable crop of immediate competitive importance to the United States in world markets. It is primarily an African-grown subsistence and cash crop; only about 5 percent of production is from European farms. Corn now ranks second after coffee as the most valuable African cash crop; 10 years ago it was the most valuable one. Present production is believed to be about 325,000 metric tons more or less but, in some years because of adverse weather and other limiting factors, output may be as low as 225,000 to 250,000 tons.

The Benguela Plateau, on either side of the Benguela Railway, leading to the port of Lobito, is the largest corn producing area, where most of the corn for export is produced. It has reasonably well-distributed rainfall, but the quantity may vary considerably from year to year. The plateau corn belt has a moderately heavy red soil of low fertility, which is periodically allowed to return to bush fallow after a few years of cultivation, and corn and bean production shifted to another field.

The land in this area varies from rolling to extremely hilly, with occasional solid-stone hills and rough infertile hillsides. African production is said to be 10 to 12 bushels per acre, with 2 crops of beans as an intercrop. A smaller but more fertile area is around Malange at the end of the Luanda Railway in the north, where average yields of 20 to 25 bushels per acre are obtained. However, African farmers are said to prefer to grow cassava in this area because it is a more profitable and higher yielding crop. Yields of 60 bushels per acre have been obtained at the plant improvement station at Nova Lisboa in the main corn area, through the use of improved cultural methods and heavy applications of animal manure.

Two open-pollinated corn varieties have been generally used in Angola in recent years: Branco Redondo, a white flint best adapted to the higher central plateau, and Dente de Cavalo, a white flint best adapted to the more fertile lower areas of the plateau, such as Cela and areas adjacent to the large coffee plantations at Gabela.

Production of yellow and white corn is largely for export in some districts. The extension service of the Junta des Cerais (Cereal Export Board) maintains and distributes seeds of the better corn varieties to individual farmers. After his harvest, the farmer returns in payment 10 percent more grain than he received in seed. This seed distribution system has led to a rapid increase in the percentage of corn classified as pure type. The seed is distributed through selected European farmers, who also act as government extension-demonstration agents. Recently, synthetic corn varieties were developed by the Nova Lisboa plant improvement station, but these have not been widely distributed to farmers as yet. For these varieties, new seed is required only once every 3 or 4 years. While work has been done on developing and testing hybrid corn at Nova Lisboa under the direction of an excellent young plant breeder, the yields obtained so far do not seem to justify the extra cost involved in annual production and distribution of the seed.

Commercial fertilizer is not widely used on corn in Angola. The present delivered cost is believed to be about 30 percent greater than in the Rhodesias. However, some of the better African farmers are beginning to use compost and animal manure in addition to their usual practice of using beans as a leguminous intercrop.

The common method African farmers use to prepare land for corn is first to clear off the brush and most of the scattered small trees, leaving the stumps at a height of about 3 feet or more. Areas that have been in cultivation off and on for a long time have only scattered brush and long grass. Then the land is burned over and prepared with heavy hoes or plowed with simple iron and steel plows drawn by oxen. Some farmers

468440°—58——3

harrow their land. The soil is then ridged into rows with hoes to a height of about 12 inches, with a distance of about 3 feet between ridges. Finally, the corn is planted by hand, usually after the first rains in October–November, but when planted in the dry season in semiswampy areas some is planted much earlier to be partly consumed as green corn. Beans are usually planted on the ridge between the individual corn hills, generally two plantings a year before corn harvest.

The corn is weeded and hoed by women, who also do most of the harvesting and shelling. The corn is allowed to dry thoroughly on the stalk before harvesting. It is then shelled by hand. Part is stored in simple granaries raised off the ground for some protection against rodents, insects, and dampness. The rest is usually transported in baskets for sale to the nearest registered buyer.

A modern cornstarch plant is in operation at Nova Lisboa, with an annual capacity of 20,000 metric tons of dry corn. Recently, equipment for conversion of starch to corn sugars was added.

WHEAT.—Wheat production is currently estimated at 10,000 to 12,000 metric tons. It is grown principally by European farmers and some African farmers in the central plateau in the area around Nova Lisboa and also on the colonization scheme at Cela. Present production is believed to be about twice that of a decade ago, but expansion is severely restricted by rust damage. No concentrated selection and breeding program is in progress because of insufficient staff and funds, but some preliminary variety trials are being made. Production does not meet half of the consumption requirements.

CASSAVA.—Cassava, or manioc, is Angola's biggest crop in volume, but, like corn and other crops that are important domestic food items, exact production figures are not available. Estimates have varied from 800,000 metric tons to 1,200,000 in recent years. It is becoming increasingly important as an export crop to European markets for use as a starch and food product.

COTTON.—Almost all cotton is produced in small patches by about 60,000 African growers, mainly in the northern coastal area and along the Luanda Railway. It is grown for export to Portugal. Production seems fairly well stabilized at around 6,000 to 7,000 metric tons (27,000 to 33,000 U. S. bales) in recent years. Cotton from Angola and Mozambique is sold to Portugal's mills at government-fixed prices which are always lower than the world market prices. Mozambique is of much greater importance than Angola as a producer and supplier of cotton to Portugal.

TOBACCO.—Tobacco is produced by both European and African growers for domestic consumption and moderate exports to Portugal. While European-grown tobacco is found principally in the Malange district, it is believed to be expanding slowly in other suitable areas. Production may soon begin on the European settlement at Cela. Flue-cured tobacco is grown by European producers, and both light and dark-cured types are produced by European and African farmers. Current estimates indicate total production of all tobacco in 1956 and 1957 may have increased substantially.

LIVESTOCK.—Livestock numbers are believed to have changed little:

	1955 (1,000 head)	*1956 (1,000 head)*	*1957 (1,000 head)*
Cattle	1, 180	1, 214	1, 224
Hogs	270	275	280
Sheep	121	118	120
Goats	455	460	465

Limiting factors are the low ceiling prices fixed to livestock producers by the government and the long distance from the main seminomadic African cattle-owning areas to the markets.

Most of the limited European-type beef and dairy cattle and Merino sheep are found in the higher areas around Nova Lisboa and in the Humpata Plateau near Sá da Bandeira. Periodic shortage of meat occurs in the main consuming centers in the north, and the government has been considering an upward revision of meat ceiling prices. Meat shortages are partly met with imported codfish and fresh fish from the expanding Angolan ocean fishing industry. The government maintains very modern veterinary laboratories and animal husbandry stations, particularly at Nova Lisboa and Sá da Bandeira.

Exports

Agricultural exports provide 71 to 76 percent of current exports. Most valuable nonagricultural exports are diamonds, fish products, and wood. About half of the agricultural exports (by value) are coffee, and in 1956 about half went to the United States. Sisal is usually second, and corn, in third or fourth place. Angola produces a wide variety of agricultural products for domestic consumption, but only a few are of much importance in export trade.

While coffee now provides about half the value of Angola's exports, this has not always been true. It furnished only 27 percent in 1947 and 13 percent in 1943. Corn exports vary widely from season to season. Most of the cotton and cassava are shipped to Portugal, but other European countries, such as West Germany and the Netherlands, now normally buy more Angolan corn than does Portugal. Some sisal is exported to the United States.

The government-registered local commodity traders, who buy most African-produced agricultural export commodities, maintain modern warehouses, grain silos, grading and fumigating facilities, and processing facilities, either individually or as members of associations. As in the case of coffee, some of the buyers and processors may be producers themselves. Most of the large European coffee growers operate modern processing plants for depulping and drying.

All of the cotton, coffee, and grain is exported through the respective cotton, coffee, and cereals boards, which establish grades, maintain inspection services, collect export taxes, and generally control exports of

TABLE 1.—*Exports of agricultural commodities, Angola, quantity and value, 1954–56*

Commodity	Quantity			Value		
	1954	1955	1956	1954	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Coffee (including coffee for industrial uses)	45. 6	60. 2	89. 9	46, 865	44, 625	56, 140
Corn	98. 0	53. 5	130. 7	5, 180	3, 045	6, 720
Sisal	31. 0	40. 7	37. 3	5, 810	6, 825	6, 405
Cotton	5. 9	6. 3	5. 9	3, 115	3, 255	3, 290
Sugar	34. 2	30. 6	31. 8	3, 150	2, 905	2, 940
Cassava, dried	17. 0	24. 8	34. 3	1, 085	1, 435	1, 995
Palm oil	12. 6	8. 3	8. 8	2, 205	1, 505	1, 610
Beans, dried	15. 9	12. 3	17. 8	1, 505	1, 050	1, 190
Palm kernels	9. 2	10. 3	9. 4	1, 050	1, 190	1, 085
Beeswax	. 9	1. 0	. 9	805	1, 015	980
Peanuts	2. 0	2. 0	3. 6	350	315	700
Cottonseed	11. 6	7. 7	8. 9	455	420	560
Rice	. 7	. 8	3. 9	105	140	385
Hides	1. 5	1. 3	1. 3	595	420	280
Meat	. 7	. 8	. 7	280	280	245
Tobacco, unmanufactured	. 5	. 4	. 5	140	140	175
Cacao	. 2	. 2	. 3	280	175	140
Other	......	......	......	420	525	490
Total agricultural	......	......	......	73, 465	69, 265	85, 330
Total exports	......	......	......	103, 495	98, 175	115, 115

Comercio Externo de Angola, *Boletin Mensal de Estatistica.* Banco de Angola, *Relatorio e Contas*—1956.

TABLE 2.—*Imports of principal agricultural commodities, Angola, 1954–56*

Commodity	1954	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*
Vegetable oils (clive oil, peanut oil)	2. 7	2. 7	2. 1
Wheat flour	11. 2	13. 7	12. 4
Milk (dry, condensed, evaporated)	. 7	. 8	. 8
Butter	. 3	. 3	. 3
Tobacco, unmanufactured	. 2	. 2	. 3
Wheat	1. 0	1. 9	2. 4
	Hectoliters	*Hectoliters*	*Hectoliters*
Wines and liquors	609, 820	628, 315	746, 808

Comercio Externo de Angola, *Boletin Mensal de Estatistica.* Banco de Angola, *Relatorio e Contas*—1956.

TABLE 3.—*Imports of agricultural and nonagricultural commodities, Angola, 1954–56*

Commodity	1954	1955	1956
	1,000 dollars	*1,000 dollars*	*1,000 dollars*
Vegetable oils (olive oil, peanut oil)	1, 533	1, 445	1, 485
Wheat flour	1, 283	1, 339	1, 190
Milk (dry, condensed, evaporated)	676	803	820
Butter	418	386	388
Cheese	307	300	362
Wheat	83	159	200
Meat	331	293	339
Tobacco	160	160	280
Other agricultural	2, 673	2, 967	3, 714
Total agricultural	7, 464	7, 852	8, 775
Wines, liquors, etc	10, 941	9, 506	10, 460
Textiles and textile products	15, 774	13, 821	15, 305
Automobiles and trucks	5, 946	7, 115	6, 988
Iron and steel	4, 860	6, 420	7, 442
Miscellaneous industrial machinery, apparatus, and parts	4, 910	5, 110	7, 974
Petroleum and petroleum products	3, 897	4, 497	6, 036
Tractors	843	1, 167	1, 342
Tractor parts	360	641	930
Codfish (dried)	782	798	779
Other nonagricultural	40, 345	36, 892	44, 340
Total imports	96, 122	93, 819	110, 371

Comercio Externo de Angola, *Boletin Mensal de Estatistica.* Banco de Angola, *Relatorio e Contas*—1956.

those commodities. The coffee board (Junta de Cafe) emphasizes high quality and sets exportation dates and quantities. Exports to the United States must be first and second grade coffee with a moisture content not over 14 percent. Low-grade coffee is exported for industrial purposes only (principally to European countries for use in candy flavoring and decaffeinated beverages).

Exporting of other crops is controlled by the government through commodity associations or registered buyers' associations, under detailed specific regulations and legislation for different commodities. The export tax rate may vary according to whether the product goes to other Portuguese overseas territories or to Portugal or to a foreign country. Castorbean oil has a lower export tax than the beans in order to encourage processing of the oil in the single large plant in Angola.

The types and grades of corn for export are as follows:

	Grades
White flint	1–3
White dent	1–3
Yellow	1–3
Mixture	1–2

The grade differentials are based on kernel size, damaged kernels, color, mixtures of kernels, and foreign matter. The moisture content may not

TABLE 4.—*U. S. agricultural exports to Angola, by quantity and value, 1955 and 1956*

Commodity	Quantity		Value	
	1955	1956	1955	1956
	1,000 hundredweight	*1,000 hundredweight*	*1,000 dollars*	*1,000 dollars*
Cattle for breeding	....	....	16	9
Dairy products	....	....	16	31
Corn, meal	....	....	12	1
Wheat, flour	215	218	1, 124	844
	1,000 pounds	*1,000 pounds*		
Durum wheat flour and semolina	0	299	0	10
Yeast, except liquid	20	40	9	19
Fruits and preparations	....	....	3	11
Tobacco, flue-cured	796	324	292	227
Tobacco, burley	93	79	31	34
Other tobacco, unmanufactured	0	150	0	55
Other agricultural commodities	....	....	21	19
Total agricultural	....	....	1, 524	1, 260
Nonagricultural	....	....	9, 992	13, 898
Total exports	....	....	11, 516	15, 158

U. S. Bureau of the Census, Foreign Trade Statistics.

TABLE 5.—*U. S. agricultural imports from Angola, by quantity and value, 1955 and 1956*

Commodity	Quantity		Value	
	1955	1956	1955	1956
	1,000 pounds	*1,000 pounds*	*1,000 U.S. dollars*	*1,000 U.S. dollars*
Beeswax, crude [1]	557	460	333	299
Coffee, raw	71, 837	102, 479	28, 001	32, 561
Cocoa or cacao beans	148	0	49	0
Peanuts, shelled	220	0	23	0
Castor oil	3, 941	3, 642	352	462
	1,000 long tons	*1,000 long tons*		
Sisal and henequen	1	1	198	101
Total agricultural	....	....	28, 960	33, 440
Nonagricultural	....	....	2, 899	2, 472
Total imports	....	....	31, 859	35, 912

[1] Not shown by Angola as export to United States.

U. S. Bureau of the Census, Foreign Trade Statistics.

exceed 12 percent. As a result of work by the extension staff of the Junta de Exportação des Cerais, there has been an increase in the percentage of corn classified for export as pure type — now more than 50 percent. Some areas grow for export only yellow corn and others only white.

Imports

Angola is primarily an importer of industrial and manufactured goods, including roadbuilding equipment, tractors, trucks, iron, and steel. By value, textiles and wines and liquors are, respectively, the first and second largest individual import commodities. Angola's agricultural imports (excluding wines and liquors) are minor in importance—only 4.8 percent of the total imports by value in 1956. Imports of wines and liquors that year were nearly double those for all other imports of agricultural origin. Other principal agricultural items are olive oil, wheat flour, and processed milk, in that order.

In 1955 and 1956, wheat imports were increased from 1,000 metric tons to 2,000 for milling with increased domestic wheat production. Wheat imports in 1955 and 1956 were mainly from Morocco; in 1954 most of it was from the United States.

Trade With United States

Angola has in recent years had a large favorable dollar trade balance with the United States. The United States is the principal purchaser (by value) of Angola's exports (23 percent in 1955 and 19 percent in 1956), mainly coffee, and the volume of coffee purchases has been generally upward in recent years. Coffee imports from Angola were 230,000 bags in 1950 and 775,000 bags in 1956. United States imports from Angola in recent years have been larger than Angolan export statistics indicate. This is largely because of diversion of coffee and beeswax from original destinations to the United States.

United States imports from Angola were predominantly agricultural in 1956 (93 percent) and its exports to Angola were predominantly nonagricultural (91.7 percent). The United States is an important source of heavy agricultural and construction tractors, heavy trucks, automobiles, and roadbuilding, industrial, and mining equipment.

Wheat flour and tobacco have consistently provided the major share of United States agricultural exports to Angola in recent years. Wheat flour constituted 74 percent in 1955 and 67 percent in 1956, and the United States has long been the principal supplier. However, most of the United States flour trade in 1958 will be lost to France under a bilateral trade arrangement whereby Portugal's port wine will be exported to France and French flour exported to Angola.

Development Programs

Since 1953, substantial sums (about $100 million) have been spent in Angola on national development programs, but only a minor percentage has been directly for agriculture and most of that has been spent on the Portuguese colonies at Cela and at Vila Fortaleza and on related irrigation work. About 70 percent of the sums allocated for all development programs has been from Portugal's Six-Year National Development Plan and 30 percent from the Angolan Development Fund (in existence since 1938). Actual expenditures (about 80 percent to 90 percent of the planned expenditures) have been tailored to the progress of the work. The projects are being conservatively planned and executed. The high level of coffee and cork earnings has enabled Portugal and Angola to build up the necessary reserves to carry out the work in Angola on a pay-as-you-go basis. Coffee from Angola has now replaced cork as the largest contributor of foreign exchange to the Portuguese escudo area. (The escudo is a Portuguese monetary unit.)

More than three-fourths of the development expenditures have been for railway and port extension and improvements, hydroelectric facilities, some subsidiary irrigation facilities, and highway construction. The major expenditure for agriculture has been the colonization project for Portuguese immigrant farm families at Cela in the central plateau. There is also a smaller European irrigation and colonization project at a lower elevation at Vila Fortaleza on the Moçâmedes Railway. This is closely related to the new power and irrigation dam at Matala. The latter scheme has considerable potential for expanding irrigated areas along the Cunene River for both European and African farmers. However, because of its long distance from the larger urban markets like Luanda and Nova Lisboa in northern and central Angola, the colonization project at Vila Fortaleza will probably expand more slowly than that at Cela, unless the railway is extended to the Rhodesian border.

The European colony at Cela is in a well-watered valley about midway between the Benguela and Luanda Railways, not far by highway from the markets for the main coffee plantation areas. It has about 300 Portuguese families (about 2,000 persons). Eleven villages have been completed and settled, with 24 to 28 Portuguese-style brick-and-concrete homes in each village. Three more villages are about ready for occupation, and there is more land in the area on which the settlement can expand.

Each village has a community well, public storehouse for crops, combination church and schoolhouse, and first-aid station. And each family is furnished with housing and a few livestock, 12 acres of irrigated land, 30 acres of nonirrigated land, and about 100 acres of rough mountainside grazing land. The farmland surrounds the village, with irrigated and nonirrigated land in separate blocks. All land clearing and leveling, drainage and irrigation ditches, and mechanical preparation of land is completed before the family settles on its property. Tractor and machinery pools are maintained by the colony, but much of the cultivating and plowing is being done with oxen. A few individual farmers have bought tractors and are doing their own work and also contract work for neighbors. On a trial basis, some of the more efficient farmers with larger families are now being allocated as high as 100 acres for crop production with tractors. The family farms have a 25-year low-cost mortgage, and no payments are necessary for the first 3 years. The average cost of a farm, with the village home and adjacent fruit and garden patch, is about $4,500.

Although Africans are employed in road maintenance and in jobs at the central administration buildings and elsewhere, the Portuguese colonists are not permitted to hire them, nor are they permitted to sublet their holdings to other persons. Settlers are carefully selected in Portugal, and effort is made to select family groups from the same village or area in Portugal for settlement in individual villages. The houses are similar to small-farm homes in Portugal and are carefully built and attractive, with two and three bedrooms and red tile roofs. There are no electric lights or plumbing.

Rice, wheat, corn, potatoes, and fruits and vegetables are the principal crops grown at Cela, although coffee and tobacco are expected to be added in the near future. The surplus crops are sent to market by truck and rail to Nova Lisboa, Lobito, Luanda, and the nearby large coffee plantations. A new highway is under construction from Cela to Luanda.

This project has been well planned, and has been administered by a very limited staff of trained agricultural men, including an agronomist who is also the administrator. They are headquartered in a modern central village, which has a central shopping center and workshop area for public officials, businessmen, and construction workers, and an auditorium, movie theater, 60-bed hospital, and hotel.

For irrigation and power schemes under the national development program, surveys have been made in the coastal and inland river basins of the Cuanza and smaller streams in the Lobito-Benguela and Luanda areas. Preliminary survey work was carried out in cooperation with the United States International Cooperation Administration (ICA). However, detailed planning and execution are not expected until sometime after the Second Six-Year Plan (1959-66) goes into operation.

Range grassland and ground-water surveys have also been made in the large seminomadic African cattle area in southern Angola by the Government of Angola in cooperation with ICA. Some bored wells are being drilled at strategic points in this area. Plans have been made to organize African livestock production into several large tribal ranches for better control of available feed and water resources. Another project under consideration is the construction of a modern slaughter, processing, and cold storage plant at Sá da Bandeira.

In connection with the proposed extension of the Moçâmedes Railway in southern Angola to the frontier of Northern Rhodesia, a complete reconnaissance soil, plant, and animal survey has recently been completed for most of southern Angola. This will soon be followed by a more detailed soil survey to determine the best specific economic area for proposed extension of this railway line to serve the Rhodesias.

Considerable research and extension work for agricultural and livestock development and improvement is being executed or financed separately from the development program by the coffee, cereal, and cotton export boards, and by the agricultural and livestock staffs of the regular government departments.

The recently announced Second Six-Year Plan for Angola of $252 million will concern itself chiefly with irrigation, communications, hydroelectric development, and mineral prospecting. A new port is to be constructed at Tiger Bay in the far south of Angola, said to be one of the best natural harbors on the African coast. The new oil refinery of Petrofina at Luanda, with an initial refining capacity of 100,000 tons, will open some time in 1958. An aluminum plant with an annual output of 50,000 tons is planned when sufficient hydroelectric power is available.

Angola's development policy has been slanted heavily toward non-Portuguese European markets, despite the importance of its United States coffee market. But Angola has other commodities than coffee to sell, such as sisal, beans, oilseeds, corn, fish products, cassava, and diamonds. In 1956 the OEEC nations (Organization for European Economic Co-operation) bought one-half of Angola's exports. In comparison with both Western Europe and the United States, Metropolitan Portugal, with 8.9 million people, is a small market for Angola's exports. However, Portugal, because of its escudo earnings from domestic cork, wines, and sardines, plus large earnings from coffee and other exports from overseas provinces, has remarkably high dollar, gold, and foreign exchange reserves of nearly $700 million. These reserves in the past have been the principal source of development funds for Angola and other overseas provinces.

Outlook

Corn appears to be the only crop of immediate competitive importance to the United States. Production could probably be doubled in a few years from the present level of 250,000 to 340,000 metric tons by introducing a few improved practices and distributing seed of new synthetic varieties. Despite the fact that a price stabilization scheme is being discussed, it is not believed that Angola will embark on any extensive subsidy schemes for corn or any other export crop. It has not been the policy of the governments in Portugal and Angola to engage in subsidy schemes to increase production of export crops.

Under the existing controlled corporate economy, other production for export is expected to increase, but not spectacularly in the next few years. Coffee will continue to be the major export crop, with emphasis on further improving the quality of both Robusta and Arabica coffees.

Coffee production is expected to increase about 20 percent by 1960–61, to about 100,000 metric tons provided there is no substantial loss from the "sudden death" root disease.

Production for domestic consumption is expected to increase, too, primarily through European settlement projects and the expansion of the new program for stabilizing African farming.

On both European and African farms, the next years will see a few more tractors and pieces of animal-drawn equipment each season. At the present time, Angola's imports are between 200 and 300 tractors annually for agricultural and construction uses.

As for imports, moderate quantities of wheat and wheat flour, olive oil, tobacco, wines and liquors, dairy products, and codfish will be needed. But Angola will go on producing most of what it needs.

In 1957, Angola had a moderate adverse trade balance—its first in 27 years—but it is believed to be temporary.

Rhodesia and Nyasaland

The Federation of Rhodesia and Nyasaland occupies a unique position as a self-governing political unit of the British Commonwealth. It is the only non-Dominion member of the Commonwealth that maintains its own diplomatic mission in the United States. (It is attached to the British Embassy.) Its Prime Minister attends all major conferences of Dominion Prime Ministers. Also, it is recognized as an independent member of GATT (General Agreement on Tariffs and Trade) for negotiating separate trade agreements and initiating its own tariff system. It maintains a central bank and currency reserves in Salisbury.

Although self-governing as a Federation, Northern Rhodesia and Nyasaland, as individual Territories, still retain certain administrative, political, and financial ties with and receive some support from the British Colonial Office.

About 275,000 of the Federation's population of 7,500,000 are European, and the number of Europeans is increasing annually by about 20,000, principally from immigration.

Over one-seventh of the African population is now a part of the wage-earning economy; nearly half of these are engaged in nonagricultural work in the expanding manufacturing, mining, and transportation industries and government staffs.

Southern Rhodesia is the largest agricultural producer of the three Territories. It has half the corn and most of the tobacco. It is also the center of the rapidly expanding secondary industries and the financial and business center. Southern Rhodesia is steadily becoming an increasingly important producer of asbestos, chrome, and other mineral products.

Northern Rhodesia provides about 60 percent of the mineral exports of the Federation, and proportionally the same percentage of value of

U. S. DEPARTMENT OF AGRICULTURE NEG. 760 FOREIGN AGRICULTURAL SERVICE

total exports. It has more than half the total area and the smallest population of any of the Territories.

Nyasaland has about three-fifths the combined population of the two Rhodesias, but it has only about one-twelfth the area and produces only about 6 percent of the revenue. It is now entirely an agricultural country. More than half of the cash agricultural income is from the small freehold and leasehold areas of European tea, tobacco, and tung plantations (3 percent of area). Most of the African cash farm income is from the substantial acreages of tobacco and the moderate cotton and peanut production. In addition, 2.6 million Africans raise most of the food they eat. Most of the work on African farms is done by women; a substantial

Courtesy Federal Information Department, Southern Rhodesia

Salisbury, Southern Rhodesia, is a modern rapidly growing city that reflects the expansion that is taking place in Rhodesia's economy. It is area's financial and business center.

number of the young male Africans work in Northern and Southern Rhodesia and the Union of South Africa, on European plantations or farms or in mines, and elsewhere. Women also do much of the tea plucking on European estates in southern Nyasaland.

The Federation, as a whole, has a good climate. Salisbury, Southern Rhodesia, the Federal and Territorial capital, is not far from the Equator, but its mean winter temperature (55° F.) is approximately the same as that of San Diego, Calif., and its summer temperature is about the same as that of St. Paul, Minn. Only a few miles outside of Salisbury, the high veld range country may occasionally have a temperature of 20° F. or lower in the dry winter season, but lower elevations are more tropical. In most of Southern Rhodesia, the mean annual rainfall varies from 12 to 45 inches; other parts of the Federation may have as much as 45 to 100 inches.

Production

The Federation produces a wide variety of temperate and tropical crops—tobacco, tea, corn, beans, peas, millets and sorghums, peanuts, tung oil, wattle bark and extract, citrus and other tropical fruits, and Temperate Zone vegetables. Domestic production now provides more than 90 percent of agricultural requirements. Considerable quantities of animal feedstuffs are imported, particularly from the Union of South Africa and other adjacent countries, although grain sorghums could be grown domestically in greater quantities for this purpose. Present guaranteed prices for corn and low per capita consumption and low prices of meat for African consumers have not been conducive in the past to increased feeding of grains to livestock.

DAIRY AND MEAT PRODUCTS.—Although production of dairy and meat products is increasing, it is insufficient to meet the growing needs, particularly in the copper belt of Northern Rhodesia. In some sectors of Northern Rhodesia there are many cattle (about 1 million), but most are African owned and are kept more for social prestige and as an indicator of wealth than for marketing. In Southern Rhodesia, however, both European and African cattle are an important source of income, numbers are reasonably controlled, and tsetse fly and other losses are relatively low. Still, annual disappearance and marketings of cattle are only slightly in excess of 10 percent of the African cattle population (about equal to the human population). Livestock are systematically marketed through regularly established markets, including the Cold Storage Commission. The latter is an important supplier of fresh and frozen meat to Northern Rhodesian markets, along with varying quantities of fresh, frozen, and canned meat from Bechuanaland and the Union of South Africa. In Nyasaland, beef is a relatively scarce commodity; total slaughterings are estimated at around 30,000 head annually for a population of 2.6 million. However, fish is a cheap, important substitute.

There are indications that for the immediate future the shortage of beef in the Federation will continue. It is difficult to forecast how much the demand for meat will change when more Africans receive full cash wages instead of being issued meat rations by their employers. Dominant factors will be the relation between the price of beef and the purchasing power of the Africans, who now consume over 80 percent of the marketed beef, and whether Africans will use increased wages for purchase of more meat and other food items. Both nutritionally and agriculturally, the Federation could consume all the increased meat it might produce in the next 10 years. There are vast veld areas, particularly in Southern Rhodesia, which are suited for beef production and little else. Some semiarid areas require large acreages to maintain a relatively small number of cattle. Also in the European and African arable areas throughout the Federation the keeping of cattle is necessary for maintenance of fertility and the utilization of crop byproducts, but only in Southern Rhodesia has this become an important factor.

Most of the dairy production in the Federation is in Southern Rhodesia (valued at $4.9 million in 1956), where whole milk output rose 45 percent between 1952 and 1956. In recent years, that area has had a surplus of liquid milk (39 percent in 1956), most of which has been manufactured into Cheddar and Gouda-type cheese. On the other hand, Northern Rhodesia has a marked shortage of dairy products. Here, the gross value of dairy produce sold by farmers was only $809,200 in 1956. The Federation imported more than $4 million of dairy products in 1956,

Courtesy Rhodesia Tobacco Association

Typical tobacco farm of Southern Rhodesia. That country is the United States strongest competitor in world flue-cured markets.

including condensed milk, milk powder, butter, skimmed milk, and cheese, and imports of butter are continuing to increase. Production of butter rose only about 10 percent between 1952 and 1956, whereas consumption of butter in Southern Rhodesia alone is almost three times local production. Apparently it is more economical to utilize milk for cheese manufacture rather than butter at present milk prices. The difference is made good by imports from Kenya, South Africa, and New Zealand. On the other hand, the domestic production of cheese in 1955-56 more than doubled. The Dairy Marketing Board of Southern Rhodesia, while it does not control all milk distribution, is a very important factor. It operates in the main urban centers. A considerable portion of the manufacturing milk industry is handled by producer cooperatives in Southern Rhodesia and entirely by them in Northern Rhodesia.

TOBACCO.—Tobacco is the only agricultural crop in the Federation of great competitive importance to the United States. Tobacco produces from 15 to 17 percent of the total value of Federation exports. About seven-tenths of the tobacco is from Southern Rhodesia, and about 90 percent of the flue-cured type is produced there. Most of the rest of the tobacco is grown in Nyasaland; it is principally fire-cured types, with smaller quantities of flue-cured (European farm production), sun-cured, and burley.

Most of the tobacco production in Northern and Southern Rhodesia is on large modern European farms, but in Nyasaland about two-thirds is grown by Africans on a large number of small farms. Moderate quantities of Turkish tobacco (800,000 pounds in 1957) are being produced by European and African growers in Northern and Southern Rhodesia, and steady encouragement is being given to that type in all three Territories. The long-term goal is 4 million to 6 million pounds of Turkish type.

Production of tobacco in the Federation has risen from a 1935–39 average of less than 50 million pounds to about 210 million pounds at the present time. Flue-cured tobacco production increased from 120 million pounds in 1953 to 177.8 million in 1956. Over 80 percent of the tobacco production is exported. With the exception of Turkish type, all tobacco in Southern Rhodesia and the northwestern part of Northern Rhodesia is sold through public auction in Salisbury, Southern Rhodesia, through three auction floors. There is no governmental control of tobacco production and sales in the two Rhodesias, and all trade and grower representation is through the private Rhodesian Tobacco Association and Rhodesian Tobacco Marketing Board. In Nyasaland, both European and African-grown tobacco is sold separately at public auctions in Limbe. The marketing, grading, and sale of African tobacco is organized under the supervision of the Agricultural Production and Marketing Board of Nyasaland. Also the burley and sun-cured leaf grown in the Fort Jameson district of Northern Rhodesia is sold at Limbe. Nyasaland production of all types of tobacco in 1957 was 33.7 million pounds, of which 25.4 million was fire-cured African grown. Nyasaland hopes to attain a total production of 47 million pounds within the next 5 years, mainly of the fire-cured, air-cured, and burley.

Research work on European-grown tobacco in the Federation is financed by the tobacco industry through the private Tobacco Research Board of Rhodesia and Nyasaland. There are two modern research stations in Southern Rhodesia at Kutsaga and Trelawney. The Federal Department of Conservation and Extension assigns tobacco extension officers to all the European tobacco growing areas of Southern and Northern Rhodesia. Also, the Nyasaland Department of Agriculture maintains separate tobacco research and extension staff to work closely with both African and European growers.

The typical Southern Rhodesian farm in the tobacco area is from 2,000 to 4,000 acres, of which 50 to 100 acres may be in tobacco, another portion in corn and other crops, and most of the acreage in pastures. Large modern brick or concrete tobacco curing barns and grading facilities are maintained on each farm, and many African laborers are used in the operations. While much of the work is done by hand, the field equipment on the farm includes modern cultivating and hauling equipment for all crops.

TUNG OIL.—Tung oil is a minor crop of competitive importance to the United States. It is produced in Nyasaland by private European planters and one large government-owned and financed plantation, Vipya Tung Estate. Production increased from about 250 tons in 1951 to about 1,000 tons in 1957. Once, all tung oil was produced on the European plantations, which are in the Cholo Highlands of the Southern Province. But the Vipya Estate, which is in the Northern Province, is now believed to be producing 130 tons; its goal is 1,300 tons. The estate has its own separate oil processing plant. It is financed, operated, and owned by the Colonial Development Corporation, a United Kingdom public development corporation for partly or wholly financing (and in some instances operating) various business and development ventures in British overseas dependent territories.

COTTON.—Cotton is entirely an African-grown cash crop. Now, almost all of it is grown in Nyasaland, although at one time Southern Rhodesia produced considerable amounts. Most of the Nyasaland cotton is classified as 1 inch American upland.

Prior to 1954, particularly during and after World War II, most of Nyasaland's cotton was exported to the United Kingdom—to the British Raw Cotton Commission. Since then nearly all of it has been sold to the Southern Rhodesian cotton spinning industry. In 1957 a substantial quantity was again exported outside the Federation because of higher prices received. In fact, the Southern Rhodesian spinning mill prefers a different and less expensive grade of cotton.

In Nyasaland, research on cotton is part of a program carried out in cooperation with the Empire Cotton Growing Corporation; Southern Rhodesia has a small Federal cotton research station at Gatooma.

Cotton production varies widely from year to year according to weather conditions, damage from red bollworm, cotton stainer, and bacterial blight, and time of planting. All production in Nyasaland is purchased and marketed by the Agricultural Production and Marketing Board, whereas that in Southern Rhodesia is sold direct to the Gatooma Cotton Industries Board. Purchases in Nyasaland have varied from 3,006 bales (400 pounds) in 1951 to a high of 14,281 in 1953. In 1956, purchases dropped to 5,389 bales because of adverse weather, disease, and insects in that season. The Federation does not produce enough cotton for its government-sponsored Gatooma spinning mill; imports vary from year to year. In 1954 they were 15,462 bales and in 1956, 12,590 bales (500 pounds). Cotton was first imported from the United States in 1956-57.

PEANUTS.—Peanuts, in addition to being an important subsistence crop in Nyasaland and Southern Rhodesia, are becoming increasingly important as an alternative cash or rotation crop to corn and cotton by African farmers.

In Nyasaland, all purchasing and marketing of shelled nuts is handled by the Agricultural and Production Marketing Board of Nyasaland, and the farmer is guaranteed a price of 4 pence per pound for the 1957 and 1958 seasons (compared with 3½ pence previously). Purchases in 1956 were 9,758 short tons and 5,576 tons in 1953, but total production may be as high as 16,000 tons.

In Northern and Southern Rhodesia, purchasing and marketing is handled by the Federal Grain Marketing Board.

Exact production in Northern and Southern Rhodesia is not available, since a high proportion of the peanuts is consumed by the producers (probably three times purchases in Nyasaland). Total production in Southern Rhodesia (probably in excess of 50,000 short tons) is estimated to be many times that of Nyasaland. Peanuts are increasingly important as part of the rations issued to African workers by their employers in all three Territories, as well as the basis of a peanut oil expressing industry in Southern Rhodesia for domestic and export markets.

CORN.—Corn occupies the dominant position in the food economy of the Federation. Not only is it the largest single item in the diet of the majority of the African population, but it has become an increasingly important cash crop for both European and African farmers in Southern and Northern Rhodesia. Despite its present guaranteed purchase price ($1.52 per bushel in Northern and Southern Rhodesia for domestic use), it is becoming an increasingly important ingredient in commercial stockfeeds.

Annual corn output from 1955 to 1958 is believed to be between 43 million and 48 million bushels, with the highest production being estimated unofficially at 49 million bushels. About half the total production is believed to be in Southern Rhodesia, where about 90 percent of that grown on European farms is from hybrid seed; yields as high as 100 bushels per acre have been obtained on some farms in the Mazoe Valley. Yields in Southern Rhodesia average around 40 bushels in the better districts, with the lower yields from small African farms. In 1957, Northern Rhodesia marketed its biggest crop in history.

On January 1, 1958, grain marketing in the two Rhodesias was consolidated under one Federal Grain Marketing Board, which purchases at a guaranteed price to those European and African producers in Northern and Southern Rhodesia who deliver corn in bags direct to warehouses or railway stations. The net price to African producers is less than to Europeans because of deduction for local levies for African Improvement Funds, bags and extra handling costs, and commissions to local African and European buying agents for the marketing board.

In Nyasaland, commercial purchasing of corn and the pricing system differ from those in the two Rhodesias. Purchases by the Agricultural Production and Marketing Board are now largely limited to an emergency reserve of only 25,000 short tons. The guaranteed producer price is 2 pence for 3 pounds (43.3 cents per bushel), compared to 1 pence per pound in prior years. This corn is bought in baskets and other containers in small quantities at nearly 200 markets in Nyasaland; thus, costs are high for bulking, transportation, and storage. The fixed price to consumers at any of the Board's warehouses in 1956 was $1.37 per bushel. Any excess left from reserves at the beginning of the next crop year is usually exported, though in earlier years of shortages in the Rhodesias it was sold to markets in those Territories.

TEA.—Tea is the second most valuable agricultural export crop. Production runs between 20 million and 21 million pounds. Most of it comes from European plantations in the highlands of southern Nyasaland, but production is being encouraged on new plantations in the higher rainfall areas of the eastern mountains of Southern Rhodesia near Umtali and Inyanga. The production goal for Nyasaland is 30 million pounds compared to present level of about 20 million pounds.

OTHER PRODUCTS.—The Federation also produces a number of other agricultural commodities in moderate volume for domestic and export markets, such as hides and skins, beans and peas, canned and dried vegetables, canned meats, citrus juice concentrates, wattle bark and extract, and extracts and essences. It also produces a little wheat (about 3,200 short tons) for domestic consumption.

Exports

Agricultural exports in 1956 were nearly three times the value of agricultural imports, and they constituted 20 percent of all exports. The Federation exports moderate quantities of a wide variety of agricultural commodities, but only two are of significant individual value—tobacco (15.5 percent of total exports in 1956) and tea (1.7 percent).

Tobacco from the Federation is the principal competitor of United

TABLE 6.—*Exports of agricultural commodities, Federation of Rhodesia and Nyasaland, quantity and value, 1954–56*

Commodity	Quantity			Value		
	1954	1955	1956	1954	1955	1956
Tobacco:	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Virginia flue-cured	49. 2	48. 3	663. 1	63, 205	65, 372	70, 303
Other	10. 8	8. 0	11. 7	6, 512	5, 655	7, 652
Turkish	. 1	([1])	. 1	49	58	201
Tea	7. 8	7. 7	9. 0	7, 701	8, 769	8, 323
Peanuts	5. 9	7. 7	22. 4	1, 145	1, 347	3, 825
Hides and skins	8. 2	7. 6	7. 7	3, 031	2, 326	2, 419
Corn	22. 7	37. 7	32. 4	1, 270	2, 110	1, 796
Meats:						
Fresh, frozen	7. 3	4. 9	2. 9	2, 580	1, 869	1, 142
Preserved, including soups	1. 7	1. 0	. 8	1, 417	952	883
Peanut oil	1. 0	. 1	2. 5	375	28	859
Beans, peas, lentils (whole)	2. 2	4. 8	7. 4	261	425	558
Vegetables (preserved or dehydrated)	. 1	. 1	. 7	142	178	395
Tung oil	. 9	1. 0	. 9	298	397	384
Fruit juices and sirups	. 7	. 3	. 4	426	262	340
Other	......	......	......	2, 733	2, 213	2, 375
Total agricultural	......	......	......	91, 145	91, 961	101, 455
Total exports	......	......	......	402, 566	475, 139	500, 916

[1] Less than 50 metric tons.

Federation of Rhodesia and Nyasaland, *Annual Statement of External Trade*, 1956.

States flue-cured types in European, United Kingdom, and Australian markets. In 1957, five-sevenths of the flue-cured exports (by value) and nearly half the exports of other types were marketed in the United Kingdom. Much of the small Turkish tobacco exports is sold to the United States.

The most important purchasing arrangement for export of Rhodesian tobacco is between the Rhodesian Tobacco Marketing Board and the Tobacco Advisory Committee to the British Board of Trade, which has government sanction. This agreement provides for a specific quota of flue-cured Rhodesian tobacco to be purchased by the United Kingdom tobacco trade, provided quality and price are right. A similar agreement is in effect with the Australian tobacco trade, providing for specific import quotas of Rhodesian flue-cured tobacco at preferential tariff rates.

Tea ranks second as an agricultural export crop. Most of it is exported for sale at the London tea auctions.

In recent years the Federation has become a moderate exporter of corn because of favorable weather conditions, improved production methods, great increase in use of hybrid seed, and a guaranteed producer price in Northern and Southern Rhodesia. During the late 1940's and early 1950's the Federation was frequently a net importer. In 1957, exports were exceptionally high—8.7 million bushels—from Southern and Northern Rhodesia. The marketing board and the Federal government suffered an export loss of about 75 cents per bushel. However the 1957-58 crop will be the last one for which export losses will be borne by the Federal Grain Marketing Board for corn from Northern and Southern Rhodesia. Efforts are being made in Northern and Southern Rhodesia to substantially reduce exports and stabilize production at a level nearer the annual consumption needs plus moderate reserve stocks. Nyasaland is limiting its purchases for reserve stocks to about 25,000 short tons, and the marketing board is restricting its purchases to those areas where corn can be most efficiently produced without serious soil erosion and deterioration. Efforts are being made in the Federation to encourage the shift of some cornland to other crops or to short-term pastures for increased livestock production and to increase use of corn for livestock feeds and industrial utilization.

The Federation definitely does not wish to remain an exporter of corn in substantial quantities at existing world market prices, although it is being forced to export in 1958 because of another near-record crop for the 1957–58 season. The Federation does not have large modern long-term grain storage facilities.

Imports

Agricultural imports are a minor part of all imports (8 percent in 1956). They are of a wide variety, but five constitute more than a third—sugar, wheat, fresh meat, butter, and cotton (in that order). In 1956 a third of all agricultural imports (by value) came from the

TABLE 7.—*Imports of agricultural commodities, Federation of Rhodesia and Nyasaland, by quantity and value, 1954–56*

Commodity	Quantity			Value		
	1954	1955	1956	1954	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Sugar, refined and unrefined......	48. 0	54. 3	50. 0	5, 363	6, 067	5, 471
Wheat..........................	57. 6	85. 7	66. 0	3, 934	5, 417	3, 944
Meats, fresh, frozen, or chilled....	1. 0	7. 2	6. 9	311	2, 015	2, 245
Butter..........................	2. 3	1. 8	2. 1	2, 265	1, 814	1, 965
Cotton, raw....................	3. 4	2. 4	2. 7	2, 466	1, 876	1, 849
Feedstuffs for animals............	14. 4	19. 5	19. 3	935	1, 483	1, 597
Tallow..........................	4. 4	4. 3	7. 3	722	782	1, 382
Biscuits, cakes, bread, puddings and pastry....................	1. 0	1. 1	1. 3	719	799	942
Milk powder, full cream.........	. 9	. 9	1. 2	675	700	930
Milk, condensed, full cream......	1. 8	2. 5	2. 3	662	822	744
Meats, canned, including soups...	. 7	. 6	. 7	306	249	399
Infants' foods..................	. 3	. 4	. 4	221	311	355
Peas, beans, lentils (whole).......	1. 8	3. 4	3. 6	214	349	282
Flour and meal, wheaten.........	1. 5	1. 9	2. 9	137	148	199
Other agricultural...............	......	......	......	15, 738	13, 824	14, 509
Total agricultural.........	......	......	......	34, 668	36, 656	36, 813
Total imports............	......	......	......	350, 811	388, 008	445, 944

Federation of Rhodesia and Nyasaland, *Annual Statement of External Trade*, 1956.

Union of South Africa, as did a third of all types of imports. South Africa was only exceeded by the United Kingdom (41 percent in 1956) as a supplier of total imports to the Federation. The United States was the third largest supplier (5.9 percent).

The Union of South Africa and Mozambique supply practically all of the sugar, the largest single agricultural import. Within the next decade it is expected that increased domestic plantings on new irrigation projects in Southern Rhodesia will enable the Federation to attain greater self-sufficiency in sugar.

For wheat products the Federation is almost entirely dependent on imports to meet its increasing demands. Australia is the major supplier of wheat and Canada is second, but imports were less in 1956 because of delays incident to the Suez crisis. The Federation now annually allocates dollars for importation of hard wheats from the dollar area for 20 to 25 percent of its total wheat imports. The United States entered the wheat market for the first time in 1956. Wheat flour imports, principally for Nyasaland, increased from 1,500 metric tons in 1954 to 2,900 tons in 1956, principally from Australia.

Of the fresh and frozen meat imports, about 80 percent were from Bechuanaland in 1956. Butter imports are principally from South Africa, Kenya, and New Zealand. Most cotton has come from Tanganyika, the Belgian Congo, and the Union of South Africa, but the United States and Sudan became substantial suppliers for the first time in 1956. Nigeria also recently increased its cotton shipments.

For tallow (seventh largest agricultural import), the United States was the largest supplier until 1956, when there was a large increase in volume. Most of the increased imports were from Australia.

Imports of animal feedstuffs from the Union of South Africa and the Belgian Congo have been of increasing importance in recent years (from $935,000 in 1954 to $1,597,000 in 1956). Substantially more of the canned food, meat, sugar, confectionery, beans, peas, and biscuit imports could be met from local production.

Trade With United States

In 1956 the United States was the third largest supplier of the Federation's imports. Agricultural items comprise only a small portion. Prior to 1956, tallow was the only significant United States agricultural export to the Federation but cotton and wheat were imported in 1956. Agricultural imports in 1954 from the United States were valued at only $763,000 and in 1955 at $641,000. Total imports from the United States in 1956 (according to Rhodesian trade statistics) were $24,862,000 compared to $15,166,000 in 1954.

The United States was also the third largest market (7.3 percent) in 1956 for the Federation's exports. Most of these were copper, chrome, and other mineral products. Agricultural exports to the United States in 1956 (according to Rhodesian trade statistics) were valued at only $276,-000 out of total exports to the United States of $36,848,000. Agricultural exports to the United States in 1954 were $262,000. Turkish tobacco, tung oil, tea, wattle extract, and hides and skins composed those agricultural items.

Development Programs

Being a relatively new country, the Federation does not yet have a large national agricultural development program. But outstanding development work has been done by the Federal Department of Conservation and Extension in Southern and Northern Rhodesia on European farms and under a smaller program for basic research and veterinary services.

Furthermore, the responsibility for agricultural work is divided between four governments (Federal, Southern Rhodesian, Northern Rhodesian, and Nyasaland). The agricultural development work (except for that of the Department of Conservation and Extension) is carried out by the Territorial Governments, by commodity groups like the Tobacco Research Council and Pig Growers Cooperative, and by private groups like the Rhodesian Selection Trust and the British South Africa Company. Responsibility for the general conservation and direction of all natural resources in both European and African areas in Southern Rhodesia is coordinated by the Natural Resources Board.

Most of the national development programs have had to be devoted to improving and expanding Rhodesian railways, highways, and particularly the construction of the spectacular highly important $300 million Kariba Dam on the Zambezi River. This dam will help supply the power needs of the expanding industrial and mining economy in Northern and Southern Rhodesia.

The wide scope and high quality of the program and accomplishments of the Federal Department of Conservation and Extension with European farmers merit special mention.

The work has been a very important factor in recent years in improving and expanding European agriculture in Southern and Northern Rhodesia and in carrying the results of research to farmers. A basic objective of the Department is as follows: "The use of each acre of agricultural land within its capabilities and the treatment of each acre of agricultural land in accordance with its needs for protection and improvement." However, the work is much broader than this. It includes mechanical protection of the land, catchment basement planning, soil survey and management, land use planning, farm planning, land clearance, realinement work for badly sited existing roads (including some actual road construction), dam and pond construction for individual farm and conservation purposes (not large-scale irrigation and municipal water supply construction), and advisory services to large water supply, irrigation, and power projects. It also includes the very important work with the European Intensive Conservation Areas (ICA) similar to Soil Conservation Districts in the United States.

The tobacco advisory service of the Department has been an important factor in raising the yields of tobacco in Southern Rhodesia to the present high level of 800 pounds per acre and also in its role as the extension arm of the very limited number of research stations for all crops in Northern and Southern Rhodesia.

Also, the Department has under its control two experimental farms in Southern Rhodesia and four in Northern Rhodesia, designed to carry out experiments and demonstrations on local problems in selected localities for all crops (including tobacco in crop rotations) and at the same time to demonstrate, on a farming scale, recommended systems of land use and methods of production. To extend the work and findings of the research stations into all the different areas, in collaboration with the Federal Department of Research and Specialist Services, the staff of the Department is carrying out about 200 field trials on demonstration plots in cooperation with individual farmers and livestock producers.

The Department maintains close liaison and collaboration with the Territorial Departments of Native Agriculture and Native Commissioners and with road councils and farmers' associations. It has an excellent inservice training program not only for its own staff, but for other government departments, banks, Native Agriculture, and even for agricultural staffs from other African countries. The Department is also responsible for the administration of the vigorous Young Farmers Club movement, the Livestock Improvement Scheme, and many others. In fact the demand for the services of the Department is so high at times that it cannot be satisfied.

In the past the work was much less intensive in Northern Rhodesia, but a preliminary 3-year trial run for regional agricultural and land use planning has been completed, embracing 420,000 acres in 6 regional areas. This work includes reconnaissance surveys to locate and plan areas for intensive agricultural development and settlement by selected young European farmers, such as the new land settlement scheme opened in February 1958 at Mkushi. The latter area is said to have a potential for tobacco growing and subsidiary crops and livestock, on farms ranging from 1,500 to 3,000 acres.

The Department of Research and Specialist Services, also under the Federal Ministry of Agriculture, is smaller than the Department of Conservation and Extension; its main contribution is being made in basic research. It has two principal stations, both near Salisbury: Henderson Research Station, which conducts basic agronomic, soils, and farm pond and stream fishery research; and Grasslands Research Station, for range and farm pasture grass research. In addition, the Department has a number of smaller special research stations, such as the Federal cotton station at Gatooma, Southern Rhodesia, and the Sabi Valley Research Station.

In the Sabi River Valley of southeastern Southern Rhodesia, there is a small but well-developed Federal subtropical irrigation experiment station and European pilot farm. Nearby is also a large, successful African irrigation farming scheme (under the Native Department of Agriculture of Southern Rhodesia), as well as several large European combination livestock and irrigated crop farms. The area is somewhat distant from rail facilities, but livestock and considerable quantities of fresh produce, canned products, alfalfa meal, and other products are transported by highway to the large urban markets. Excellent results and increased yields have been obtained in growing wheat, cotton, Tropical and Temperate Zone vegetables and some tropical fruits, corn, sugarcane, and livestock and dairy products under irrigation both on the farm and at the experiment station.

Most of the animal husbandry research and disease control work is carried out by the Department of Veterinary Services in Northern and Southern Rhodesia, with the work most highly developed in Southern Rhodesia, where most of the livestock and dairy industry is situated. Some animal work is being financed in Northern Rhodesia by the Rhodesian Selection Trust and a separate Territorial veterinary service program operates in Nyasaland.

European agriculture in Northern Rhodesia away from the rail line has been little developed, and only about 3 percent of the land has been alienated to Europeans. Although there is a good Territorial Native Department of Agriculture in North Rhodesia, progress is not as evident as under the Native Husbandry Act and in the Native Purchase Areas in Southern Rhodesia. The major portion of income has been from mining.

One of the most promising agricultural projects for future production and expansion is on the flood-ridden Kafue Flats, being financed on an irrigated 1,000-acre pilot farm staffed by Dutch technicians and the mining group known as Rhodesian Selection Trust, on which over $400,000 has already been expended. The Kafue Flats is a stretch of land 150 miles long and 35 miles wide at its broadest point, along the Kafue River in southeastern Northern Rhodesia just above the gorges which some day may be the site of the Federation's second largest hydroelectric scheme. The hope is that about 300,000 of the 1,300,000 acres will become small intensive European and African crop and livestock farms; success depends on developing economical crops and soil management for the very stiff clays of which the Flats are mainly composed. The plan is, by building dikes to control the annual flooding of the river, to convert the Flats into a vast irrigated farming area on the Dutch pattern for production of wheat, rice, castorbeans, vegetables, jute, barley, cotton, and irrigated and nonirrigated pasture for dairy and beef production. The first barley crop was somewhat disappointing, but 90 acres of wheat averaged about 20 bushels per acre of Punjab 8A seed. This project may some day produce a substantial part of the Federation's wheat requirements, provided rust and other diseases do not interfere.

In addition, the Northern Rhodesia mining groups are assisting in livestock improvement work in Northern Rhodesia, and by low-interest-rate loans and grants for African development by the Governments of Northern Rhodesia and Nyasaland.

In Nyasaland a 4-year (1957–61) capital development plan is being considered in the amount of $35.8 million, with the main emphasis on agriculture. However, because of financial stringency and credit conditions, the plan may have to be spread over a longer period. The plan would include two loans of $2.8 million each from the Colonial Development Welfare funds in London. The goal of the development would be to increase tobacco production from 34 million to 47 million pounds, tea production up to 22 million pounds, the exportable surplus of peanuts from about 10,000 short tons to 35,000, and to more than double cotton production—to 30,000 bales (400 pounds). The increase in cotton production would be achieved by moderately enlarging the acreage, improving disease and insect control, and increasing the yields.

The accelerated programs in Southern Rhodesia under the Native Land Husbandry Act and Native Purchase Areas represent some of the most unusual and extensive work ever attempted in Africa to improve the production and income of African farmers. At the present time, agricultural holdings are about equally divided in area between Africans and Europeans. These programs are being carried out under the direction of the Divisions of Agriculture, Marketing, and Economic Development of the Ministry of Native Affairs of Southern Rhodesia.

The accelerated 5-year program (1955–60) under the Native Land Husbandry Act is expected to cost $19.6 million, of which four-sevenths is being contributed by the African farmer through the Native Production and Marketing Development Fund, and funded loans, expected to be repaid entirely by increased production without higher taxes or production levie. The remainder is being borne by the Government of Southern Rhodesia. This scheme involves some 31 million acres, of which only about 2½ million acres is estimated in cultivation, large areas being suitable only for livestock grazing because of their low carrying capacity.

This project involves shift of ownership of land from a tribal or communal basis to individual family ownership, in full consultation and cooperation with the local African authorities. This requires general land surveys, aerial photography, farm planning, general boundary delineations of individual plots, and determination of size of individual holdings according to types and needs of agriculture in various areas. The acreage of cultivated land assigned to each family will generally be from 6 to 8 acres and that for livestock may vary from a few acres to several hundred. It is hoped that a substantial number of African males temporarily employed in industry, on railways, European farms, and elsewhere will move their families to their areas of employment and thus reduce the number of families retaining a stake in the land in the African areas.

Increased production of corn, peanuts, and livestock and greater crop diversification are expected to result from this program. Most of this increase would be consumed in the Federation, some of it by the increased urban African population. It is conservatively estimated that, under the Native Husbandry Act program, cash African farm income will be raised from $9.8 million to $30.8 million in 8 years and to $56 million in 20 years. Spectacular progress is being made in the operation of this program and it is expected that the major phase of the work will be completed by early 1960. Southern Rhodesia is fortunate in having already carried out general land classification and reconnaissance soil surveys.

In the Native Purchase Areas (about 8 million acreas), African farmers who have some capital and have more-modern farming skill, education, and the like are encouraged to buy freehold farms of from 20 to several hundred acres and to farm them as European farmers do.

Another project which will affect agricultural production is the Kyle Dam in Southern Rhodesia, to form a large lake for recreational and irrigation purposes near Fort Victoria and the famous Zimbabwe ruins of Rider Haggard fame. When constructed, it will provide water for expansion of the Triangle Sugar Estate and for the Hippo Valley Citrus Estates. Although the dam has been planned and surveyed, work on it awaits financing from private and government sources.

Final negotiations have been completed for purchasing a 1,200-acre site near Norton in Southern Rhodesia for the establishment in 1959–60 of an African agricultural college with a 3-year diploma course. Also, a large African agricultural secondary school and training center, a new rural township and marketing center, and a project for development of small African farms are being established near Kasama in the Northern Province of Northern Rhodesia. And the Council of the Rhodesia National Farmers' Union has approved a suggestion that African agriculture in Southern Rhodesia (and perhaps Northern Rhodesia) be placed under the Federal Ministry of Agriculture and that the African and European farmers' unions be merged. This policy was approved on the basis that it would simplify marketing policy and prices and aid in the improvement of African agriculture. The African farmers' unions in both Southern and Northern Rhodesia have taken the initiative in expressing an interest in favor of greater cooperation.

These development programs are the major ones affecting agricultural expansion in the Federation; there are smaller private and public projects which space does not permit mentioning. While agriculture has not grown as rapidly as mining and industrial development, it is moving ahead at a steady pace for both domestic and export consumption.

Outlook

The Federation can produce more than it does, but authorities are carefully considering the amounts and kinds of food required for domestic consumption and how they can best be obtained—by local production or by imports. In the near future, greater emphasis will probably be given to more balanced production of livestock and food crops for domestic use, including production to meet the demands of the growing wage-earning African population and the growing urban populations.

The Federation may or may not attain greater self-sufficiency in meat and dairy products in the next decade. That depends on demand and on whether costs are lowered, including those for feedstuffs, and whether developing marketing systems are improved, and a volume of low-cost meat is produced at economic and efficient levels. At the present time 80 percent of the meat sold is consumed by Africans.

Commercial production of corn is expected to level off gradually after 1958. Producer prices are expected to be lower—at a rate that will meet the slowly increasing domestic requirements and provide moderate reserve stocks. More corn will probably be fed to livestock.

As for wheat, small increases in production may be expected from perhaps the Kafue Flats, Sabi Valley, and naturally moist high vlei lands, but low yields and rust damage are expected to severely limit large-scale production. Some authorities estimate there are as high as 200,000 acres of moist lands on which wheat could be produced in a dry season, with an estimated yield of 15 to 20 bushels. However, a considerable amount of long-term experimental work and development of rust-resistant wheats is necessary first. The Federation will continue for a long time to be almost wholly dependent on imports to meet its increasing consumption of wheat and wheat products.

Tobacco and tea will probably continue to be the principal agricultural export commodities, but peanuts, castorbeans, flower and vegetable seeds, and wattle bark extract may receive increasing emphasis. Marketed production of peanuts in Nyasaland may increase in the next decade from 109,000 bags (180 pounds) to 500,000, principally for export as nuts, but smaller increase in Southern Rhodesia and Northern Rhodesia may develop to meet the increasing local demand for consumption by Africans in the form of rations, for peanut oil (for margarine and for export), and peanut cake for livestock feed. Also, Southern Rhodesia has recently set up a pilot scheme for stimulating exports of high-quality peanuts of confectionary grade; this involves incentive prices to producers.

The spectacular expansion in production of flue-cured tobacco in the past decade is over; the rate of increase is expected to be much lower as long as the present levels of quantity acceptance of Rhodesian flue-cured tobacco prevail in the European and Australian markets. Much of the gradual increase may come from the new European farms in Northern Rhodesia, where there are said to be large areas of good tobacco land available and good rainfall distribution.

Production of other types of tobacco in Nyasaland may increase by about a third in the next few years. Greater emphasis will be placed on increased production of Turkish tobacco in small acreages on individual African and European farms.

Also, increased emphasis is expected to be given to more intensive and selective agricultural production on existing farms, as well as development of a more efficient, stable African labor supply. There will be increasing competition between industry, mining, and European agriculture for the limited trained and more efficient workers.

No subsidy or price support programs designed for export commodities are expected to be in force except for a small transport and fertilizer subsidy to a few European tobacco growers in a remote part of the Eastern Province of Northern Rhodesia and a small price subsidy, initiated in 1958, to help rehabilitate European farms in a depressed agricultural area in Northern Rhodesia remote from railways and markets.

Improved marketing, distribution, and transportation systems will probably be developed for both European and African agriculture to overcome the long distances between some major markets, such as between the Northern Rhodesian copper belt and Southern Rhodesian suppliers. Now, one part of the Federation may export a food commodity, while another part imports the same commodity. The Federation is also likely to increase market outlets for some products in the mining areas of southeastern Belgian Congo.

British East Africa

British East Africa consists of three separate political units—Kenya, Uganda, and Tanganyika, the latter a United Nations Trust Territory. On a regional basis there are several basic common services operated by the East Africa High Commission with headquarters located in a new modern office building in Nairobi, Kenya. Among these services are the East Africa Agriculture and Forestry Organization (carrying out basic research work in agriculture, soils, and forestry common to all the Territories); East Africa Veterinary Organization (with very large modern animal disease research facilities at Mugugu near Nairobi); East African Tanning and Allied Industries Board; East African Statistical Organiza-

USDA FAS 1578

tion (with deputy directors recently appointed in each Territory); and administrative organizations for collection of import and export taxes and income taxes for all three Territories. In addition, there is a common regional postal and telegraph organization. The East African Railways and Harbours Administration operates all the rail and port facilities and some of the highway transport facilities in East Africa. However, the general economic, governmental, and agricultural policies of the individual Territories differ widely, including agricultural price support and production policies, and export and income tax policies affecting agricultural products. There is also a regional consultative Assembly composed of official representatives from each of the three Territories which meets annually for discussion (but not legislative action) of common regional problems.

The absence of significant known mineral resources is one limiting factor for the region as a whole. The region is predominantly dependent on agriculture for both its internal and its export economy. The six most valuable exports to points outside of British East Africa are, in the following order: coffee, cotton, sisal, tea, oilseeds and nuts (including cashew), and hides and skins.

Coffee, cotton, and sisal in 1957 provided about two-thirds of total British East African exports by value. The importance of these exports varies with the Territories. In Kenya, coffee is the most valuable export and tea is second. In Uganda in recent years, the most valuable export has sometimes been cotton and sometimes coffee. Previously cotton was the traditional principal export. And in Tanganyika, sisal is the most important. Most frequently quoted export figures are those to points outside of East Africa, which eliminates the very valuable inter-Territorial trade. This latter trade was worth about $50 million in 1957.

Principally because of its diversity of climates and soils, British East Africa is largely self-sustaining in agricultural products. In 1956, only about 6 percent of total imports from outside East Africa were agricultural, with the importance of individual items varying by Territory. Vegetable oils and seeds, rice, sugar (Kenya and Tanganyika), fresh and processed fruits and vegetables, processed cereal products, tobacco, alcoholic beverages, and, more recently, wheat are among the most important.

The Territorial development budgets, except in Kenya since 1953, have been largely devoted to nonagricultural purposes. But private European funds from commodity associations and private investors, plus funds from some local African Native Authority levies and marketing board reserves (Uganda), have played the major role in developing agriculture in East Africa. In Kenya, and in Tanganyika to a lesser degree, European farms have been the principal source of agricultural exports. In Uganda the great majority of exports have originated on African farms.

The sources of funds for development programs also vary by Territory. As far as Kenya is concerned, almost the entire development program has been financed by loans and grants from the United Kingdom, plus some local loans. Uganda's development has been financed almost entirely from current government revenues and by grants and loans from coffee and cotton price assistance funds, plus transfers from government reserves. Tanganyika's program has been financed partly from its own reserves and recurrent annual income and partly from loans and grants from the United Kingdom. Kenya has not been able to build up any reserves from which development could be financed.

In practical effect, British East Africa has a customs union tied financially and tradewise to the Sterling Area. However, it enjoys no preferential tariffs. Imports from the dollar area are limited by import licenses and usually restricted to essential items which are not readily available from nondollar sources. The United Kingdom is the largest purchaser of exports (26 percent) and the largest single source of imports (38 to 43 percent), but other nondollar countries are important suppliers. Most agricultural imports are from other African countries, the United Kingdom, the Netherlands, and Australia.

The 1958 import quotas from the United States and Canada are expected to be about the same as in 1957—Kenya, $8 million, Tanganyika, $2 million, and Uganda, $1 million. However, this does not necessarily mean that imports will be granted for the full amount, since the applicant for an import license must first prove that the import from the dollar area is essential and that a satisfactory substitute is not available from nondollar sources.

United States agricultural exports to East Africa have been limited almost entirely to tobacco; the United States occupies seventh place as a supplier of total imports. However, in 1957 the United States virtually disappeared as a supplier of tobacco. In 1957, also, Japan replaced West Germany by a substantial margin as the second largest supplier of imports, nearly doubling its percentage.

And that year the United States moved from fourth to third position (over 13 percent) as a purchaser of East Africa's predominantly agricultural exports—coffee, sisal, tea, and pyrethrum, and West Germany replaced India as the second largest purchaser.

Kenya is responsible for the entire visible trade deficit of the region to outside areas; the other two Territories normally have varying visible trade balances, with Uganda having the major portion in 1957.

Tanganyika

Tanganyika, a United Nations Trust Territory, is under the direction of the United Kingdom. Prior to World War I it was known as German East Africa.

Although economic development of this vast country has been slow, the advance has been at a much more rapid pace since World War II. It has been hampered by long lines of communications, poor roads, and a wide

Courtesy Public Relations Department, Tanganyika

Central Tanganyika produces only hides and meat, from cattle like these, and beeswax.

variety of tribes with many dialects, differing degrees of culture and development, and, with a few major exceptions, largely engaged in subsistence agriculture. The population is unevenly distributed, but not by chance. The greatest concentration is around the great lakes on the western edge, the mountainous country on the northern edge and in the far south, and the few ports in the coastal strip like Dar es Salaam, Tanga, and Mtwara. These areas contain the best rainfall and soils. The rainfall of the western edge of the country is affected by large lakes like Victoria, whereas the rainfall of the narrow coastal strip and the northern and southern highlands is affected by monsoon rains from the Indian Ocean, and also to some extent by continental winds and by the snow-capped heights of Mount Kilimanjaro in the north. There is a vast intermediate plateau of semiarid bush which has relatively low rainfall, and much of that falling within a relatively brief period. Much of the bush area is left to the tsetse fly and wild game, though some wild honey and beeswax is collected.

The non-African population in 1957 was 123,747, of which 20,619 were European, 72,167 were Indian and Pakistani, 19,175 Arab, and 4,788 Goan. Only about 440,000 of the African population are estimated as engaged in full- or part-time wage employment. The remainder are largely engaged in subsistence crop and livestock production, and secondarily in cash crop production. The major exception is the Chagga tribe on Mount Kilimanjaro, with their modern coffee marketing and processing cooperative organization. Most of the land is under control for African utilization, and only a very small proportion, slightly over 2 million acres, has been alienated for non-African holdings (largely leasehold). The annual area under African crop production is estimated at about 6 million acres, of which about 85 percent is planted to food crops and the balance to cotton, coffee, peanuts, coconuts, sesame, cashew nuts, and soybeans—with the largest acreage of cash crops being in cotton. About 700,000 acres of the 2 million acres of holdings by non-Africans are estimated to be in crops, principally sisal and secondly coffee and tea. Sisal is Tanganyika's largest export commodity. Cotton and coffee are next.

Production

Tanganyika is largely self-sustaining in agricultural products; it imports moderate quantities of sugar, dairy products, vegetable oils, and processed fruits and vegetables, and small quantities of a wide variety of other agricultural products. About 80 percent of the crop and tree-crop acreage is devoted to food crops, largely for subsistence consumption.

Corn, millets, and sorghums occupy the largest acreage, and cassava, sweetpotatoes, and bananas (cooking and fruit) produce the largest tonnage of food crops; (bananas are estimated unofficially at over 2 million long tons). Root crops are grown as a famine reserve, since corn and bananas are severely affected by drought. Coconut production is confined to the coastal region. Of the food crops, peanuts, sesame, and corn are the only important cash crops produced by many Africans, although in some areas rice, vegetables, bananas, and pineapples provide some cash income. Hides and skins also provide substantial African cash income. Beeswax is almost the only cash income from vast areas of semiarid, thinly populated tsetse-fly-infested bush country.

Reliable figures for total production of most crops (other than those primarily of export importance) are not available, since such a high proportion of food crops never enters commercial channels and are planted in widely scattered plots. Among the other food and oil crops which are of minor cash and export importance are peas and beans, sunflowerseed, peanuts, castorbeans, papain, essential oils, and wattle bark.

CORN, SORGHUM, AND MILLET.—Corn, sorghum, and millet production has been unofficially estimated between 700,000 and 900,000 long tons, depending upon the season, with commercial marketings of corn varying from 60,000 to 120,000 long tons. It is believed the marketing of corn will be around the lower figure of 60,000 tons now that the government has removed control on purchases of corn and rice and marketing has been returned to private trade.

The floor price for corn maintained by the government is only $3.50 per 200-pound bag (97 cents per bushel), and it is not believed that the government will find it necessary to enter the market for any substantial quantity at this low price, with very minor exports.

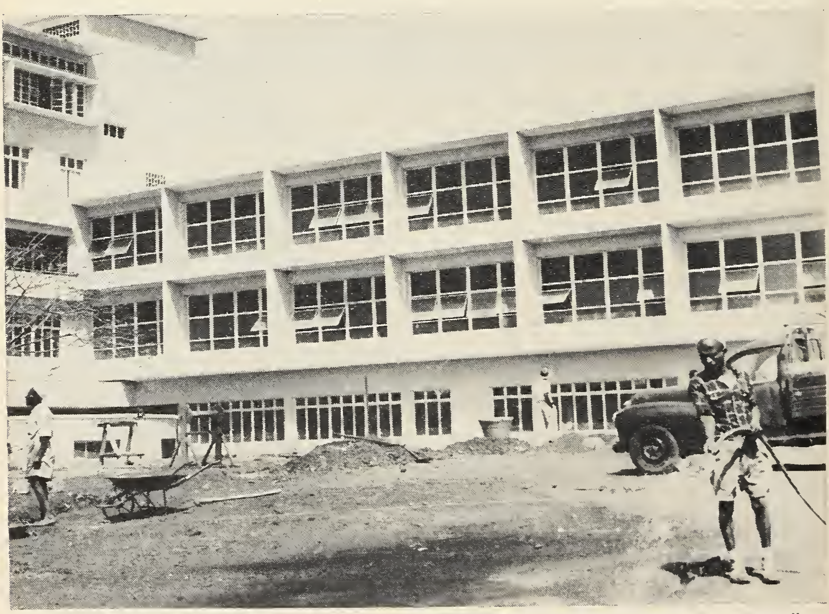
WHEAT.—Wheat is now the only crop for which the marketing is controlled and for which a minimum control price is maintained. Wheat production is around 5,000 long tons but has been reduced recently by stem rust damage. Most of the wheat is sold for milling to the Unga, Ltd., milling subsidiary of the Kenya Farmers Association, which has a new mill conveniently located in the dock area in Dar es Salaam.

RICE.—All rice is produced by African growers and is estimated to vary from 35,000 to 60,000 tons per year. In 1955, 32,059 tons were marketed and in 1956, 14,361 tons, with small quantities exported to Zanzibar in surplus years. However, in 1938 Tanganyika was a substantial exporter of rice (17,965 long tons).

SISAL.—Tanganyika produces more than a third of the world's production of sisal fiber—an important export to the United States. Production has ranged from 162,185 tons in 1952 to 185,762 tons, but export value is less than half that of 1952 because of drop in price. However, it is still the most valuable export crop, and is entirely produced on non-African plantations, principally in Tanga Province.

PYRETHRUM.—Production of dried pyrethrum flowers for export, mainly to the United States for insecticide manufacture, has increased from 240 tons in 1952 to 800 tons in 1956. It is produced by both Europeans and Africans in the Northern Province and also in the tobacco area around Iringa in southern Tanganyika, but European farms produce the major portion.

COFFEE.—Coffee is the third most valuable cash crop. Production in recent years has been between 300,000 and 343,000 bags (132.2 pounds) and may reach 385,000 bags in 1957–58. About one-fifth is produced by



Courtesy Public Relations Department, Tanganyika

Headquarters of the Kilimanjaro Native Cooperative Union, Tanganyika. This co-op, a model for others in Africa, processes and markets half of the Territory's coffee exports.

Courtesy Public Relations Department, Tanganyika

Tanganyikan women, at Moshi, hand-sort Arabica coffee after it has been graded mechanically, to insure a top-quality product.

European growers and the remainder by African growers, principally around Mount Kilimanjaro (Arabica) and in Bukoba District on the west side of Lake Victoria (Robusta); but African Arabica production is expanding rapidly in the remote Rungwe area of extreme southwest Tanganyika and may soon reach 3,000 long tons (51,000 bags). Production is about equally divided between Robusta and Arabica, including about 2,500 tons (42,500 bags) of Arabica produced in Bukoba by African growers but classified as hard coffee (Bukoba plantation Arabica).

TEA.—While tea is now only sixth in value as an agricultural export crop, it is rapidly increasing in importance and is entirely produced on non-African plantations in the Eastern and Usambara Mountains of northeastern Tanganyika and in the long-established plantations in the Southern Highlands Province. There is considerable area remaining for expansion, particularly in the Usambaras. Production increased from 2,462,000 pounds in 1952 to 6,125,000 in 1957.

COTTON.—Cotton is Tanganyika's only export crop of considerable competitive importance to the United States. All the cotton produced is of the American upland type. Production is entirely by small African farmers, principally in the Lake Province, around Mwanza, and in Musoma near Lake Victoria. The average-size planting is about 1½ acres. Both contract tractor plowing and animal-drawn plows, as well as hoes, are used in preparing the ground for planting.

Production of cotton has tripled in the Lake Province since 1950. Tanganyika's production in 1957 was 138,000 bales (500 pounds). Production has increased largely because more people are growing cotton but yields have increased too. There are no price supports or export subsidies. But each year the Tanganyika Lint and Cottonseed Board fixes purchase prices to producers generally calculated to yield a moderate profit for additions to the reserves of the Cotton Assistance Fund. About 60 percent of the production is purchased by cooperatives, but most of the ginning is still done by private gins.

The Lake Province crop consists of strain UK 51, and all seed is dusted against blackarm disease. Seed of the new strain UK 55 is being further increased. A chain of seed stores has been established by the Lint and Seed Marketing Board for more rapid, efficient seed distribution. The Board supervises the marketing of cotton from the Lake Province, but it was sold on the Kampala, Uganda, cotton market until June 1958, when cotton auctions were established at Dar es Salaam for marketing all Tanganyikan cotton. Moderate reserves have been built up by the Board, but substantial grants have been made from it in the past for the Tanganyika development fund.

CASHEW NUTS.—Cashew nuts have become one of Tanganyika's most valuable agricultural exports in less than 10 years. The crop of unshelled nuts in 1957 was about 22,000 long tons compared with about 10,000 tons in 1952. Most of the production is concentrated in the Southern Province and produced by Africans. It has been chiefly stimulated and developed by Indian traders in the last decade, but African marketing cooperatives are beginning to develop, and quality is improving somewhat. All of the exports are shipped to India for processing and then re-exported, principally to the United States.

TOBACCO.—Tobacco production, particularly Virginia flue-cured, for export to British East African Tobacco Company factories in Kenya and Uganda is becoming of increasing importance. In 1956 in the European farm production area in the Iringa District of southern Tanganyika, there was the first large-scale changeover from the old Amorello strain "Ehlers" to Virginia flue-cured. Total production of all types of tobacco in this district was 2-¾ million pounds, from a licensed acreage of 5,847 acres. Of this amount, 376,000 pounds was Virginia type. The entire tobacco crop of the Iringa District was marketed through the Southern Highlands Non-native Tobacco Growers' Union.

Fire-cured tobacco production in the Western Province more than doubled in 1956 (573,000 pounds). It is produced by European and African tenant farmers on land owned by the Tanganyika Agricultural Corporation (successor to the Groundnut Scheme) at Urambo, by other European planters, and by an African green leaf scheme. Production of flue-cured tobacco in the Western Province is principally the result of several years of careful soil and variety trials under the direction of a tobacco specialist and growers from Southern Rhodesia. In 1956 the manufacture of all the most expensive cigarette and smoking tobacco was concentrated in one factory in Kenya instead of distributed between factories in Uganda and Kenya. This will probably mean that most of Tanganyika's best flue-cured tobacco will be sold to Kenya instead of to Uganda.

Total commercial production of tobacco in Tanganyika in 1956 was estimated at 5,136,000 pounds. Of this, 1,193,000 pounds was fire-cured produced by African farmers in areas marginal for coffee and where cotton cannot be grown because of insect, disease, and other limiting factors. It is reported that while production was at a disappointingly low level in Songea in the Southern Province, there were some increases in fire-cured production in Kobondo in the Western Province and in Biharamulo and Ngara in the Lake Province. The fire-cured tobacco curing plant and the cooperative marketing union in the Songea District were transferred to African management in 1957.

LIVESTOCK.—Many cattle are concentrated among tribes in the Lake, Northern, and Central Provinces. They roam over open grass country that is relatively free from the tsetse fly but endangered by many other pests. Formerly, most of the cattle were in the hands of warlike traditional cattle tribes, such as the Tasai and Wataturu, but stockkeeping has spread far and wide in tsetse-free areas to tribes that do not have traditional skills of handling livestock. The livestock population is about equally divided between cattle, on the one hand, and sheep and goats, on the other. Cattle population is estimated at over 7 million head—not far below the human population of 8½ million. However, a large proportion of the cattle are kept as a sign of wealth and social prestige, rather than as a source of cash income. The government has instituted compulsory sale of cattle in overstocked districts to at least 5 percent per year.

Exports

Tanganyika's agricultural exports play a major role in total exports to points outside East Africa—86.8 percent in 1956 ($108,870,000). Inter-Territorial shipments represent a minor percentage (less than 5 percent—$5,842,000 in 1956) of total export trade. Tobacco, beans and peas, meat and meat preparations, hides and skins, sugar and sugar preparations, copra and coconut oil, pyrethrum, and miscellaneous food items constitute practically all the inter-Territorial trade.

In 1956, total exports from Tanganyika (including inter-Territorial) were valued at $113,226,000—a little less than in the record year 1952, when sisal prices were at an alltime high during the Korean conflict. Sisal provided 23.1 percent of exports (by value) in 1956, coffee 19.7 percent, and cotton 16 percent.

Peanut exports were 15,100 long tons in 1956—nearly three times those of 1955 because of good weather, freedom from rosette disease, and good prices. Exports of beans and peas have fluctuated from 21,000 to 9,000 tons since 1950, but shipments of seed beans to Europe from European farm

TABLE 8.—*Exports of agricultural commodities, Tanganyika, by quantity and value, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Sisal	120. 9	176. 6	188. 6	33, 196	27, 888	30, 306
Coffee	13. 8	19. 0	22. 0	9, 944	19, 567	25, 880
Cotton, raw	7. 1	20. 7	28. 3	4, 050	15, 497	20, 963
Oilseeds, oil nuts, and oil kernels (excluding groundnuts)	26. 5	36. 9	50. 3	2, 306	3, 993	6, 693
Maize, unmilled	2. 3	36. 4	108. 4	113	2, 090	5, 792
Hides and skins	5. 8	5. 0	5. 2	4, 126	3, 651	3, 795
Groundnuts	. 1	5. 7	15. 5	12	972	2, 871
Cashew nuts	5. 9	18. 5	17. 0	575	2, 437	2, 446
Beans, peas, lentils, and other legumes	9. 0	15. 4	15. 1	1, 014	2, 083	2, 073
Tea	. 4	1. 8	2. 2	256	1, 530	1, 656
Oilseed cake, meal, and vegetable oils	2. 6	15. 0	17. 9	94	1, 155	1, 598
Meat and meat preparations	. 1	1. 9	1. 5	195	1, 294	1, 023
Tobacco, unmanufactured	1. 9	2. 0	1. 0	974	1, 169	826
Beeswax	. 3	. 3	. 3	321	459	480
Other agricultural commodities	......	......	......	1, 673	5, 602	6, 824
Total agricultural [1]	......	......	......	58, 849	89, 387	113, 226
Total exports [1]	......	......	......	69, 076	106, 092	131, 296

[1] Includes inter-Territorial trade, with Kenya and Uganda.

Annual trade report of Kenya, Uganda, and Tanganyika.

production in the Northern Province have consistently increased since 1951–52, reaching a total of 2,549 long tons from the 1955–56 crop.

Preliminary 1957 statistics indicate that Tanganyika's exports to points outside East Africa fell by about $16.2 million under the 1956 figure of $125.4 million. The decline was caused chiefly by reduced shipments of coffee, sisal, corn, and cotton. Corn exports decreased substantially—from 106,363 long tons to 9,070, largely because of the abolition of the domestic guaranteed purchase price system. The largest decrease was in coffee (from 484,411 centals to 413,984). However, tobacco exports to points outside East Africa increased from 301,562 pounds to 765,591 pounds. Cashew nut exports increased from 16,740 long tons to 33,651 tons.

About 20 percent of Tanganyika's exports are now contributed by cooperatives. This is leading to a greater diversification of production for export away from sisal, which once played an unduly predominant part. Between 1947 and 1956, sisal production increased by 76 percent (volume basis), cotton by 232 percent, and coffee by 31 percent; also, commercial production of tea, castorbeans, cashew nuts, and groundnuts together

TABLE 9.—*Imports of agricultural commodities, Tanganyika, by quantity and value, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Sugar and preparations	11. 5	26. 1	26. 6	1, 283	3, 198	3, 453
Beverages (beer and wine)	1. 8	4. 8	5. 2	622	1, 669	1, 724
Dairy products	1. 6	9. 3	4. 3	790	1, 685	1, 552
Meal and flour of wheat and spelt	7. 3	12. 3	7. 8	794	1, 714	1, 077
Vegetable oil	(1)	3. 4	3. 2	228	914	987
Tobacco (unmanufactured)	(1)	. 3	(1)	1	510	13
Other agricultural commodities	......	......	......	5, 269	3, 292	3, 599
Total agricultural [2]	......	......	......	8, 987	12, 982	12, 405
Total imports [2]	......	......	......	78, 234	137, 888	110, 214

[1] Less than 50 metric tons.
[2] Includes inter-Territorial trade with Kenya and Uganda.

Annual trade report of Kenya, Uganda, and Tanganyika.

increased from $728,000 to $8,848,000. Production of sugar (an import), principally on one non-European plantation, has risen from 7,500 long tons to 18,000 tons.

Imports

About 10 percent of Tanganyika's imports from all sources are of agricultural products ($12.4 million 1956). Of Tanganyika's imports from the other two Territories ($17.8 million), agricultural products comprised nearly one-third in 1956.

The major agricultural items from outside East Africa are sugar, processed dairy products (mainly canned milk), vegetable oils, and canned fruits and vegetables.

Kenya furnished 30 percent of the dairy produce imports in 1956. It has also been furnishing all of the flour.

In 1957 (according to preliminary statistics) Tanganyika's total net imports from points outside British East Africa increased over those of 1956. They were up about $10 million from the 1956 value, $100.5 million. Imports of canned milk and rice increased moderately, but these increases were offset by a substantial decrease in sugar imports. The overall increase in imports from outside East Africa in 1957 was in manufactured nonagricultural goods and equipment. The major sources of Tanganyika's moderate agricultural imports are inter-Territorial.

Trade With United States

Agricultural exports to the United States from Tanganyika are almost entirely of agricultural products, principally coffee and sisal.

United States agricultural exports to Tanganyika, which have never been substantial, have virtually disappeared. In 1955, Tanganyika took $285,000 worth of United States tobacco, but since part of Tanganyika's tobacco production has shifted to Virginia-type flue-cured, most of the Territory's manufactured tobacco needs are being met by factories in Uganda and Kenya. In 1957, United States tobacco exports to Tanganyika and the other East African Territories had virtually disappeared.

The United States may find a small market in Tanganyika for its wheat, however, when the new flour mill is completed in Dar es Salaam.

Development Programs

Agricultural development programs in Tanganyika on a Territorial basis have not been spectacular (except the famous Groundnut Scheme planned and developed by the British Colonial Office and Overseas Food Corporation shortly after the war).

Only $420,000 of the $18.6 million approved expenditures for the fiscal year 1958 under the Tanganyika Development Plan were for agriculture, although some of the moderate expenditures for water supplies and general development and research indirectly affect agriculture. A few development programs on the local level, however, continue to be important, such as the coffee work of the Kilimanjaro Native Cooperative Union and Meru Cooperative Union and the Sukumuland Development Scheme in the Lake Province (the latter financed by grants from the cotton marketing reserves in this area).

Indian and Pakistani capital, in addition to European capital, has played a significant role in private development, particularly in sisal, tea, cotton ginning, and retail trade. The basic development work already achieved by the Tanganyika Agricultural Corporation, the Department of Water and Irrigation Development, the Veterinary Services Department, and the Department of Agriculture will become increasingly important in future programs.

Nearly all of the large agricultural development programs at the Territorial level are being carried out under the direction of the Tanganyika Agricultural Corporation (a local government corporation created in 1954 as the successor to the Groundnut Scheme). Part of the funds are from Tanganyika Government sources, but most are from Colonial Development and Welfare funds and the moderate dwindling liquid assets of the extinct Overseas Food Corporation. This Corporation also has primary responsibility under the government for carrying out the basic Rufiji Basin Survey in cooperation with a Food and Agriculture Organization (FAO) team of specialists.

Under consideration is a supplementary expenditure of about $1 million for use between January 1958 and June 1961 under the direct responsibility of the Department of Agriculture. More than half of this money would

TABLE 10.—*Agricultural exports to the United States by quantity and value, Tanganyika, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Coffee, raw	3. 3	5. 2	5. 7	2, 914	4, 970	7, 096
Sisal	7. 5	23. 0	13. 8	1, 593	3, 259	1, 921
Goat and kid skins	. 6	. 5	. 3	980	681	457
Other hides and skins	. 5	(1)	(1)	351	23	19
Tea	. 1	. 4	. 3	53	334	202
Pyrethrum flowers	. 2	. 1	. 2	137	99	119
Cashew nuts	0	(1)	(1)	0	(2)	(2)
Beeswax, crude	0	(2)	0	0	7	0
Chillies	(1)	0	(1)	2	0	2
Wattlebark and extract	. 2	. 3	. 9	8	18	59
Other agricultural	......	......	......	58	138	74
Total agricultural	......	......	......	6, 096	9, 529	9, 949
Nonagricultural exports	......	......	......	87	133	134
Total exports	......	......	......	6, 183	9, 662	10, 083

[1] Less than 50 tons.
[2] Less than $500.

Annual trade report of Kenya, Uganda, Tanganyika.

TABLE 11.—*Agricultural imports from the United States, Tanganyika, by quantity and value, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Tobacco, unmanufactured	0	. 1	0	0	285	0
Other agricultural	......	......	......	6	2	15
Total agricultural	......	......	......	6	287	15
Nonagricultural imports	......	......	......	4, 273	3, 146	2, 250
Total imports	......	......	......	4, 279	3, 433	2, 265

Annual trade report of Kenya, Uganda, Tanganyika.

be for development of moderate coffee production schemes, principally in new districts.

The Tanganyika Agricultural Corporation gets a substantial gross income from farming operations, including managing agent fees from the Rufiji Basin Survey and the Ruvu Ranching Scheme. It has had a deficit, but it is expected to be self-sustaining in a few years. The United Kingdom has signified its preparedness in principle to continue providing the Corporation with moderate funds until 1962.

The development programs which seem to have made the most progress in 1957 are the Rufiji Basin Survey and those of the Tanganyika Agricultural Corporation. The Corporation has generally been getting encouraging results from its tenant farms established on the Nachingwea, Kongwa, and Urambo sites of the former Groundnut Scheme. Best results have come from the production of flue-cured tobacco at Urambo on about 20 large European tenant farms, 3 medium-size African farms, about 70 smaller African tenant farms, and a few farms operated by the Corporation itself.

At Nachingwea in the Southern Province in 1955–56, 1,713 acres of peanuts, corn, soybeans, sesame, and sunflower were planted by the 122 African tenants. Peanut yields averaged about 700 pounds per acre, corn about 16–18 bushels, and soybeans 800 pounds. A total of 4,717 acres of peanuts were planted in the 1955–56 year by the Corporation and its tenants (418 acres by tenants), 4,577 acres of corn (423 acres by African tenants), and 2,652 acres of soybeans.

At Kongwa, in the central area, the Corporation's cattle ranch has achieved financial self-sufficiency, but the African tenant scheme for producing corn, peanuts, velvet beans, castorbeans, and some cattle is still regarded as experimental. The experiment farm at Kongwa is being maintained mainly for grassland improvement on the cattle ranch, but also with the thought that it may yield information applicable to similar areas of Tanganyika.

At Urambo, substantial quantities of tobacco, corn, peanuts, and soybeans are being produced in addition to flue-cured tobacco. The success of the tobacco crop in the 1955–56 season is indicated by these figures:

	Acres
Large tenant farms	765
Small farms	63
Corporation farms	217
Total	1,045
	Pounds
Yield	425,000
Average yield per acre	406.7

The Rufiji River Basin covers an area of about 68,500 square miles—20 percent of Tanganyika. It is the only large potential area for long-term agricultural, power, and irrigation development in Tanganyika. This includes the higher valleys and mountains adjacent to the tobacco area of Iringa District in southern Tanganyika, lower valleys suitable for large-scale sugar development, and delta lands on which moderate quantities of rice are being produced. Many parts of the basin are so remote and sparsely populated that almost no information is available. The basin is one of the most difficult areas in the world to survey because of wild animals, floods, and absence of transport in many places except by canoe or on foot. Nevertheless, the Department of Water Development and Irrigation and other Tanganyika Government departments, in cooperation with the FAO specialists, are making rapid progress in the general ground and aerial survey. The purpose of the general survey is to determine the long-term potentialities for gradually developing individual areas and also to form the basis for separate, more intensive surveys of the best projects. It has been estimated that from 300,000 to 1 million acres have potentialities for arable and tree crop production. The Corporation has already established several small trial farms in various parts of the region to test the adaptability of certain crops to the widely varying conditions.

On one of the upper tributaries of the Rufiji River in the Kilombero River Valley, the government has authorized a new semipublic firm, Tanganyika Sugar Company, Ltd., to proceed with its plans to develop a sugar industry, prior to the construction of a proposed $8 million branch railway. The sugar company has employed a Dutch team of experts, with experience in Indonesia, to investigate the possibilities for growing not only sugar but also cocoa, rubber, and oil palms. The sugar company has a multiracial, all-Tanganyika resident board of directors (3 Europeans, 3 Africans, and 2 Asians) and envisages a time when African tenant-farmers-shareholders will produce the sugar and other crops for the Company. This is the first joint agricultural company of this type in Tanganyika.

Outlook

A gradual increase in cotton production will probably occur in Lake Province in contrast to the more spectacular increase since 1950. Research and improvement under the joint program of the Department of Agriculture, Cotton Development Reserve funds, and the Empire Cotton Growing Association will continue. Production will vary from the current high level of 138,000 bales (400-pound) according to incidence of disease, rainfall, and adoption of improved cultural and harvesting practices by the thousands of African cotton farmers. In the Eastern Province, release of seed of a variety recently developed for the Province may substantially increase production over the long term from the present level of 6,000 to 8,000 bales (500 pounds).

For Virginia-type, flue-cured tobacco, the continued increase in production, particularly on the tenant farms of the Tanganyika Agricultural Corporation at Urambo, has resulted in 1957 in elimination of imports of

United States tobacco by the Kenya factories ($590,000 in 1956). British East Africa in 1957 became more self-sufficient in supplies of tobaccos for blending in cigarette manufacture. Because of the firm agronomic and farm-experience basis upon which this new flue-cured production appears to be founded, both at Iringa and Urambo, Tanganyika could have a larger surplus in the next few years for export to countries outside the three Territories. Exports in 1957 to points outside East Africa more than doubled over 1956—from 302,400 pounds to 766,080 pounds.

Tanganyika is expected to continue to expand its production of cashew nuts, tea, coffee, peanuts, beans, and beeswax. It may occasionally have small surpluses of corn for export. It has abolished all controlled-price marketing of basic food items, except for corn.

The Rufiji River Basin Survey may offer the best and largest long-term potential for expansion of rice, sugar, and perhaps other crops except coffee and tea, for domestic consumption and export. It is known that the basin has considerable potential for producing the kind of rice preferred in India and some Middle East countries. Already it is being produced in some of the more accessible delta areas. The scheme will require large amounts of capital, however, over a long period of years.

For the near future, Tanganyika will continue to rely mainly on sisal, coffee, cotton, cottonseed and meal, tea, cashew nuts, and hides and skins for exports outside East Africa, supplemented by tobacco and pyrethrum to Kenya and Uganda for processing. It is expected that Tanganyika's position as a competitive cotton producer will expand slowly rather than at the rapid rate of the past 7 years. For its moderate agricultural import needs, Tanganyika will probably continue to rely mainly on imports from Kenya, except for moderate amounts of wheat, sugar, and certain specialized processed foods and beverages. Except possibly for wheat, Tanganyika will not buy any important agricultural commodities from the United States. However, the United States will probably continue to be the fourth or fifth largest customer for Tanganyika's exports.

Uganda

The Protectorate of Uganda is composed of the Kingdoms of Buganda and Bunyoro, which have treaty relationships with the United Kingdom, and a number of large tribal and Provincial protectorate districts. Buganda, the Kigezi District in the southwest, and the Bugisu District on the slopes of Mount Elgon on the Kenya border are the only areas with relatively high population density.

The climate is pleasant and the rainfall ample in most years, except in the semiarid areas of Karamoja in northeastern Uganda. There are two rainy seasons, long and short rains, but some areas around Kampala and Entebbe near Lake Victoria have some rain throughout the year. The timing and distribution of rains may vary from year to year, being affected by the presence of many lakes, the mountains of the Belgian Congo, and

Courtesy Department of Information, Uganda

New copper-cobalt mine in Uganda near Belgian Congo frontier. Long an agricultural area, Uganda is beginning to diversify its economy with the addition of such industries.

various local physiographic factors. The annual timing and rainfall distribution on both sides of the Equator in Uganda make crop production forecasts very difficult and variable.

Uganda meets most of its moderate agricultural deficiencies by imports from Kenya and Tanganyika, particularly dairy products, rice, wheat flour, tobacco, and coconut products. Only 4 percent ($1,860,000) of its imports from points outside East Africa are agricultural.

Of its exports, nearly 90 percent are coffee, cotton, cottonseed and products, and tea. Its principal food products are cooking bananas, sorghums and millets, beans, and moderate quantities of corn. However, with increased income from coffee and cotton, the semiurban population in Buganda is consuming larger quantities of wheat bread and dairy products.

The money value of Uganda's total income increased by 64 percent in the 7-year period 1950–56 (including an estimated value of African subsistence income). However, direct cash income from African farming and other enterprises more than doubled during this period, as did salaries and wages for all segments of the population.

The Robusta Coffee Industry Board (African production only) and the Cotton Lint Industry Board in the earlier years were substantial accumulators of general-development and price-stablization funds. However, since 1954 the boards have ceased to accumulate such funds and have had to draw substantial amounts in 1956, 1957, and 1958 to maintain existing guaranteed prices to producers. The broad control which these two semi-independent boards have exercised in carrying out production policies, expending of funds, allocating grants to the Territorial development funds, and setting producer prices, grades, etc., may be transferred in the near future to the Minister of Natural Resources, who is responsible to the Legislative Council. The day-to-day commercial operations of the Boards would remain an independent function.

Industry is still a minor factor in the economic life of Uganda, but it has increased since the completion of the initial power units of the Owens Falls Dam on the Nile near Jinja. This has supplied power for the operation of the new smelter for ores transported from the new copper-cobalt mine in southeastern Uganda at Kilembe near the Congo frontier. This mine is linked by a new branch railway line to Kampala. Also the new power source has resulted in the development of a cement industry, the expansion and integration of a cereal and feed milling industry by a subsidiary of Unga, Ltd., and expansion of the brewing industry.

Recently there came into operation the first modern large-scale cotton textile mill at Jinja, now under the ownership and financing of the Uganda Development Corporation with an eventual capacity of 10 million yards annually. Early in 1958, power from Owens Falls began to be furnished to Nairobi, Kenya, over a 300-mile powerline. Most of the recent industrial and hotel development has been under the direction and financing of the government-owned Uganda Development Corporation. Another government authority, with separate borrowing powers outside the Territorial program, is the Uganda Electricity Board, which plans to expand its dam construction and electric line extension programs. It is responsible for operating the Owens Falls hydroelectric station. The World Bank is investigating the possibilities of a loan to the Board for a second hydroelectric station at Owens Falls and some smaller units at other places.

Uganda continued to show a favorable visible trade balance in 1956, of about $37.5 million. In 1957 it is estimated that the balance was about $53 million, owing to the sharp rise in exports of coffee from the bumper 1956–57 crop. Net imports were on about the same level as 1956.

Production

Uganda produces coffee, cotton, cottonseed and oil, and tea for export, and a wide variety of other commodities for local consumption—plantains, finger millet, beans, sorghum, corn, sweetpotatoes, peanuts, and sesame, among others.

The government markets and guarantees the prices of African-farm-grown Robusta coffee and of all cotton, but has no subsidy or price support for other commodities.

LIVESTOCK.—Livestock production is still largely concentrated in certain traditional cattle owning areas, but it is beginning to become more important as a part of mixed farming in some areas. The Ugandan diet, however, is still very low in animal proteins and high in starches. Recently there has been some indication of increased consumption of dairy products in the more prosperous coffee districts, principally imports from Kenya.

Estimates indicate a cattle population of 2.7 million and sheep number at about 1.1 million (principally in the drier northern areas). Although excellent progress has been made in recent years in tsetse-fly and disease control in traditional livestock districts, the livestock population is small compared to the human population of 5.6 million.

COTTON.—Uganda continues to be the largest producer of cotton in British dependent overseas territories, and cotton has been traditionally the most important export of Uganda. But acreage has not varied much from year to year during the last decade, and production has varied only according to weather, incidence of disease, and the like:

	1,000 U.S. bales
1948–49	327
1950–51	289
1953–54	331
1957–58	292

Planting is from May to July, and harvesting from November through February. Most of the production has been in Buganda and the Eastern Province, nearly half of it in the latter in 1956–57. Indications are that considerable land in the areas of Buganda with the highest cotton yields are being shifted into Robusta coffee. But to offset this, acreage is increasing correspondingly in the Eastern and Northern Provinces.

Practically all cotton is grown on many thousands of small African-owned farms and plots, and all of it is marketed through the Lint Industry Marketing Board at annually guaranteed purchase prices for seed cotton according to grade. The cotton is delivered to the ginneries, owned both by African cooperatives and by Asians, which are paid varying fees for their services.

The guaranteed purchase is underwritten by the Cotton Price Assistance Fund. The Fund represents profits by the Lint Marketing Board in prior years from exports of cotton and cottonseed. No additions have been made to this Fund since the 1954–55 crop season. The substantial additions which accrued during that year and the preceding one are said to be the result of the high prices secured by the Board for cottonseed. The Fund has contributed substantially to the development program; recently it transferred $14 million to that work. In view of the short crop for 1957–58 the purchase price from the producer was raised above the level at which the crop was expected to sell, with the plan that the difference would be paid out of the Fund. The Fund is expected to pay out about $4.2 million to cover this difference. It is estimated that at the end of 1958, reserves remaining in the Fund will stand at about $44.8 million.

Research on Uganda cotton is done by the Empire Cotton Growing Corporation at Namulonge, one of the most modern cotton research stations in the world. Some of its financing comes also from Colonial Development and Welfare funds and the Government of Uganda and

Courtesy Department of Information, Uganda

Uganda farm women carry cotton to market. Cotton has been grown in Uganda for over half a century and has long been the major export commodity. In recent years, coffee has been challenging cotton's position.

the Lint Marketing Board. Some of the original cotton breeding material in other African cotton stations was introduced from Uganda. There is a good exchange of breeding material between all cotton stations in Africa.

The privately owned cottonseed crushing industry has expanded to such an extent that cottonseed exports have now substantially decreased. The oil mills in the 1955–56 season purchased about 110,500 long tons of seed out of a total supply of 130,800 tons, with a higher price for seed from B. P. 52 cotton and a lower price for that from S. 47 cotton. The industry provides Uganda's third most valuable export—oilseed cake, which goes principally to the United Kingdom. Exports increased from 19,800 metric tons in 1950 to 60,800 tons in 1956; 59,500 tons in 1956 went to the United Kingdom. Cottonseed oil exports have correspondingly increased—from 2,700 metric tons in 1950 to 5,600 tons in 1956. About one-third is exported to Mauritius and two-thirds to Kenya.

COFFEE.—Coffee production increased from a 1946–51 average of 494,000 bags to 1,350,000 (132.2 pounds) for the 1956–57 crop year. The production for 1956–57 was divided about as follows:

	132.2–lb. bags
Native Robusta	1,074,200
Native Arabica	3,784
Bwamba Robusta	14,645
Bwamba Arabica	690
Estate Robusta	186,830
Estate Arabica	14,540
Bugishu Arabica	91,040

Acreage of Robusta is estimated to be increasing 10 percent or more a year at the present time.

Mostly because world coffee prices dropped and better quality control is needed, the Uganda Coffee Industry Board lost $12.6 million in the 1954-55 crop year. The Board markets only African-farm-produced Robusta and a little African Arabica. In 1955-56, however, it lost only $700,000 and the next year made a profit of $700,000, after the guaranteed price was reduced. The Board establishes the annual producer price, for delivery to the numerous privately owned hulleries. The hulleries are paid specific fees by the Board for processing the coffee before delivery to the Board. The producer price now paid for ungraded, unhulled dried Robusta coffee is about 11 U.S. cents a pound. After hulling, the coffee is graded by the Board, and sold at the Kampala coffee auctions. Bukoba Robusta and plantation Arabica from Tanganyika are not marketed here now, but on the Mombasa, Kenya, market.

The moderate amount of non-African plantation coffee is marketed separately through private trade channels. The high-quality Bugishu Arabica from Mount Elgon is purchased, graded, and marketed by the African Bugishu Cooperative Union at Mbale, and sold at the Nairobi, Kenya, coffee auctions.

TOBACCO.—Commercial tobacco production is apparently increasing, but not fast enough to meet the growing needs of the East African Tobacco Company factory at Jinja, which manufactures low-cost cigarettes. Some districts produce two crops a year. Uganda's cigarette exports to Tanganyika and Kenya are one of the most valuable items in inter-Territorial trade.

The deficit in 1956 was met almost entirely by imports from Tanganyika, since the regional manufacture of the higher priced cigarettes and smoking tobacco by the East African Tobacco Company has been transferred to a Kenya factory.

Considerable quantities of tobacco are grown in many areas for home consumption. Commercial purchases of all types in 1956 totaled about 4,588,000 pounds (cured weight), of which 1,174,835 was flue-cured produced in the Northern Province. Fire-cured purchases were about 2,143,000 pounds, most of which was produced in the Western Province. The remainder consisted of air-cured type produced chiefly in Buganda. Preliminary 1957 crop indications are that the production of flue-cured tobacco increased considerably over 1956.

Uganda has no subsidy program for tobacco, but each year the government fixes the minimum prices that the private tobacco buyers pay for the various grades of commercial tobacco. All the marketing is handled by registered local buyers for delivery to the East African Tobacco Company. Imports of tobacco from the United States have ceased since the transfer of manufacture of the more expensive cigarette brands to Kenya.

WHEAT.—Wheat production in Uganda is very small. All of the wheat and wheat flour imports are from Kenya. The Uganda Grain Milling Company, Ltd., a subsidiary of the Kenya-owned Unga, Ltd., recently purchased the modern grain conditioning and storage plant at Jinja from the government, and is consolidating this plant with its other wheat, corn, and feed milling activities.

Exports

Uganda is more dependent on agricultural exports than is either of the other two East African Territories. In 1956, farm products made up 92 percent of exports, including shipments to the other two Territories, and almost 99 percent excluding those shipments.

The Territory is highly sensitive to price fluctuations in world Robusta coffee and cotton markets, for these products make up most exports. In 1956, they provided 78 percent (value basis). In 1957 West Germany substantially increased its purchases of Uganda's cotton, and India, traditionally the major purchaser, decreased its purchases. The year before, India took almost 58 percent (value basis) and West Germany almost 16 percent.

Preliminary 1957 trade statistics from Uganda indicate that coffee replaced cotton as the most valuable export to points outside East Africa; coffee was valued at $60.4 million and cotton, at $48.9 million. This is how some of the exports are faring:

	1956 (1,000 centals)	*1957 (1,000 centals)*
Cotton	1, 347	1, 506
Tea	54	61
Vegetable oil	57	95
	1,000 long tons	*1,000 long tons*
Peanuts	9	11

In 1957, because of large coffee purchases, the United States ranked as Uganda's second best customer—very close to the United Kingdom. West Germany was Uganda's third best customer.

Imports

Agricultural imports (including inter-Territorial trade) constituted only 11.7 percent of total imports in 1956, and only 4.1 percent of imports from points outside East Africa. Most of the imports from all sources are confined to a few items—dairy products (2.6 percent), mainly from Kenya; alcoholic beverages (principally inter-Territorial); rice, fruits and vegetables, sugar and sugar preparations, coconut oil and copra, tobacco, wheat flour, and malt. Much of the tobacco imports reenter inter-Territorial trade in the form of low-priced cigarettes.

Preliminary import statistics for 1957 indicate canned milk and rice were the only agricultural items from outside East Africa which showed increases in volume and value over 1956—canned milk from $277,178 to $379,635, and rice from 3,535 long tons to 4,557 tons.

TABLE 12.—*Imports of agricultural commodities, Uganda, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Dairy products [1]	0.3	4.8	4.7	221	1,466	1,552
Rice	1.7	8.0	3.0	321	1,597	529
Fruit and vegetables	1.4	3.5	3.0	304	668	525
Coconut oil and copra	1.2	3.0	1.9	329	845	512
Sugar and sugar preparations	.2	6.9	3.9	101	861	512
Tobacco, unmanufactured	1.5	1.6	.7	1,301	1,181	397
Meal and flour of wheat and spelt	6.4	8.6	1.7	674	1,165	228
Other agricultural commodities	......	......	......	825	3,207	2,712
Total agricultural imports [2]	......	......	......	4,076	10,980	6,967
Total imports [2]	......	......	......	46,993	106,236	59,709

[1] Mainly inter-Territorial

[2] Includes inter-Territorial trade with Kenya and Tanganyika.

Annual trade report of Kenya, Uganda, and Tanganyika.

TABLE 13.—*Exports of agricultural commodities, Uganda, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Cotton, raw	63.0	55.6	68.3	46,756	45,893	54,003
Coffee (not roasted)	29.0	75.6	62.6	23,364	56,413	44,029
Oilseed cake and meal, other vegetables (oil residues)	19.8	49.7	60.8	938	3,891	4,505
Oilseeds and oil nuts	5.6	15.8	26.4	3,155	2,154	2,923
Tea	1.0	2.3	2.5	788	3,033	2,563
Hides and skins	2.0	2.4	3.0	2,145	1,955	2,394
Cottonseed oil	2.7	5.3	5.6	509	1,291	1,702
Other agricultural commodities	......	......	......	4,939	6,478	3,591
Total agricultural exports [1]	......	......	......	82,594	121,108	115,710
Total exports [1]	......	......	......	92,186	139,386	125,645

[1] Includes inter-Territorial trade with Kenya and Tanganyika.

Annual trade report of Kenya, Uganda, and Tanganyika.

Trade With United States

The United States purchased only 8 percent of all Uganda's exports (including inter-Territorial) in 1956, but it alternates between first and second position as a purchaser of Uganda coffee. This has come in recent years because of increased use of Robusta coffee in soluble coffees. Between 1950 and 1956, Uganda's coffee shipments to the United States doubled.

The only agricultural item of importance in the past has been unmanufactured tobacco, but it disappeared in 1956.

Development Programs

In March 1958 the Uganda Protectorate Government proposed a scaling down to $46.2 million in development expenditures for 1959, 1960, and 1961; only about 3 percent would be directly for agriculture. Uganda may be making other changes that bear on its development programs, partly for financial reasons.

In the past, Territorial development expenditures have been largely for nonagricultural and non-revenue-producing projects such as schools, hospitals, and highways. This is resulting in substantial increases in recurrent expenditures under regular nondevelopment budgets, without substantial corresponding increases in regular government revenue from export and import taxes, income taxes (affecting non-Africans), and the like. Furthermore, the export duty on cottonseed was abolished in 1957, the duty on cotton lint reduced by 15 percent, and the export duty on coffee lowered by raising the minimum value to which the duty is applicable. Export duties have been a substantial source of revenue for development funds in prior years, but that is no longer true. In 1958 there may also occur for the first time a moderate deficit in Uganda's regular budget. Therefore, it appears that Uganda may soon have to look elsewhere for additional revenue for its development programs. This may mean a greater emphasis on agricultural development.

Three agricultural enterprises being developed through Agricultural Enterprises, Ltd., a subsidiary of the Uganda Development Corporation, are concerned with tea, cattle, and a small-farm scheme for Africans. The Corporation, a limited liability company wholly government owned and not included in the Territorial development plan, is associated financially with many nonagricultural projects, and with two that use agricultural commodities—wheat and corn milling and the manufacture of feed.

Development of tea estates in western Uganda is being carried out in cooperation with the Ankole Native Government and private enterprise. An experienced local British firm is providing technical know-how, management, and substantial capital. Agricultural Enterprises formed the Ankole Tea Company, Ltd., to handle this phase of development.

It also formed the Bunyoro Ranching Company, Ltd., to develop a

TABLE 14.—*Agricultural exports to the United States, by quantity and value, Uganda, 1950 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Coffee, raw	7. 9	24. 0	14. 2	6, 390	17, 229	9, 852
Sisal	0	. 4	(1)	0	53	4
Goats and kids skins	. 3	. 1	. 2	523	183	253
Other hides and skins	. 2	(1)	0	141	12	0
Tea	. 2	(1)	(1)	219	4	7
Chillies	(1)	. 1	. 1	16	55	57
Other agricultural	......	......	......	84	56	19
Total agricultural	......	......	......	7, 373	17, 592	10, 192
Nonagricultural	......	......	......	23	81	49
Total exports	......	......	......	7, 396	17, 673	10, 241

[1] Less than 50 tons.

Annual trade report of Kenya, Uganda, and Tanganyika.

TABLE 15.—*Agricultural imports from the United States, by quantity and value, Uganda, 1950 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1.000 dollars*
Tobacco, unmanufactured	0. 4	0. 2	0	568	353	0
Other agricultural	......	......	......	(1)	(1)	(1)
Total agricultural	......	......	......	568	353	(1)
Nonagricultural	......	......	......	1, 358	2, 387	285
Total imports	......	......	......	1, 926	2, 740	285

[1] Less than $500.

Annual trade report of Kenya . Uganda, and Tanganyika.

cattle ranch of 100,000 acres in Bunyoro in cooperation with the Government of the Kingdom of Bunyoro. This has as its objective the consolidation of land reclaimed from the tsetse fly.

The third enterprise is at the Salama Estates in Buganda. Here, small farms are being established and operated by Africans along commercial lines, with tea as the main crop, but with some mixed farming and coffee.

New private businesses in Uganda utilizing agricultural commodities are a brewery and a new biscuit factory in Kampala. Also the recently opened cotton textile mill at Jinja (government owned by the Uganda Development Corporation) is expected to become an increasingly important consumer of Uganda cotton.

The Uganda Electricity Board is stimulating the expansion of agricultural processing and industrial development through the construction and operation of the Owens Falls Dam. This station now has a total capacity of 90,000 kilowatts. The Board has developed long-term plans and surveys for a second dam on the Nile below the Owens Falls Dam and perhaps at other locations on the river.

Outlook

No spectacular expansion in the production and acreage of cotton in Uganda is foreseen in the immediate future, but the new strains being developed or increased for seed distribution may soon improve quality and yields. In some districts, production could be expanded considerably, if disease and insect control and production techniques by African farmers were improved.

Production of Robusta coffee, on the other hand, is expected to continue to increase from substantial new acreage planted in the past 3 years. Steps are being taken to improve quality and processing and marketing facilities.

The whole economy and the domestic development program are highly dependent on the world market price and outlets for these two crops. The markets for the Territory's low-priced Robusta coffee are subject to its continued use for blending in soluble coffees in the United States and its acceptance in both the United Kingdom and European Common Market areas in competition with Robusta coffee from French West Africa, the Belgian Congo, and Madagascar. Cotton needs the maintenance of substantial purchases by India and increased purchases by West Germany, as well as by the United Kingdom. Indications are that Uganda is trying to move away from this two-crop economy; it has been increasing the processing of local agricultural and nonagricultural products.

Another recent change is that Africans are increasing their savings and that some of the substantial hoarded funds are being deposited in banks, or are being expended more on durable goods than on rapidly consumed goods. Another indication of change in consumption habits among urban Africans is the recently reported increase in consumption of milk from Kenya, sold by and to Africans in towns like Kampala and Jinja. Butter imports from Kenya are expected to continue the present increase in consumption. Likewise, there are some indications of increased consumption of cigarettes and smoking tobacco by the African population, but apparently not at the rapid rate of expansion as in British West Africa.

Kenya

Kenya consists of the large Colony and narrow coastal Protectorate, the latter being leased from the Sultan of Zanzibar. It has the most widely diversified agricultural and industrial economy in East Africa—and the widest range in climate—from snow-capped Mount Kenya to cool highland grass and wheat lands to the palm-lined ocean beaches. Its crops range from coconuts, cotton, sisal, coffee, tea, pyrethrum, and corn to wheat, oats, and barley. Corn is the principal food crop, but wheat is gradually gaining in importance. Coffee in 1956 provided nearly 50 percent of the agricultural exports to points outside East Africa. Tea is the second most important—10 percent in 1956. About a quarter of its total exports went to Uganda and Tanganyika in 1956.

Kenya is the least dependent on agriculture of the East African Territories. It is the main commercial, governmental, and processing-industry center of East Africa. Over 13 percent of its national income is derived from industry, despite its lack of large primary power sources (now being met by imports of electric power from Owens Falls in Uganda). It also derives substantial income from tourist trade and from services it performs for the other two Territories. Most of its population is concentrated in about one-third of the area; two-thirds of the Territory is suitable only for semiarid nomadic livestock production. Its transportation and communication systems are well developed in the populous areas.

Agriculturally, Kenya may be divided into two zones—one above 4,000 feet in elevation and the other below that. Two-thirds of the country lies in the lower elevations, and here are four-fifths of the cattle—in the semiarid pastoral areas with a rainfall dropping from 25 inches to around 10 inches a year. Also in this area are most of the sisal, sugarcane, and cotton.

Above 4,000 feet, the rainfall increases from 25 inches up to 70 to 80 inches in some areas. It has generally good soils, a good climate, and four-fifths of the population. This is the area which produces most of the cash export crops and wheat and corn, as well as most of the commercial dairy products.

Most of the crop production for export, as well as the wheat and dairy production, has been from a limited number of European farms. But under the Swynnerton Plan for intensifying and improving African cash crops, the production of coffee, tea, and other crops on small African farms is steadily increasing in importance.

Most of Kenya's retail store trade is handled by Indian, Pakistani, and Arab merchants, but the Kenya Farmers (Cooperative) Association, Ltd., is an important supplier for European farmers.

Over 1,300 secondary industries are now operating in Kenya and are continuing to expand in number and volume. Building and construction industries accounted for the greatest number of firms and the largest gross, according to a survey made in 1954, and grain and feed milling was the next largest value contributor, followed by the meat, dairy, and canned products industries. Two large pyrethrum extraction plants are now in operation—one in Nairobi and the other in Nakuru in the Rift Valley. (The United States is the major buyer of pyrethrum from Kenya.) In 1956 the East African Tobacco Company opened a new $3-million cigarette factory in Nairobi, employing 650 Africans. Kenya has two of the most modern grain milling plants in the world in Nairobi and Nakuru, with all of the animal feed processing for Kenya centered in the latter plant (including vitamized feed concentrates). A new corn milling plant has been opened at Eldoret. Late in 1958 a new Unga flour mill is expected to be in operation in the docks area of Dar es Salaam, Tanganyika. There is another smaller mill in Mombasa, owned by other interests, for the production of a special type of flour for chapatti and other Asian-type bread.

A modern can factory has been established at Thika, where the pineapple cannery is situated. The Kabazi Canners' new factory for the production of tomato puree was opened at Subukia in 1956, with a production target of 5,000 tons a year. Two large cement plants are now in operation in Kenya, one at Mombasa and the other at Athi River. Large tea processing and packing plants are located at Kericho and nearby areas, owned by British tea manufacturing companies. Also, there is a large modern semiautomatic biscuit plant in the industrial area of Nairobi, which produces increasing quantities of biscuits, cookies, and similar products both for domestic consumption and export to East and Central Africa and the Arabian Peninsula. Expansion plans include the construction of a modern automatic bread plant. Other industries cover a wide range—cosmetics, pharmaceuticals, veterinary supplies, furniture, aluminum products, soap, margarine, boats and shoes, builder's hardware, plastic goods, steel and cardboard containers, glass bottles, jute and sisal bags, and insecticides, among others.

Kenya's imports from outside East Africa account for more than 50 percent of East Africa's imports and all of East Africa's trade deficit with the outside world, but Kenya's trade deficit is overstated because a number of items are imported for eventual use in Uganda and Tanganyika and because Kenya has a number of invisible income items. Railway repair parts, some locomotives, rail equipment, and other items used in servicing joint regional facilities and regional government and private organizations, regional agricultural, forestry, and livestock research, and the like are shown as Kenya imports. Kenya is estimated to have had a visible trade deficit (outside East Africa) in 1957 of about $112 million. In 1956, $25 million of Kenya's total exports represented inter-Territorial trade. Of Kenya's 1956 imports, $11 million worth were from the other two Territories. This emphasizes the importance of trade with Uganda and Tanganyika, but a substantial portion of this trade consists of items manufactured or processed in whole or in part from imported products.

New extension to UNGA's flour mill at Nairobi, Kenya (above). UNGA, owned by the Kenya Farmers Association, furnishes flour to the biscuit factory (right). In fact, its various mills make most of the flour used in British East Africa, also feed and other products.

Despite the foreign trade recession, it is estimated that Kenya's imports increased in 1957 by about $5½ million, and its exports declined by about $7 million because of the smaller coffee exports.

Production

Although certain areas of Kenya still depend primarily on corn as a cash crop, Kenya has come a long way since 1953 in broadening its agricultural economy in both the European and African sectors. However, corn is still the keystone of the existing African diet and the largest single item by volume in production.

Except for corn, cotton, wattle bark, hides and skins, livestock for slaughter, and a few minor vegetable items, most of the cash domestic and export crops have been from European-owned farms and are the result of years of European investment and research (public and private). In the past, African production has been principally for subsistence or barter. However, the African Land Development program is beginning to change this rapidly. That program was started in 1946 and is now a part of the overall Swynnerton Plan, begun in 1953.

Purchase of farms by Europeans is strictly limited to the existing European alienated area in the highlands. The Settlement Board is concerned, in the main, with mixed farming, and not with tea, coffee, and similar specialized farms.

The main market for general European farm products is through the Kenya Farmers Association, and for the most of the dairy produce the outlet is the Kenya Cooperative Creameries. The specialized crops of coffee, tea, sisal, pyrethrum, and wattle bark are sold through individual commodity association channels. Certain specified commodities with government guaranteed prices (wheat, corn, barley, and sunflowerseed) are marketed through these channels under the direction of the Maize and Produce Control and the Minister of Agriculture. Low minimum crop returns instituted during World War II are also guaranteed to European producers of wheat, corn, barley, and sunflowerseed, and producers may secure an advance against these minimums, but after February 1, 1958, they must pay about 7 percent interest as contrasted with 4½ percent previously.

COFFEE.—Despite the drop in volume and value in 1957, Arabica coffee is still Kenya's most valuable export. European acreage (about 59,000 acres) has been almost the sole source of high-grade coffee exports in the past, but acreage on European farms is not expected to change much in the future, although yields will probably increase. Kenya has one of the best coffee research and disease control programs in the world, under the long-existing research and marketing organization of the Kenya Coffee Growers Association and Kenya Coffee Board, with most of the funds provided by the growers themselves. Some Africans have recently been admitted to membership in the Kenya Coffee Board.

Depulped coffee is washed, then dried in trays like the one in the foreground.

Arabica coffee in Meru District, Kenya, is brought by growers to their local cooperative society for processing and marketing. For these farmers—and Africans in other areas—production of high-quality, Arabica coffee is a new, rapidly expanding industry which is giving them substantial cash income.

Photos courtesy Meru Cooperative Union, Kenya

Coffee cherries await inspection at co-op.

The spectacular expansion in small African-owned coffee plantings has had the benefit of the long years of research and experience of European-farm-grown coffee. African plantings are now increasing at the rate of 5,000 acres per year and may reach 60,000 to 70,000 acres by 1968.

The 1936–40 average production of coffee in Kenya was 297,000 bags (132.2 pounds), but production fell drastically during World War II and immediately thereafter. However, production rose to 229,000 bags in 1953-54, 467,000 bags in 1955-56, and 365,000 bags in 1956-57. When the new African acreage comes into production in the next few years, there will again be a substantial increase in production. Production could double in the next decade.

CORN.—The corn crop is unofficially estimated to average around 420,000 metric tons (16.5 million bushels). There is a commercial surplus of 800,000 bags (2,857,000 bushels) in 1958 because of exceptionally good growing conditions in 1957. Average yields on European farms are around 7 bags (25 bushels) per acre, but African yields are believed to be lower.

Production varies from year to year according to rainfall and other factors, and is mostly on small African farms. African-marketed corn production has decreased about 400,000 bags (1.4 million bushels) from the mean 3-year peak in 1952–55 of 1,150,000 bags (4.1 million bushels) to 750,000 bags in 1955-58 (2.7 million bushels) because of less favorable seasons, disruptions to production because of Mau Mau emergency, the incidence of marketing charges, levies for African District Council tax and improvement funds, and some other factors, owing to which shifts to more profitable cash crops have been made by African farmers in some areas. The African producer receives less net return for his corn for domestic sales than the European producer. He clears an average of $1.19 per bushel ($4.25 per 200-pound bag) after deduction for varying African District tax levies and marketing costs, on his deliveries to the nearest buying station. The European producer gets about $1.45 per bushel for his corn, delivered to the nearest rail station. He has no district levies on his corn, but he does pay income taxes; the African does not.

In the European highland farming area, commercial corn production has expanded steadily from the 1950-53 average of 719,000 bags (2.6 million bushels) to 896,000 bags (average 3.2 million bushels) for 1955-58.

Although the government has assisted European farmers since 1952 with moderate rehabilitation and development loans for fencing, water supplies, dips, sprays, purchase of livestock, and land conservation measures, it is only recently that substantial assistance has come to the main European corn areas. In these areas, money is already invested in specialized equipment for corn or other cereal production.

European farmers receive guaranteed prices for corn purchased by the government's Maize and Produce Control; this started with World War II and the postwar programs to accelerate production to meet all domestic requirements. In 1958 the guaranteed price to European farmers per 200-pound bag (for domestic consumption) is $5.18 ($1.45 per bushel).

Still, farmers are being encouraged to partially shift to other products in the corn areas. In fact, the government policy is clearly aimed at maintaining corn production at levels sufficient to meet domestic needs, plus moderate reserves against crop failure.

Cereals are usually produced in areas suitable mainly for them and livestock, so some farmers have shifted to pastures and livestock production, but they have been deterred by several factors. One is that government short-term financing is available for cereal crops but not for livestock. Another is that farmers can borrow from the government against their corn crop. And still another is that private credit is not easy to get and interest rates are high.

COTTON.—Cotton is the only crop regularly sold in competition with United States crops on world markets, but production is not large. For many years it has varied from 8,000 to 13,000 bales (400-pound). Still, in the producing areas (Nyanza and Coast Provinces) it is the most important African cash crop, as well as the source of revenue for local African District Councils for schools and other improvement projects. For a number of years, the Department of Agriculture and the Empire Cotton Growing Association have cooperated in improvement and research in the principal producing areas, particularly at the Kibos Cotton Station in Nyanza Province.

WHEAT.—Until 1955, Kenya was not only self-sufficient in wheat, but also supplied most of the flour for Uganda and Tanganyika. The present acreage in 1957 was reported as about 251,000. While the rust was said to have been less severe in 1957, the estimated wheat production of 1,100,000 bags (3.7 million bushels) is expected to fall short about 400,000 bags (1.3 million bushels) of meeting East Africa's wheat requirements. In some of the higher districts of the Territory, average yields per acre have varied from four to five 200-pound bags (13.3 to 16.7 bushels).

Practically all of Kenya's wheat is on large European farms and is harvested with modern combines. Meeting the varying conditions of the different districts and elevations has required the trial and breeding of a large number of introduced and locally developed varieties. In the past, nearly all the cereal breeding work (including that for corn) was confined to one station at Njoro in the Rift Valley, where geneticists worked with a narrow range of material. Some of this has been used successfully in wheat breeding work in North and South America. The wheat work is now being expanded by additional staff and funds, including funds from the wheat growers.

This new emphasis on wheat breeding work is the result of the rapid rate of increase since 1954 of new strains of stem rust—three in 1 year. Rust has been most devastating in some of the best milling varieties, which has caused a shift to higher yielding, less-desirable soft wheat milling varieties. The shift is being partly offset, however, by the payment of premium prices for the better milling varieties.

LIVESTOCK AND LIVESTOCK PRODUCTS.—Commercial production of whole milk has steadily increased in recent years, principally from modern European dairies. In 1956, it was an estimated 37.4 million gallons, and most of it was distributed by the Kenya Cooperative Creameries, Ltd. Its use was about as follows: 32 percent as liquid milk; 3.7 percent as cheese, dried milk, etc.; 64.3 percent as butterfat.

Butter production has been increasing, too—from a reported 5.7 million pounds in 1946 to 10.4 million in 1956 and 9.8 million in 1957. Of the 1957 output, 6.4 million pounds was exported, mostly to Uganda, Tanganyika, the Rhodesias, and the United Kingdom. In 1958 the butterfat price paid producers by the Kenya Cooperative Creameries was reduced because of losses on butter exports to the United Kingdom.

Cheese output has also been going up: the 1946–50 average was 400,000 pounds; production for the year ending February 28, 1957, was 1,021,598 pounds. Some special European-type cheeses are being manufactured in one new private plant near Njoro for domestic consumption and export.

Despite the fact that most of the cattle in Kenya are owned by Africans, nearly all commercial dairy products and higher-grade beef come from European herds. The dairy breeds in these herds are mainly the well-known European ones, but the beef breeds are European, African, or mixed types.

To Africans, cattle generally mean social prestige, the price of a bride, or cash income from hides and skins. The Nandi tribe and Africans in the Central and Southern Provinces, however, are including improved crossbred beef cattle as part of mixed farming systems.

The estimated number of livestock in Kenya is as follows:

	1,000 head
Cattle	6,800
Sheep	3,750
Goats	8,900
Poultry	250

Increasing numbers of cattle and sheep are being marketed through the African Government Livestock Marketing Organization, particularly to the government's Athi River slaughter, cold-storage, and canning plant near Nairobi.

Most of the sheep and goats are owned by seminomadic African livestock owners. But production of European sheep breeds has long been important for both wool and meat in the European highland farming areas, and is increasing in some districts as a part of the shift to a more mixed farming system, particularly in the wheat producing areas. Recently, Kenya's wool gained recognition in the United Kingdom wool markets as a special grade.

The main market for all meat is the domestic one, but moderate quantities of meat and meat preparations were shipped to Uganda and Tanganyika in 1956, and small quantities to the Belgian Congo.

Kenya has a well-developed animal-improvement and disease-control program for both European and African cattle production at Njong and Kabete field stations. There, it also has training programs for African livestock instructors and assistants, as well as a few graduate African veterinarians. Generally, animal husbandry is more advanced in Kenya than in the other East African Territories. Most of the African improvement work has been concentrated on a dual-purpose animal—both milk and beef types, representing well-established crosses between indigenous types and Red Sindhi-Sahiwal imports from India. This mixed type has proved so far to be well adapted to conditions on African farms in the highland areas of central and western Kenya. Some African farmers are now demanding that they be sold only animals from known milk and beef sire backgrounds. The beef and dairy cattle and sheep exhibited at the European livestock shows would bring credit to any American or British livestock show, but require careful husbandry and disease control to maintain.

TEA.—Tea is the second most valuable export from Kenya (7.6 percent of all exports in 1956). Production averaged about 12.4 million pounds for 1946–50 and an estimated 22 million pounds in 1957. Forecast for 1958 is 23 million. Production is almost entirely from European-owned acreage but 600 acres have already been planted in the African Nyeri-Embu tea scheme which has its own tea factory. About 20 percent of production is consumed in Kenya, and the remainder exported.

OTHER PRODUCTS.—Sisal is produced almost entirely on European plantations. It is the third largest export crop. Production was about 84.5 million pounds in 1953 and 92 million pounds in 1957.

Wattle bark and extract for tanning is an important European and African crop, with production ranging from about 24,000 metric tons to 42,000 or more in recent years.

Pyrethrum extract and flowers form the basis for a highly developed industry by European farmers. Pyrethrum is used in insecticides, and exported primarily to the United States. Most of the production is now in the form of extract from two modern processing plants. A modern research laboratory, plus agronomic work and trade development work, is almost entirely financed by the growers. Under the Swynnerton Plan, African production is expanding gradually.

Pineapples, tomato puree, and chillies are being produced increasingly by Africans and Europeans, for both domestic consumption and export.

Kenya produces a number of other temperate and tropical products (including peanuts and sesame) but most of them are for domestic use.

Exports

Agricultural exports to points outside East Africa comprised more than 75 percent of all Kenya's exports in 1956 (value basis), and 73 percent of exports to all destinations.

TABLE 16.—*Exports of agricultural commodities, Kenya, by quantity and value, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Coffee	9.4	20.2	27.3	10,029	25,340	38,569
Tea	4.2	5.9	7.7	4,106	7,918	8,077
Sisal	36.5	34.0	35.8	11,437	5,485	5,811
Wattle bark and extract	23.7	42.1	28.2	2,840	7,077	4,748
Pyrethrum and extract	1.1	1.1	1.4	941	3,481	3,373
Hides and skins	5.8	5.1	4.7	5,844	5,611	3,270
Butter	.9	2.3	2.8	804	2,266	2,683
Cotton	.9	2.4	3.1	639	1,941	2,390
Fruits, preserved and preparations	.8	4.3	6.9	100	1,622	2,279
Meal and flour of wheat and spelt	19.5	19.2	9.5	2,089	2,658	1,300
Oil seeds, nuts, kernels	3.8	7.9	9.1	384	916	1,257
Meat and meat preparations	1.5	2.1	2.1	812	1,193	1,101
Corn	65.1	78.4	4.3	3,746	4,663	251
Other agricultural	......	......	......	4,413	2,639	2,639
Total agricultural [1]	......	......	......	48,184	72,810	777,748
Total exports [1]	......	......	......	58,181	88,764	106,290

[1] Includes inter-Territorial trade, with Uganda and Tanganyika.

Annual trade report of Kenya, Uganda, and Tanganyika.

Coffee, Kenya's most valuable export, constituted almost half. In 1957, however, its value dropped over 20 percent and its volume, a sixth.

Cotton exports in 1956 were unusually high because of a good crop for 1955–56; destinations were divided about equally between India, Japan, and the United Kingdom; a small quantity went to West Germany.

Corn exports were smaller than in 1955 and went mostly to Italy. Italy and the United Kingdom are the main destinations for the moderate fluctuating exports. In 1958, there may be a large export surplus of 800,000 bags (200 pounds) because growing conditions were good for the 1957 crop. Some normally deficit African districts became surplus producers.

Meat and meat preparations go primarily to Uganda and Tanganyika, but are becoming increasingly important exports to the mining and urban areas of the Belgian Congo.

Imports

Only 6 percent of the imports from outside East Africa and 8.3 percent from all sources were agricultural in 1956. The most valuable item was sugar from Uganda, France, and the United Kingdom. Preliminary statistics indicate that 1957 tobacco imports from outside East Africa were valued at $548,618.

Table 17.—*Imports of agricultural commodities, Kenya, by quantity and value, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Sugar	25. 4	36. 6	52. 2	3, 001	4, 905	6, 520
Fruits and vegetables	7. 6	17. 3	16. 7	1, 092	2, 596	2, 738
Tobacco, unmanufactured	. 3	1. 1	1. 0	414	1, 399	1, 274
Wheat and spelt (including meslin) unmilled	0	(1)	16. 7	0	2	1, 309
Dairy products	. 6	1. 5	2. 7	238	670	1, 058
Other cereals and preparations (including malt)	8. 2	5. 7	4. 7	1, 114	1, 079	1, 013
Coconut oil and copra	3. 8	2. 9	4. 5	607	693	1, 031
Cottonseed oil	2. 3	3. 4	2. 8	402	960	800
Rice	5. 3	3. 1	4. 1	934	580	750
Other agricultural	......	......	......	2, 205	5, 862	4, 039
Total agricultural [2]	......	......	......	10, 007	18, 746	20, 532
Total imports [2]	......	......	......	105, 023	217, 166	248, 210

[1] Less than 50 tons.
[2] Includes inter-Territorial trade, with Uganda and Tanganyika.

Annual trade report of Kenya, Uganda, and Tanganyika.

Table 18.—*Agricultural exports to the United States, by quantity and value, Kenya, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Coffee, raw	0. 8	2. 7	6. 5	725	2, 935	8, 692
Sisal	4. 5	2. 2	1. 1	1, 213	286	51
Goat and kid skins	. 8	. 6	. 4	1, 505	1, 004	597
Other hides and skins	. 9	. 1	(1)	633	65	15
Tea	. 7	. 7	. 9	776	884	987
Pyrethrum, extract, and flowers	1. 1	. 4	. 7	853	1, 783	1, 544
Cashew nuts	0	. 1	. 1	0	67	105
Chillies	0	(1)	(1)	0	5	2
Wattlebark and extract	3. 0	3. 1	2. 6	374	578	501
Other agricultural	......	......	......	16	33	23
Total agricultural	......	......	......	6, 095	7, 650	12, 517
Nonagricultural	......	......	......	253	97	232
Total exports	......	......	......	6, 348	7, 737	12, 749

[1] Less than 50 tons.

Annual trade report of Kenya, Uganda, and Tanganyika.

TABLE 19.—*Agricultural imports from the United States, by quantity and value, Kenya, 1950, 1955, and 1956*

Commodity	Quantity			Value		
	1950	1955	1956	1950	1955	1956
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Tobacco, unmanufactured	0. 2	0. 3	0. 3	384	658	590
Dairy products	(1)	(1)	. 3	(2)	8	108
Other agricultural	......	......	......	36	10	27
Total agricultural	......	......	......	420	676	725
Nonagricultural	......	......	......	4, 079	6, 833	7, 545
Total imports	......	......	......	4, 499	7, 509	8, 270

[1] Less than 50 tons.
[2] Less than, $500.

Annual trade report of Kenya, Uganda, and Tanganyika.

Trade With United States

Imports from the dollar area are limited strictly, by licensing, to items not readily available from nondollar sources. Preliminary 1957 United States export statistics indicate that practically no tobacco was exported to Kenya—or anywhere in British East Africa, for that matter. Wheat imports in both 1956 and 1957 have been from Argentina and Australia. In 1956, tobacco and dairy products were the only agricultural products the United States shipped to Kenya.

The United States was the second largest buyer of Kenya's tea ($987,-000) in 1956 and the second largest buyer of coffee ($8.7 million). It also buys about half of Kenya's exports of pyrethrum extract and flowers ($1.5 million in 1956). The value of Kenya's total exports to the United States in 1956 was $12.7 million.

Development Programs

Kenya is the only East African Territory which has a large-scale government agricultural development program. Prior to the last decade, most of the agricultural development and expansion was in the European farming areas, and most of that was the result of private European capital and initiative, of farmers' cooperatives, and of private commodity associations and government research organizations. Too, the main source of export income has been from European farms, but that is beginning to change.

In 1946 a moderate, progressive scheme for African farming and live-stock districts was started for the conservation and improvement of soil, water, and animal resources and improvement of land utilization. The scheme was known as the African Land Development Plan (ALDEV). This program, while financed largely by government funds, also included funds from local Native Authority taxes. The scheme revealed the urgent need for a more intensive, accelerated program for intensification and improvement of cash crops by Africans, coupled with gradual conversion from traditional tribal land tenure systems of fragmented holdings to consolidated family private holdings.

This resulted in the establishment of what is known as the Swynnerton Plan for 1954–58 at a cost of about $19 million, most of which was provided by an interest-free loan by the United Kingdom Government. The Swynnerton Plan will soon enter its second stage, partly subject to securing adequate additional funds from outside sources. This second stage includes expansion of work on irrigation and semiarid African livestock area improvement in the northern Territory. The specific acreage goals for cash crops under the Plan are:

	1953 (*Acres*)	*1958* (*Acres*)	*1963* (*Acres*)	*1968* (*Acres*)
Coffee	4, 000	18, 000	43, 000	71, 500
Pyrethrum	1, 300	12, 000	30, 000	48, 000
Tea	35	2, 000	6, 000	12, 000
Pineapples	3, 000	10, 000	18, 000	25, 000
Sugarcane	200	10, 000	25, 000	45, 000

The 1968 goals are more likely to be achieved for coffee and tea than for the other commodities. The sugarcane acreage is the least likely to be attained—even if the proposed Kano Plain irrigation development scheme in the Lake Victoria region should materialize. Pineapple and pyrethrum acreage will depend on increased export markets for these products. The 18,000 acres of coffee plantings in African areas will probably be reached at the end of 1958. Although there are general programs for increased production and marketing of other crops and of livestock, as well as increased development of cooperative marketing societies, the goals are not specific. Some crops do not require special promotion and will increase as the result of general improvement in farming methods.

The most marked progress has been in the increased plantings and production of high-grade Arabica coffee from African holdings. Acreage is now increasing at the rate of 5,000 annually, and production in 1957 was about 2,100 long tons. Areas for production have been carefully selected, and plantings are directed by experienced European and African coffee staff. The coffee is processed, graded, and marketed through new African cooperative societies. Two of the African Districts (Meru and Embu) are now producing coffee which commands some of the highest prices paid on the Nairobi market.

For tea, potential development is indicated by the fact that, of the 62,000 acres licensed in the European areas, more than half remains to be planted. If market demands justify it, production could be nearly doubled in the next decade. Now acreage is continually being increased and some old plantings rehabilitated. A substantial potential lies in the African lands. Long-term development will depend principally on the initial success of the Nyeri-Embu tea scheme, where 600 acres have been planted. It will also depend on the schemes in Kericho and Kisii, where African-grown leaf will be sold, by agreement, to neighboring tea estates in the early stages. About 30 acres of tea was planted in the latter two areas in 1957.

For about 20 years there has been in effect a soil and water conservation program in the scattered 12,000-square-mile European farming area in the highlands of Kenya. However, the European farmers must bear a minimum of 50 percent of the cost of such conservation improvements, and they can be compelled by ordinances to make such improvements. However, moderate loan funds have been available since 1952 from the Agricultural Land Bank for these and other farm and livestock improvements. With the exception of the program of the European Agricultural Settlement Board of Kenya, most of the development work in the European farming area in the future will be the result of private initiative and capital.

The Board is a corporate body of Kenya farmers sponsored by the government, to bring about closer settlement and more intensive farming in the European areas of Kenya's highlands. The Board maintains an office in London, and each year a few carefully selected European farmers are admitted to Kenya for settlement on existing European holdings. There are two programs for those who have insufficient capital to purchase and develop a Kenya farm—the Assisted-Owner and the Tenant Farmer Schemes.

The Assisted-Owner Scheme enables settlers who have a capital of $22,000 to $28,000 to purchase farms, by borrowing through the Board a proportion of the development and working capital required. The Tenant Farmer Scheme provides for rental of farms from the Settlement Board for 48 years, with option to purchase after a period of satisfactory tenancy. The Board buys the farms from European owners and lends the tenant sufficient funds for a period of up to 30 years to erect the necessary buildings and other permanent improvements. The tenant must provide the working capital, funds for purchase of livestock, and farming implements. In addition to a sound knowledge of agriculture, tenants must have some experience in Kenya methods, secured either by working on a Kenya farm or taking courses at Egerton Agricultural College.

Since the establishment in 1951 of the detailed farm planning service for more intensive development of European farms, only 149 farms (168,-057 acres) have been surveyed and furnished with detailed plans. A nominal charge is made for such service. However, with the availability of additional European staff it is expected that there will be a substantial increase in the volume of farm planning work done on European farms. At the present time the major increase in this type of work is in African areas under the Swynnerton Plan.

One proposed long-term agricultural development scheme for African farms deserves special mention. It is the land reclamation and irrigation project in the Kano Plain and some adjacent swamp areas situated near the shores of Lake Victoria in western Kenya. It would involve flood control and catchment basin work also and might result in the availability of 35,000 to 40,000 acres of new land for rice and sugar for domestic consumption. Comprehensive surveys have been completed, but it will probably be several years before funds can be secured for adequate development of this scheme—which will probably have to be done as a single project and not in separate stages.

Seven United States agricultural specialists are now engaged in technical agricultural work in advisory capacities in Kenya under ICA, in connection with overall work planned by the Ministry of Agriculture. The specific advisory fields in which they are engaged are soils chemistry and analysis, soil survey, irrigation and hydrology, range and farm grassland improvement, and instruction in photogrammetry in making aerial surveys. Technical agricultural advisory work constitutes about half of the $3.5 million allocated to Kenya on the basis of requests from the government approved by the British Colonial Office.

Outlook

Kenya's agricultural production is expected to increase more rapidly during the next 10 years than it has during the past 10.

This depends of course on continuation of the improvement and development programs in both African and European areas. There will be an increasing shift from subsistence production to cash crops in African farming areas, which means these people will be buying more farm products and manufactured goods. Africans in urban areas probably will, too; permanent employment of Africans in wage-earning jobs is expected to increase significantly. Kenya is expected to adopt a more aggressive program for selling its farm products outside East Africa.

An important rise in cash crop production will probably come in acreage and production of high-grade Arabica coffee, particularly from the greatly increased plantings on small African holdings under the Swynnerton Plan. Kenya's coffee output could double in the next 10 years.

Tea production from expanded European estates and the new African plantings will continue to increase. So will production and sales of livestock and products from both European and African holdings. This will come with the greater emphasis on mixed farming systems and increased marketing by Africans, resulting from improved pasture and range grassland control.

Milk, butter, and cheese production are expected to go up, too, particularly if consumption trends in East Africa continue and increased butter markets are developed in the Congo, the Rhodesias, and the Middle East.

As for cotton, it remains to be seen whether Kenya will attain its production goal of 25,000 bales (400 pounds.)

For corn, the Territory is expected to continue its basic production policy: To produce enough for domestic needs, to have no heavy export surplus, and to finance the occasional moderate loss on exports by a levy on growers.

The policy for wheat now is to pay premium prices for specified varieties that have the better baking qualities and are rust resistant, but lower yielding than some of the older soft wheat. Despite the acceleration in the breeding program to produce these desired varieties, it will be several years before additional new varieties are available. It is questionable whether Kenya—or any of British East Africa—will again be self-sufficient in wheat because of the increasing demand for wheat products, although Kenya is expected to continue to supply most of its needs and most of Uganda's and Tanganyika's. Regional import requirements may lie somewhere between 75,000 and 100,000 tons (2.8 million bushels to 3.7 million bushels) within the next decade. For 1958, they are an estimated 1.3 million bushels. Larger quantities of higher-grade wheats are needed to improve the baking quality of Kenya's poorer varieties.

For tobacco, Kenya will probably rely increasingly on imports of flue-cured and other types from Tanganyika and other nondollar sources for use in the expanding production by the East African Tobacco Company.

Thus, wheat offers the best opportunity for sale of United States agricultural commodities, but restrictions on dollar wheat will first have to be overcome.

Zanzibar

Zanzibar Protectorate, governed by the Arab Sultan of Zanzibar, consists of two islands—Zanzibar and Pemba—with an area of 1,020 square miles. The Protectorate is about the size of the State of Rhode Island. Most of its 280,000 people are Africans; 45,000 are Arabs and 15,000 are Indians.

Zanzibar is the world's largest exporter of cloves; four-fifths of its exports consist of cloves and clove oil. When coconut products are added, 98 percent of the Protectorate's visible export trade is accounted for. Major purchasers of cloves are Indonesia and India.

	Percent of total	
	1956	*1957*
Indonesia	68.4	54.3
India	22.7	30.6

The United States is one of the principal markets for the oil (34.5 percent in 1955). Over a recent 5 years the value of exports has nearly always been slightly greater than that of imports.

Nearly a fifth of its imports in 1957 were reexported; the reexport trade to the African Mainland has grown steadily in recent years. Of the 1957 imports ($18,073,143), about a third were foodstuffs, principally pulses, rice and other grains, wheat flour, and sugar. The United Kingdom is the principal supplier of all imports, and imports from the United States were negligible.

The tariff system is nonpreferential (designed chiefly for revenue purposes). Rates on many items are low.

The 1955–59 development program provides a little over $2.8 million, a moderate part of which is earmarked for greater crop diversification for domestic and export consumption. However, it is unlikely Zanzibar will ever be self-sustaining in basic food crops, as the best land is planted to its valuable export crops—cloves and coconuts. New export crops being encouraged are ylang ylang, essential oil, chillies, lime juice and oil, and Virginia-type tobacco in moderate quantities.

No crops competitive with the United States are produced for export except for a very small quantity of flue-cured tobacco in the eastern coral region of Zanzibar Island. This tobacco production replaces Turkish type formerly sold to Somalia, which the latter no longer imports.